CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM

COMPREHENSIVE ANNUAL FINANCIAL REPORT

A COMPONENT UNIT OF THE STATE OF CALIFORNIA
FOR THE FISCAL YEAR ENDED JUNE 30, 2018

CALSTRS

CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM

A Component Unit of the State of California

Comprehensive Annual Financial Report

for the Fiscal Year Ended June 30, 2018

Prepared by CalSTRS Staff

MISSION

Securing the financial future and sustaining the trust of California's educators

STRATEGIC GOALS

Financial
Ensure a financially sound retirement system.

Member/Employer
Enhance services to members and employers.

Business Transformation
Drive operational excellence.

Workforce Transformation
Grow an engaged, highly skilled and diverse workforce.

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CONTENTS

Introductory

Financial

Investments

Actuarial

CONTENTS

Actuarial (continued)

CONTENTS

Actuarial (continued)

Statistical

CONTENTS

Statistical (continued)

Medicare Premium Payment Program

Teachers' Deferred Compensation Fund

Letter of Transmittal

CALSTRS

California State Teachers'
Retirement System
100 Waterfront Place
West Sacramento, CA 95605

December 3, 2018

The Comprehensive Annual Financial Report issued by the California State Teachers' Retirement System (CalSTRS) details the system's performance for the fiscal year beginning July 1, 2017, and ending June 30, 2018.

Year after year, CalSTRS continues to underscore and emphasize the need to look over a long-term, 30-year horizon and well beyond the immediate impacts of any short-term results. We take our responsibility as trusted fiduciaries seriously by taking deliberate actions and making informed, accountable decisions to ensure a fully sustainable organization. It is this unwavering commitment to stewardship that enables us to be here for our members long after they dedicate their careers to educating California's youth, as we steadfastly deliver on the promise of a secure retirement future.

CalSTRS was established more than a century ago in 1913 as the pension plan for California's public school educators. The organization began by representing 120 retired members and 15,000 active members. Over the past 105 years, we have grown to represent nearly 950,000 dedicated educators and their beneficiaries by helping them reach their secure retirement future. As of June 30, 2018, CalSTRS employed close to 1,200 staff statewide at our headquarters in West Sacramento, as well as at our Member Service Centers in Northern and Southern California.

As a global institutional investor with $223.8 billion in portfolio assets as of June 30, 2018, CalSTRS has a fiduciary duty to be principled and effective within our operations in order to meet the financial commitments to our membership for the next century and beyond. By modeling best practices in retirement planning education for our members, adhering to innovative corporate governance principles, and exercising our role as an active shareowner through engagement with portfolio companies, CalSTRS consistently advocates for the importance of corporate sustainability and long-term value creation.

CalSTRS Commitment to Global Stewardship at Work

CalSTRS demonstrates our commitment to securing our members' retirement futures and organizational sustainability by modeling best practices in corporate governance, employing risk-mitigation policies, developing workforce succession plans and dedicating resources to increase our members' financial awareness and retirement security. Across the spectrum of our activities, we consistently advocate for the importance of long-term value creation. In fact, long-term value creation continues to be the essence of our commitment to the cohesive theme of "Global Stewardship at Work," which is reinforced across the family of CalSTRS annual reports.

As a global, institutional investor, CalSTRS has a fiduciary duty to be principled and effective within our operations to meet financial commitments for the next century and beyond. We believe that establishing a corporate environment with sustainable values is a blueprint for better governance and increased profitability. This Comprehensive Annual Financial Report, covering the 2017–18 fiscal year, illustrates the power of global stewardship and how we continue to manage resources and our fund with great diligence and care, in fulfilling our commitment to being a fully sustainable organization.

Helping Members Build for the Future: The Importance of Retirement Planning

CalSTRS' relationship with our members begins when they first enter their teaching careers and extends through their retirement years. On average, our members dedicate more than 25 years to educating California's youth and retire at just under 63 years of age, with an income replacement ratio of approximately 50 to 60 percent of their working salary. And, according to data outlined in our most recent actuarial experience study, our members are living longer in retirement.

Reflecting on the longevity of our members' careers and their increased lifespans, CalSTRS dedicates resources to emphasize awareness, outreach and education to provide members with retirement planning tools throughout their careers. We offer a financial awareness workshop series that emphasizes the importance of supplemental savings plans in addition to the defined benefit pension. Members are educated on the impactful difference they can make by saving early in their careers when they can benefit most from the power of time and compounding. Additionally, CalSTRS provides members with tools to determine their financial goals throughout their career stages so they are better prepared for the future that lies ahead of them in retirement.

CalSTRS also provides members with a variety of financial education tools, including the robust 403bCompare.com website, the only comprehensive resource in the U.S. providing fee-cost comparisons by product type for 403(b) supplemental savings plans. By providing these financial awareness and retirement planning tools, we aim to empower our members as they embark on a well-thought-out plan and identify steps they can take to meet their future income needs.

Investment Returns and Balancing Risk

Stewardship at CalSTRS includes implementing responsible investing strategies. As a long-term, 30-year horizon investor, we take steps to mindfully balance risk with opportunity in order to preserve the integrity and strength of the fund. Managing a multi-billion dollar portfolio requires thoughtful diligence to monitor investment performance, analyze projections, and take necessary actions to ensure a stable, risk-adjusted return profile. And though CalSTRS is largely a passive equity investor, we take an active shareowner role by regularly engaging with our portfolio companies to ensure responsible corporate governance practices, board diversity, and ultimately, performance accountability to their shareholders.

The overall fund earned a 9.0 percent (net of fees) investment return for the fiscal year ended June 30, 2018, which exceeded the actuarially assumed rate of return of 7.0 percent (net) used for funding purposes. The fiscal year saw strong double digit returns in both the public and private equity markets with the S&P 500 returning over 14 percent. CalSTRS was positioned well to take advantage of market growth while maintaining a diversified portfolio to provide risk protection through the full allocation to the Risk Mitigating Strategies asset class. Given the focus on long-term funding to protect the funds' value, these strategies are important to avoid losses experienced during market downturns such as the historic 2008 global financial crisis.

Ongoing Progress on Defined Benefit Plan Funding

As trusted fiduciaries, CalSTRS staff and third-party experts continually monitor the financial health of the fund by providing an actuarial valuation and funding levels risk report to the Teachers' Retirement Board every year.

The funding plan, set in motion in July 2014 via Chapter 47, Statutes of 2014 (Assembly Bill 1469—Bonta), established a predictable schedule of contribution rate increases shared between members, employers and the state over a 32-year span to bring CalSTRS toward full funding by 2046. The funding plan is a model of shared responsibility, and it works together with investment portfolio performance to advance CalSTRS along the path of long-term sustainability.

