Milliman

Defined Benefit Program of the California State Teachers' Retirement System

June 30, 2023 Actuarial Valuation

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April 11, 2024

Teachers' Retirement Board
California State Teachers' Retirement System

Re: Defined Benefit Program Actuarial Valuation as of June 30, 2023

Dear Members of the Board:

At your request, we have performed an actuarial valuation of the Defined Benefit (DB) Program of the State Teachers' Retirement Plan as of June 30, 2023. 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. This report satisfies all basic disclosure requirements under the Model Disclosure Elements for Actuarial Valuation Reports recommended by the California Actuarial Advisory Panel.

Actuarial Certification

To the best of our knowledge and belief, this report is complete and accurate and contains sufficient information to fairly disclose the funded condition of the DB Program as of June 30, 2023.

CalSTRS funding is based on complex legislation. This valuation contains analysis based on our understanding of the relevant law based on our experience working with CalSTRS and other large public retirement systems and has been augmented by consultation with CalSTRS staff.

In preparing this report, we relied, without audit, on information (oral and 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. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different, and 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 CalSTRS experience and are expected to have no significant bias. 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 valuation results were developed using models employing standard actuarial techniques. We have reviewed the models, including their inputs, calculations, and outputs for consistency, reasonableness, and appropriateness to the intended purpose and in compliance with generally accepted actuarial practice and relevant actuarial standards of practice. We have incorporated other sources of economic data in assessing the reasonableness of the assumptions. Reliance on other experts is reflected in Milliman's capital market assumptions, and in Milliman's expected return model maintained by Milliman investment consultants. We have also considered CalSTRS investment policy, capital market assumptions, and expected return model in our assessment of the investment return assumption.

This valuation report is only an estimate of the System's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of System contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

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. 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 2023 valuation. There were no changes in plan provisions or methods that materially affected the 2023 DB Program valuation. The assumptions have been updated since the last valuation.

Actuarial computations presented in this report are for purposes of assessing the funding levels of CalSTRS and calculating contribution rates under CalSTRS valuation policy. The calculations in the enclosed report have been made on a basis consistent with our understanding of CalSTRS funding structure. Determinations for other purposes, such as for financial reporting in accordance with GASB standards, 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:

(a) CalSTRS may provide a copy of Milliman's work, in its entirety, to CalSTRS professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit CalSTRS.

(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 actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

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 and practices which are consistent with the principles prescribed by the Actuarial Standards Board and the *Code of Professional Conduct* and *Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion* in the United States promulgated by the American Academy of Actuaries. We are members of the American Academy of Actuaries and meet its Qualification Standards to render the actuarial opinion contained herein.

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.

We respectfully submit the following report, and we look forward to discussing it with you.

Sincerely,

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Consulting Actuary

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1. Summary of the Findings

The primary purpose of the actuarial valuation is to calculate the contribution rates for members, employers, and the state and to analyze the sufficiency of these future contributions 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 (TRB), this actuarial valuation provides a reasonable estimate of the long-term financing of the DB Program. The assumptions and methods were adopted at the January 2024 board meeting. The assumptions have been updated since the last valuation.

Under the board's valuation policy (as described in the Board Governance Manual), a decrease to the state supplemental contribution rate and a decrease in the employer supplemental contribution rate beginning July 2024 have been calculated. The contribution rates calculated in this valuation are based on the relevant provisions of the Education Code and the board's valuation policy. Recent board practice has been to exercise its authority to keep the contribution rates at the current levels, which are higher than the calculated rates. This approach provides stronger funding and would be reasonable again this year given the significant amount of progress that still needs to be made for the DB Program to reach a 100% Funded Ratio.

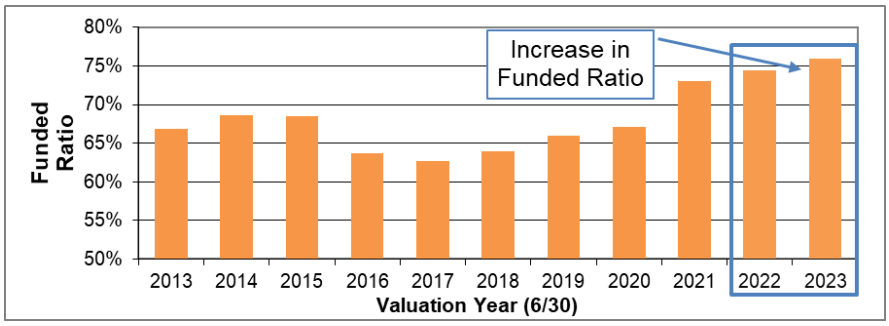
The table below summarizes the principal results as of June 30, 2023 and June 30, 2022:

	2023 Valuation	2022 Valuation
Funded Ratio	75.9%	74.4%
Contribution Rates	**Fiscal Year 2024-25 (Calculated)**	**Fiscal Year 2023-24 (Adopted)**
Total State Contribution Rate[2]	7.828%[1]	8.328%
Total Employer Contribution Rate	18.100%[1]	19.100%
2% at 60 Member Contribution Rate	10.250%	10.250%
2% at 62 Member Contribution Rate	10.205%	10.205%

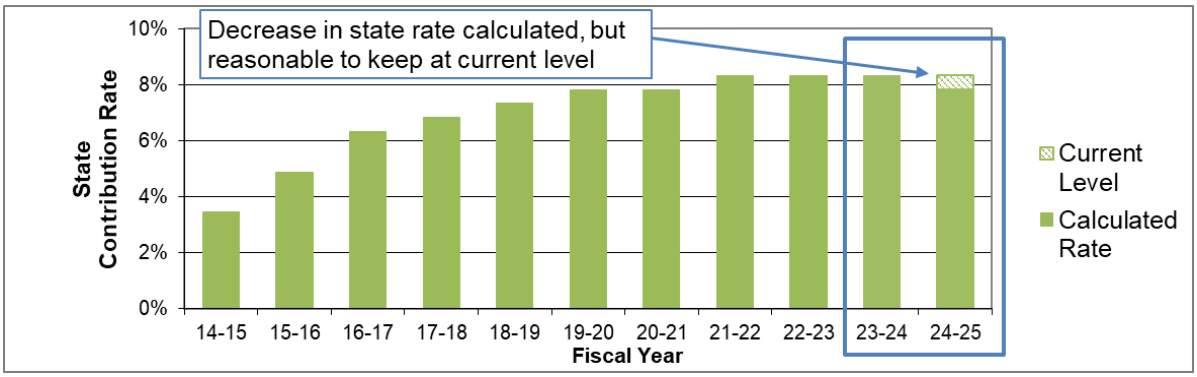
1. *2023 Valuation column shows calculated contribution rates under the valuation policy which are subject to adoption and possible change by the board. Board practice would be to maintain state and employer rates at the current levels.*
2. *Does not include the state contribution to fund the Supplemental Benefit Maintenance Account (SBMA).*

Additional details on the key findings of this actuarial valuation are:

- The **Funded Ratio** increased from 74.4% to 75.9% primarily due to the new assumptions and contributions made to pay down the Unfunded Actuarial Obligation in fiscal year 2022-23.

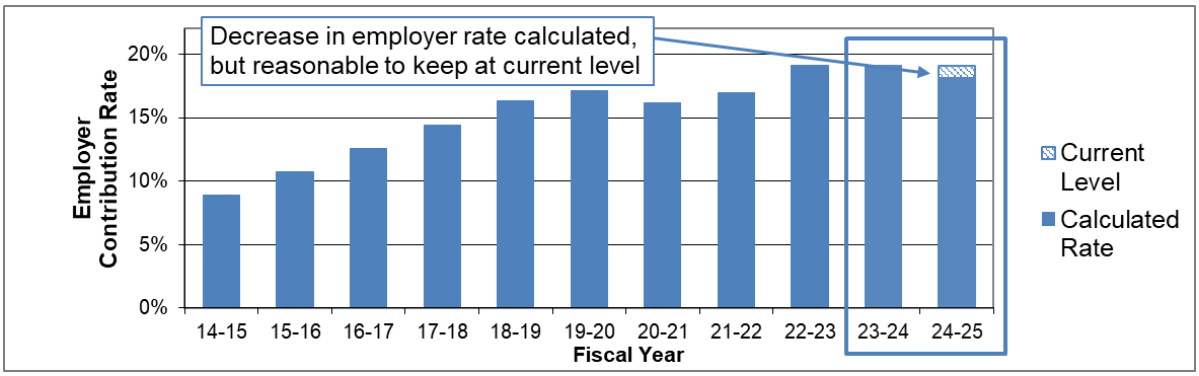


- A potential decrease in the **state supplemental contribution rate** of 0.500% of payroll from 6.311% to 5.811% of payroll (from 8.328% to 7.828% total state contribution rate excluding SBMA) has been calculated for the 2024-25 fiscal year under the board's valuation policy. This decrease is limited to 0.500% under the valuation policy. We believe it would be appropriate for the board to exercise its authority to keep the 2024-25 rate the same as the prior fiscal year (2023-24), which it has elected to do every year starting with the 2022-23 rate.



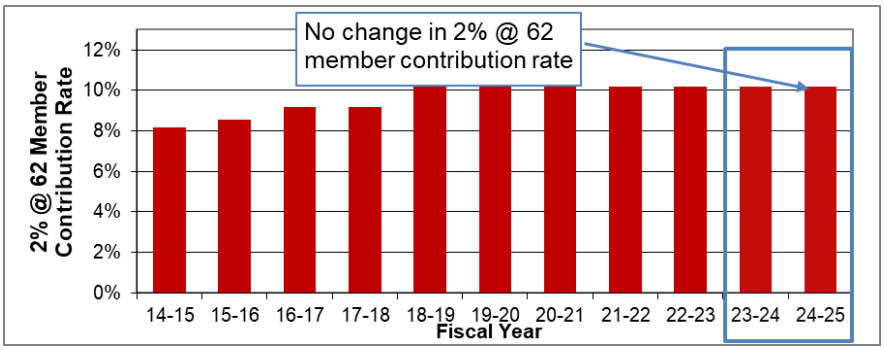
Note: The state contribution rate shown does not reflect SBMA contributions or additional lump-sum contributions made in excess of the required rate. For the 2024-25 fiscal year, the rate shown is the calculated rate. In prior years, the actual rate contributed is shown.

- A decrease in the **employer supplemental contribution rate** from 10.850% to 9.850% of payroll has been calculated for the 2024-25 fiscal year pursuant to the board's valuation policy. Under the Education Code, the board has the discretion to adjust (or make no change to) the employer supplemental contribution rate up to 1.0% of payroll. We believe it would be appropriate for the board to exercise its the authority to keep the 2024-25 rate at the same level as the prior fiscal year (2023-24), which it has elected to do every year starting with the 2021-22 rate. The total employer contribution rate is calculated to be 18.100% (19.100% if the board elects to make no change in the supplemental rate) and is comprised of the base rate, sick leave rate and supplemental rate as noted in the table in the Contribution Rates section below.



Note: For the 2024-25 fiscal year, the rate shown is the calculated rate. In prior years, the actual rate contributed by employers is shown.

- Based on this 2023 valuation, no change in the CalSTRS 2% at 62 **member contribution rate** is required for the 2024-25 fiscal year. The member contribution rate for 2% at 60 members is fixed in the Education Code, so no change is required for that group either.



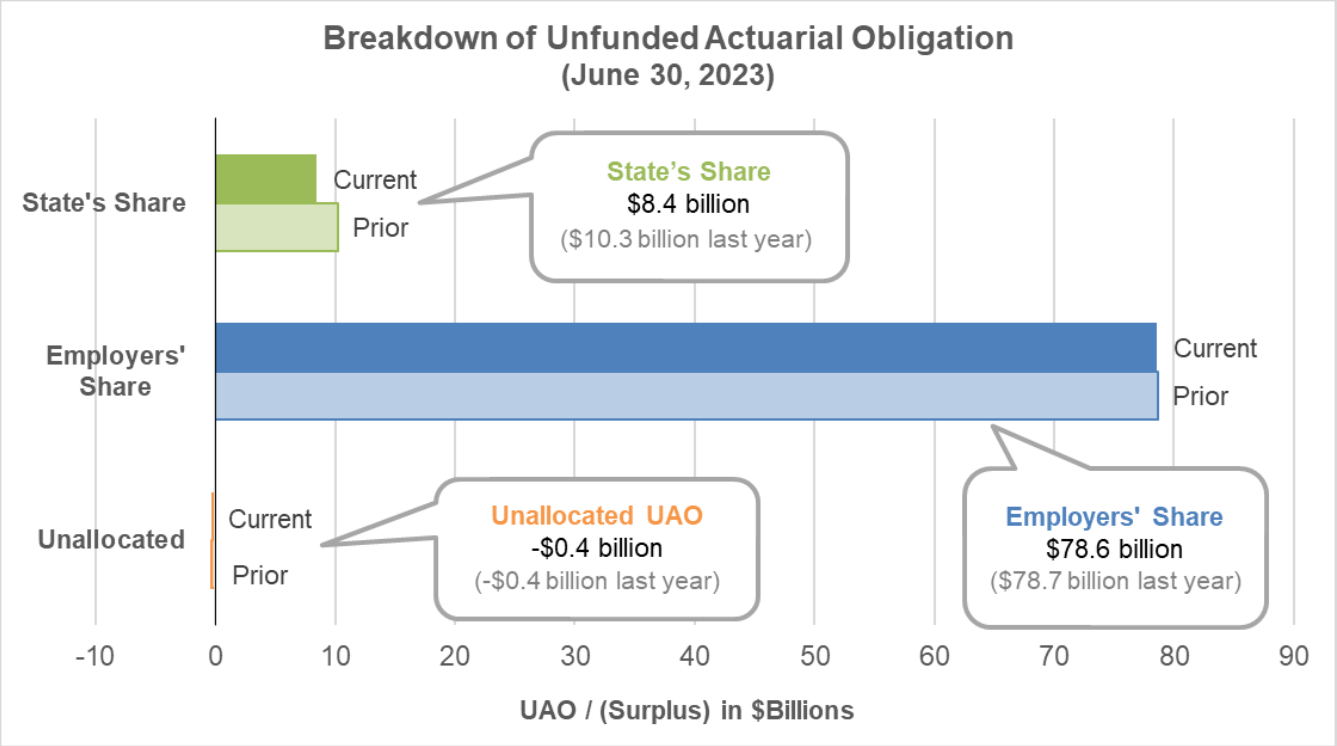
Funding Progress

The Unfunded Actuarial Obligation is equal to the difference between the Actuarial Value of Assets and the Actuarial Obligation, where the Actuarial Obligation is the value of all projected future benefit payments based on service as of the valuation date under the actuarial cost method. The Funded Ratio is equal to the Actuarial Value of Assets divided by the Actuarial Obligation.

($ Millions)	2023 Valuation	2022 Valuation
Actuarial Obligation	$ 359,741	$ 346,089
Actuarial Value of Assets	273,155	257,537
Unfunded Actuarial Obligation	$ 86,586	$ 88,552
Funded Ratio	75.9%	74.4%

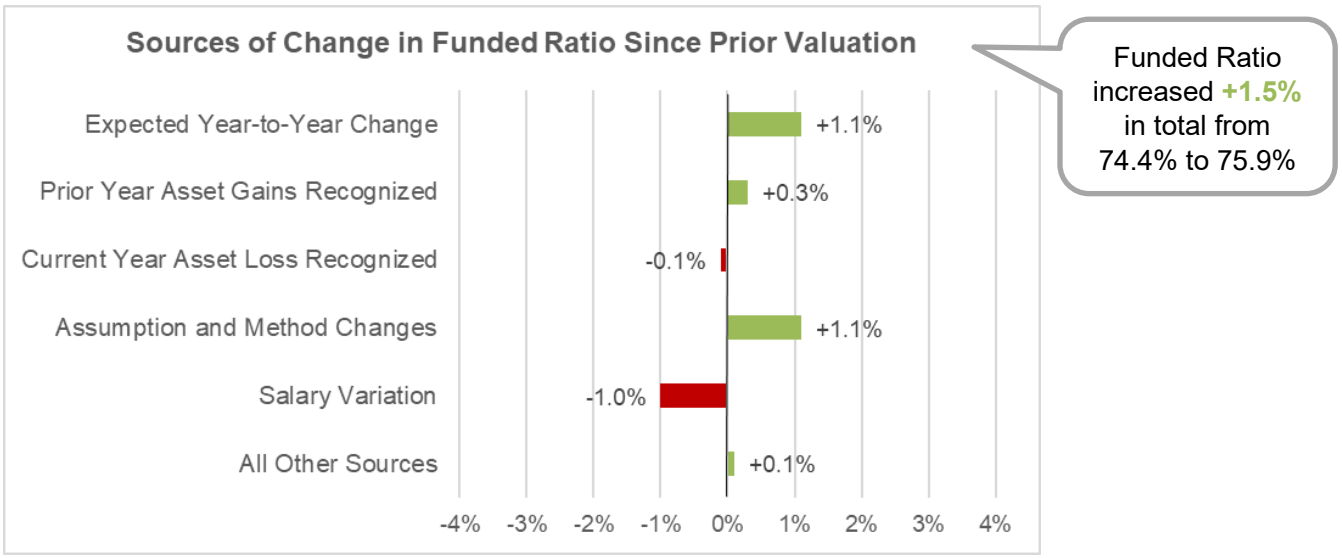
The $86.6 billion UAO compares to a projected June 30, 2023 value of $88.1 billion based on the prior valuation. A discussion of the contributing factors to this change can be found in Section 5 under Actuarial Gains and Losses.

Under the valuation policy, the $86.6 billion UAO is split into three pieces: 1) the employers' share; 2) the state's share; and 3) the unallocated piece, which has no dedicated funding source. This breakdown is shown in the following chart, with the employers' portion being approximately 90% of the total and the state's share 10% of the total, with the small residual piece not being allocated to either the employers or the state. Note that the Unallocated UAO is a negative amount as of June 30, 2023, so it is effectively a small surplus (Actuarial Value of Assets exceed corresponding Actuarial Obligation) equal to less than 1% of the total DB Program UAO.



The chart below shows the factors that caused the 1.5% increase in the DB Program's Funded Ratio since the last valuation from 74.4% to 75.9%. The main reasons for the increase in the Funded Ratio were the expected year-to-year change due to contributions received to pay down the UAO and the new assumptions (primarily the mortality assumption change) that were adopted for use with this valuation. This was partially offset by the impact of the greater-than-assumed salary increases. Additional detail on the assumption changes can be found in Milliman's 2024 Experience Analysis report.

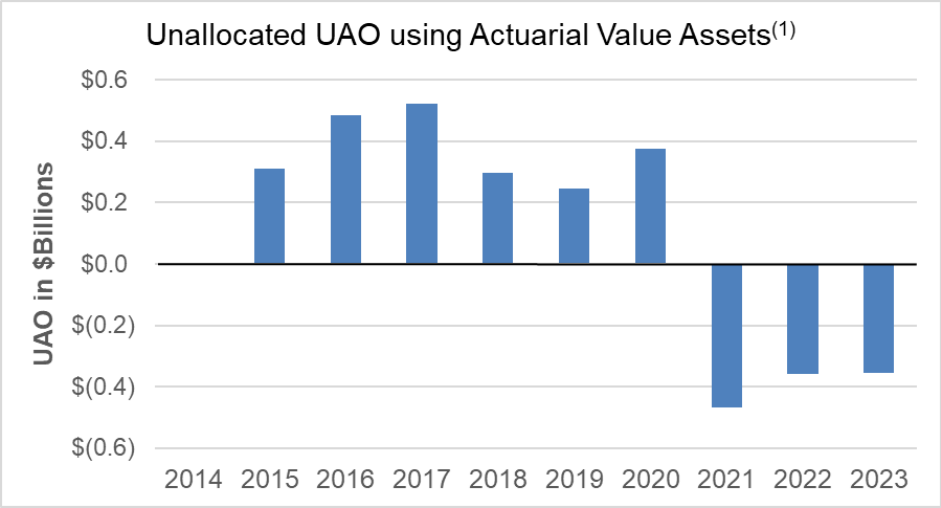
CalSTRS' funding progress has been helped over the last few years by contributions received that were above the calculated rates, and it will continue to be boosted in the 2023-24 fiscal year by actions taken by the board at the May 2023 meeting to maintain the state and employer contribution rates at levels higher than the rates calculated under the valuation policy.