While CalSTRS continues to deal with a gap between its current assets and the obligations facing the system, known as the unfunded actuarial obligation (or unfunded liability), the system continues to make progress toward reducing the funding shortfall. A snapshot of the Defined Benefit Program's assets and liabilities as reported in the June 30, 2017, actuarial valuation (released in May 2018) reflected an increase of $10.6 billion in the unfunded liability, currently at $107.3 billion. This increase was anticipated and occurred primarily due to the adoption of a lower investment return assumption and the increase in member life expectancies. These changes also caused a decrease in the system's funding ratio—the ratio of the smoothed actuarial value of assets to pension obligations—from 63.7 percent to 62.6 percent. Actuarial experts and consultants expect an upward trajectory during the coming years as progress is made on the gradual path to reach full funding by the year 2046.

Also, it is important to note that these actuarial valuation numbers are computed differently than the Net Pension Liability (NPL) amounts as defined by Governmental Accounting Standards Board pronouncements, which are reported in the Financial Statements (Note 3–Net Pension Liability of Employers and Nonemployer Contributing Entity) section of this report.

Transforming Sustainability Through Engagement

As an active shareowner, CalSTRS continues to focus on expanding our direct engagement efforts with stakeholders and business partners in order to effect positive change within our portfolio companies. Moreover, CalSTRS regularly engages our non-investment related business partners in surveys to assess levels of sustainable commitment within their organizations. The results continue to be impressively positive, indicating that the shift to embrace sustainable business practices is more than just a trend.

In general, the market showed improved governance, accountability and transparency. Certain companies, however, remain outliers by retaining large executive pay packages, lack of board diversity or archaic governance practices. As a long-term, active shareowner, CalSTRS' duty is to protect assets through the pursuit of good governance and operational accountability, and we are steadfastly pursuing this charge well into the future.

Creating Long-Term Value

As with any mature financial services organization, CalSTRS maintains our focus on sustainability for the future by balancing the challenges of managing assets and liabilities, investment gains and losses, and operational growth—all in an effort to ultimately create long-term value. And just as it is mission-critical for CalSTRS to provide a defined benefit retirement for vested members who dedicated their careers to educating California's youth, we also proactively take steps to provide members with financial tools and resources so they understand the importance of early retirement planning to meet their own personal financial needs well into the future.

For a complete understanding of CalSTRS' performance and sustainability milestones, this Comprehensive Annual Financial Report (CAFR) should be reviewed in conjunction with our annual sustainability report based on Global Reporting Initiative standards. This report can be found online at CalSTRS.com/sustainability-reports.

Member Profile

Established 105 years ago, CalSTRS, with $223.8 billion in portfolio assets as of June 30, 2018, is the largest educator-only pension fund in the world. We administer retirement, disability and survivor benefits for California's public school educators and their beneficiaries, from prekindergarten through community college. The Teachers' Retirement Law, part of the California Education Code, established the programs with CalSTRS as the administrator. The law sets required member, employer and state contribution rates and provides the Teachers' Retirement Board with limited authority to adjust the employer and state rates. CalSTRS members include employees of approximately 1,740 school districts, community college districts, county offices of education and regional occupational programs during the fiscal year. Our membership spans from the new teacher just starting out to the retired educator enjoying the fruits of decades of teaching in the classroom.

The median CalSTRS pension replaced just under 55 percent of final salary for the members who retired last year. Financial advisors recommend income replacement rates as high as 80 to 90 percent to maintain a similar lifestyle in retirement. Public educators do not receive Social Security benefits for their CalSTRS service. Moreover, due to the federal Government Pension Offset and Windfall Elimination Provision, retirees who are eligible for Social Security from other work or their spouse often have their Social Security benefits reduced when receiving a CalSTRS benefit. Most retired educators also do not have employer-funded health insurance after age 65.

We continue to reach members in their communities—from Crescent City to San Diego—with online services, benefits planning services and workshops that explain retirement options and stress the need for early savings. With web-based information and more than 40 publications, we strive to be our members' trusted guide to retirement.

Financial Statements

The financial statements and notes along with the Management Discussion and Analysis in this report present and analyze the changes in CalSTRS' fiduciary net position for the fiscal year ended June 30, 2018. The markets are dynamic and fluid; any judgment of the financial statements should also consider current market conditions.

Management Responsibility for Financial Reporting and Internal Controls

The financial statements were prepared in accordance with accounting principles generally accepted in the United States. Management is responsible for the integrity and fairness of the information presented in the financial statements, including data that, out of necessity, is based on estimates and judgments. Management is also responsible for establishing and maintaining an effective internal control structure. A system of internal controls provides reasonable, but not absolute, assurance that assets are properly safeguarded and that financial statements are reliable. The concept of reasonable assurance recognizes that first, the cost of a control should not exceed the benefits likely to be derived; and second, the valuation of the cost and benefits requires estimates and judgments by management. We believe that the internal controls currently in place support this purpose, and that the financial statements, accompanying schedules and statistical tables are fairly presented in all material respects.

Investments Overview

The CalSTRS Investment Portfolio is broadly diversified, holding investments ranging from publicly traded short-term bonds to privately held partnerships. The scale and breadth of investments make the management and oversight of these assets highly complex. In light of these factors, CalSTRS has been effective in using our resources in a cost-efficient manner to ensure benefits continue to flow to CalSTRS participants. Over the last year, the CalSTRS portfolio generated a 9.0 percent net one-year return calculated on a time-weighted performance basis.

See the Investments section for more detailed information on the performance of the CalSTRS Investment Portfolio.

Actuarial Reports

A summary of demographic and economic assumptions adopted from experience studies that CalSTRS conducts every four or five years is highlighted in this section. These assumptions are applied to an actuarial valuation that is generally performed on an annual basis. The actuarial valuation provides a picture of the overall funding health of our programs, including the Defined Benefit, Defined Benefit Supplement, Cash Balance Benefit and Medicare Premium Payment programs.

Statistical Reports

This section includes tables that reflect financial trends of the State Teachers' Retirement Plan and demographic characteristics of the Defined Benefit, Defined Benefit Supplement, Cash Balance Benefit, CalSTRS Pension2, and Medicare Premium Payment programs. Also captured in the tables, when applicable, is information comparing the last nine years to the previous fiscal year. This look back reveals overall trends in our programs and membership demographics that help us accurately forecast our future ability to meet our members' retirement needs.