UAO for New Benefits, Post-2014 Service

The Education Code includes actuarial funding (within certain constraints) for most of the benefits provided by CalSTRS. The one exception is that there is no provision for the state, employers, or members to fund any UAO arising for New Benefits (i.e., those not included in the 1990 Benefit Structure) attributable to service after June 30, 2014. This is referred to as the "Unallocated UAO." Under the valuation policy, a portion of each year's total contributions, equal to the Normal Cost of the New Benefits, is allocated to fund these benefits. Since the contribution is equal to the Normal Cost, there are no remaining contributions to pay down the Unallocated UAO, if any. Therefore, the Unallocated UAO will increase or decrease based on future experience.

The following table shows how the Unallocated UAO has evolved over time. The June 30, 2023 Unallocated UAO is a negative amount, so it is effectively a small surplus (actuarial assets exceeding the corresponding actuarial obligation).



1. The Unallocated UAO shown above is calculated using the Actuarial Value of Assets. It is currently a negative $420 million based on the market value of assets.

There was a small decrease in the surplus (a negative UAO) for the Unallocated UAO from $359 million as of June 30, 2022 to $356 million as of June 30, 2023. As of June 30, 2023, the Unallocated UAO surplus is small relative to the total UAO, as it only reflects service accrued for nine years. However, as members continue to accrue benefits for service after June 30, 2014, there is the potential for the Unallocated UAO to increase (or decrease) significantly if actual experience differs materially from that assumed or if changes in assumptions occur. For the 2023 valuation, the surplus associated with the Unallocated UAO was expected to increase to about $800 million as a result of the new assumptions adopted; however, this increase was offset by an increase in the actuarial obligation (causing a decrease in the surplus) due to salary increases being greater than assumed.

As previously discussed, there is currently no dedicated funding to pay off the Unallocated UAO. However, due to the strong return for the 2020-21 fiscal year, a small surplus materialized in the June 30, 2021 valuation, as the assets related to the Unallocated UAO exceeded the related Actuarial Obligation. As of this valuation, there continues to be a small surplus for the Unallocated UAO, so no additional funding is currently needed, although this could change in the future.

Contribution Rates

The following table shows a summary of the contribution rates currently being paid (2023-24 fiscal year, reflecting the rates adopted by the board) and those calculated to be paid next year (2024-25 fiscal year) under the valuation policy. As previously noted, it would be reasonable for the board to maintain the current state and employer supplemental contribution rates given the significant Unfunded Actuarial Obligation that still exists.

Source of Revenue	2023 Valuation FY 24-25 Rate (Calculated)	2022 Valuation FY 23-24 Rate (Actual Rate)
Employers – Base Rate	8.000 %	8.000 %
Employers – Sick Leave	0.250	0.250
Employers – Supplemental Rate[1]	9.850	10.850
Employers – Total Calculated Rate	**18.100**	**19.100**
State – Base Rate	2.017 %	2.017 %
State – Supplemental Rate[1]	5.811	6.311
State – Total DB Program	**7.828**	**8.328**
State – SBMA Rate[2]	2.500	2.500
State – Total Contribution to CalSTRS	**10.328**	**10.828**
Members – 2% at 60	10.250 %	10.250 %
Members – 2% at 62	10.205	10.205

1. Fiscal year 2024-25 supplemental contribution rates are those calculated based on the valuation policy and subject to board adoption. Fiscal year 2023-24 supplemental contribution rates are those that were adopted by the board.

2. The state contribution to fund the Supplemental Benefit Maintenance Account (SBMA) is reduced by $72 million each fiscal year.

The Education Code includes several subsections which provide for potential adjustments in contribution rates. EC §22955.1 addresses annual adjustments in the supplemental state contribution rates. The board has the authority to annually adjust the state contribution rate for years through June 30, 2046, so that the rate is sufficient to amortize the UAO attributable to the 1990 contribution and benefit structure. However, the maximum increase or decrease in a given year is limited to 0.5% of payroll under the valuation policy. In any year when there is no UAO for the 1990 contribution and benefit structure, the state supplemental contribution rate shall be reduced to zero in the next fiscal year.

EC §22950.5 specifies the board has the authority to annually adjust the employer supplemental contribution rate based on the contribution rate necessary to amortize the UAO attributable to service prior to July 1, 2014 that is not funded by the state as part of the 1990 Benefit Structure. However, the maximum increase or decrease in a given year is limited to 1.0% of payroll and the total employer contribution rate cannot exceed 20.25% of payroll.

EC §22901 and EC §22901.7 address member contribution rate levels. The 2% at 60-member rate is fixed at 10.250% of pay. The 2% at 62-member rate, currently 10.205% of pay, can vary depending on the calculated Normal Cost Rate as discussed later in this section.

Actuarially Determined Contribution

The actuarially determined contribution is the contribution (net of member contributions) to a defined benefit pension plan calculated based on the plan's funding policy. For CalSTRS, the actuarially determined contribution rate is the calculated level contribution rate to fully fund the DB Program over a closed period ending June 30, 2046. For GASB 67 and 68 reporting, the actuarially determined contribution is the combined employer and state portion of that contribution. For the 2024-25 fiscal year, the actuarially determined contribution rate (net of the member contribution rate) for the DB Program is the level rate calculated in the June 30, 2023 actuarial valuation and is equal to 22.963% of payroll. Assuming the board maintains the current state and employer contribution rates in the following year, the projected contribution rate for the 2024-25 fiscal year of 26.955% (combined state and employer) is about 117% of the actuarially determined contribution rate.

Normal Cost Rate for CalSTRS 2% at 62 Members

As part of the annual valuation process, the Normal Cost Rate is calculated for CalSTRS 2% at 62 members, generally those first hired on or after January 1, 2013. The Normal Cost Rate is used as the basis for setting the base member contribution rate for this group for the following fiscal year, the 2024-25 fiscal year for this valuation. Generally, the base member contribution rate is one-half of the Normal Cost Rate, within certain parameters.

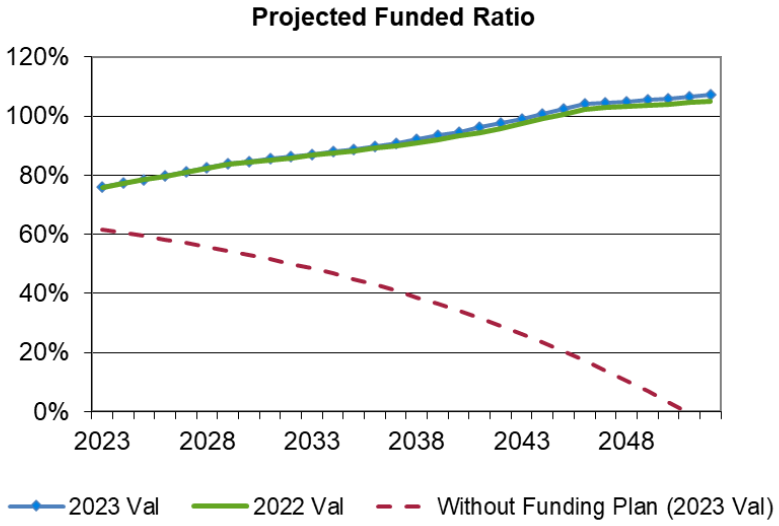
EC §22901(b)(1) requires the board to adopt the Normal Cost Rate that is used to determine the 2% at 62-member contribution rate. As of June 30, 2023, the Normal Cost Rate for the CalSTRS 2% at 62 members is 18.393%. We recommend the board adopt this rate. The Normal Cost Rate for the current valuation is a decrease of 0.001% from the prior valuation Normal Cost Rate of 18.394%.

EC §22901(b)(2) specifies that the CalSTRS 2% at 62 base member contribution rate does not change if the increase or decrease in the Normal Cost Rate for members is less than 1% of creditable compensation since the last adjustment. This year, the cumulative change is an increase in the Normal Cost Rate of 0.500%, from 17.893% (the time of the last adjustment) to 18.393% for this group. The cumulative change is less than 1%, so the current base member contribution rate should remain at the current rate of 9.00% for 2% at 62 members based on the relevant section of the Education Code.

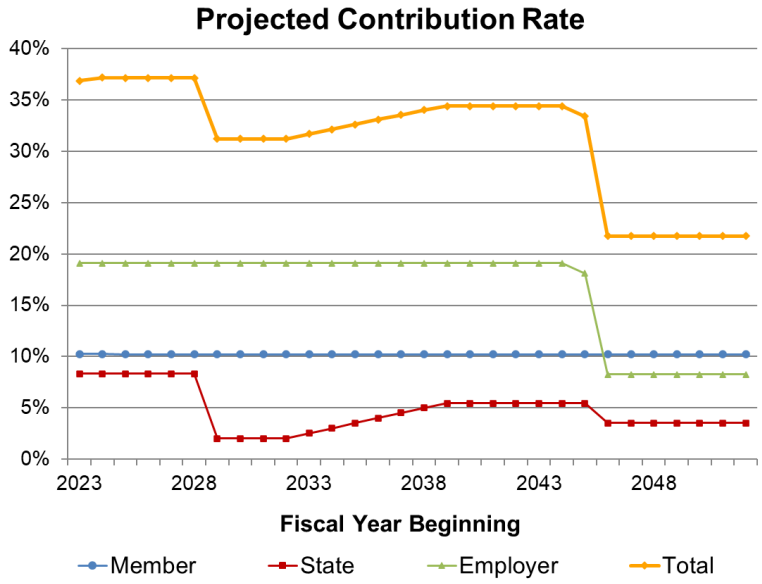
Note that under EC §22901.7(b) 1.205% of pay is added to the base member rate. Therefore, as of July 1, 2024, the total member contribution rate for 2% at 62 members continues to be 10.205% (9.00% plus the 1.205% additional contribution rate).

Looking Ahead

The following projection shows the Funded Ratio if the DB Program assets at market value earn 7.00% in each future year, the board continues its practice of maintaining the current state and employer contributions until the associated UAO is paid off ("board practice"), and all other assumptions are met. As shown in the graph, the DB Program is projected to reach 100% funding prior to 2046 based on the 2023 valuation (blue line). Future Funded Ratios are projected to be slightly higher than projected by the 2022 valuation (green line) primarily due to the somewhat lower projected life expectancies under the mortality assumption adopted for this valuation. Note that we have also shown a hypothetical projection of the funded status based on the 2023 valuation but without the 2014 funding legislation (red line). See the end of this subsection for a summary of the assumptions on which these projections are based.



The following graph shows the projected contribution rates for each of the stakeholder groups, and in total, assuming all valuation assumptions are met in the future and the board continues its practice of maintaining the state and employer contribution rates at the current level until the associated UAO is paid off. Note that the actual contribution rates paid in the future will likely vary based on how actual experience differs from the assumptions subsequent to the valuation date and decisions made by the board under their limited rate-setting authority. The contribution rates shown include both the base and supplemental contribution rates, but do not reflect the state contribution to the Supplemental Benefit Maintenance Account (SBMA).



The above graph shows that member contribution rates are projected to remain approximately level as the 2% at 60 members, and the 2% at 62 members who are replacing them, have roughly the same contribution rate. The employer contribution rate is projected to remain at about the same level until the end of the funding plan in 2046. The state contribution rate is projected to have a big decrease around 2029 as the state supplemental contribution rate goes to 0.00% when the 1990 UAO is projected to be paid off. The state contribution rate is then projected to gradually increase a few years later as the Normal Cost rate for the 1990 Benefit Structure exceeds the 1990 Contribution rate (without any supplemental contribution) causing a UAO to emerge. As described below, these projections are based on all assumptions being met in the future, which is virtually certain not to be the case, so actual results will vary from those shown.

Asset gains and losses will generally have the largest year-to-year impact on the total contribution rates needed, although assumption changes can cause a significant change in the years in which they occur. Under the statute, as reflected in the valuation policy, the impact of asset gains and losses will tend to have a much more significant impact on the state contribution rate than the employer contribution rate. Therefore, the state contribution rate will tend to be more volatile than the employer contribution rate, as shown in Section 10 subsection "Projections Under Alternate Return Scenarios." To the extent the board maintains current state and employer contribution levels, this should reduce or possibly eliminate potential year-to-year contribution rate volatility, at least in the short term.

The above projection calculations are based on the following assumptions:

- All experience subsequent to the valuation date is consistent with the valuation assumptions, as described in Appendix B.
- Future changes in the state and employer supplemental contribution rates will be consistent with prior board practice of maintaining the state and employer contribution rate at the current level until the associated UAO is paid off. Consistent with the board's valuation policy, the state supplemental rate is based on funding the UAO by 2046, a year which is not defined in statute.
- Current deferred asset gains and losses (currently a small net deferred gain) are reflected in the future as they are expected to be recognized in the asset smoothing method.
- The projection assumes new members will have the same Normal Cost Rate as the current 2% at 62 members. The emerging Normal Cost Rate for the total plan will gradually decrease over time due to the lower benefits provided for 2% at 62 members.

Future Variance

The results of any actuarial valuation are based on a set of assumptions. Although we believe the current DB Program assumptions provide a reasonable estimate of future expectations, it is almost certain that future experience will differ from the assumptions to some extent. We have provided a general discussion of the potential risks to CalSTRS funding in Section 10, as well as additional analysis on the potential impact of future investment returns on the Funded Ratio and contribution rates. A comprehensive analysis of potential risks to future DB Program funding levels ("Review of Funding Level and Risks") is completed each fall by CalSTRS internal actuarial staff.

Summary Results and Further Information

The exhibit on the following page presents a summary of key valuation elements as of June 30, 2023 and June 30, 2022 and shows the relative change over the past year.

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

	2023 Valuation	2022 Valuation	Percent Change
1. Total Membership			
A. Active Members	458,645	449,418	2.1 %
B. Inactive Members	234,479	227,163	3.2 %
C. Retired Members and Beneficiaries	328,932	325,468	1.1 %
D. Total Membership	1,022,056	1,002,049	2.0 %
2. Payroll as of Valuation Date (All Members)			
A. Annual Total *($Millions)*	$ 38,916	$ 36,017	8.0 %
B. Annual Average Earned Salary per Active Member	$ 84,850	$ 80,143	5.9 %
3. Average Annual Allowance Payable			
A. Service Retirement	$ 56,088	$ 54,204	3.5 %
4. Actuarial Obligation *($Millions)*			
A. Active Members	$ 164,133	$ 152,295	7.8 %
B. Inactive Members	9,553	8,743	9.3 %
C. Retired Members and Beneficiaries	185,833	184,808	0.6 %
D. Existing MPP Program Unfunded Obligation	222	243	(8.6) %
E. Total	$ 359,741	$ 346,089	3.9 %
5. Value of System Assets *($Millions)*			
A. Fair Market Value	$ 299,148	$ 283,340	5.6 %
B. Deferred Investment (Gains) or Losses	(1,015)	(2,749)	
C. Actuarial Value	$ 298,133	$ 280,591	6.3 %
D. Ratio of Actuarial Value to Fair Value	100%	99%	
E. Less SBMA Reserve	(24,978)	(23,054)	8.3 %
F. Net Actuarial Value	$ 273,155	$ 257,537	6.1 %
6. Funded Status -- Actuarial Value Basis			
A. Unfunded Actuarial Obligation *($Millions)*	$ 86,586	$ 88,552	(2.2) %
B. Funded Ratio *(5F ÷ 4E)*	75.9%	74.4%	
7. Normal Cost Rates *(percent of salaries)*			
A. CalSTRS 2% at 60 Members	21.022%	20.781%	1.2 %
B. CalSTRS 2% at 62 Members	18.393%	18.394%	(0.0) %
C. All Members	20.244%	20.154%	0.4 %
8. Next Fiscal Year Contribution Rates (percent of salaries)[1]			
A. 2% at 60 Members	10.250%	10.250%	- %
B. 2% at 62 Members	10.205%	10.205%	- %
C. State Supplemental Rate	5.811%	6.311%	(7.9) %
D. Employer Supplemental Rate	9.850%	10.850%	(9.2) %
9. Funded Status -- Market Value Basis			
A. Unfunded Actuarial Obligation *($Millions) [4E - (5A + 5E)]*	$ 85,571	$ 85,803	(0.3) %
B. Alternate Funded Ratio (Based on Market Value of Assets)	76.2%	75.2%	

1. Prior valuation rates are contribution rates actually being paid in fiscal year 2023-24, and current valuation rates are those calculated for fiscal year 2024-25 under the valuation policy which are subject to adoption and possible change by the board. Board practice would be to maintain state and employer rates at the current levels.

2. Scope of the Report

This report presents the actuarial valuation of the DB Program of the State Teachers' Retirement Plan as of June 30, 2023. 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 3 describes the benefit obligations of CalSTRS, including the development of the Normal Cost and the Actuarial Obligation.

Section 4 outlines the Fair Market Value of Assets of the DB Program and the determination of the Actuarial Value of Assets as of June 30, 2023. 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).

Section 5 shows the relationship between the Actuarial Value of Assets and the Actuarial Obligation, also called the Funded Ratio.

Section 6 discusses the calculations used to determine the state supplemental contribution rate in accordance with EC §22955.1(b). The key elements of this calculation pertain to an evaluation of the assets and obligations associated with the benefits in effect in 1990. A potential adjustment to the state supplemental rate is calculated based on this valuation and effective with the 2024-25 fiscal year.

Section 7 discusses the calculations used to determine the employer supplemental contribution rate in accordance with EC §22950.5. The key elements of this calculation are parallel to the funding valuation, except the assets and obligations are those associated with the benefits earned prior to July 1, 2014. A potential adjustment to the employer supplemental rate is calculated based on this valuation and effective with the 2024-25 fiscal year.

Section 8 discusses the calculation of the actuarially determined contribution.

Section 9 shows the projected UAO payment schedule and a comparison of the projected contributions and benefit payments for the DB Program.

Section 10 provides a general discussion of the potential risks to CalSTRS funding.

This report includes several appendices:

Appendix A is a summary of the current benefit structure, as determined by the provisions of governing law on June 30, 2023.

Appendix B is 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 includes 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 is a glossary of actuarial terms used in this report.

3. 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.

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 Cost Method is designed to produce a Normal Cost that remains a level percentage of payroll (payroll is calculated as the sum of the expected creditable compensation for the active members) and is expressed as a rate of compensation. Normal Cost contributions are assumed to be contributed uniformly throughout the year.

The total DB Program Normal Cost Rate has increased from 20.154% to 20.244% since the last valuation. This rate represents a blended average of the Normal Cost Rates for the 2% at 60 and 2% at 62 members. **Table 1** provides more details on the calculation of the Normal Cost and Normal Cost Rate.

In general, the Normal Cost Rate is expected to remain fairly stable as a percentage of payroll 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. CalSTRS can expect modest decreases in the Normal Cost Rate as 2% at 60 members leave active employment and are replaced by new 2% at 62 members with lower benefit levels. The Normal Cost Rate increased since last year due to the adoption of new actuarial assumptions based on the 2024 Experience Analysis. This increase was slightly offset by increasing membership of CalSTRS 2% at 62 members who have a lower overall Normal Cost Rate than the 2% at 60 members. We expect small decreases in the overall Normal Cost Rate to emerge in future years if assumptions are unchanged.

Primarily because of different benefit formulas, the CalSTRS 2% at 62 members have lower Normal Cost Rates compared to the 2% at 60 members, as shown below for the 2023-24 fiscal year.

($ Millions)	2% at 60 Members	2% at 62 Members	Proportion 2% at 62
Projected Payroll	$27,571	$13,320	32.6%
Normal Cost $[1]	5,796	2,450	29.6%
Normal Cost Rate	21.022%	18.393%	NA

1. The Normal Cost dollar amount is based on the total projected payroll for the 2023-24 fiscal year including new entrants who will replace members who are expected to leave active employment during the year. This differs from the Normal Cost amounts shown in Table 1, which are based on projected payroll for current active members only.

Normal Cost Rate for CalSTRS 2% at 62 Members

As part of the annual valuation process, we determine the Normal Cost Rate for CalSTRS 2% at 62 members, generally those first hired on or after January 1, 2013. The Normal Cost Rate is used as the basis for setting the base member contribution rate for this group for the following fiscal year, the 2024-25 fiscal year for this valuation. Generally, the base member contribution rate is one-half of the Normal Cost Rate within certain parameters.

EC §22901(b)(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, 2023, the Normal Cost Rate for the CalSTRS 2% at 62 members is 18.393%. We recommend the board adopt the rate of 18.393%.

EC §22901(b)(2) specifies that the CalSTRS 2% at 62 base member contribution rate does not change if the increase or decrease in the Normal Cost Rate for members is less than 1% of creditable compensation since the last adjustment. This year, the cumulative change is an increase in the Normal Cost Rate of 0.500%, from 17.893% (the time of the last adjustment) to 18.393% for this group. The cumulative change is less than 1%, so the current base member contribution rate should remain at the current rate of 9.00% for 2% at 62 members based on the relevant section of the Education Code.

Note that increases under EC §22901.7(b) are added to the base member rate. Therefore, effective July 1, 2024, the calculated total member contribution rate for 2% at 62 members continues to be 10.205% (9.00% plus the 1.205% additional contribution rate).

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 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)	2023 Valuation	2022 Valuation
Benefits Being Paid	$ 185,833	$ 184,808
Inactive Deferred Benefits	9,553	8,743
Active Member Benefits	259,419	240,453
Existing MPP Program Unfunded Obligation	222	243
Present Value of Projected Benefits	$ 455,027	$ 434,247
Present Value of Future Normal Costs	95,286	88,158
Actuarial Obligation	$ 359,741	$ 346,089

Note that the actuarial present value of projected benefits for the DB Program includes an additional amount equal to the existing unfunded obligation for the Medicare Premium Payment (MPP) Program. 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 MPP Program obligations (payable from the THBF) in the funding of the DB Program. As of June 30, 2023, only an amount to cover approximately a month of payments resides in the THBF, while the remaining unfunded obligation of $222 million is added to the DB Program obligation.

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 assets would equal the Actuarial Obligation 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.

Over time, 2% at 62 members will account for a larger portion of the Actuarial Obligation; however, as of this valuation, only 6.6% of the Actuarial Obligation for active members is for the 2% at 62 members (up from 5.5% last year).

($ Millions)	2% at 60 Members	2% at 62 Members	Proportion 2% at 62
Active PVB	$208,610	$50,809	19.6%
Active PVFNC	55,308	39,978	42.0%
Active AO	$153,302	$10,831	6.6%

Table 1
Normal Cost

($ Millions)	June 30, 2023 Valuation			2022 Val
	2% at 60	2% at 62	Total	Total
Estimated Annual Earned Salaries [1]	$27,571	$11,537	$39,108	$36,187
Present Value of Future Normal Costs for Current Active Members	$55,308	$39,978	$95,286	$88,158
Present Value of Future Earned Salaries for Current Active Members	$264,465	$223,146	$487,611	$450,640
Normal Cost				
Service Retirement	$5,286	$1,902	$7,188	$6,609
Deferred Retirement & Refund	291	121	412	371
Death	42	15	57	44
Disability	176	84	260	269
Total Normal Cost	$5,795	$2,122	$7,917	$7,293
Normal Cost Rate Percent of Payroll				
Service Retirement	19.176 %	16.486 %	18.380 %	18.264 %
Deferred Retirement & Refund	1.059	1.049	1.053	1.025
Death	0.149	0.130	0.146	0.122
Disability	0.638	0.728	0.665	0.743
Total Normal Cost Rate	**21.022** %	**18.393** %	**20.244** %	**20.154** %

1. Annual pay for current active members expected to be earned in the year following 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.

Table 2
Actuarial Obligation

($ Millions)	June 30, 2023 Valuation			2022 Val
	2% at 60	2% at 62	Total	Total
Present Value of Projected Benefits to All Current Members				
Benefits Currently Being Paid				
Service Retirement	$ 171,932	$ 60	$ 171,992	$ 171,108
Disability	3,980	14	3,994	4,103
Survivors	9,847	-	9,847	9,597
Total	$ 185,759	$ 74	$ 185,833	$ 184,808
Benefits to Inactive Members	9,016	537	9,553	8,743
Benefits to Active Members				
Retirement	$ 201,224	$ 46,123	$ 247,347	$ 229,001
Disability	3,799	1,998	5,797	6,130
Death	927	340	1,267	990
Deferred Retirement & Refund	2,660	2,348	5,008	4,332
Total	$ 208,610	$ 50,809	$ 259,419	$ 240,453
Existing MPP Program Unfunded Obligation	222	-	222	243
Total Present Value of Projected Benefits	$ 403,607	$ 51,420	$ 455,027	$ 434,247
Present Value of Future Normal Costs	55,308	39,978	95,286	88,158
Actuarial Obligation	**$ 348,299**	**$ 11,442**	**$ 359,741**	**$ 346,089**

4. 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, 2023. 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 (adjusted from the accounting value to account for pre-recognized GASB expenses) was reported as $299,148 million as of June 30, 2023, up from $283,340 million as of June 30, 2022. **Table 4** shows the asset changes for the period. **Table 5** summarizes the assets separated by funding group.

Valuation Assets

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. This is particularly true given that the supplemental state and employer contribution rates are determined based on the applicable funded status.

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 based on the assumed rate of investment return and the net cash flow during the year. The projection then recognizes one-third of the difference between the expected value and the Fair Market Value as of the valuation date to arrive at the Actuarial Value of Assets. The calculation of the Actuarial Value of Assets is shown in **Table 6** and the result is shown below.

($ Millions)	2023 Valuation	2022 Valuation
Fair Market Value (FMV)	$ 299,148	$ 283,340
Actuarial Value of Assets (AVA)	298,133	280,591
Deferred Investment Gains or (Losses)	$ 1,015	$ 2,749
Ratio of AVA to FMV	99.7%	99.0%

Due to the asset smoothing method, there are investment gains of $1,015 million that have not yet been recognized (the difference between the Actuarial and Fair Market Value of Assets). Absent investment returns in future years less than the assumed rate to offset the deferred investment gains, the current deferred gains will gradually be reflected in the Actuarial Value of Assets.

If the future returns on the Fair Market Value of Assets are 7.00% each year, then as the current deferred gains flow through the smoothing method and are recognized, future valuations will show an actuarial gain. The result will be a gradual increase in the DB Program's funded status, ultimately decreasing the UAO by the $1,015 million of currently deferred investment gains.

Table 7 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 30, 2023	June 30, 2022
Invested Assets		
Cash	$ 881	$ 816
Debt Securities	51,107	54,819
Equity Securities	117,044	105,582
Alternative Investments	131,190	125,512
Derivative Instruments	607	766
Bond Proceeds Investment	55	116
Total Investments	$ 300,884	$ 287,611
Receivables	12,168	16,990
Liabilities Net of Securities Lending Collateral	(14,623)	(21,828)
Net Deferred (Inflows) and Outflows	(91)	(265)
Exclude Net Pension and OPEB Obligation	810	832
Fair Market Value of Net Assets	**$ 299,148**	**$ 283,340**

Table 4
Statement of Changes in Program Assets

($ Millions)	June 30, 2023	June 30, 2022
Contributions		
Members	$ 4,035	$ 3,854
Employers	7,475	6,301
State of California	3,720	4,280
Total Contributions	15,230	14,435
Benefits and GASB Adjustments		
Retirement, Death and Survivors	(17,141)	(16,583)
Refunds of Member Contributions	(106)	(93)
Purchasing Power Benefits	(481)	(242)
Change in GASB Adjustments	(22)	(62)
Total Benefits and GASB Adjustments	(17,750)	(16,980)
Net Cash Flow	**$ (2,520)**	**$ (2,545)**
Investment Income		
Realized Income	$ 6,156	$ 6,043
Net Appreciation	12,763	(12,609)
Net Securities Lending Income	(18)	58
Investment Expenses	(659)	(532)
Administrative & Other Expenses	(217)	(185)
Other (Expense) Income	303	130
Net Investment Return	18,328	(7,095)
Net Increase (Decrease)	**$ 15,808**	**$ (9,640)**
Fair Market Value of Net Assets		
Beginning of Year	283,340	292,980
End of Year	**$ 299,148**	**$ 283,340**
Estimated Net Rate of Return [1]	6.5%	-2.4%

1. Estimated return on a Fair-Market-Value basis on all DB Program assets (including SBMA), net of all investment expenses, gross of administrative expenses, and assuming uniform cash flow throughout the year. This number may differ from the money-weighted return reported by CalSTRS. The estimated return for the fiscal year 2022-23 excluding SBMA assets was 6.5%

Table 5
Market Value of Assets by Funding Group

($ Millions)	June 30, 2023					June 30, 2022
	SBMA	1990 Benefit Structure	Pre-2014 New Benefits	Post-2014 New Benefits	Total DB Program	Total DB Program
Market Value, beginning of year	$ 23,054	$ 278,028	$ (33,227)	$ 15,485	$ 283,340	$ 292,980
Member Contributions[1]						
Regular at 8.000% (EC §22901(a))	-	3,131	-	-	3,131	2,981
Regular 2% at 62 Member Rate in Excess of 8.000% (EC §22901(b))		-	-	110	110	93
Supplemental at 2.250%/2.250% (EC §22901.7)	-	-	-	779	779	763
Other	-	13	-	2	15	17
Total Member Contributions	-	3,144	-	891	4,035	3,854
Employer Contributions[1]						
Regular at 8.000%	-	3,131	-	-	3,131	2,981
Sick Leave at 0.250% (EC §22951)	-	-	98	-	98	93
Supplemental at 10.85% / 10.85% (EC §22950.5)	-	-	4,207	40	4,247	4,043
Adjustment 0.00% / -2.18%	-	-	-	-	-	(812)
Other	-	-	(1)	-	(1)	(4)
Total Employer Contributions	-	3,131	4,304	40	7,475	6,301
State Contributions[1]						
Appropriation at 2.017% (EC §22955)	-	-	705	-	705	701
Supplemental at 6.311%/6.311%(EC §22955.1(b))	-	2,206	-	-	2,206	2,192
SBMA contribution at 2.500% less $72M	809	-	-	-	809	804
Additional contributions	-	-	-	-	-	584
Total State Contributions	809	2,206	705	-	3,720	4,281
Investment Income						
Net investment income	1,596	17,760	(2,071)	1,043	18,328	(7,095)
Net Pension/OPEB Obligation Adjustments	-	(22)	-	-	(22)	(62)
Net Investment Earnings	1,596	17,738	(2,071)	1,043	18,306	(7,157)
Benefits	(481)	(14,350)	(2,722)	(175)	(17,728)	(16,918)
Market Value, end of year	$ 24,978	$ 289,898	$ (33,011)	$ 17,283	**$ 299,148**	**$ 283,340**

1. The contributions for New Benefits have been allocated between the Pre-2014 and Post-2014 funding groups so that the total contributions allocated to each funding group are consistent with the valuation policy. For purposes of this exhibit, member contributions are shown allocated to the Post-2014 New Benefit group.

Table 6
Actuarial Value of Assets

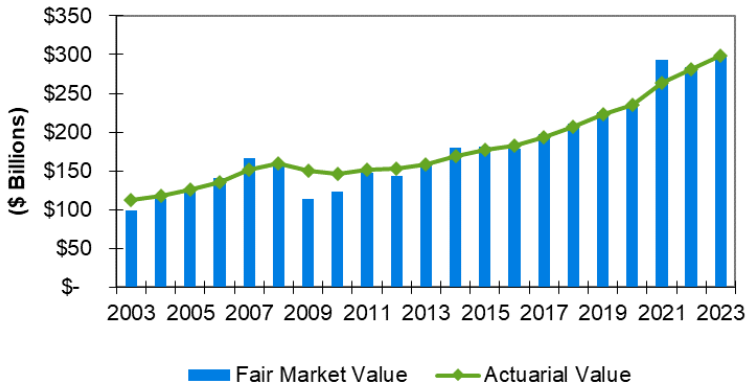
($ Millions)	June 30, 2023	June 30, 2022
Actuarial Value at Beginning of Year	$ 280,591	$ 263,397
Contributions	15,230	14,435
Benefits	(17,727)	(16,918)
Change in GASB Adjustments	(22)	(62)
Expected Return	19,554	18,365
Expected Actuarial Value End of Year	$ 297,626	$ 279,217
Fair Market Value	299,148	283,340
Difference between Fair Market Value and Expected Actuarial Value	$ 1,522	$ 4,123
Recognition Factor	One-third	One-third
Recognized Gain or Loss	$ 507	$ 1,374
Actuarial Value at End of of Year	**$ 298,133**	**$ 280,591**
Deferred Investment Gains or (Losses)	$ 1,015	$ 2,749
Estimated Net Rate of Return [1]	7.2%	7.5%
Actuarial Value of Assets Excluding SBMA		
Actuarial Value Including SBMA	$ 298,133	$ 280,591
Supplemental Benefit Maintenance Account	24,978	23,054
Actuarial Value Excluding SBMA	$ 273,155	$ 257,537
Market Value Excluding SBMA	$ 274,170	$ 260,286
Ratio of Actuarial Value of Assets to Fair Market Value of Assets	99.630%	98.944%
Estimated Net Rate of Return [1]	7.2%	7.6%

1. Estimated return on an Actuarial-Value basis, net of all investment expenses, gross of administrative expenses, and assuming uniform cash flow throughout the year.

Table 7
History of Actuarial Value of Assets

($ Millions) June 30	Value Including SBMA			Ratio of Actuarial to Market
	Fair Market Value	Estimated Return [1]	Actuarial Value	
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
2014	179,479	18.6	168,838	94
2015	180,633	3.9	177,059	98
2016	177,914	1.3	182,772	103
2017	197,718	13.4	193,925	98
2018	211,367	9.0	206,207	98
2019	225,466	6.6	222,399	99
2020	233,253	4.1	235,377	101
2021	292,980	27.1	263,397	90
2022	283,340	-2.4	280,591	99
2023	299,148	6.5	298,133	100

1. Estimated return on a Fair-Value basis on all DB Program assets (including SBMA), net of all investment expenses, gross of administrative expenses, and assuming uniform cash flow throughout the year, reported on a dollar-weighted basis. This number may differ from the money-weighted return reported by CalSTRS. The estimated return for the 2022-23 fiscal year excluding SBMA assets was 6.5%.



5. 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 emerged as assumed. The Funded Ratio is shown below and in **Table 8**.

($ Millions)	2023 Valuation	2022 Valuation
Actuarial Obligation	$ 359,741	$ 346,089
Actuarial Value of Assets (AVA)		
From Table 6	$ 298,133	$ 280,591
Less SBMA Reserve	(24,978)	(23,054)
Net for Funding	273,155	257,537
Unfunded Actuarial Obligation	$ 86,586	$ 88,552
Funded Ratio (on AVA)	**75.9%**	**74.4%**
Fair Market Value net of SBMA	$ 274,170	$ 260,286
Alternate Funded Ratio (based on Fair Market Value)	*76.2%*	*75.2%*

The Funded Ratio increased by 1.5% during the past year, primarily due to the expected year-to-year change as a result of contributions to pay down the UAO and the new assumptions (primarily the mortality assumption change) that were adopted for the use with this valuation. This was partially offset by the impact of the greater-than-assumed salary increases. The Alternate Funded Ratio using the Fair Market Value of Assets has increased since the last valuation for similar reasons.

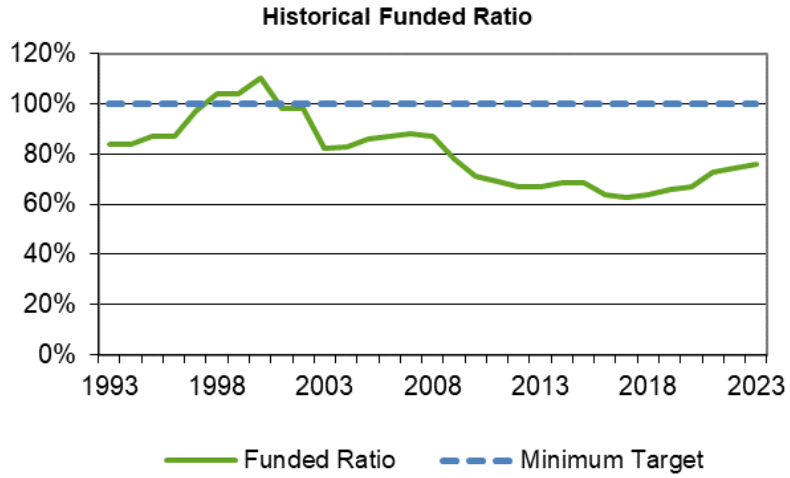
The Funded Ratio provides a measure of CalSTRS' funded status on an ongoing basis. It is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's obligations. The Funded Ratio is currently less than 100% indicating the need for contributions in addition to the on-going normal cost contributions. CalSTRS' funding plan provides for these additional contributions.

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.

The table below 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%
2014	231,213	158,495	72,718	69%
2015	**241,753**	**165,553**	**76,200**	**69%**
2016	266,704	169,976	96,728	64%
2017	286,950	179,689	107,261	63%
2018	297,603	190,451	107,152	64%
2019	310,719	205,016	105,703	66%
2020	322,127	216,252	105,875	67%
2021	332,082	242,363	89,719	73%
2022	346,089	257,537	88,552	74%
2023	359,741	273,155	86,586	76%

The historical Funded Ratios are shown on 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 whether 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 9**.

($ Millions)	Expected Results	Actual Results	(Gain) or Loss	Percent of AO / AVA
Actuarial Obligation	$ 360,349	$ 359,741	$ (608)	
Act. Value of Assets	272,241	273,155	(914)	
Unfunded Act. Oblig.	$ 88,108	$ 86,586	$ (1,522)	
Actuarial (Gains) or Losses by Source				
Changes in assumptions & methods (Actuarial Obligation)			$ (5,160)	(1.4%)
Salaries increased greater than assumed			4,773	1.3%
All other demographic sources			(221)	(0.1%)
(Gain) on the Actuarial Obligation			$ (608)	(0.2%)
Investment Return on Actuarial Value of Assets			(516)	(0.2%)
Changes in assumptions & methods (Actuarial Assets)			0	0.0%
Contributions (in excess of) or less than assumed			(398)	(0.1%)
(Gain) on the Actuarial Value of Assets			$ (914)	(0.3%)
Total Actuarial (Gain)			$ (1,522)	

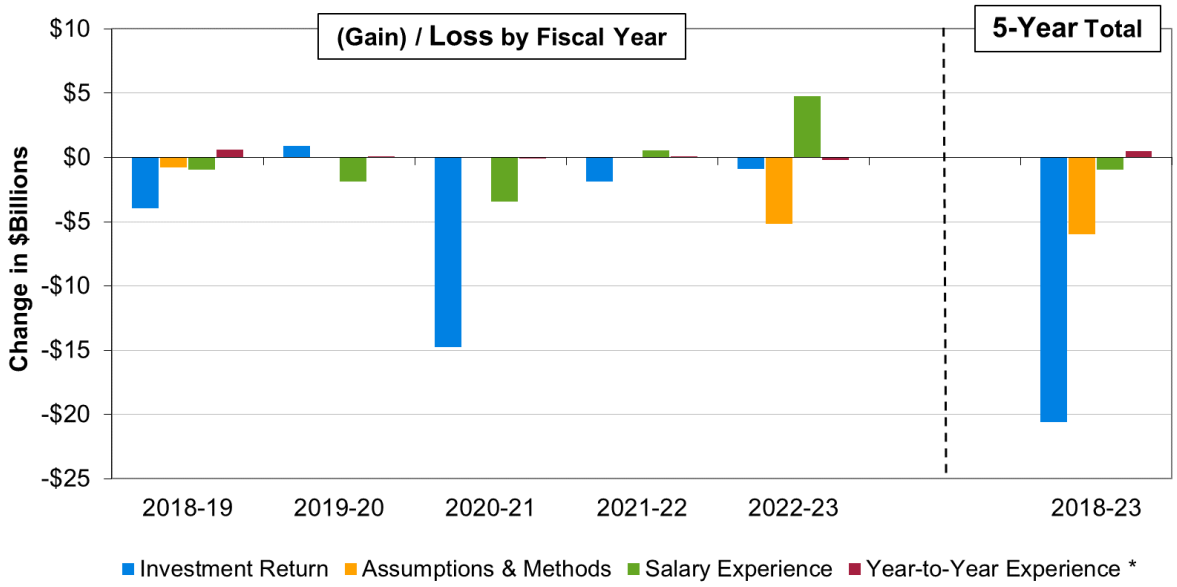
Based on the 2022 Actuarial Valuation, the UAO was expected to decrease slightly from $88,552 million to $88,108 million. The actual UAO of $86,586 million represents a net actuarial gain of $1,522 million.