GFOA Award

The Government Finance Officers Association (GFOA) of the U.S. and Canada awarded a Certificate of Achievement for Excellence in Financial Reporting to CalSTRS for our CAFR for the year ended June 30, 2017. This is the 23rd consecutive year CalSTRS has received this prestigious award. To be awarded the certificate, a government unit must publish an easily readable and efficiently organized comprehensive annual financial report. Our report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that our current CAFR continues to meet the Certificate of Achievement Program's requirements, and we are submitting it to the GFOA to determine its eligibility for another certificate.

PPCC Standards Award Program

The Public Pension Coordinating Council (PPCC) presented CalSTRS with its Public Pension Standards Award for Funding and Administration for the fiscal year ended June 30, 2018, for meeting professional standards for funding and administration as set forth in the Public Pension Standards. The Public Pension Coordinating Council is a coalition of three national associations that represent public retirement systems and administrators. The associations that form the PPCC are the National Association of State Retirement Administrators, National Council on Teacher Retirement and National Conference on Public Employee Retirement Systems. Together, these associations represent more than 500 of the largest pension plans in the U.S. A Public Pension Standards Award is valid for a period of one year.

Acknowledgements

The 2018 *Comprehensive Annual Financial Report* demonstrates our commitment to ensure the financial security of California's educators. The accuracy of the financial data reflects CalSTRS' executive leadership and is a duty performed with prudence in perpetuity. The notion that the ideas of the future are influenced by the day-to-day interactions that teachers have with students today drives the high quality of service we provide. I would like to thank the many staff, advisors and stakeholder organizations dedicated to serving and securing the financial future of our members. CalSTRS is a unique pension system and it is of utmost importance we continue to sustain the trust and financial integrity of our members in their retirement.

Respectfully submitted,

Jack Ehnes

Jack Ehnes
Chief Executive Officer
CalSTRS

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AWARD: GOVERNMENT FINANCE OFFICERS ASSOCIATION (GFOA) CERTIFICATE

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

California State Teachers' Retirement System

For its Comprehensive Annual Financial Report for the Fiscal Year Ended

June 30, 2017

Christopher P. Morrill

Executive Director/CEO

Public Pension Coordinating Council

Public Pension Standards Award For Funding and Administration 2018

Presented to

California State Teachers' Retirement System

In recognition of meeting professional standards for
plan funding and administration as
set forth in the Public Pension Standards.

Presented by the Public Pension Coordinating Council, a confederation of

National Association of State Retirement Administrators (NASRA)
National Conference on Public Employee Retirement Systems (NCPERS)
National Council on Teacher Retirement (NCTR)

Alan H. Winkle

Alan H. Winkle
Program Administrator

TEACHERS' RETIREMENT BOARD*

DANA DILLON
Board Chair
K–12 Classroom Teacher
Term: January 1, 2016 –
December 31, 2019

SHARON HENDRICKS
Board Vice Chair
Community College Instructor
Term: January 1, 2016 –
December 31, 2019

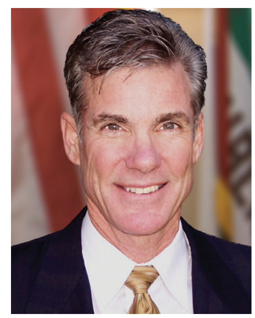
JOHN CHIANG
State Treasurer
Ex-Officio Member

KEELY BOSLER
Director of Finance
Ex-Officio Member

JOY HIGA
Public Representative
Term: January 19, 2018 –
December 31, 2021

HARRY M. KEILEY
K–12 Classroom Teacher
Term: January 1, 2016 –
December 31, 2019

PAUL ROSENSTIEL
Public Representative
Term: January 1, 2015 –
December 31, 2018



TOM TORLAKSON
State Superintendent of Public Instruction
Ex-Officio Member

NORA E. VARGAS
School Board Representative
Term: January 1, 2016 –
December 31, 2019

KAREN YAMAMOTO
Retiree Representative
Term: April 17, 2017 –
December 31, 2019

BETTY YEE
State Controller
Ex-Officio Member

VACANT
Public Representative

* Board members are listed as of the date this report is issued.

EXECUTIVE STAFF*

Executive

JACK EHNES
Chief Executive Officer

Investments

CHRISTOPHER AILMAN
Chief Investment Officer

CASSANDRA LICHNOCK
Chief Operating Officer

Financial Services

JULIE UNDERWOOD
Chief Financial Officer

General Counsel

BRIAN J. BARTOW
General Counsel

Technology Services

ASHISH JAIN
Chief Technology Officer

Public Affairs

GRANT BOYKEN
Public Affairs
Executive Officer

Administrative Services

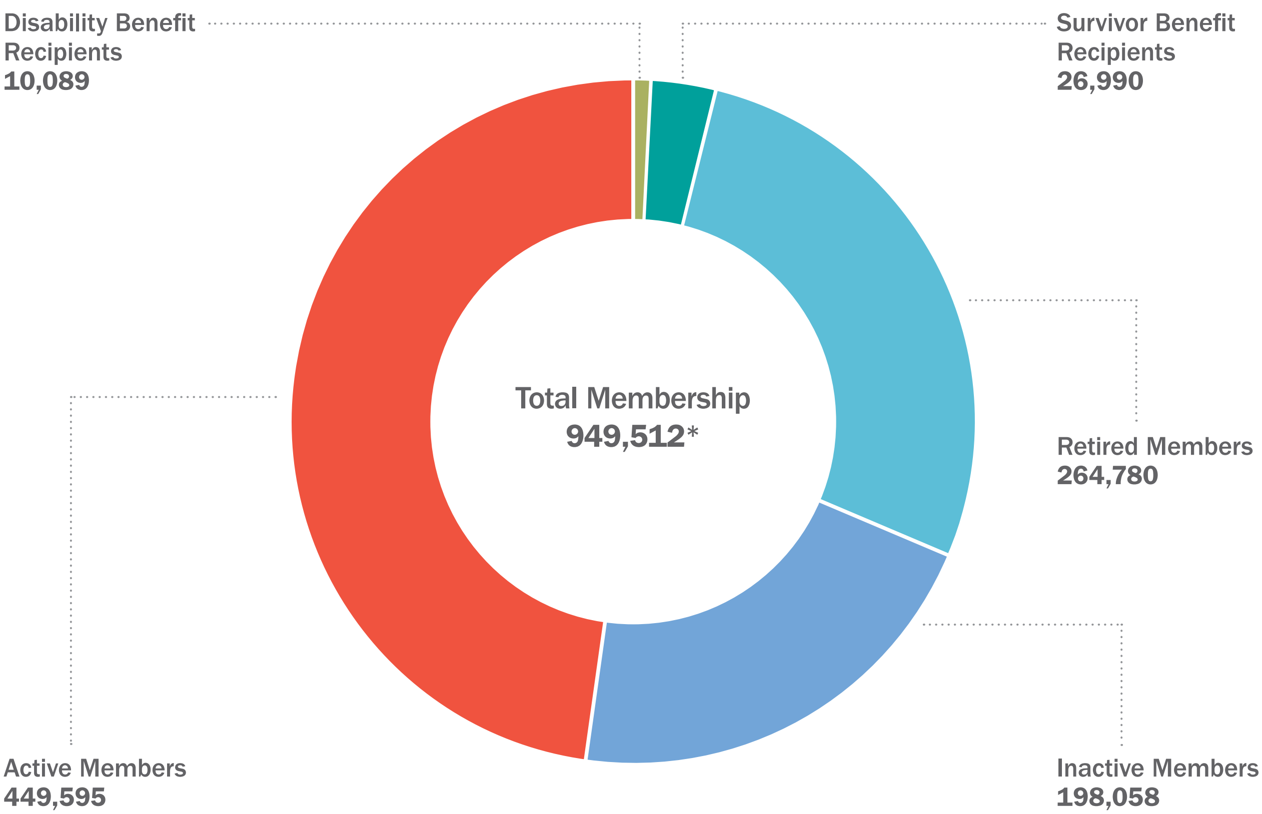
LISA BLATNICK
Chief of Administrative Services