- The change in the actuarial valuation assumptions based on the most recent Experience Analysis caused the Actuarial Obligation to decrease by $5,160 million.
- Salaries increased much more than projected by the current actuarial assumptions, causing the Actuarial Obligation to increase by $4,773 million from the expected amount.
- All other demographic experience caused the Actuarial Obligation to decrease by $221 million. This represents only a relatively small portion of the expected Actuarial Obligation. These relatively minor net gains and losses indicate that the census is reasonably consistent from the prior period and that the actual experience tracked closely overall with actuarial assumptions (exclusive of the salary increases).
- On the asset side, there was an actuarial asset gain based on the Actuarial Value of Assets and an actuarial loss on the Market Value of Assets. The return on market value (including the SBMA) was estimated at 6.5% which is less than the assumed 7.0% return from the prior valuation. The return on the Actuarial Value of Assets was greater (estimated at 7.2%) than assumed as the recognition of actuarial investment gains which were previously deferred (primarily from the approximately 27% rate of return earned during the 2020-21 fiscal year) had a greater impact than the recognition of the less-than-assumed market return for the most recent year.

These net gains and losses are within a reasonable range for variances in a single year.

Actuarial Gain and Loss History

The following graph displays the actuarial gains and losses over a 5-year period beginning with the 2018-19 fiscal year.



** Year-to-Year Experience includes changes due to Termination, Retirement, Mortality, and Other Experience.*

Over the last five years, recognition of investment returns that generally exceeded the return assumption resulted in a decrease in the UAO of about $21 billion. Additionally, changes in assumptions and methods have caused a decrease in the UAO of about $6 billion. During that period, all other changes combined had a relatively minor impact on the UAO.

Note that the UAO has decreased by approximately $21 billion over the last 5 years. This compares to the net effect of actuarial gains and losses (including assumption changes) described above which account for approximately a $27 billion decrease in the UAO. This decrease was offset by a $6 billion increase in the UAO resulting from contributions received by CalSTRS that were insufficient to cover the interest on the UAO. If the board continues its practice of keeping the state and employer contribution rates at the current level, the contributions are projected to exceed the interest on the UAO and reduce the principal in future years.

Table 8
Funded Status

($ Millions)	2023	2022
Actuarial Obligation *(Table 2)*	$359,741	$346,089
Actuarial Value of Assets		
Calculated *(Table 6)*	$ 298,133	$ 280,591
Less SBMA Reserve	(24,978)	(23,054)
Program Assets	$ 273,155	$ 257,537
Unfunded Actuarial Obligation	**$ 86,586**	**$ 88,552**
Funded Ratio	**75.9%**	**74.4%**

Table 9
Actuarial Gains and Losses

($ Millions)	Expected	Actual	(Gain) / Loss
Actuarial Obligation			
Actuarial Obligation June 30, 2022	$346,089		
Normal Cost for 2022-23	7,612		
Benefits Paid (Excludes Purchasing Power)	(17,247)		
Expected Interest at 7.00%	23,895		
Actuarial Obligation June 30, 2023	**$360,349**	**$359,741**	**$ (608)**
By Source:			
Change in actuarial assumptions			*(5,160)*
Salary increases more / (less) than assumed			*4,773*
Retiree Mortality			*(148)*
Service Retirements			*83*
Other Terminations of Employment			*(423)*
Active Member Mortality			*95*
Disability Retirements			*6*
All Other Non-Investment Sources			*166*
Total (Gain) Loss on the Actuarial Obligation			*$ (608)*
Actuarial Value of Assets			
Actuarial Value of Assets June 30, 2022	$257,537		
Expected Contributions for 2022-23	14,036		
Benefits Paid (Excludes Purchasing Power)	(17,247)		
Expected Interest at 7.00% on AVA	17,915		
Actuarial Value of Assets June 30, 2023	**$272,241**	**$273,155**	**$ (914)**
By Source: Investment Return on Actuarial Value of Assets (including the recognition of prior deferred investment gains and losses)			*$ (516)*
Change in actuarial asset method			*$ 0*
Contributions (in excess of) or less than assumed (including service purchases)			*(398)*
Total (Gain) Loss on the Actuarial Value of Assets			*$ (914)*
Unfunded Actuarial Obligation	**$ 88,108**	**$ 86,586**	**$(1,522)**

6. State Supplemental Contribution Rate

Under EC §22955.1(b), calculated adjustments to the state supplemental contribution rate are based on actuarial funding. We will refer to this contribution as the state supplemental contribution. Note that for the state, the payroll is the second prior fiscal year payroll, so contributions made in fiscal year 2024-2025 will be based on the covered member compensation for fiscal year 2022-2023. The state supplemental rate is in addition to the base state contribution under EC §22955.1(a) of 2.017% of payroll and contributions to fund the SBMA under EC §22954.

The board may increase or decrease the state supplemental contribution rate (within certain parameters) to reflect the contribution required to eliminate the UAO associated with the 1990 benefit and contribution rate structure. This will be referred to as the 1990 UAO. State supplemental contributions are included as part of the assets used in determining the 1990 UAO. Although not specified in the law, the board's valuation policy calls for the state supplemental contribution rate to be calculated to amortize the UAO by June 30, 2046.

The board has the authority to make changes in the state supplemental contribution rate which are calculated annually and subject to the following conditions, either specified in statute or the board valuation policy:

- The state supplemental contribution rate cannot increase or decrease by more than 0.5% of payroll over the prior year supplemental rate.
- In any year when there is no UAO for the 1990 Benefit Structure, the supplemental contribution shall be reduced to zero in the following fiscal year.
- The state supplemental contribution rate shall not be reduced below 4.311% until the UAO for the 1990 Benefit Structure is paid off.

The state is contributing a supplemental rate of 6.311% of pay for the current 2023-24 fiscal year which reflects the board's decision in May of 2023 to keep the rate at the same level as the prior fiscal year. Under the valuation policy, the calculated rate is a decrease to 5.811% for the next fiscal year as discussed in this section. The board has the authority to make no change in the rate, which would be reasonable given the significant amount of progress that still needs to be made for the DB Program to reach a 100% Funded Ratio.

1990 Unfunded Actuarial Obligation

The 1990 Actuarial Obligation for the DB Program is calculated using the benefit provisions in place as of 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, whether members would have retired earlier or later if the post 1990 benefit enhancements had not been enacted. However, we believe it is a reasonable process to estimate what the Actuarial Obligation would be if only the 1990 benefits were currently in place.

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, a separate set of retirement probabilities is used to evaluate the 1990 Benefit Structure.

The Actuarial Obligation related to the 1990 Benefit Structure is $297.2 billion. This compares to the Actuarial Obligation for the current DB Program benefit structure of $359.7 billion.

($ Millions)	2023 Valuation	2022 Valuation
Actuarial Obligation — 1990 Benefit Structure		
Value of Projected Benefits	$ 382,842	$ 363,757
Value of Future Normal Costs	85,626	78,409
Actuarial Obligation	$ 297,216	$ 285,348

The Market Value of Assets associated with the 1990 Actuarial Obligation is calculated each year by 1) increasing the prior year value (excluding the SBMA) by contributions based on the contribution rates in effect prior to September 30, 1998 (16.00% of earned salaries); 2) adding state supplemental contributions under 22955.1(b)); 3) adding additional state contributions in excess of the statutory requirements that are designated to pay down the 1990 UAO, if any; 4) reducing by benefit payments attributable to the 1990 Benefit Structure; and 5) adjusting for the actual investment return for the DB Program (excluding the SBMA). Limitations exist with this approach since precise data regarding the portion or the timing of benefit payments that would be attributable to only the 1990 Benefit Structure is unknown.

The Actuarial Value of Assets under the 1990 Benefit Structure equals the Market Value of Assets under the 1990 Benefit Structure multiplied by the same ratio (Actuarial Value of Assets divided by Market Value of Assets) as the DB Program.

See **Table 10** for the details of the 1990 asset calculation.

($ Millions)	2023 Valuation	2022 Valuation
Assets — 1990 Benefit Structure		
Market Value of Assets	$ 289,898	$ 278,028
Ratio for DB Program	99.630%	98.944%
Actuarial Value of Assets	$ 288,825	$ 275,092

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.

The following table summarizes the Funded Status of the 1990 Benefit Structure as detailed in **Table 11**. The 1990 Benefit Structure has an actuarial deficit equal to the UAO of $8.4 billion.

($ Millions)	2023 Valuation	2022 Valuation
Funded Status — 1990 Benefit Structure		
Actuarial Obligation	$ 297,216	$ 285,348
Actuarial Value of Assets	288,825	275,092
Unfunded Actuarial Obligation	$ 8,391	$ 10,256
Funded Ratio	97.2%	96.4%

State Supplemental Contributions

The statute allows for an annual adjustment to the state supplemental contribution rate to amortize the 1990 UAO. Based on the June 30, 2023 valuation, a potential decrease in the state supplemental contribution rate effective July 1, 2024 is calculated under the valuation policy.

As shown in **Table 11**, a supplemental contribution rate of 3.340% of payroll is needed to amortize the 1990 UAO by June 30, 2046 based on the board's current valuation policy. This is based on an unconstrained decrease of about 2.971% of payroll from the current supplemental rate of 6.311%. However, decreases in the state contribution rate are limited to 0.5%. Therefore, the state supplemental contribution rate for the fiscal year beginning July 1, 2024 is calculated to be 5.811% under EC §22955.1(b). Note that the 3.340% is based on the Actuarial Value of Assets, so it does not reflect the future recognition of currently deferred asset gains and losses and therefore differs from the projection shown in the "Looking Ahead" subsection of Section 1.

The following table shows a numerical breakdown of each of the factors that caused the increase or decrease in the unconstrained (i.e., prior to the application of the minimum supplemental rate and the maximum decrease) state supplemental contribution rate. The actual calculated rate is limited to a 0.5% decrease over the prior year under the valuation policy and cannot be less than 4.311% until the 1990 UAO has been fully paid off.

Sources of Change	Calculated State Supp. Rate (Unconstrained)[1]
June 30, 2022 Actuarial Valuation Fiscal Year 2023-24	**3.51%**
Expected Year-to-Year Change	-0.17%
Recognized Asset (Gain) / Loss	
• From Prior Years	-0.17%
• From Current Year	0.07%
Salary / Payroll Variation	
• Salary Increase > Assumed	0.69%
• Payroll Increase > Assumed	-0.07%
Assumption Changes	-0.54%
All Other Sources	0.02%
Total Change	**-0.17%**
June 30, 2023 Actuarial Valuation Fiscal Year 2024-25	**3.34%**

1. Unconstrained calculated rate is before application of maximum increase or decrease. The board adopted a 6.311% rate for the fiscal year 2023-24. The calculated rate for fiscal year 2024-25 is 5.811% under the valuation policy.

Table 14 (in the next section) shows the amounts to be contributed to fund the pre-2014 "New" benefits.

Actuarial Gains and Losses

Similar to the total DB Program, we perform a comparison for the 1990 Benefit Structure 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 for the 1990 Benefit Structure are summarized in the following table.

($ Millions)	Expected Results	Actual Results	(Gain) or Loss
Actuarial Obligation	$ 297,381	$ 297,216	$ (165)
Act. Value of Assets	288,059	288,825	(766)
Unfunded Act. Oblig.	$ 9,322	$ 8,391	$ (931)
Actuarial (Gains) or Losses by Source			
Changes in assumptions & methods (Actuarial Obligation)			$ (3,802)
Salaries increased greater than assumed			3,915
All other demographic sources[(1)]			(278)
(Gain) on the Actuarial Obligation			$ (165)
Investment Return on Actuarial Value of Assets			(571)
Changes in assumptions & methods (Actuarial Assets)			0
Contributions (in excess of) or less than assumed			(195)
(Gain) on the Actuarial Value of Assets			$ (766)
Total Actuarial (Gain)			$ (931)

Table 10
Assets for 1990 Benefit Structure

($ Millions)	2023	2022
Assets Allocated to 1990 Structure[1]		
Allocated Market Value at Beginning of Year	$278,028	$292,406
Contributions During the Year		
Member: EC §22901(a) at 8.00% of Earned Salaries	3,131	2,981
Employer: EC §22950 at 8.00% of Earned Salaries	3,131	2,981
State: EC §22955.1(b) Contribution at 6.311% / 6.311% of second preceding fiscal year Earned Salaries	2,206	2,192
State: Additional State Contributions Designated to reduce 1990 Structure UAO	0	584
Member Redeposits	13	15
Total 1990 Structure Contributions	8,481	8,753
Benefits Paid During the Year		
Total Benefits Paid During the Year	(17,247)	(16,676)
Post-1990 Benefits Paid During the Year	2,890	2,795
Post-1990 Refunds of supplemental member contributions	12	9
Prior 2% DBS redirection contributions refunded	(5)	(5)
Total 1990 Benefits Paid [1]	(14,350)	(13,877)
Estimated Investment Earnings for the Year [2]	17,761	(9,192)
Change in GASB Adjustments	(22)	(62)
Allocated 1990 Assets due to Assumption Changes	-	-
Total Allocated 1990 Structure Market Value at End of Year	**$289,898**	**$278,028**
Ratio of Actuarial Value to Market Value [3]	99.630%	98.944%
Assets Allocated to 1990 Structure (Actuarial Value of Assets)	**$288,825**	**$275,092**

1. May not sum 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 -3.17% for fiscal year 2021-22 and 6.46% for fiscal year 2022-23.

3. Developed from Table 6.

Table 11
Funded Status and Supplemental Contribution Rate for 1990 Benefit Structure

($ Millions)	2023 Val FY 2024-25	2022 Val FY 2023-24
Actuarial Obligation		
Present Value of Projected Benefits		
Benefits Currently Being Paid	$ 154,120	$ 153,023
Benefits to Inactive Members	9,174	8,394
Benefits to Active Members	219,548	202,340
Total	$ 382,842	$ 363,757
Present Value of Future Normal Costs	(85,626)	(78,409)
Actuarial Obligation	$ 297,216	$ 285,348
Funded Status		
Actuarial Obligation	$ 297,216	$ 285,348
Actuarial Value of Assets (Table 10)	288,825	275,092
Unfunded Actuarial Obligation (Surplus)	$ 8,391	$ 10,256
Funded Ratio	97.2%	96.4%
Amortization Sufficiency Under Current Contribution Schedule		
Revenue for 1990 Benefits	16.000%	16.000%
Normal Cost Rate for 1990 Benefits	(17.980)	(17.778)
Equivalent Normal Cost Surplus / (Deficit) Express as Percent of Employer Payroll	(1.980%)	(1.778%)
Equivalent Normal Cost Surplus / (Deficit) Express as Percent of State Payroll	(2.110%)	(1.904%)
Level Equivalent Additional Revenue Under EC 22955.1(b)	6.311	6.311
Revenue Available for Amortization	4.201%	4.407%
Revenue Needed for Amortization	1.230	1.606
Revenue Surplus / (Deficit)	2.971%	2.801%
Amortization Status under current contribution rate	Projected to Fund 1990 UAO by 2046	Projected to Fund 1990 UAO by 2046
Contribution Rate for Amortization of 1990 UAO without Statutory Limits		
Current EC 22955.1(b) Contribution Rate	6.311%	6.311%
Increase / (Decrease) in State Contribution Rate	(2.971)	(2.801)
Unconstrained Contribution Rate	3.340%	3.510%
Contribution Rate for Amortization of 1990 UAO with Statutory Limits		
Current EC 22955.1(b) Contribution Rate	6.311%	6.311%
Increase / (Decrease) in State Contribution Rate (capped at 0.5%)	(0.500)	(0.500)
EC 22955.1(b) Calculated Contribution Rate[1]	**5.811%**	**5.811%**

1. The rates shown are the calculated rates under the valuation policy. For fiscal year 2023-24, the board adopted a 6.311% supplemental contribution rate.

7. Employer Supplemental Contribution Rate

The base employer contribution rate under EC §22950 and §22951 is 8.25% of payroll. In addition to the base employer rate, an employer supplemental contribution rate is calculated annually under EC §22950.5.

The board has the authority to increase or decrease the employer supplemental contribution rate (within certain parameters) to reflect the contribution required to eliminate the remaining UAO associated with service earned prior to July 1, 2014. This will be referred to as the pre-2014 UAO. Note that although the language in the Education Code refers to the UAO for all benefits earned prior to July 1, 2014, the basic calculation in the board's valuation policy only allocates the funding of the pre-2014 UAO for "new" benefits (i.e., those adopted after 1990) to the employers, as the state is responsible for the funding of all 1990 benefits.

The calculated employer supplemental contribution rate for the fiscal year beginning July 1, 2023 decreases to 9.850% of payroll pursuant to the board's valuation policy and assumes the board exercises its limited rate-setting authority. The effective supplemental contribution rate paid by the employers is calculated to decrease by 1.000% from 10.850% of pay (19.100% in total) to 9.850% of pay (18.100% in total) for the fiscal year beginning July 1, 2024. Note that the board elected to keep the employer supplemental contribution rate at the 10.85% rate for fiscal year 2023-24. Given the significant amount of progress that still needs to be made for the DB Program to reach a 100% Funded Ratio, it would be reasonable for the board to maintain the current 10.850% supplemental contribution rate.

There is an additional complexity in that the pre-2014 UAO that the employers are responsible for funding overlaps with the 1990 UAO that the state is responsible for funding. Under the board's valuation policy, the pre-2014 UAO is split into two separate pieces: 1) the pre-2014 UAO for the 1990 Benefit Structure; and 2) the pre-2014 UAO for "new" benefits (i.e., those adopted after 1990). The employers are responsible for funding the New Benefit UAO. However, a provision of the valuation policy limits the employer supplemental contribution rate to the amount that is calculated to be sufficient to pay down the total Pre-2014 UAO when combined with the base employer rate, the state, and member contribution rates. This is referred to as the "pre-2014 limit." The pre-2014 limit exceeds the calculated employer supplemental contribution rate in the 2023 valuation, so it does not apply this year.

The board has authority to change the employer supplemental contribution rate annually, subject to the following conditions:

- The employer supplemental contribution rate cannot increase or decrease by more than 1.0% of payroll over the prior year supplemental rate.
- The employer supplemental contribution rate cannot exceed 12.00%.

The pre-2014 UAO for New Benefits equals the total UAO for pre-2014 service less the 1990 UAO for pre-2014 service.

Pre-2014 Unfunded Actuarial Obligation

The pre-2014 Actuarial Obligation for the DB Program is calculated using service through June 30, 2014 and projected salaries. Since there are no future service accruals for this portion of the Actuarial Obligation, the Projected Unit Credit actuarial cost method is used, per the board's valuation policy.

To determine the pre-2014 assets to be used in the 2023 valuation, a theoretical pre-2014 asset value is maintained based on the prior year value adjusted as follows:

- Add total contributions (excluding SBMA),
- Subtract total Normal Costs for prior year,
- Subtract benefit payments attributable to pre-2014 service, and
- Adjust for actual investment return.

See **Table 12** for the details of the asset adjustment.

Pre-2014 Unfunded Actuarial Obligation for 1990 Benefit Structure

A second calculation is done to isolate the portion of the pre-2014 UAO that is allocated to the 1990 Benefit Structure and therefore is subject to state funding. The Actuarial Obligation for this portion is calculated using the 1990 Benefit Structure, service through June 30, 2014 and projected salaries. Since there are no future service accruals, the Projected Unit Credit actuarial cost method is used.

To determine the pre-2014 assets allocated to the 1990 Structure that are to be used in the 2023 valuation, a theoretical pre-2014 asset value for the 1990 Structure is maintained based on the prior year value adjusted as follows:

- Add contributions equal to 16.00% of prior year payroll,
- Add state supplemental contributions under EC §22955.1(b),
- Subtract total Normal Costs for prior year attributable to 1990 Benefit Structure,
- Subtract benefit payments attributable to pre-2014 service and the 1990 Benefit Structure, and
- Adjust for actual investment return.

See **Table 13** for the details of the asset adjustment.

Pre-2014 Unfunded Actuarial Obligation for New Benefits

The following table shows the calculation of the UAO for Pre-2014 Service attributable to New Benefits.

($ Millions)	Pre-2014 Service		
	Total	1990 Benefits	New Benefits
Funded Status — Pre-2014 Service			
Actuarial Obligation	$ 259,581	$ 213,919	$ 45,662
Actuarial Value of Assets	171,874	204,763	(32,889)
Unfunded Actuarial Obligation	$ 87,707	$ 9,156	**$ 78,551**

Employer Supplemental Contributions

The Education Code allows for an annual adjustment to the employer supplemental contribution rate to amortize the pre-2014 UAO. As shown in **Table 14**, a potential decrease from the current employer supplemental contribution rate of 10.850% is calculated. Effective July 1, 2024, an employer supplemental contribution rate of 9.727% of pay would be needed to amortize the pre-2014 UAO for New Benefits by June 30, 2046, a decrease of 1.123%. This is based on an unconstrained decrease. However, decreases in the employer supplemental contribution rate are limited to 1.000% so the calculated rate for fiscal year 2024-25 is 9.850%. Combining this amount with the base employer contribution rate of 8.250%, the calculated total employer contribution rate for the fiscal year beginning July 1, 2024 is 18.100%.

The following table shows a numerical breakdown of each of the factors that caused the increase or decrease in the unconstrained (i.e., prior to the application of the maximum increase or decrease) employer supplemental contribution rate.

Sources of Change	Calculated Employer Supp. Rate (Unconstrained)[1]
June 30, 2022 Actuarial Valuation Fiscal Year 2023-24	**10.23%**
Expected Year-to-Year Change	-0.04%
Recognized Asset (Gain) / Loss	
• From Prior Years	0.03%
• From Current Year	-0.01%
Salary / Payroll Variation	
• Salary Increase > Assumed	0.08%
• Payroll Increase > Assumed	-0.65%
Assumption Changes	0.14%
All Other Sources	-0.05%
Total Change	**-0.50%**
June 30, 2023 Actuarial Valuation Fiscal Year 2024-25	**9.73%**

1. The unconstrained calculated rate is before the application of the maximum increase or decrease. The board adopted a 10.85% rate for the fiscal year 2023-24. The calculated rate for fiscal year 2024-25 is 9.85% under the valuation policy.

Allocation of Contribution Rates

As previously discussed, the state is responsible for the UAO associated with 1990 benefits, and the employers are responsible for UAO associated with New Benefits. The table below shows a breakdown of the calculated contribution rates between 1990 benefits and New Benefits on a percentage of payroll basis.

Allocation of Contribution Rates for the DB Program

Source of Revenue	2023 Valuation: FY 2024-25 Rate			2022 Valuation
	1990 Benefits	New Benefits	Total	FY 2023-24 Rate
Employers – Base Rate	8.000 %	0.000 %	8.000 %	8.000 %
Employers – Sick Leave	0.000	0.250	0.250	0.250
Employers – Supplemental Rate[1]	0.000	9.850	9.850	10.850
Employers – Total Calculated Rate	**8.000**	**10.100**	**18.100**	**19.100**
State – Base Rate	0.000 %	2.017 %	2.017 %	2.017 %
State – Supplemental Rate[1]	5.811	0.000	5.811	6.311
State – Total DB Program[2]	**5.811**	**2.017**	**7.828**	**8.328**
Members – 2% at 60	8.000 %	2.250 %	10.250 %	10.250 %
Members – 2% at 62	8.000	2.205	10.205	10.205

1. For the current valuation, the supplemental contribution rates for fiscal year 2024-25 are those calculated based on valuation policy and subject to board adoption. For the prior valuation, the supplemental contribution rates are those that were adopted by the board for fiscal year 2023-24.

2. The state also contributes 2.5% (less $72 million) to the Supplemental Benefit Maintenance Account (SBMA).

Table 12
Total Assets Allocated for Pre-2014 Service[1]

($ Millions)	2023	2022
Asset Value for Pre-2014 Service (excludes SBMA)		
Allocated Market Value at Beginning of Year	$ 171,439	$ 186,975
Contributions During the Year		
Total Contributions (excluding SBMA)	14,421	13,631
Less Normal Costs for Year with Expenses	(7,888)	(7,537)
Total Adjusted Contributions	$ 6,533	$ 6,094
Benefits and Expenses Paid for Pre-2014 Service	(16,215)	(15,862)
Estimated Investment Earnings for the Year [2]	10,755	(5,768)
Total Allocated Market Value at End of Year	**$ 172,512**	**$ 171,439**
Ratio of Actuarial Value to Market Value [3]	99.630%	98.944%
Actuarial Value of Assets for Pre-2014 Service	**$ 171,874**	**$ 169,628**

1. May not sum exactly, due to rounding.

2. Based on Fair Market Value excluding SBMA and uniform cash flow for contributions, benefits, and expenses. The rates of return used in these calculations were -3.17% for 2021-22 and 6.46% for 2022-23.

3. Developed from Table 6.

Table 13
1990 Assets Allocated for Pre-2014 Service[1]

($ Millions)	2023	2022
1990 Asset Value for Pre-2014 Service (excludes SBMA)		
Allocated Market Value at Beginning of Year	$ 204,666	$ 222,615
Contributions During the Year for 1990 Structure		
Total Contributions (excluding SBMA)	8,481	8,752
Less 1990 Normal Costs for Year with Expenses	(6,958)	(6,620)
Total Adjusted Contributions	$ 1,523	$ 2,132
Benefits and Expenses Paid for Pre-2014 Service	(13,493)	(13,205)
Estimated Investment Earnings for the Year [2]	12,827	(6,876)
Total 1990 Allocated Market Value at End of Year	**$ 205,523**	**$ 204,666**
Ratio of Actuarial Value to Market Value [3]	99.630%	98.944%
1990 Actuarial Value of Assets for Pre-2014 Service	**$ 204,763**	**$ 202,505**

1. May not sum exactly, due to rounding.

2. Based on Fair Market Value excluding SBMA and uniform cash flow for contributions, benefits, and expenses. The rates of return used in these calculations were -3.17% for 2021-22 and 6.46% for 2022-23.

3. Developed from Table 6.

Table 14
Funded Status and Employer Supplemental Contribution Rate for Pre-2014 Service

($ Millions)	2023 Val FY 2024-25	2022 Val FY 2023-24
Funded Status		
Total Unfunded Actuarial Obligation (Pre-2014 Service)		
Total Actuarial Obligation for Pre-2014 Service	$259,581	$259,855
Total AVA for Pre-2014 Service	171,874	169,628
Total UAO (Pre-2014 Service)	$87,707	$90,227
1990 Unfunded Actuarial Obligation (Pre-2014 Service)		
1990 Actuarial Obligation for Pre-2014 Service	$213,919	$214,078
1990 AVA for Pre-2014 Service	204,763	202,505
1990 UAO (Pre-2014 Service)	$9,156	$11,573
Post-1990 UAO (Pre-2014 Service)	$78,551	$78,654
Amortization Sufficiency for Post-1990, Pre-2014 UAO Under Current Contribution Schedule		
Post-1990 Normal Cost Rate (Surplus)/Deficit	2.692%	2.538%
Current Supplemental Contribution Rate Under EC 22950.5	10.850	10.850
Revenue Available for Amortization	13.542%	13.388%
Revenue Needed for Amortization	12.419	12.769
Revenue Surplus / (Deficit)	1.123%	0.619%
Supplemental Contribution Rate (Unconstrained)	9.727%	10.231%
Contribution Rate for Amortization of UAO for pre-2014 Service and New Benefits		
Current EC 22950.5 Contribution Rate	10.850%	10.850%
Adjustment in Employer Contribution Rate	(1.000)	(0.619)
EC 22950.5 Contribution Rate[1]	**9.850%**	**10.231%**
EC 22950 & EC22951 Base Contribution Rate	8.250	8.250
Total Employer Contribution Rate[1]	**18.100%**	**18.481%**

1. Calculated based on valuation policy and subject to board adoption. For fiscal year 2023-24, the board adopted a 10.85% supplemental contribution rate resulting in a total employer contribution rate of 19.10%.

8. Actuarially Determined Contribution

The actuarially determined contribution is the contribution to a defined benefit pension plan calculated based on the plan's funding policy. For CalSTRS, the actuarially determined contribution rate is the calculated level contribution rate to fully fund the DB Program over a closed period ending June 30, 2046. We believe this a reasonable contribution rate and balances the need for benefit security, intergenerational equity, and stability of contributions. For GASB 67 and 68 reporting, the actuarially determined contribution is the combined employer and state portion of that contribution (net of member contributions). For the 2022-23 fiscal year, the actuarially determined contribution for the DB Program is the level rate calculated in the June 30, 2021 actuarial valuation applied to the actual DB Program payroll for the fiscal year ended June 30, 2023.

The actual contribution rates are set in statute, with the board having limited rate-setting authority to adjust contribution rates annually within the parameters of the Education Code. The current projections show CalSTRS DB Program is projected to be 100% funded by June 30, 2046, the target date of the funding plan to achieve a 100% Funded Ratio. This projection assumes the board continues its practice of maintaining the state and employer contribution rates at the current level until the associated UAO is paid off.

The contribution rates under board practice are sufficient to pay for on-going normal costs and reduce the UAO. If the board elected to reduce the contribution rates consistent with board policy, this would still be true and the DB Program would still be projected to be 100% funded by June 30, 2046, although the progress would be slower. Contributions under either board practice or board policy are consistent with accumulating sufficient assets to pay benefits when due.

As shown in the following table, the actual employer contribution made for all programs (including those contributions made by the state) to the State Teachers' Retirement Plan was 108% of the actuarially determined contribution for the fiscal year ended June 30, 2023. Note that contributions to the State Teachers' Retirement Plan include contributions to the Defined Benefit, Defined Benefit Supplement, Cash Balance Benefit, and Supplemental Benefit Maintenance Account programs.

($ Millions)	Fiscal Year 2022-23	Fiscal Year 2021-22
Actuarially Determined Contribution		
ADC percentage for DB Program (a)	24.459%	27.012%
Covered Payroll (b)	$ 39,095	$ 37,191
ADC for DB Program (a x b) = (c)	9,562	10,046
ADC for other programs[1] (d)	1,072	1,013
Total ADC for STRP (c + d) = (e)	10,634	11,059
Actual employer contribution[2] (f)	11,458	10,793
Percentage of Actual to ADC (f / e)	107.75%	97.59%

1. For the SBMA, CBB, and DBS programs, the actuarially determined contribution is equal to the actual contributions.

2. Includes actual contributions from non-employer contributing entities (which for CalSTRS is the state).

Based on the 2023 valuation, the projected 2024-25 contribution rate based on prior board practice is greater than the calculated level contribution rate needed to fully fund the DB Program over a closed period ending June 30, 2046. The theoretical contributions made based under the level contribution rate (net of member contributions) are analogous to the actuarially determined contributions included in CalSTRS GASB 67 and 68 reporting. This means the contribution rate projected to be paid for fiscal year 2024-25 is greater than the actuarially determined contribution rate. This higher level of funding is due to the board adopting contribution rates above the calculated rates and limitations on decreases in contribution rates.

The following table shows the estimated actuarially determined contribution rate for the DB Program for the upcoming year. The 2023 valuation results are used to calculate the actuarially determined contribution rate for the fiscal year 2024-25.

(Percent of Earned Salaries)	2023 Valuation FY 2024-25	2022 Valuation FY 2023-24
Actuarially Determined Contribution for DB Program		
Normal Cost Rate	19.685 %	19.626 %
Amortization Rate Needed	13.512	14.207
Total Level Rate for DB Program	33.197	33.833
Estimated Member Contribution Rate	(10.234)	(10.235)
ADC for DB Program	22.963	23.598
Estimated State Rate for DB Program[1]	7.855	7.843
Estimated Employer Rate for DB Program	19.100	19.100
Estimated Employer+State Contribution Rate[2]	26.955	26.943
Percentage of Actuarially Determined Contribution expected to be received	117.4 %	114.2 %

1. Note that the state contribution is based on the second prior fiscal year payroll. For example, state contributions made in the 2023-24 fiscal year are a percent of the covered member compensation for the 2021-22 fiscal year; however, the percentage shown in the FY 2023-24 column of 7.843% is expressed as a percent of the 2023-24 fiscal year payroll. The state contribution rate based on the 2021-22 fiscal year payroll was 8.328% (2.017% + 6.311%).

2. Assumes the board continues its prior practice and maintains current contribution levels and includes expected contributions from both employers and non-employer contributing entities (which, for CalSTRS, is the state). The FY 2024-25 contribution rate is based on the rates remaining the same as the prior fiscal year. For FY 2023-24, the actual contribution rates adopted by the board are used.

Table 15 shows the details of how the estimated actuarially determined contribution rate is calculated for the upcoming year as well as the actual actuarially determined contribution for the current fiscal year.

Table 15
Actuarially Determined Contribution Rate for DB Program

($ Millions)	2023 Valuation FY 2024-25	2022 Valuation FY 2023-24
Unfunded Actuarial Obligation		
Beginning of Year	$ 86,586	$ 88,552
Normal Cost	8,246	7,612
Contributions	(15,080)	(14,036)
Benefit Payments	-	-
Interest	5,826	5,977
Projected to End of Year (a)	85,578	88,105
Present Value of Future Payroll		
Starting One Year After Valuation Date (b)	$ 633,337	$ 620,166
UAO Rate Needed		
End of Year UAO / PV Payroll [(a) / (b)]	13.512%	14.207%
Actuarially Determined Contribution Rate		
Normal Cost Rate	19.685%	19.626%
Amortization Rate Needed	13.512%	14.207%
Total Level Rate for DB Program	33.197%	33.833%
Member Contribution Rate	(10.234%)	(10.235%)
Actuarially Determined Contribution (for DB Program only)	22.963%	23.598%
Estimated Contribution Rate		
Estimated Contributions		
Member 22901 & 22901.7	$ 4,321	$ 4,017
Employer 22950 & 22951	3,483	3,238
Employer 22950.5	4,581	4,259
State 22955.2	-	-
State 22955(a)	803	745
State 22955.1(b)	2,513	2,333
Additional State Contributions	-	-
Total Estimated Contributions	15,701	14,592
Projected Salaries	42,220	39,249
Total Contribution Rate	37.189%	37.178%
Member Contribution Rate	(10.234%)	(10.235%)
Estimated Employer+State Contribution Rate[(1)]	26.955%	26.943%

1. Assumes the board continues its prior practice and maintains current contribution levels and includes expected contributions from both employers and non-employer contributing entities (which, for CalSTRS, is the state). The FY 2024-25 contribution rate is based on the rates remaining the same as the prior fiscal year. For FY 2023-24, the actual contribution rates adopted by the board are used.

9. Projected Amortization and Cash Flows

We have previously shown graphical projections of contribution rates, the Funded Ratio, and the UAO. In this section, we show the numerical details behind those projections.

Table 16 shows the amortization of the UAO for the total DB Program on a year-by-year basis, based on 7.00% future returns, the future recognition of the currently deferred asset gains, and assumes the board continues its practice of maintaining the state and employer contribution rates at the current level until the associated UAO is paid off. Assuming all other future experience emerges as assumed, the UAO is projected to be amortized by June 30, 2046. In total, the Funded Ratio is projected to be 100.1% under the assumptions described in the "Looking Ahead" subsection of Section 1.

In Table 16, we show the contributions projected to be paid into the DB Program to fund ongoing benefits and amortize the UAO. **Table 17** shows a comparison of these inflows into DB Program with the outflows from the DB Program, which consist of benefit payments and expenses. The difference between these two values is the net cash flow. A negative value indicates CalSTRS is paying out more in benefits and expenses than it is receiving in contributions. Note that this projection does not account for cash received internally, such as interest and dividends on investments.

The net cash flow is currently negative, and this is projected to become increasingly negative over the next several years. This is a typical pattern for a mature retirement system where it is expected that contributions will ultimately be less than benefits and that the system will begin drawing on the fund that has been built up over prior years.

Table 16
Amortization of Unfunded Actuarial Obligation[1]

(Reflecting Projected Contribution Adjustments)[2]

($Millions)

Year	FYE	Beginning Unfunded Act. Oblig.	Amortization Payment						Interest Charge at 7.00%	Ending Unfunded Act. Oblig.	Ending Funded Ratio
			Contributions				Normal Cost	Available Amtzn.			
			Member	Employer	State	Total					
1	2024	$86,586	$4,185	$7,810	$3,085	$15,080	$8,246	$6,834	$5,826	$85,215	77.2%
2	2025	85,215	4,321	8,064	3,316	15,701	8,497	7,204	5,717	83,470	78.6%
3	2026	83,470	4,461	8,326	3,405	16,192	8,756	7,436	5,587	81,437	79.9%
4	2027	81,437	4,605	8,597	3,516	16,718	9,023	7,695	5,436	79,046	81.3%
5	2028	79,046	4,755	8,876	3,630	17,261	9,296	7,965	5,259	76,246	82.6%
6	2029	76,246	4,908	9,165	3,748	17,821	9,575	8,246	5,053	72,987	84.0%
7	2030	72,987	5,067	9,462	938	15,467	9,861	5,606	4,916	72,250	84.7%
8	2031	72,250	5,231	9,770	968	15,969	10,153	5,816	4,857	71,257	85.5%
9	2032	71,257	5,401	10,088	998	16,487	10,451	6,036	4,780	69,977	86.3%
10	2033	69,977	5,575	10,415	1,032	17,022	10,757	6,265	4,683	68,376	87.1%
11	2034	68,376	5,756	10,754	1,329	17,839	11,070	6,769	4,553	66,149	87.9%
12	2035	66,149	5,942	11,103	1,645	18,690	11,393	7,297	4,379	63,222	88.8%
13	2036	63,222	6,134	11,464	1,981	19,579	11,725	7,854	4,155	59,518	89.8%
14	2037	59,518	6,333	11,837	2,335	20,505	12,067	8,438	3,876	54,952	90.9%
15	2038	54,952	6,537	12,222	2,711	21,470	12,420	9,050	3,535	49,434	92.1%
16	2039	49,434	6,749	12,619	3,109	22,477	12,784	9,693	3,127	42,866	93.3%
17	2040	42,866	6,967	13,029	3,476	23,472	13,161	10,311	2,646	35,199	94.7%
18	2041	35,199	7,193	13,452	3,589	24,234	13,552	10,682	2,096	26,613	96.1%
19	2042	26,613	7,426	13,889	3,706	25,021	13,957	11,064	1,482	17,031	97.6%
20	2043	17,031	7,666	14,341	3,826	25,833	14,378	11,455	798	6,373	99.1%
21	2044	6,373	7,915	14,807	3,950	26,672	14,815	11,857	38	(5,445)	100.7%
22	2045	(5,445)	8,171	15,288	4,079	27,538	15,271	12,267	(803)	(18,516)	102.4%
23	2046	(18,516)	8,436	14,959	4,211	27,606	15,746	11,860	(1,704)	(32,081)	104.1%

1. Based on the Actuarial Value of Assets with projected recognition of known deferred asset gains and losses.
2. Assumes the board continues its prior practice and maintains current contribution levels until the associated UAO is paid off.

Table 17
Projected Cash Flow

(Reflecting Projected Contribution Adjustments)[1]

($Millions)								Cash Flow as a Percentage of		Ending
		Contributions[1]				Benefit	Net Program		Market Value	Funded
Year	FYE	Member	Employer	State	Total	Payments[2]	Cash Flow	Payroll	of Assets	Ratio
1	2024	$4,185	$7,810	$3,085	$15,080	$18,762	($3,682)	(9.0%)	(1.3%)	77.2%
2	2025	4,321	8,064	3,316	15,701	19,335	(3,634)	(8.6%)	(1.2%)	78.6%
3	2026	4,461	8,326	3,405	16,192	20,165	(3,973)	(9.1%)	(1.3%)	79.9%
4	2027	4,605	8,597	3,516	16,718	21,023	(4,305)	(9.6%)	(1.3%)	81.3%
5	2028	4,755	8,876	3,630	17,261	21,932	(4,671)	(10.1%)	(1.3%)	82.6%
6	2029	4,908	9,165	3,748	17,821	22,909	(5,088)	(10.6%)	(1.4%)	84.0%
7	2030	5,067	9,462	938	15,467	23,973	(8,506)	(17.2%)	(2.2%)	84.7%
8	2031	5,231	9,770	968	15,969	25,125	(9,156)	(17.9%)	(2.2%)	85.5%
9	2032	5,401	10,088	998	16,487	26,357	(9,870)	(18.7%)	(2.3%)	86.3%
10	2033	5,575	10,415	1,032	17,022	27,702	(10,680)	(19.6%)	(2.4%)	87.1%
11	2034	5,756	10,754	1,329	17,839	29,088	(11,249)	(20.0%)	(2.4%)	87.9%
12	2035	5,942	11,103	1,645	18,690	30,518	(11,828)	(20.3%)	(2.4%)	88.8%
13	2036	6,134	11,464	1,981	19,579	31,994	(12,415)	(20.7%)	(2.4%)	89.8%
14	2037	6,333	11,837	2,335	20,505	33,505	(13,000)	(21.0%)	(2.4%)	90.9%
15	2038	6,537	12,222	2,711	21,470	35,038	(13,568)	(21.2%)	(2.4%)	92.1%
16	2039	6,749	12,619	3,109	22,477	36,580	(14,103)	(21.3%)	(2.4%)	93.3%
17	2040	6,967	13,029	3,476	23,472	38,124	(14,652)	(21.5%)	(2.4%)	94.7%
18	2041	7,193	13,452	3,589	24,234	39,662	(15,428)	(21.9%)	(2.4%)	96.1%
19	2042	7,426	13,889	3,706	25,021	41,189	(16,168)	(22.2%)	(2.4%)	97.6%
20	2043	7,666	14,341	3,826	25,833	42,781	(16,948)	(22.6%)	(2.4%)	99.1%
21	2044	7,915	14,807	3,950	26,672	44,348	(17,676)	(22.8%)	(2.4%)	100.7%
22	2045	8,171	15,288	4,079	27,538	45,871	(18,333)	(22.9%)	(2.4%)	102.4%
23	2046	8,436	14,959	4,211	27,606	47,335	(19,729)	(23.9%)	(2.5%)	104.1%

1. Assumes the board continues its prior practice and maintains current contribution levels until the associated UAO is paid off.