Benefits and Services

ANDREW ROTH
Benefits and Services
Executive Officer

* Executive staff are listed as of the date this report is issued.

MEMBERS BY THE NUMBERS



*Due to the timing of when membership numbers were pulled, there will be a difference between the numbers reported in this section and the Financial Section.

Membership

Membership in the CalSTRS Defined Benefit Program includes California public school employees, prekindergarten through community college, who teach or who are involved in selecting and preparing instructional materials, provide vocational or guidance counseling or are supervising people engaged in those activities. Membership is in effect as long as contributions remain on deposit with CalSTRS.

Members are employed in approximately 1,740 public school districts, community college districts, county offices of education, regional occupational centers and programs, and select state agencies. The CalSTRS Defined Benefit Program includes retirement, disability and survivor benefits. Beneficiaries of a retired member who elected an option receive a continuing lifetime benefit upon the member's death.

Benefits to Members and Benefit Recipients

Service Retirement

CalSTRS is committed to providing exceptional service to its retired members. Our staff establishes and maintains timely and accurate benefits.

12,778	Members who retired in fiscal year 2017–18
4.3 percent	Increase from fiscal year 2016–17

Disability Benefits

93 percent	Applications processed within 150 days
734	Applications received in 2017–18
434	Applications approved in 2017–18
10.0 percent	Increase in number of disability applications received from fiscal year 2016–17

Survivor Benefits

96 percent	Payments processed within 30 days of receiving all necessary information
9,553	Notifications of death received in 2017–18
5.9 percent	Increase in number of notifications from fiscal year 2016–17

Communicating With Our Members and Beneficiaries

Customer Service

Members may contact a CalSTRS Contact Center agent by phone, secured online message or written correspondence.

293,415	Member inquiries answered
71 percent	Member calls answered within 30 seconds
87 seconds	Average wait time to talk with a Contact Center agent
73 percent	Members who received a response to their secure online message within one business day

CalSTRS places great emphasis on customer satisfaction and regularly surveys members to ensure they receive accurate, timely and thorough answers to their questions.

- **76 percent** of members were “highly satisfied” with their Contact Center experience.

Member Communications

CalSTRS communicates with its active and retired members through a variety of channels.

Newsletters

CalSTRS reaches out to members and beneficiaries through the *CalSTRS Connections: Reaching Your Retirement*, *CalSTRS Connections: Your Money Matters* and *Retired Educator* newsletters.

CalSTRS Connections: Reaching Your Retirement is sent in the spring and fall to active and inactive members age 50 and older. It provides information about retirement planning and decisions, workshops and benefits counseling, legislative news and more.

CalSTRS Connections: Your Money Matters is sent in the spring and fall to active and inactive members age 49 and younger. It provides updates on CalSTRS programs and services, articles on retirement benefits, supplemental savings options, financial planning, legislative news and more.

Retired Educator is sent to retired members and beneficiaries in the summer and winter. It provides information on benefits and services, legislation, investments and board updates.

Retirement Progress Report

Every year Defined Benefit members and Cash Balance Benefit participants receive a personalized *Retirement Progress Report* that contains retirement planning information and detailed account information as of June 30 for the fiscal year. For Defined Benefit members age 45 and older, the report includes retirement benefit estimates. The reports are available online in September in the member’s *my*CalSTRS account and are mailed in October if requested. Retired members and other benefit recipients do not receive this report.

Member Informational Publications

CalSTRS offers a number of publications to members at various stages in their careers.

The *CalSTRS Member Handbook* is a comprehensive resource on CalSTRS programs and benefits, including eligibility requirements and worksheets. The handbook is updated annually.

Your Retirement Guide provides information members need to plan, research and make retirement decisions regarding their defined benefit pension and Defined Benefit Supplement funds. It includes step-by-step instructions for applying for service retirement and what to expect after submitting the retirement application.

CalSTRS Member Kits contain targeted retirement information and are sent annually to three groups of CalSTRS members when they reach a career milestone. The three career milestones—newly vested, mid-career and near retirement—are based on the member's age and years of service credit.

In addition, CalSTRS produces publications that cover specific topics, including:

- *Cash Balance Benefit Program*
- *Community Property Guide*
- *Concurrent Retirement*
- *Introduction to Disability Benefits*
- *Join CalSTRS? Join CalPERS?*
- *myCalSTRS*
- *Pension2 ebook*
- *Purchase Additional Service Credit*
- *Refund: Consider the Consequences*
- *Social Security, CalSTRS and You*
- *Tax Considerations for Rollovers*
- *Understanding the Formula*
- *Uniformed Services Employment and Reemployment Rights Act*
- *Your Disability Benefits Guide*
- *Welcome to CalSTRS*
- *Working After Retirement*

CalSTRS Online

CalSTRS has four websites for members: CalSTRS.com, *my*CalSTRS, Pension2.com and 403bCompare.com.

CalSTRS.com is the main site for information about membership and benefits, investments, board meetings, our newsroom and business partner opportunities, and also includes links to information for employers, including the Secure Employer Website. Features include online calculators to estimate retirement benefits and the cost to purchase service credit or redeposit funds; CalSTRS publications and forms; recent CalSTRS news including, an investment overview; and self-scheduling for workshops and benefits planning sessions.

***my*CalSTRS**, our secure self-service site for members, provides convenient access to members' personal accounts. After registering for *my*CalSTRS, members can view their account balances, complete and submit forms online, keep their contact information current, view their *Retirement Progress Reports*, manage their beneficiary selections, and exchange secure messages with CalSTRS representatives.

Pension2.com is the website for Pension2, the CalSTRS defined contribution plan that offers 403(b) and 457(b) plans. It features online enrollment, financial planning tools and webinars.

At **403bCompare.com** members can easily compare investment fees, performance and services of their employer's 403(b) plans to find the best one for their savings goals. Members can learn about the advantages of a 403(b) account, find their employer's list of approved vendors, compare up to three 403(b)s side by side and get information on how to enroll and start contributions. 403bCompare was created by CalSTRS under state legislation.

Members can also stay connected to CalSTRS through social media on Facebook, Twitter, Instagram, LinkedIn, YouTube and Pinterest.

Benefits Planning Services

CalSTRS has six member service centers: West Sacramento (headquarters), Glendale, Santa Clara, Irvine, Riverside and San Diego.

Member service centers offer educational and benefits planning services, including individual and group benefits planning sessions and financial savings workshops. Existing member service centers serve the greater Sacramento, Los Angeles, Bay Area, Orange County, the Inland Empire and San Diego regions. Offices are open Monday through Friday, 8 a.m. to 5 p.m. and some Saturdays by appointment.

At each center, members have an opportunity to attend educational workshops, meet with CalSTRS benefits specialists by appointment or seek assistance with general information questions on a walk-in basis. Member service center staff also review and receive forms, transmit them to headquarters for processing, and provide CalSTRS forms and publications.

In addition to the member service centers, CalSTRS has one leased office space staffed by CalSTRS staff and seven benefits planning offices located in county offices of education across the state. These offices typically provide workshops, group and individual benefits planning sessions and walk-in assistance, in addition to reviewing and receiving completed forms.

This year, 29,805 members attended group or individual benefits planning sessions or workshops, while 13,464 members took advantage of the opportunity to walk in and receive immediate assistance. An additional 5,039 members received services at outreach events, including job fairs and on-campus presentations.

Since the launch of our Business Plan for fiscal year 2017–18, we have increased our efforts in regards to member-employer engagement. This has led to more outreach working directly with stakeholders which includes school districts, various unions and other teacher organizations. Through this outreach, we have more than doubled the teachers we have met with through outreach activities.

Another convenient service for members is the estimate-only service, which during fiscal year 2017–18, provided 1,833 members with updated retirement benefit estimates. CalSTRS continues to focus on providing services that increase accessibility for members, reflect individual member needs and increase member self-education.

Services to Employers, Member and Client Organizations

CalSTRS staff supports the employer reporting process through education, collaboration and continuous improvement. CalSTRS has enhanced the delivery of information by making it available electronically and on demand for the employer. The Secure Employer Website, SEW, a secure solution for employers to submit their monthly reporting data, includes checks and balances to ensure the data is timely and accurate. In addition, CalSTRS is committed to ensuring our employers have all the information and training necessary to provide the most accurate data reporting.

CalSTRS is committed to preventing pension abuse by automating the review of compensation credited to retirement benefits. The CalSTRS Compensation Review Unit has increased reviews of potential abuse cases through the Pension Abuse Reporting Hotline and online reporting form.

Professional Services

CalSTRS contracts for the services of various independent consultants essential to the effective and professional operation of the system. Milliman, Inc. provides actuarial services and Crowe LLP is the independent auditor. Lists of investment professionals for investment services and other consultants are provided on Schedules VIII and IX respectively in the Financial Section of this report. Table 9 in the Investments Section also lists entities to whom CalSTRS paid broker commissions during the fiscal year.

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FINANCIAL

CalSTRS is **the largest educator-only pension fund in the world**, with $225.8 billion in net position as of June 30, 2018.

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Crowe LLP
Independent Member Crowe Global

INDEPENDENT AUDITOR'S REPORT

Teachers' Retirement Board of the California
State Teachers' Retirement System
West Sacramento, California

Report on the Financial Statements

We have audited the accompanying financial statements of California State Teachers' Retirement System ("System" or "CalSTRS"), a component unit of the State of California, as of and for the year ended June 30, 2018, and the related notes to the financial statements, which collectively comprise the System's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the System's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the System's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of California State Teachers' Retirement System as of June 30, 2018, and the changes in fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Emphasis of Matters

Net Pension Liability of Employers and Nonemployer Contributing Entity

As described in Note 3, based on the most recent actuarial valuation as of June 30, 2017, the System's independent actuaries determined that, at June 30, 2018, the value of the State Teachers' Retirement Plan (STRP) total pension liability exceeded the STRP fiduciary net position by $ 91.9 billion. The actuarial valuation is sensitive to the underlying actuarial assumptions, including investment rate of return of 7.1%, consumer price inflation of 2.75%, wage growth of 3.5% and custom mortality tables based on CalSTRS most recent Experience Analysis. Our opinion is not modified with respect to this matter.

Fair Value of Investments

As described in Notes 5 and 6, the financial statements include investments valued at approximately $65.9 billion as of June 30, 2018, for which fair value has been estimated by general partners and investment advisors, and reviewed and approved by the System's management, in the absence of readily ascertainable market values. Because of the inherent uncertainty of valuation, the estimate of values may differ from the values that would have been used had a ready market existed for the investment securities, and the differences could be material. Our opinion is not modified with respect to this matter.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that Management's Discussion and Analysis on pages 30 - 54 and the Schedule of Changes in Net Pension Liability of Employers and Nonemployer Contributing Entity, Schedule of Net Pension Liability of Employers and Nonemployer Contributing Entity, Schedule of Pension Contributions from Employers and Nonemployer Contributing Entity, Schedule of Money-Weighted Investment Returns for State Teachers' Retirement Plan and Medicare Premium Payment Program, Schedule of Changes in Net OPEB Liability of Employers and Schedule of Net OPEB Liability of Employers on pages 94 - 99 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the System's basic financial statements. The Introductory section, Schedule of Administrative Expenses, Schedule of Investment Expenses, Schedule of Consultant and Professional Services Expenses, Investments section, Actuarial section, and Statistical section are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The Schedule of Administrative Expenses, Schedule of Investment Expenses and Schedule of Consultant and Professional Services Expenses are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the Schedule of Administrative Expenses, Schedule of Investment Expenses and Schedule of Consultant and Professional Services Expenses are fairly stated, in all material respects, in relation to the basic financial statements as a whole.

The Introductory section, Investments section, Actuarial section, and Statistical section have not been subjected to the auditing procedures applied in the audit of the basic financial statements and accordingly, we do not express an opinion or provide any assurance on them.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated October 5, 2018 on our consideration of California State Teachers' Retirement System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering California State Teachers' Retirement System's internal control over financial reporting and compliance.