2. Projected benefit payments include estimated administrative expenses.

10. Risk Disclosures

The results of any actuarial valuation are based on a set of assumptions. Although we believe the current DB Program assumptions provide a reasonable estimate of future expectations, it is almost certain that future experience will differ from the assumptions to some extent.

The following is a general discussion of the potential risks to CalSTRS funding. A comprehensive analysis of potential risks to future DB Program funding levels ("Review of Funding Level and Risks") is completed each fall by CalSTRS internal actuarial staff.

Factors Affecting Future Results

There are a number of factors that affect future valuation results. To the extent actual experience for these factors varies from the assumptions, this will likely cause either increases or decreases in the plan's future funding level and calculated supplemental contribution rates. Examples of factors that can have a significant impact on valuation results are:

- Investment return
- Payroll variation
- Salary variation
- Mortality (how long retirees live)
- Service retirement
- Termination (members leaving active employment for reasons other than death, disability, or service retirement)
- Contribution limitations. The board has limited rate-setting authority. If significant contribution increases are needed in the future, CalSTRS may receive insufficient funding due to the limitations on the board's ability to increase contribution rates under the current law. Projections based on the valuation assumptions indicate this is not currently an issue.

Of these factors, we believe the factor with the greatest potential risk is future investment returns. Payroll variation could also have a significant impact if there was a significant decline in the active teacher population, which, for example, could occur if there was a large increase in the number of new charter schools not participating in CalSTRS.

As an example of these risks, if actual investment returns fall short of the current assumption of 7% per year, this will cause an increase in the total supplemental contribution rate and a decrease in the Funded Ratio for the DB Program, all other things being equal. Conversely, if returns exceed 7%, this will decrease the total supplemental contribution rate and increase the Funded Ratio.

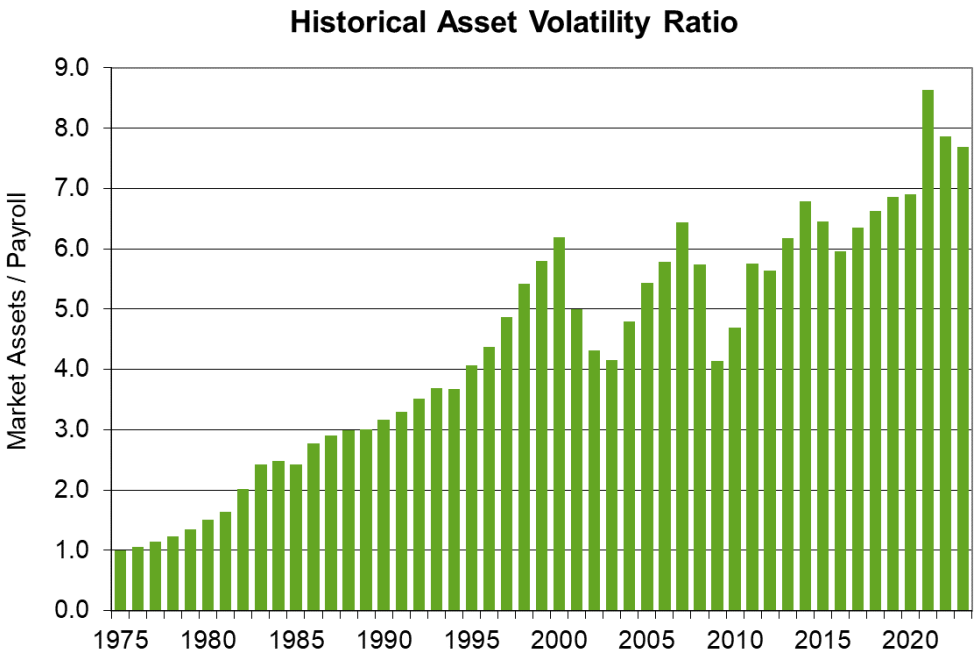
Maturity Risk

The magnitude of any contribution rate increase or decrease is affected by the Program's maturity level. As the DB Program becomes more mature (i.e., the number of retirees grows compared to the number of actives, and the accumulated assets grow compared to payroll), it tends to be subjected to increased volatility in the contribution rates needed. Specifically, for CalSTRS there may be significant fluctuations in the state supplemental contribution rates (and to a lesser extent the employer contribution rates) from year to year due to the actual investment return. One way to measure maturity risk is volatility ratios.

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. Note that for purposes of the AVR calculation, the assets include the SBMA. Plans with a high Asset Volatility Ratio will be subjected to a greater level of contribution rate volatility. The AVR is a current measure since it is based on the current level of assets and will vary from year to year.

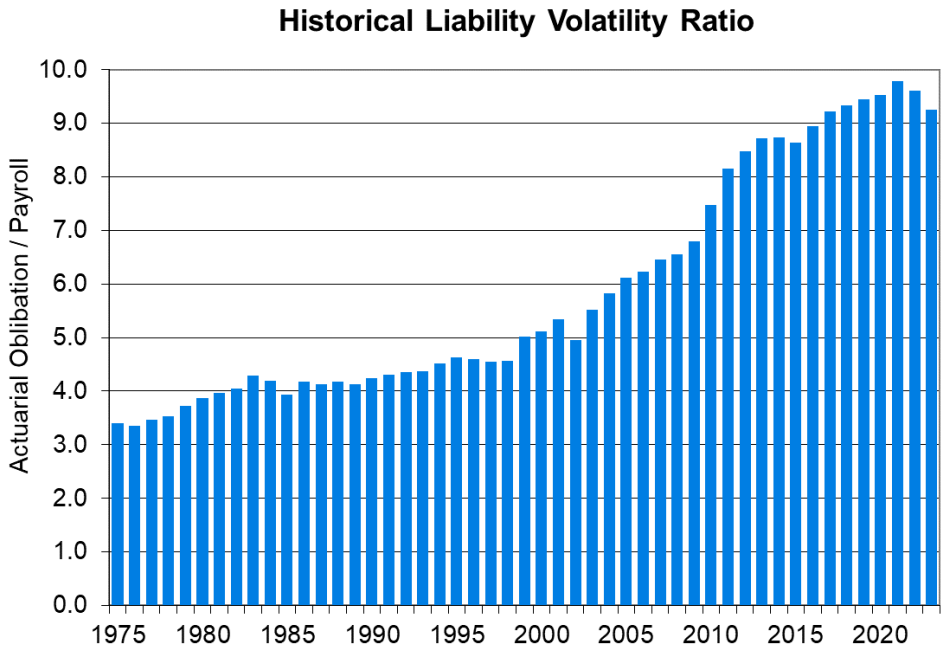
For CalSTRS, the current AVR is equal to 7.7, which is typical for a mature system. This means that for each 1% asset loss (in relation to the assumed investment return), there will need to be an increase in contributions equivalent to 7.7% of one-year's payroll. Since CalSTRS is currently targeting a funding period of 22 years (the years from the next valuation date to June 30, 2046), the increase (or decrease) in the state and employer contribution rates will be spread out over 22 years, resulting in approximately a 0.50% of payroll increase (or decrease) in the total contribution rate needed for each 1% asset loss (or gain). An asset loss (or gain) will primarily cause a contribution rate increase (or decrease) for the state and have a much smaller impact on the employer contribution rate.

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 and a half, increases in the AVR had somewhat leveled off, although there was a large increase in the 2021 valuation due to the significant increase in the market value of assets.



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 rate volatility if CalSTRS becomes fully funded. In addition, this ratio provides an indication of the potential contribution rate volatility due to liability experience (gains and losses) and liability re-measurements (assumption changes). For CalSTRS, the current LVR is 9.2.

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, although there have been larger changes in years where assumptions changes have occurred.



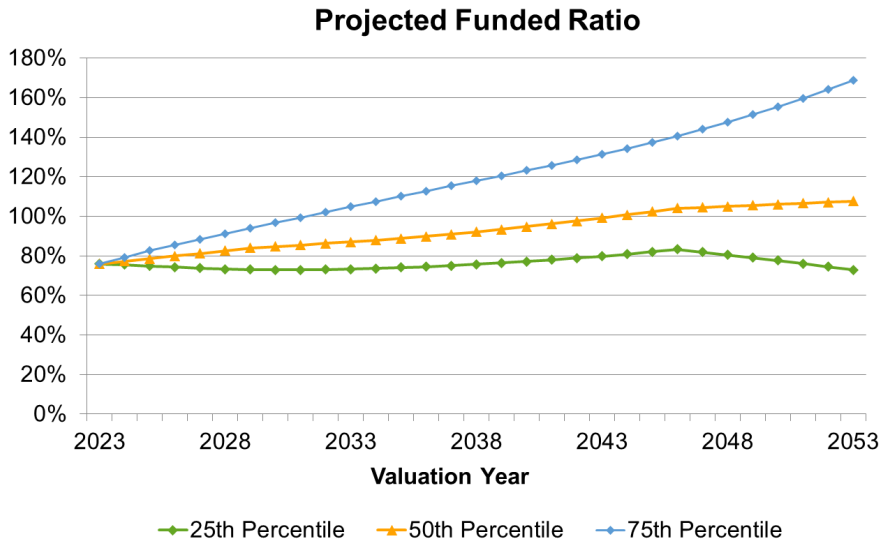
Projections Under Alternate Return Scenarios

Actuarial valuations are based on a certain set of assumptions. The reality is that these assumptions will not be exactly met and that this will affect future valuation results. Investment returns will likely have the biggest impact on the future funding of CalSTRS. In the following graphs, we show some simple examples of the future variation that may occur on key funding metrics. This is not intended to be a comprehensive analysis of the potential risks to CalSTRS funding, but it will provide the board a general sense of the sensitivity of funding levels and contribution rates caused by returns that are above or below the assumption over a long period.

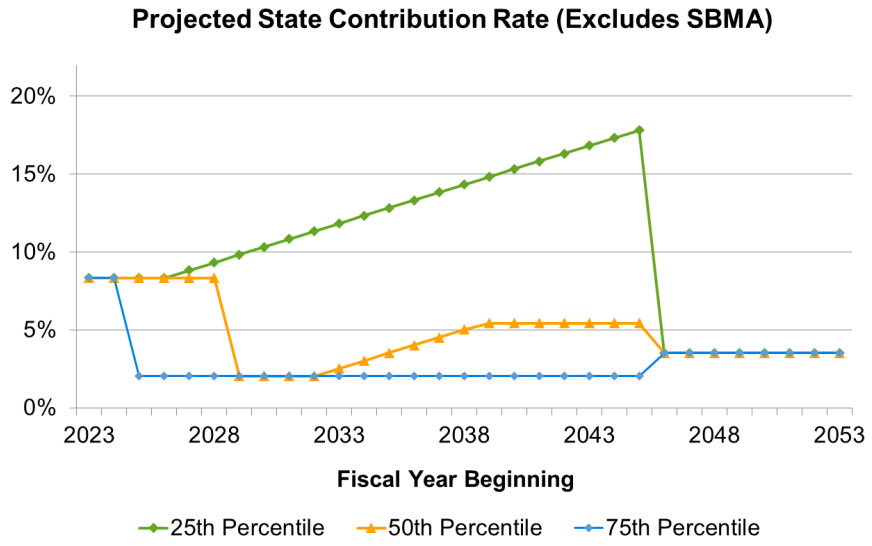
To show potential variability of future returns, we have assumed CalSTRS earns the 25th, 50th, and 75th percentile returns over the next 30 years. This assumes a median (50th percentile) geometric return of 7.0% and a standard deviation of 10.2% (before adjusting for the impact of guaranteed SBMA crediting). The average 30-year returns shown for the 30-year period are approximately 5.6% for the 25th percentile and 8.4% for the 75th percentile. We have assumed that the board would continue its prior practice of maintaining the current contribution levels unless an increase was calculated under the valuation policy or the associated UAO was paid off.

Note that the 25th percentile indicates there is a 25% probability of earning a return lower than 5.6%. This may be different than the way investment professionals use percentiles, but we have used this approach for consistency with the way CalSTRS actuarial staff reports percentiles in their risk report.

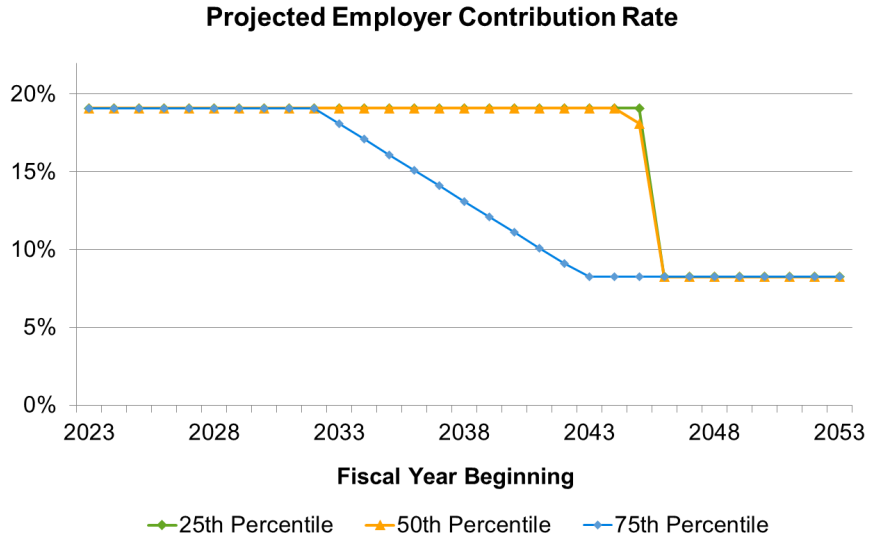
The graph below shows the potential impact of alternate returns on CalSTRS Funded Ratio. The green line (below-average returns) illustrates how the caps on contribution rate increases restrict CalSTRS ability to make significant progress toward its funding goal following sustained below-average returns.



The following graph shows the potential impact of alternate returns on the state contribution rate (excluding contributions to the SBMA). The state's contribution rate is quite sensitive to future returns, although the 0.5% cap on increases prevents large year-over-year increases. It should be noted that minimizing the year-over-year increases defers these costs and ultimately results in a higher ultimate contribution level than if the full increase needed was implemented in the following fiscal year.



The graph below shows the potential impact of varying returns on the employer contribution rate.



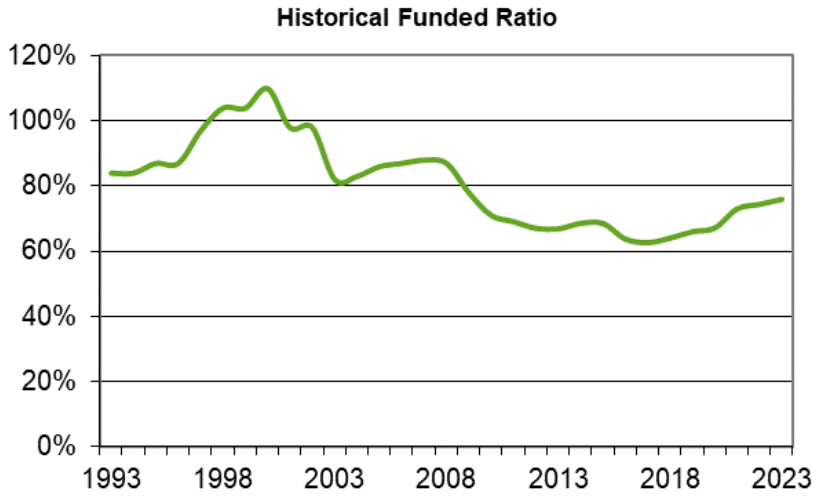
Member rates are not affected by future returns; however, the 2% at 62 member contributions may be affected by future changes in the investment return assumption or other assumption changes.

Sensitivity to Payroll Growth

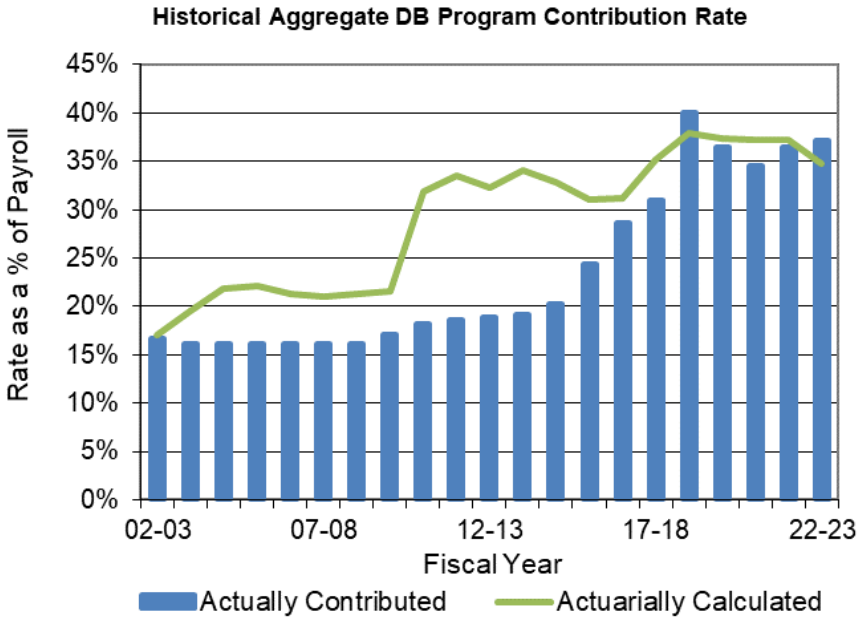
As discussed in this report, we believe future investment returns are likely to have the greatest impact on future CalSTRS funding and contribution rates. We believe a secondary factor could be variance in the total payroll for CalSTRS members. For example, if there was a 10% decline in the payroll next year, the projected Funded Ratio in 2046 would decrease to 100.1% (from 104.1%), and the total contribution rate from all stakeholders would be projected to ultimately increase by about 3.5% of pay by the end of the funding plan in 2046. Note that this assumes that the decrease in payroll is due only to a decline in the active population (as opposed to decreases or less-than-assumed increases in members' compensation).

Historical Measures

One way to assess future risks is to look at historical measurements. The graph below shows how the DB Program Funded Ratio has varied over the last 30 years. In particular, it reflects the significant impact that investment returns can have. The strong returns of the 1990's caused a large increase in the Funded Ratio. Since 2000, actual returns have lagged the assumption causing a drag on the asset growth, and the investment return assumption has decreased causing an increase in the actuarial obligation. Additionally, benefit levels were increased in 2001 (although they have been subsequently decreased under PEPRA for post-2012 new hires), and the actual contribution rate has been less than the actuarially determined rate during most of the period. These factors have been the primary causes of the decline in the Funded Ratio since 2000.



The graph below shows the history of the actual contributions made (blue bar) as a percentage of payroll. The green line shows the actuarially calculated contribution rate based on amortizing the UAO by June 30, 2046 (for years before 2014, a 30-year amortization was used). There has been variance in both rates. As previously noted, as the DB Program continues to mature, year-to-year variance is projected to increase. Year-to-year changes in the actual contribution rate will likely be less than for the actuarially calculated rate due to the restrictions on changes in the state and employer supplemental contribution rates. Note that for purposes of this graph, the contribution rates include member, employer and state contributions to the DB Program and excludes contributions to the SBMA and other programs.



Note: For the 2018-19 fiscal year, the amount actually contributed exceeded the actuarially calculated amount due to additional state contributions made.

As shown in the graph, the amount actually contributed generally fell short of the actuarially calculated amount over the period. Since the implementation of the funding plan, this gap has closed, and actual contributions for the 2022-23 fiscal year exceeded the actuarially calculated amount. For the 2023-24 fiscal year, the actual contributions are also projected to exceed the actuarially calculated amount.