Crowe LLP

Crowe LLP

Sacramento, California
October 5, 2018

INTRODUCTION

Management's Discussion and Analysis of the California State Teachers' Retirement System's (CalSTRS, system, our or we) financial performance is intended to fairly and transparently provide an overview of activities for the fiscal year ended June 30, 2018. The discussion and analysis focuses on the year's business events and resulting changes. This discussion is more meaningful when read in conjunction with CalSTRS' basic financial statements and accompanying notes.

In addition to historical information, the discussion and analysis includes some forward-looking statements that involve uncertainties and risks. CalSTRS' actual results, performance and achievements expressed or implied in these statements are subject to changes in interest rates, securities markets, general economic conditions, legislation, regulations and other factors.

MISSION

Since CalSTRS was founded in 1913, we have grown from no assets and 15,000 members to an investment portfolio valued at $223.8 billion[1] serving 949,370 members and beneficiaries as of June 30, 2018. In 1913, the annual benefit was $500; today, the average annual member-only benefit is approximately $48,000. Over the past 105 years, CalSTRS' mission has remained the same: to secure the financial future and sustain the trust of California's educators.

YEAR IN REVIEW

Significant events and changes impacting CalSTRS during fiscal year 2017–18 are described in the paragraphs that follow.

Funding Levels and Risks

In November 2017, the second annual report of CalSTRS *Review of Funding Levels and Risks* was presented to the Teachers' Retirement Board (the board). Based on the June 30, 2016, actuarial valuation report, this report discusses a variety of risks associated with funding the system, and notes potential minor adjustments that could be made to strengthen the CalSTRS funding plan. The report emphasizes that the funding plan, which was implemented through Chapter 47, Statutes of 2014 (AB 1469), has improved the long-term sustainability of the system. This plan provides for contribution rate increases that are shared and predictable and puts the CalSTRS Defined Benefit Program on a solid path toward full funding by 2046. Investment volatility, longevity and membership levels can still pose potential risks to CalSTRS being fully funded by 2046. In order to address these risks, CalSTRS has created an asset/liability management team to bring together the actuarial, investment and financial areas of CalSTRS to better assess funding risk.

AB 1469 contained a provision requiring CalSTRS to report to the State of California Legislature every five years regarding the progress of the funding plan. The first report to the Legislature is required on or before July 1, 2019. In preparation for this progress report and in light of the possible risks highlighted in this report, CalSTRS has begun analyzing potential minor adjustments that could be made to further strengthen the funding plan. A copy of the *Review of Funding Levels and Risks* report is available at CalSTRS.com.

Internal Asset Management

In fiscal year 2010–11, the Investment Committee of the board (the Investment Committee) began exploring the benefits of an investment strategy using internal or external asset management. Through these efforts they found that internally managed assets reduce investment expenses, increase transparency, enhance liquidity and improve control of investment decisions of the underlying assets. Accordingly, CalSTRS has since sought opportunities to increase our internally managed assets. The CalSTRS Strategic Plan for fiscal years 2016–19 aims to increase internally managed investments to 50 percent. The board is currently reviewing a collaborative business model, which would result in more direct investment and further reduce external management costs. Although the implementation of a direct investing program would require a larger internal staff, the costs associated with hiring additional staff would be significantly offset by the increased cost savings associated with not paying fees to external managers.

CalSTRS has steadily increased internal asset management staff with single-year requests approved through the administrative and legislative budgetary process. While this process has functioned satisfactorily in the past, the increased complexity and competitive nature of the

[1] This reflects the value of the investment portfolio as of June 30, 2018. It is presented using common industry practices for investment portfolio management and is not prepared in accordance with U.S. Generally Accepted Accounting Principles.

investment markets require CalSTRS to be more flexible to respond to market opportunities and risks. As a result, in November 2017, the board approved a multiyear proposal to increase its internal asset management resources by up to 55 permanent positions at an estimated cost of $14.9 million. It also included three additional permanent positions related to administrative and legal support resulting from increased investment operations at a cost of $0.5 million. These resources will enable CalSTRS to optimally manage the increased contributions to the system since the passage of AB 1469 and will reduce management fees and our reliance on third-party investment managers.

Investment Beliefs

In October 2015, the Investment Committee initiated a project to develop an investment beliefs statement, which included input from various stakeholders. Seven investment beliefs were considered and approved by the Investment Committee as of April 2017. The eighth and final investment belief, *"Alignment of financial interests between CalSTRS and its advisors is critical,"* was adopted in February 2018 and brought a conclusion to the project. This investment belief addresses the significance of contractual alignment and transparency of CalSTRS' financial interests with our external investment advisors and managers. The set of eight beliefs ensures the investment portfolio is based on a common set of core views and further clarifies the basis for making individual investment decisions. The complete list of approved investment beliefs can be found at CalSTRS.com.

Selection of Real Estate Consultant

RCLCO Fund Advisors, LLC (RCLCO) began serving as the Investment Committee's new real estate consultant in March 2018. RCLCO works with both the board's Investment Committee and CalSTRS Investments staff to provide expertise and advice related to the overall investment strategy, policies and practices of the real estate program. In addition, RCLCO also plays a key role in monitoring and evaluating the program's performance and keeps the Investment Committee apprised of trends and conditions in the real estate industry.

Retirement Readiness Assessment Report

The *Retirement Readiness Assessment* report summarizes results of the biennial retirement readiness assessment, which is a survey of active and retired members that assesses their overall financial standing. The 2017 assessment survey was sent via email to a stratified random sample of active and retired members between May 2017 and June 2017. Nearly 3,000 active members and over 2,000 retired members responded. The survey results revealed that efforts to encourage active members to plan for retirement through CalSTRS' online resources have been successful. Eighty-two percent of active members have begun planning for retirement, and the use of CalSTRS websites such as *my*CalSTRS, CalSTRS.com and Pension2.com has increased from prior years. The report added another year of valuable data to the study of the financial standing of CalSTRS members. CalSTRS will continue to encourage members to save for retirement in vehicles like Pension2 and increase their awareness of the Social Security offsets, which are potential reductions to members' Social Security benefits. The complete report is available at CalSTRS.com.

Teachers' Retirement Board Update

Thomas Unterman stepped down in February 2018 from the board, on which he served since being appointed by Governor Edmund G. Brown Jr. (Governor Brown) in 2013. Mr. Unterman has been an adjunct faculty member at the UCLA School of Law since 2011 and also serves as a member of the ProPublica Board of Directors and the Museum of Contemporary Art, Los Angeles Board of Trustees.

Joy Higa has been reappointed by Governor Brown to a second term as a public representative to the board. Ms. Higa is the vice president of regulatory affairs for UnitedHealthcare's West and Central regions, where she manages relationships and policy activities. As a member of the board, she serves as the vice chair of the Investment, Benefits & Services and Audits & Risk Management standing committees.

FINANCIAL HIGHLIGHTS

CalSTRS administers a hybrid retirement system consisting of a defined benefit plan (State Teachers' Retirement Plan (STRP)), two defined contribution plans (CalSTRS Pension2® Program (Pension2)), a postemployment benefit plan (Medicare Premium Payment (MPP) Program), and a fund used to account for ancillary activities associated with various deferred compensation plans and programs (Teachers' Deferred Compensation Fund (TDCF)). The tables that follow provide comparative information for each plan administered by CalSTRS for fiscal years 2017–18 and 2016–17 and highlight major changes in significant balances and other noteworthy activity during the current year.

State Teachers' Retirement Plan

The STRP is a multiple-employer, cost-sharing defined benefit plan composed of four programs: Defined Benefit (DB) Program, Defined Benefit Supplement (DBS) Program, Cash Balance Benefit (CBB) Program and Replacement Benefits Program. The STRP holds assets for the exclusive purpose of providing benefits to members of these programs and their beneficiaries.

Fiduciary Net Position
(Dollars in Thousands)

Assets and Deferred Outflows of Resources	2018	2017	Percent Change
Investment Assets[1]	$247,370,532	$229,079,341	8.0%
Cash	153,256	459,456	(66.6%)
Investment Receivables	3,076,620	2,349,266	31.0%
Member, Employer, State and Other Receivables	3,468,656	3,523,160	(1.5%)
Capital and Other Assets	276,245	259,011	6.7%
Total Assets	**254,345,309**	**235,670,234**	**7.9%**
Deferred Outflows of Resources	**117,457**	**70,934**	**65.6%**
Total Assets and Deferred Outflows of Resources	**254,462,766**	**235,741,168**	**7.9%**
Liabilities and Deferred Inflows of Resources			
Investment Liabilities	140,070	260,133	(46.2%)
Investments Purchased Payable	3,346,989	3,270,703	2.3%
Loans Payable	2,731,737	2,824,259	(3.3%)
Benefits in Process of Payment	263,254	234,379	12.3%
Net Pension and OPEB Liabilities	835,204	323,058	158.5%
Securities Lending Obligation	21,917,706	18,184,444	20.5%
Other	303,893	353,766	(14.1%)
Total Liabilities	**29,538,853**	**25,450,742**	**16.1%**
Deferred Inflows of Resources	**55,278**	**526**	**10,409.1%**
Total Liabilities and Deferred Inflows of Resources	**29,594,131**	**25,451,268**	**16.3%**
Net Position Restricted for Pensions	**$224,868,635**	**$210,289,900**	**6.9%**

[1]Includes securities lending collateral of $21.9 billion and $18.2 billion for 2018 and 2017, respectively.

Changes in Fiduciary Net Position
(Dollars in Thousands)

Additions	2018	2017	Percent Change
Member Contributions	$3,496,245	$3,440,883	1.6%
Employer Contributions	4,866,661	4,173,235	16.6%
State of California Contributions	2,796,673	2,478,230	12.8%
Net Investment Income	18,673,537	25,165,180	(25.8%)
Other Income	105,144	72,005	46.0%
Total Additions	**29,938,260**	**35,329,533**	**(15.3%)**
Deductions			
Benefit Payments	14,432,810	13,787,035	4.7%
Refunds of Member Contributions	103,886	115,509	(10.1%)
Administrative Expenses	216,083	182,367	18.5%
Borrowing Costs	94,249	57,958	62.6%
Other Expenses	1,678	10,251	(83.6%)
Total Deductions	**14,848,706**	**14,153,120**	**4.9%**
Increase in Net Position	**15,089,554**	**21,176,413**	**(28.7%)**
Net Position Restricted for Pensions			
Beginning of the Year–As Previously Reported	210,289,900	189,113,487	11.2%
Less: Adjustment for Application of GASB 75[1]	510,819	-	100.0%
Beginning of the Year–As Adjusted	209,779,081	189,113,487	10.9%
End of the Year	**$224,868,635**	**$210,289,900**	**6.9%**

[1]Refer to Note 2 in the Notes to the Basic Financial Statements for discussion of the adjustment to beginning net position due to the implementation of GASB Statement No. 75.

• Investment assets increased 8.0 percent or $18.3 billion primarily due to positive investment returns of 9.0 percent (net of fees) in fiscal year 2017–18. Although investment returns for the STRP were positive, net investment income decreased 25.8 percent or $6.5 billion compared to fiscal year 2016–17, which had a greater investment return of 13.4 percent (net of fees).

• Cash decreased 66.6 percent or $306.2 million due to the timing of payments made for federal and state taxes withheld on retirement benefit payments. In fiscal year 2017–18, these payments were made prior to the end of the fiscal year, whereas these same payments were made subsequent to year end for fiscal year 2016–17.

• Investment receivables increased 31.0 percent or $727.4 million primarily due to the timing of the settlement of investment sales that occurred near the end of the fiscal year. The increase is also attributable to an increase in interest and dividends receivable.

• Investment liabilities decreased 46.2 percent or $120.1 million primarily due to an increase in valuation fluctuations of forwards and futures.

• Net pension and other postemployment benefits (OPEB) liabilities increased 158.5 percent or $512.1 million primarily due to the recognition of the STRP's share of the net OPEB liability of the State of California (the state) as a result of the implementation of Governmental Accounting Standards Board (GASB) Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. The increase is also partly due to an increase in the STRP's proportionate share of the state's net pension liability (NPL), which increased in fiscal year 2017–18.

Additionally, these factors resulted in the increases of 10,409.1 percent or $54.8 million and 65.6 percent or $46.5 million in deferred inflows and outflows of resources, respectively.

• Securities lending obligation increased 20.5 percent or $3.7 billion due to an increase in demand by borrowers of securities and the addition of another securities lending broker in fiscal year 2017–18.

• Member, employer and state contributions increased 10.6 percent or $1.1 billion due to increases in both creditable compensation and contribution rates implemented through AB 1469.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

• The balances in other income and borrowing costs primarily relate to CalSTRS' Master Credit Facility Portfolio, which is an arrangement whereby CalSTRS obtains credit facilities and, in turn, provides subscription lines of credit to a group of designated joint venture and separate account borrowers in lieu of securing separate subscription lines.