Low-Default Risk Obligation Measure (LDROM)

Effective for measurement dates February 15, 2023 or later, Actuarial Standard of Practice 4 (ASOP 4) states that when performing a funding valuation, the actuary should calculate and disclose a low-default-risk obligation measure (LDROM) of the benefits accrued under the actuarial cost method used as of the measurement date. The actuary should select a discount rate derived from low-default-risk fixed income securities. We have used the Bond Buyer General Obligation 20-Bond Municipal Bond Index. The index is a 20-year high quality AA municipal bond rate. Based on Section 3.11.c. of ASOP 4, we believe this index meets the requirements for a discount rate for the LDROM, and the 20-year period is a reasonable approximation for the duration of the plan liabilities. The index was 3.65% as of June 30, 2023. Based on a discount rate of 3.65%, the Actuarial Obligation as of June 30, 2023 would be $556 billion compared to $360 billion using the investment return assumption of 7.0%.

The LDROM provides the plan sponsors and other interested parties with an additional funding metric for the DB Program for informational purposes, but does not impact the funding of the DB Program which is based on the valuation assumptions. The difference between the DB Program Actuarial Obligation and the LDROM can be viewed as the additional cost to significantly lower risk by investing in low-default-risk securities. Alternatively, this difference could be viewed as representing the estimated expected (but not guaranteed) long-term savings gained by investing in a diversified portfolio compared to investing only in low-default-risk securities.

CalSTRS's investment policy and its target asset allocation reflect a balance of risk and return. CalSTRS analyzes the merits of different asset allocations every four years as part of the asset-liability-modeling process. The board has determined that investing in a diversified portfolio best serves its members and other stakeholders. The expected return based on CalSTRS's target allocation, and consequently the investment return assumption, is significantly higher than the discount rate based on the Bond Buyer Index.

Investing in asset classes with a low default risk would be expected to reduce future investment returns and therefore increase future contributions needed (from the state, employers, and 2% at 62 members) and lower the current Funded Ratio. However, the lower investment risk levels would be expected to result in lower year-to-year volatility in the state and employer contribution rates, and a portfolio with a lower default risk might provide more benefit security for members if the associated liabilities could be adequately funded. Conversely, investing in asset classes with higher expected returns and volatility would be expected to decrease future contributions and increase the current Funded Ratio, but it would increase the year-to-year volatility of the state and employer contribution rates.

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 and augmented by consultation with CalSTRS staff. The provisions used in this valuation are summarized below for reference purposes.

Membership

2% at 60 Members: Members first hired on or before December 31, 2012 and certain other members who participated in select retirement systems prior to 2013. Coverage B consists of members hired on or after October 16,1992 or Coverage A members who elected Coverage B before April 1993.

2% at 62 Members: Members first hired on or after January 1, 2013 and not eligible for 2% at 60 membership. All 2% at 62 members are Coverage B.

Member Contributions

Base Contribution Rate:

2% at 60 Members: 8.0% of creditable compensation. 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 payroll as compared to the initial Normal Cost Rate (or at the time of the last adjustment). Currently, the base member contribution rate is equal to 9.0% of creditable compensation.

Supplemental Contribution Rates:

In addition to the base contribution rates, members make additional contributions for fiscal years beginning July 1, 2016 and later:

2% at 60 Members: 2.250% of creditable compensation

2% at 62 Members: 1.205% 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 annualized pay rate 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 annualized pay rate in a consecutive 12-month period.

Twelve-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 annualized pay rate. Compensation is limited to 120% of the 2013 Social Security Wage Base with adjustments. The limit effective July 1, 2023 is $176,614 (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.

Credited Service:

For each year of membership, credited service is granted based on the ratio of salary earned to full-time annualized pay rate 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 for members hired after June 30, 1980.

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 until they actually occur, 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, 1996.

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 half-percent reduction in the normal retirement allowance for each full month or partial month the member is younger than age 60, plus a reduction of a quarter percent for each full month or partial month the member is younger than age 55.

2% at 62 Members: A half-percent 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.

Coverage for Disability and Survivor Benefits

Coverage A: CalSTRS member on or before October 15, 1992 and did not elect Coverage B before April 1993.

Coverage B: Not a Coverage A member.

Disability Allowance - Coverage A

Eligibility Requirement Allowance:*

Member has five years of credited California service and has not attained age 60.

- 50% of final earned compensation or
- 5% of final earned compensation for each year of service credit if over age 45 with less than 10 years of service credit.

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

Children's Benefit:

10% for each eligible dependent child, up to a maximum of 40% of final earned 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 employer-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.

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

Children's Benefit:

10% for each eligible child up to four children, for a maximum of 40% of final compensation. The increment for each child continues until the child attains age 21, regardless of student, marital, or employment status.

Offsets:

The member's allowance is reduced by disability benefits payable under Workers' Compensation.

Death Before Retirement - Coverage A

Eligibility Requirement:

One or more years of service credit for active members or members receiving a disability allowance. Ineligible members may receive a lump sum payment of their contributions with interest.

Lump Sum Payment:

$6,903 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. Ineligible members may receive a lump sum payment of their contributions with interest.

Lump Sum Payment:

$27,612 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:

$6,903 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 annuity option had been elected, payment of the unpaid contributions and interest, if any, remaining in the retiree's account will be made.

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.

Changes from Prior Valuation

Changes in plan provisions reflected in this valuation:

- PEPRA compensation limits have been updated to reflect the current year.

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 were reviewed and changed for the June 30, 2023 actuarial valuation as a result of the 2024 Experience Analysis. Please refer to the Experience Analysis report dated December 22, 2023 for the data and rationale used in the recommendation of each assumption.

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

Entry Age Cost Method:

The accruing costs of all benefits with future accruals are measured by the Entry Age Cost Method. For measurements where no future service is earned (i.e., those with service fixed as of June 30, 2014), the Actuarial Obligation uses the Projected Unit Credit Cost Method. The projected revenue in excess of the Normal Cost Rate is tested for sufficiency to amortize the total Unfunded Actuarial Obligation calculated under the applicable cost method. Additional details of the amortization of the Unfunded Actuarial Obligation are shown in the Amortization Method subsection following.

The actuarial present value of projected benefits for each individual member included in the valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this actuarial present value allocated to a valuation year is called the Normal Cost. The Normal Cost is based on the respective benefit structures. For projection purposes, the Normal Cost Rate is assumed to increase by a relative 0.12% per year to reflect an assumed gradual increase in life expectancies due to generational mortality. 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.

Entry age is determined as the age at membership date.

Projected Unit Credit (PUC) Cost Method:

This cost method is used for calculations of the Actuarial Obligation where there are no future service accruals after 2014. Under the PUC method, the actuarial present value of projected benefits for each individual member included in the valuation is determined based on the current service and salary projected to the age the member leaves active employment. The Normal Cost is $0 since no benefits are being earned.

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 smoothing is applied on the total DB Program assets and then the SBMA is deducted to determine the net actuarial value for funding purposes. The Fair Market Value excludes the liability for "Net Pension and OPEB Obligation," which are pre-recognized administrative expenses, from the Fiduciary Net Position reported for accounting purposes.

Amortization Method

Under the board's valuation policy, the Unfunded Actuarial Obligation (or Surplus Funding) is amortized as a percentage of the projected future payroll using the payroll growth assumption. The Unfunded Actuarial Obligation is divided into three pieces under the policy and funded as follows:

1. For the Unfunded Actuarial Obligation attributable to the 1990 Benefit Structure, the state funds this piece over a closed amortization period ending June 30, 2046. The state makes a supplemental contribution rate which is described at the beginning of Section 6. A portion of the supplemental contribution rate is used to fund the 1990 Normal Cost deficit, which is the shortfall between the basic 16% contribution rate (8.00% state and 8.00% employer) under the 1990 Contribution Structure and the Normal Cost Rate associated with the 1990 Benefit Structure. The remaining portion of the state supplemental contribution rate is used to fund the 1990 UAO. Note that for the state, the payroll is the second prior fiscal year payroll, so state contributions made in fiscal year 2023-2024 will be based on the covered member compensation for fiscal year 2021-2022.
2. For the Unfunded Actuarial Obligation attributable to benefit changes after 1990 for service as of June 30, 2014, the employers fund the majority of this piece as an employer supplemental contribution over a closed amortization period ending June 30, 2046. This portion of the UAO is funded through the 0.25% employer sick leave contribution under EC 22951, the 2.017% state contribution rate under EC 22955, and an actuarially calculated employer supplemental contribution rate under EC 22950.5 which is described at the beginning of Section 7.
3. The Unfunded Actuarial Obligation not included in the other two pieces is referred to as the "Unallocated UAO." Under the valuation policy, a portion of each year's total contributions, equal to the Normal Cost of the New Benefits (those not a part of the 1990 Benefit Structure), is allocated to fund these benefits. Since the contribution is equal to the Normal Cost, there are no remaining contributions to pay down the Unallocated UAO, if any. Therefore, the Unallocated UAO will increase or decrease based on future experience.

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 CalSTRS. 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 CalSTRS. 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 DB Program payroll is assumed to increase at a rate of 3.25% each year, which is 0.25% less than the general wage growth assumption. As discussed in the 2024 Experience Study, the board's adoption of a lower payroll growth assumption reflects the potential downward pressure on total CalSTRS payroll in the future due to several factors, including projected decreases in the California student population.

Table B.1
List of Major Valuation Assumptions

Economic Assumptions

Investment Return (net of investment and administrative expenses)	7.00%
Interest on Member Accounts	3.00%
Wage Growth	3.50%
Payroll Growth	3.25%
Inflation	2.75%

Demographic Assumptions

Mortality[1]		
Active - Male	2023 CalSTRS Active Member Male	Table B-2
Active - Female	2023 CalSTRS Active Member Female	Table B-2
Retired & Beneficiary - Male	2023 CalSTRS Service Retired Male	Table B-2
Retired & Beneficiary - Female	2023 CalSTRS Service Retired Female	Table B-2
Disabled - Male	2023 CalSTRS Disabled Retiree Male	Table B-2
Disabled - Female	2023 CalSTRS Disabled Retiree Female (select rates in first three years for both Males and Females)	Table B-2
Service Retirement		Table B-3a-f
Disability Retirement		Table B-4
Withdrawal		Table B-5
Probability of Refund		Table B-6
Merit Salary Increases		Table B-7
Supplemental Assumptions		Table B-8

1. The mortality assumption uses a generational mortality approach with a base year of 2023. Projected improvement is based on the MP-2021 Ultimate Projection Scale. The combined base tables and projection scale specified contain a margin for expected future mortality improvement.

Table B.2
Mortality as of June 30, 2023

	Active Members[1]		Projection
Age	Male	Female	Scale
25	0.014%	0.008%	1.350%
30	0.023	0.014	1.350
35	0.033	0.022	1.350
40	0.044	0.031	1.350
45	0.063	0.042	1.350
50	0.106	0.065	1.350
55	0.184	0.099	1.350
60	0.279	0.146	1.350
65	0.400	0.211	1.310

	Retired Members and Beneficiaries[1]		Disabled Members (After Year 3)[1]		Projection
Age	Male	Female	Male	Female	Scale
50	0.195%	0.141%	1.446%	0.929%	1.350%
55	0.312	0.226	1.971	1.187	1.350
60	0.445	0.289	2.447	1.397	1.350
65	0.575	0.369	2.720	1.577	1.310
70	0.903	0.602	3.573	2.016	1.240
75	1.754	1.195	4.981	3.206	1.170
80	3.482	2.416	7.139	5.421	1.100
85	6.893	5.007	10.794	9.021	0.870
90	12.924	9.999	16.596	14.059	0.630
95	22.529	17.907	24.286	20.081	0.400

Select minimum rates for disability:

First year of disability	4.0%	4.0%
Second year of disability	3.5	3.0
Third year of disability	3.0	2.0

1.The mortality assumption uses a generational mortality approach with a base year of 2023 for the mortality rates. Projected improvement is based on the MP-2021 Ultimate Projection Scale. The rates shown reflect mortality improvement through June 30, 2023. The projection scale does not apply to the select minimum rates.

Table B.3a
Service Retirement – 2% at 60 Males

DB Program - 2% at 60 Members - Males							
	Years of Credited Service						
Age	5-9 years	10-14 years	15-19 years	20-24 years	25 years	26-29 years	30 or More Years
50	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.5%
51	0.0	0.0	0.0	0.0	0.0	0.0	3.0
52	0.0	0.0	0.0	0.0	0.0	0.0	3.0
53	0.0	0.0	0.0	0.0	0.0	0.0	3.0
54	0.0	0.0	0.0	0.0	0.0	0.0	3.0
55	1.5	2.0	2.5	3.0	3.5	3.0	5.0
56	1.5	1.5	2.0	2.5	3.5	3.0	5.0
57	1.5	1.5	2.0	2.5	5.0	4.0	7.5
58	2.0	2.5	3.0	3.5	6.0	5.0	11.0
59	2.5	3.0	4.0	5.0	9.5	8.0	17.0
60	4.0	5.0	6.5	8.0	13.0	11.0	25.0
61	6.0	7.0	9.0	11.0	18.0	18.0	50.0
62	8.0	9.0	12.0	14.5	24.0	24.0	42.0
63	9.0	10.5	14.0	17.0	28.0	28.0	33.0
64	11.0	13.0	17.0	20.5	25.0	25.0	33.0
65	13.0	15.0	20.0	24.0	25.0	25.0	32.5
66	13.0	15.0	20.0	24.0	25.0	25.0	30.0
67	11.5	13.5	18.0	21.5	25.0	25.0	27.0
68	11.5	13.5	18.0	21.5	25.0	25.0	27.0
69	11.5	13.5	18.0	21.5	25.0	25.0	25.0
70	11.5	13.5	18.0	21.5	25.0	25.0	25.0
71	11.5	13.5	18.0	21.5	25.0	25.0	25.0
72	11.5	13.5	18.0	21.5	25.0	25.0	25.0
73	11.5	13.5	18.0	21.5	25.0	25.0	25.0
74	11.5	13.5	18.0	21.5	25.0	25.0	25.0
75+	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The assumptions shown above are for retirement from active status. It is assumed that all vested terminated 2% at 60 members retire at age 60.

Table B.3b
Service Retirement – 2% at 60 Females

DB Program - 2% at 60 Members - Females							
	Years of Credited Service						
Age	5-9 years	10-14 years	15-19 years	20-24 years	25 years	26-29 years	30 or More Years
50	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%
51	0.0	0.0	0.0	0.0	0.0	0.0	2.5
52	0.0	0.0	0.0	0.0	0.0	0.0	2.5
53	0.0	0.0	0.0	0.0	0.0	0.0	2.5
54	0.0	0.0	0.0	0.0	0.0	0.0	4.0
55	2.0	2.5	3.5	4.5	4.5	4.0	6.5
56	2.0	2.5	3.0	4.0	4.0	3.5	6.5
57	2.0	2.5	3.5	4.5	6.0	5.0	9.0
58	2.5	3.0	4.0	5.0	6.5	5.5	12.0
59	3.5	4.5	6.0	7.5	11.5	10.0	18.0
60	5.0	6.0	8.0	10.0	16.0	14.0	26.0
61	6.5	8.5	11.0	14.0	22.0	21.0	52.0
62	8.5	11.0	14.5	18.0	31.5	30.0	44.0
63	11.0	13.5	18.0	22.5	35.5	34.0	37.0
64	12.0	15.0	20.0	25.0	33.5	32.0	37.0
65	12.5	16.0	21.0	26.5	33.5	32.0	35.0
66	12.0	15.0	20.0	25.0	31.5	30.0	32.0
67	12.0	15.0	20.0	25.0	31.5	30.0	32.0
68	12.0	15.0	20.0	25.0	31.5	30.0	30.0
69	12.0	15.0	20.0	25.0	31.5	30.0	30.0
70	12.0	15.0	20.0	25.0	29.5	28.0	30.0
71	12.0	15.0	20.0	25.0	29.5	28.0	30.0
72	12.0	15.0	20.0	25.0	29.5	28.0	30.0
73	12.0	15.0	20.0	25.0	29.5	28.0	30.0
74	12.0	15.0	20.0	25.0	29.5	28.0	30.0
75+	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The assumptions shown above are for retirement from active status. It is assumed that all vested terminated 2% at 60 members retire at age 60.

Table B.3c
Service Retirement – 2% at 62 Males

DB Program - 2% at 62 Members - Males						
	Years of Credited Service					
Age	5-9 years	10-14 years	15-19 years	20-24 years	25-29 years	30 or More Years
50	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
51	0.0	0.0	0.0	0.0	0.0	0.0
52	0.0	0.0	0.0	0.0	0.0	0.0
53	0.0	0.0	0.0	0.0	0.0	0.0
54	0.0	0.0	0.0	0.0	0.0	0.0
55	1.0	1.5	2.0	2.5	2.5	3.0
56	1.0	1.0	1.5	2.0	2.5	3.0
57	1.0	1.0	1.5	2.0	3.0	3.5
58	1.5	2.0	2.5	2.5	4.0	5.0
59	2.0	2.5	3.0	4.0	6.0	7.0
60	3.0	4.0	5.0	6.0	8.5	10.0
61	4.5	5.5	7.0	8.5	13.5	16.0
62	6.0	7.0	9.0	11.0	18.0	21.5
63	7.5	8.5	11.0	13.5	18.5	22.5
64	8.5	10.0	13.0	15.5	19.0	23.0
65	13.0	15.0	20.0	24.0	25.0	25.0
66	13.0	15.0	20.0	24.0	25.0	25.0
67	14.0	16.0	21.5	26.0	30.0	30.0
68	11.5	13.5	18.0	21.5	25.0	25.0
69	11.5	13.5	18.0	21.5	25.0	25.0
70	11.5	13.5	18.0	21.5	25.0	25.0
71	11.5	13.5	18.0	21.5	25.0	25.0
72	11.5	13.5	18.0	21.5	25.0	25.0
73	11.5	13.5	18.0	21.5	25.0	25.0
74	11.5	13.5	18.0	21.5	25.0	25.0
75	100.0	100.0	100.0	100.0	100.0	100.0

The assumptions shown above are for retirement from active status. It is assumed that all vested terminated 2% at 62 members retire at age 62.

Table B.3d
Service Retirement – 2% at 62 Females

DB Program - 2% at 62 Members - Females						
	Years of Credited Service					
Age	5-9 years	10-14 years	15-19 years	20-24 years	25-29 years	30 or More Years
50	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
51	0.0	0.0	0.0	0.0	0.0	0.0
52	0.0	0.0	0.0	0.0	0.0	0.0
53	0.0	0.0	0.0	0.0	0.0	0.0
54	0.0	0.0	0.0	0.0	0.0	0.0
55	1.5	2.0	2.5	3.5	3.0	3.5
56	1.5	2.0	2.5	3.0	2.5	3.0
57	1.5	2.0	2.5	3.5	4.0	5.0
58	2.0	2.5	3.0	4.0	4.5	5.5
59	2.5	3.5	4.5	5.5	7.5	9.0
60	4.0	4.5	6.0	7.5	11.0	13.0
61	5.0	6.5	8.5	10.5	16.0	19.0
62	6.5	8.5	11.0	13.5	22.5	27.0
63	8.0	10.0	13.0	16.5	23.5	28.0
64	9.0	11.5	15.0	19.0	24.0	29.0
65	12.5	16.0	21.0	26.5	32.5	32.5
66	12.0	15.0	20.0	25.0	30.5	30.5
67	14.5	18.0	24.0	30.0	36.5	36.5
68	12.0	15.0	20.0	25.0	30.5	30.5
69	12.0	15.0	20.0	25.0	30.5	30.5
70	12.0	15.0	20.0	25.0	28.5	28.5
71	12.0	15.0	20.0	25.0	28.5	28.5
72	12.0	15.0	20.0	25.0	28.5	28.5
73	12.0	15.0	20.0	25.0	28.5	28.5
74	12.0	15.0	20.0	25.0	28.5	28.5
75	100.0	100.0	100.0	100.0	100.0	100.0

The assumptions shown above are for retirement from active status. It is assumed that all vested terminated 2% at 62 members retire at age 62.

Table B.3e
Service Retirement – 1990 Benefit Structure Males

DB Program - 1990 Structure - Males					
	Years of Credited Service				
Age	5-9 years	10-14 years	15-19 years	20-29 years	30 or More Years
50	0.0%	0.0%	0.0%	0.0%	0.0%
51	0.0	0.0	0.0	0.0	0.0
52	0.0	0.0	0.0	0.0	0.0
53	0.0	0.0	0.0	0.0	0.0
54	1.0	1.5	1.5	1.5	2.0
55	5.5	6.5	7.5	7.5	8.5
56	3.5	4.0	4.5	5.0	5.5
57	3.5	4.0	4.5	5.0	5.5
58	5.5	6.5	7.5	7.5	8.5
59	10.5	12.5	14.5	15.5	17.0
60	16.5	20.0	23.0	24.0	26.5
61	11.5	13.5	16.0	16.5	18.0
62	11.5	13.5	16.0	16.5	18.0
63	11.5	13.5	16.0	16.5	18.0
64	13.5	16.0	19.0	20.0	21.5
65	13.5	16.0	19.0	20.0	21.5
66	13.5	16.0	19.0	20.0	21.5
67	13.5	16.0	19.0	20.0	21.5
68	12.0	14.5	17.0	17.5	19.0
69	12.0	14.5	17.0	17.5	19.0
70+	100.0	100.0	100.0	100.0	100.0

The assumptions shown above are for retirement from active status. It is assumed that all vested terminated members retire at age 60 under the 1990 Benefit Structure.

Table B.3f
Service Retirement – 1990 Benefit Structure Females

DB Program - 1990 Structure - Females					
	Years of Credited Service				
Age	5-9 years	10-14 years	15-19 years	20-29 years	30 or More Years
50	0.0%	0.0%	0.0%	0.0%	0.0%
51	0.0	0.0	0.0	0.0	0.0
52	0.0	0.0	0.0	0.0	0.0
53	0.0	0.0	0.0	0.0	0.0
54	1.0	1.5	1.5	1.5	2.0
55	5.5	6.5	7.5	7.5	8.5
56	3.5	4.0	4.5	5.0	5.5
57	3.5	4.0	4.5	5.0	5.5
58	5.5	6.5	7.5	7.5	8.5
59	10.5	12.5	14.5	15.5	17.0
60	16.5	20.0	23.0	24.0	26.5
61	11.5	13.5	16.0	16.5	18.0
62	11.5	13.5	16.0	16.5	18.0
63	11.5	13.5	16.0	16.5	18.0
64	13.5	16.0	19.0	20.0	21.5
65	13.5	16.0	19.0	20.0	21.5
66	13.5	16.0	19.0	20.0	21.5
67	13.5	16.0	19.0	20.0	21.5
68	12.0	14.5	17.0	17.5	19.0
69	12.0	14.5	17.0	17.5	19.0
70+	100.0	100.0	100.0	100.0	100.0

The assumptions shown above are for retirement from active status. It is assumed that all vested terminated members retire at age 60 under the 1990 Benefit Structure.

Table B.4
Disability Retirement

Coverage A		
Age	**Male**	**Female**
25	0.015%	0.015%
30	0.025	0.025
35	0.040	0.050
40	0.065	0.075
45	0.090	0.090
50	0.130	0.180
55	0.170	0.225

Coverage B		
Age	**Male**	**Female**
25	0.010%	0.015%
30	0.010	0.015
35	0.020	0.030
40	0.040	0.055
45	0.070	0.095
50	0.105	0.165
55	0.200	0.270
60	0.275	0.305
65	0.305	0.325
70	0.305	0.325

Table B.5
Other Terminations of Employment (Withdrawal)

Year[1]	Male	Female
0	10.00%	9.00%
1	8.25	7.00
2	6.25	5.50
3	4.50	4.25
4	4.00	3.60
5	3.10	3.00
6	2.70	2.50
7	2.35	2.00
8	2.00	1.70
9	1.80	1.50
10	1.60	1.35
11	1.40	1.20
12	1.30	1.10
13	1.20	1.00
14	1.10	0.90
15	1.00	0.90
16	0.95	0.85
17	0.90	0.85
18	0.85	0.80
19	0.80	0.75
20	0.75	0.75
21	0.70	0.70
22	0.65	0.65
23	0.60	0.60
24	0.60	0.60
25	0.60	0.60
26	0.55	0.55
27	0.55	0.55
28	0.55	0.55
29	0.50	0.50
30+	0.50	0.50

1. Based on elapsed service since membership date.

Table B.6
Probability of Refund

	Entry Ages					
Year[1]	Under 25	25-29	30-34	35-39	40-44	45 and Up
Under 5	100%	100%	100%	100%	100%	100%
5	44	42	39	36	30	29
6	42	40	37	34	28	27
7	40	38	35	32	25	24
8	37	35	32	29	21	20
9	35	33	30	27	18	17
10	32	29	26	23	13	12
11	29	26	24	21	11	10
12	27	24	22	19	9	8
13	25	22	20	17	7	6
14	23	20	18	15	5	4
15	21	18	16	13	3	2
16	20	17	15	12	2	1
17	18	15	13	10	0	0
18	16	13	11	8	0	0
19	14	11	9	6	0	0
20	13	10	8	5	0	0
21	12	9	7	4	0	0
22	10	8	6	3	0	0
23	9	7	5	2	0	0
24	8	6	4	1	0	0
25	6	4	2	0	0	0
26	5	3	1	0	0	0
27	4	2	0	0	0	0
28	3	1	0	0	0	0
29	2	0	0	0	0	0
30	1	0	0	0	0	0

1. Assumption applied at time of assumed termination based on credited service. Members who terminate with less than five years of credited service are assumed to have a 100% probability of refund.

Table B.7
Merit Salary Increases[1]

	Entry Age - Annual Increase in Salaries Due to Merit					
Year[2]	Under 25	25-29	30-34	35-39	40-44	45 & up
0	8.0%	7.5%	7.0%	6.5%	6.0%	5.5%
1	7.0	6.5	6.0	5.5	5.0	4.5
2	6.3	5.8	5.3	5.0	4.5	3.8
3	5.8	5.3	4.8	4.5	4.0	3.0
4	5.3	4.8	4.4	4.1	3.8	2.8
5	4.8	4.5	4.1	3.8	3.5	2.6
6	4.6	4.3	3.9	3.6	3.3	2.4
7	4.3	4.0	3.6	3.4	3.0	2.2
8	4.0	3.8	3.3	3.1	2.8	2.0
9	3.6	3.4	3.0	2.7	2.4	1.8
10	3.2	3.0	2.6	2.3	2.1	1.6
11	2.8	2.6	2.2	2.0	1.8	1.4
12	2.5	2.2	2.0	1.8	1.6	1.3
13	2.3	2.0	1.8	1.6	1.5	1.3
14	2.1	1.9	1.7	1.5	1.4	1.2
15	1.9	1.8	1.6	1.4	1.3	1.1
16	1.8	1.6	1.5	1.3	1.2	1.0
17	1.8	1.6	1.4	1.2	1.1	0.9
18	1.7	1.5	1.3	1.1	1.0	0.9
19	1.7	1.5	1.2	1.0	0.9	0.9
20	1.6	1.4	1.1	1.0	0.9	0.9
21	1.6	1.4	1.1	0.9	0.9	0.8
22	1.5	1.3	1.0	0.9	0.9	0.8
23	1.5	1.3	1.0	0.9	0.8	0.8
24	1.4	1.2	1.0	0.9	0.8	0.7
25	1.3	1.1	0.9	0.8	0.8	0.8
26	1.2	1.0	0.9	0.8	0.7	0.7
27	1.1	0.9	0.8	0.8	0.8	0.8
28	1.0	0.8	0.8	0.7	0.7	0.7
29	0.9	0.7	0.7	0.7	0.7	0.7
30	0.8	0.7	0.7	0.7	0.7	0.7
31	0.7	0.6	0.6	0.6	0.6	0.6
32	0.6	0.6	0.6	0.6	0.6	0.6
33	0.6	0.6	0.6	0.6	0.5	0.5
34	0.6	0.6	0.6	0.5	0.5	0.5
35+	0.6	0.6	0.6	0.5	0.5	0.5

1. The total expected increase in salary includes both merit (shown above) and the general wage increase assumption of 3.50% per annum. The total result is compounded rather than additive. For example, the total assumed increase for service less than one year (Year 0 above) is 11.178% (1.080 x 1.035) for members in the entry age under 25 group.

2. Based on elapsed service since membership date.

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 1.6%.
Optional Forms	Active and Inactive: Based on single life annuity assumed. Retirees and Beneficiaries: Based on optional form in data.
Probability of Marriage	Male: 85% Female: 65% Male spouses are assumed to be three years older than female spouses.
Children	Married members under age 60 are assumed to have the number of children shown in the following table. Children are assumed to receive benefits until the member would have turned age 60.

Member's Gender	Assumed Number of Children
Male	0.70
Female	0.50

Assumed Offsets	No offsets to disability and survivor benefits are assumed.

Valuation of Inactive Members

Salary and benefit information is not available on the valuation data provided for inactive members. Therefore, we estimate the projected retirement benefits for inactive members as follows:

1) The inactive member's annualized pay rate information is retrieved from when they were active by matching with a database of active valuation data back to 2001 and taking the highest annualized pay rate for the member during the period.
2) For those members who cannot be located on the active database (because they terminated prior to 2001 or another reason), their annualized pay rate is estimated based on 120% of the average annualized pay rate for all active members in the year the member terminated.
3) The annualized pay rate amount from the prior steps is treated as the member's final compensation with two additional adjustments.
   a. An additional load of 5% for all current and future inactive members is applied to their salary amount to account for potential post-termination increases in salary due to factors such as reciprocity.
   b. Final compensation is increased by an additional 4.1% if the member has 25 or more years of credited service.
4) Based on the salary data described above and the birth date and credited service from the current year's valuation data, the projected benefit amount is calculated and valued as a deferred service retirement.
5) Non-vested members who have been inactive for less than two years are assumed to take an immediate refund of their member contributions.

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.

Note that CalSTRS provides two files with benefit recipients. The benefit valuation file includes all service retirees, disabled retirees, and most surviving beneficiaries. The family benefit valuation file includes other survivors, including child beneficiaries and survivors deferring their benefit. Information from the family benefit valuation file is included with the survivor information shown in this section, except for average ages and benefit amounts.

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

Table C.1
Summary of Statistical Information

	June 30, 2023	June 30, 2022
Number of Members		
Active Members [1]	458,645	449,418
Inactive Members [1]	234,479	227,163
Retirees and Beneficiaries		
Service Retirees	288,494	285,704
Disabled Retirees	9,809	9,885
Survivors	30,629	29,879
Total Benefit Recipients	328,932	325,468
Total Membership in Valuation	1,022,056	1,002,049
Active Member Statistics		
Earned Salaries [2]	$ 38,916 million	$ 36,017 million
Average Earned Salary	$ 84,850	$ 80,143
Average Age	45.1 years	45.1 years
Average Service	12.5 years	12.5 years

1. Some active members were reported with no Annualized Pay Rate, in which case their liabilities, if any, were included with inactive members.

2. Total of prior year Earned Salaries for all active members. This may differ from the payroll amounts shown elsewhere which may include other adjustments.

Retired Member Statistics[3]	June 30, 2023	June 30, 2022
Average Age		
Service Retiree	74.7	74.5
Disabled Retiree	68.0	67.6
Survivors	78.0	77.9
All Benefit Recipients	74.8	74.5
Average Monthly Benefit		
Service Retirees	$ 4,575	$ 4,471
Disabled Retirees	3,188	3,116
Survivors	3,087	2,994
All Benefit Recipients	$ 4,410	$ 4,309

3. Average retiree ages shown here are current ages; average retiree ages shown elsewhere in this Appendix are age at retirement. Survivors from family benefit valuation file are excluded from averages. Average Monthly Benefit amounts exclude the supplemental benefit.

Inactive Member Statistics	June 30, 2023	June 30, 2022
Average Age	51.0	50.8
Average Account Balance	$ 15,475	$ 14,423

Table C.1
Summary of Statistical Information
(Continued)

Active Member Statistics by Benefit Formula [1]	2% at 60 Members	2% at 62 Members
Number	277,929	180,716
Earned Salaries [2]	$ 27,948 million	$ 10,968 million
Average Earned Salary	$ 100,558	$ 60,694
Average Age	50.8 years	36.3 years
Average Service	18.1 years	3.8 years

Retired Member Statistics by Benefit Structure [3]	1990 Benefit	Total Benefit
Average Monthly Benefit		
Service Retirees	$ 3,770	$ 4,575
Disabled Retirees	3,158	3,188
Survivors	2,656	3,087
All Benefit Recipients	$ 3,659	$ 4,410

Pre-2014 Statistics	Pre-2014	Total
Active Member Average Service	6.1 years	12.5 years
Inactive Member Average Account Balance	$ 9,049	$ 15,475
Average Monthly Benefit for All Benefit Recipients	$ 4,165	$ 4,410

1. Some active members were reported with no Annualized Pay Rate, in which case their liabilities, if any, were included with inactive members.

2. Total of prior year Earned Salaries for all active members. This differs from the payroll amounts shown elsewhere in this report which reflect annualized amounts for members who were hired part way through the prior year.

3. Milliman estimates the 1990 Benefit based on CalSTRS-provided data.

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

	Male					
	Years of Service					
Age	1 & Under	Greater than 1 & Under 5	5-9	10-14	15-19	20-24
Less than 25	1,535	479	2	-	-	-
25 to 30	3,432	5,328	801	-	-	-
30 to 35	2,245	5,800	5,553	387	-	-
35 to 40	1,474	3,490	5,430	3,395	596	-
40 to 45	1,183	2,643	3,751	3,621	5,106	791
45 to 50	948	1,873	2,490	2,293	4,575	5,937
50 to 55	786	1,604	1,881	1,579	3,035	5,751
55 to 60	533	1,109	1,316	1,121	1,781	3,047
60 to 65	370	815	887	776	1,092	1,598
65 to 70	208	491	477	370	494	574
70 and over	167	402	331	207	255	281
Total	12,881	24,034	22,919	13,749	16,934	17,979

	Years of Service					
Age	25-29	30-34	35-39	40-44	45 & Over	Total
Less than 25	-	-	-	-	-	2,016
25 to 30	-	-	-	-	-	9,561
30 to 35	-	-	-	-	-	13,985
35 to 40	-	-	-	-	-	14,385
40 to 45	1	-	-	-	-	17,096
45 to 50	882	3	-	-	-	19,001
50 to 55	5,592	352	2	-	-	20,582
55 to 60	4,069	2,370	141	-	-	15,487
60 to 65	1,607	1,152	439	9	-	8,745
65 to 70	441	229	117	46	4	3,451
70 and over	180	95	67	33	38	2,056
Total	12,772	4,201	766	88	42	126,365

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

Female

	Years of Service					
Age	1 & Under	Greater than 1 & Under 5	5-9	10-14	15-19	20-24
Less than 25	5,262	1,977	1	-	-	-
25 to 30	8,502	18,852	3,390	-	-	-
30 to 35	5,035	14,566	18,328	1,529	-	-
35 to 40	3,473	8,532	14,647	10,815	2,118	3
40 to 45	3,185	6,994	9,903	10,227	16,321	2,549
45 to 50	2,422	5,240	7,221	6,623	12,261	16,400
50 to 55	1,652	3,891	5,581	5,121	7,909	12,525
55 to 60	1,046	2,301	3,495	3,299	4,991	6,861
60 to 65	608	1,429	2,060	1,990	3,100	3,850
65 to 70	266	677	900	796	1,127	1,225
70 and over	182	458	442	333	390	470
Total	31,633	64,917	65,968	40,733	48,217	43,883

	Years of Service					
Age	25-29	30-34	35-39	40-44	45 & Over	Total
Less than 25	-	-	-	-	-	7,240
25 to 30	-	-	-	-	-	30,744
30 to 35	-	-	-	-	-	39,458
35 to 40	-	-	-	-	-	39,588
40 to 45	3	-	-	-	-	49,182
45 to 50	2,135	2	-	-	-	52,304
50 to 55	12,313	837	3	-	-	49,832
55 to 60	7,549	5,060	462	1	-	35,065
60 to 65	3,200	1,984	1,116	33	1	19,371
65 to 70	858	350	157	92	11	6,459
70 and over	337	189	97	49	90	3,037
Total	26,395	8,422	1,835	175	102	332,280

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

	Total					
	Years of Service					
Age	1 & Under	Greater than 1 & Under 5	5-9	10-14	15-19	20-24
Less than 25	6,797	2,456	3	-	-	-
25 to 30	11,934	24,180	4,191	-	-	-
30 to 35	7,280	20,366	23,881	1,916	-	-
35 to 40	4,947	12,022	20,077	14,210	2,714	3
40 to 45	4,368	9,637	13,654	13,848	21,427	3,340
45 to 50	3,370	7,113	9,711	8,916	16,836	22,337
50 to 55	2,438	5,495	7,462	6,700	10,944	18,276
55 to 60	1,579	3,410	4,811	4,420	6,772	9,908
60 to 65	978	2,244	2,947	2,766	4,192	5,448
65 to 70	474	1,168	1,377	1,166	1,621	1,799
70 and over	349	860	773	540	645	751
Total	44,514	88,951	88,887	54,482	65,151	61,862

	Years of Service					
Age	25-29	30-34	35-39	40-44	45 & Over	Total
Less than 25	-	-	-	-	-	9,256
25 to 30	-	-	-	-	-	40,305
30 to 35	-	-	-	-	-	53,443
35 to 40	-	-	-	-	-	53,973
40 to 45	4	-	-	-	-	66,278
45 to 50	3,017	5	-	-	-	71,305
50 to 55	17,905	1,189	5	-	-	70,414
55 to 60	11,618	7,430	603	1	-	50,552
60 to 65	4,807	3,136	1,555	42	1	28,116
65 to 70	1,299	579	274	138	15	9,910
70 and over	517	284	164	82	128	5,093
Total	39,167	12,623	2,601	263	144	458,645

Table C.5
Inactive Members

Fiscal Year Ending June 30	Number Vested	Total Number	Male % of Total	Female % of Total
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
2014	36,344	182,815	29.2	70.8
2015	36,953	184,396	29.3	70.7
2016	38,014	187,722	29.4	70.6
2017	38,955	192,601	29.5	70.5
2018	39,942	198,058	29.6	70.4
2019	41,192	204,593	29.6	70.4
2020	42,835	213,056	29.7	70.3
2021	47,040	230,770	29.8	70.2
2022	47,044	227,163	29.6	70.4
2023	50,349	234,479	29.4	70.6

Fiscal Year Ending June 30	Average Account on Deposit	Average Age	Average Service Credit	Average Years Inactive
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
2014	11,815	48.1	2.8	9.9
2015	11,825	48.7	2.9	10.4
2016	11,953	49.1	2.9	10.8
2017	12,072	49.4	2.9	11.1
2018	12,257	49.7	2.9	11.4
2019	12,671	49.8	2.9	11.6
2020	13,257	50.0	3.0	11.7
2021	13,740	50.2	3.0	11.5
2022	14,423	50.8	3.1	12.3
2023	15,475	51.0	3.2	12.6

Table C.6
Members Retired for Service

Fiscal Year Ending June 30	Total	Male % of Total	Female % of Total
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
2014	241,920	33.1	66.9
2015	247,353	32.7	67.3
2016	252,672	32.3	67.7
2017	258,550	31.9	68.1
2018	264,780	31.5	68.5
2019	270,835	31.1	68.9
2020	276,070	30.8	69.2
2021	281,302	30.3	69.7
2022	285,704	29.9	70.1
2023	288,494	29.6	70.4

Fiscal Year Ending June 30	Average Age at Retirement	Average Years of Service Credit	Final Average Monthly Compensation	Average Current Allowance Payable
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
2014	61.2	26.0	5,487	3,694
2015	61.3	25.9	5,597	3,786
2016	61.3	25.8	5,716	3,884
2017	61.4	25.7	5,846	3,985
2018	61.5	25.6	5,981	4,086
2019	61.6	25.6	6,110	4,184
2020	61.7	25.5	6,229	4,279
2021	61.7	25.4	6,365	4,217
2022	61.8	25.3	6,490	4,309
2023	61.8	25.2	6,615	4,410

Appendix D Glossary

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.

Entry Age Cost Method

An Actuarial Cost Method under which the Actuarial Present Value of Projected Benefits of each individual included in the 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.

Projected Unit Credit Cost Method

An Actuarial Cost Method under which the Actuarial Obligation is equal to the portion of the Actuarial Present Value of Projected Benefits of each individual included in the actuarial valuation is attributable to service credit that has been earned to date (past service). Since this cost method is only used in this valuation for cases where the service is fixed as of June 30, 2014, the Actuarial Obligation is equal to the portion of the Actuarial Present Value of Projected Benefits for the DB Program, and there is no Normal Cost.

Unfunded Actuarial Obligation

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

Valuation Date

June 30, 2023.