The increase in other income of 46.0 percent or $33.1 million is primarily due to higher interest and fees assessed by CalSTRS to borrowers for underutilization of the subscription lines during fiscal year 2017-18. Conversely, the increase in borrowing costs of 62.6 percent or $36.3 million is due higher interest and fees incurred by CalSTRS for the underutilization of the credit facilities during fiscal year 2017-18.

• Administrative expenses increased 18.5 percent or $33.7 million primarily due to higher OPEB expense resulting from the implementation of GASB Statement No. 75. Additionally, the state's pension expense increased for fiscal year 2017–18, which resulted in a corresponding increase to the STRP's proportionate share of pension expense.

• Other expenses decreased 83.6 percent or $8.6 million primarily due to a reduction in bad debt write-offs for fiscal year 2017–18.

Pension2 403(b) Plan

CalSTRS Pension2 403(b) Plan is a voluntary defined contribution program that offers low cost and tax deferred 403(b) and Roth 403(b) plans for additional retirement savings.

Fiduciary Net Position
(Dollars in Thousands)

Assets and Deferred Outflows of Resources	2018	2017	Percent Change
Investment Assets	$922,439	$791,222	16.6%
Member, Employer and Other Receivables	16,414	15,309	7.2%
Total Assets	**938,853**	**806,531**	**16.4%**
Deferred Outflows of Resources	**–**	**–**	**0.0%**
Total Assets and Deferred Outflows of Resources	**938,853**	**806,531**	**16.4%**
Liabilities and Deferred Inflows of Resources			
Other	1,877	949	97.8%
Total Liabilities	**1,877**	**949**	**97.8%**
Deferred Inflows of Resources	**–**	**–**	**0.0%**
Total Liabilities and Deferred Inflows of Resources	**1,877**	**949**	**97.8%**
Net Position Restricted for Pensions	**$936,976**	**$805,582**	**16.3%**

Changes in Fiduciary Net Position
(Dollars in Thousands)

Additions	2018	2017	Percent Change
Member Contributions	$122,113	$121,945	0.1%
Employer Contributions	369	393	(6.1%)
Net Investment Income	65,104	77,730	(16.2%)
Other Income	309	141	119.1%
Total Additions	**187,895**	**200,209**	**(6.2%)**
Deductions			
Distributions and Withdrawals	48,481	36,322	33.5%
Refunds of Member Contributions	5,614	4,657	20.5%
Administrative Expenses	2,406	1,975	21.8%
Total Deductions	**56,501**	**42,954**	**31.5%**
Increase in Net Position	**131,394**	**157,255**	**(16.4%)**
Net Position Restricted for Pensions			
Beginning of the Year	805,582	648,327	24.3%
End of the Year	**$936,976**	**$805,582**	**16.3%**

- Investment assets increased 16.6 percent or $131.2 million primarily due to participant contributions made in fiscal year 2017–18 combined with net positive returns on investments held by plan participants. Although these investments experienced positive returns, net investment income decreased 16.2 percent or $12.6 million due to a greater return on investments held by plan participants in fiscal year 2016–17.

- Distributions and withdrawals increased 33.5 percent or $12.2 million due to an increase in the average distribution and withdrawal by plan participants in fiscal year 2017–18.

- Administrative expenses increased 21.8 percent or $0.4 million primarily due to the increase in the balance of investment assets held by plan participants, which resulted in increased investment management fees assessed by third-party administrators.

Pension2 457(b) Plan

CalSTRS Pension2 457(b) Plan is a voluntary defined contribution program that offers low cost and tax deferred 457(b) and Roth 457(b) plans for additional retirement savings.

Fiduciary Net Position
(Dollars in Thousands)

Assets and Deferred Outflows of Resources	2018	2017	Percent Change
Investment Assets	$41,725	$33,602	24.2%
Member, Employer and Other Receivables	570	625	(8.8%)
Total Assets	**42,295**	**34,227**	**23.6%**
Deferred Outflows of Resources	**–**	**–**	**0.0%**
Total Assets and Deferred Outflows of Resources	**42,295**	**34,227**	**23.6%**
Liabilities and Deferred Inflows of Resources			
Other	1	23	(95.7%)
Total Liabilities	**1**	**23**	**(95.7%)**
Deferred Inflows of Resources	**–**	**–**	**0.0%**
Total Liabilities and Deferred Inflows of Resources	**1**	**23**	**(95.7%)**
Net Position Restricted for Pensions	**$42,294**	**$34,204**	**23.7%**

Changes in Fiduciary Net Position
(Dollars in Thousands)

Additions	2018	2017	Percent Change
Member Contributions	$7,038	$6,516	8.0%
Employer Contributions	85	44	93.2%
Net Investment Income	2,555	3,338	(23.5%)
Other Income	11	8	37.5%
Total Additions	**9,689**	**9,906**	**(2.2%)**
Deductions			
Distributions and Withdrawals	1,411	769	83.5%
Refunds of Member Contributions	88	36	144.4%
Administrative Expenses	100	79	26.6%
Total Deductions	**1,599**	**884**	**80.9%**
Increase in Net Position	**8,090**	**9,022**	**(10.3%)**
Net Position Restricted for Pensions			
Beginning of the Year	34,204	25,182	35.8%
End of the Year	**$42,294**	**$34,204**	**23.7%**

• Investment assets increased 24.2 percent or $8.1 million primarily due to participant contributions made in fiscal year 2017–18 in addition to net positive returns on investments held by plan participants. Although these investments experienced positive returns, net investment income decreased 23.5 percent or $0.8 million due to a greater return on investments held by plan participants in fiscal year 2016–17.

• Member contributions increased 8.0 percent or $0.5 million primarily due to an increase in the number of participants contributing to the plan. There were 854 participants as of June 30, 2018, compared to 713 participants as of June 30, 2017. Although the number of plan participants increased, contributions to the 457(b) program are voluntary and vary for each participant.

• Distributions and withdrawals increased 83.5 percent or $0.6 million due to an increase in the average distribution and withdrawal by plan participants in fiscal year 2017–18.

Medicare Premium Payment Program

CalSTRS administers the MPP Program through the Teachers' Health Benefit Fund (THBF). The MPP Program pays Medicare Part A premiums and Medicare Parts A and B late enrollment surcharges for retired members of the DB Program who meet certain eligibility criteria.

Fiduciary Net Position
(Dollars in Thousands)

Assets and Deferred Outflows of Resources	2018	2017	Percent Change
Investment Assets	$605	$606	(0.2%)
Investment Receivables	6	2	200.0%
Total Assets	**611**	**608**	**0.5%**
Deferred Outflows of Resources	**191**	**88**	**117.0%**
Total Assets and Deferred Outflows of Resources	**802**	**696**	**15.2%**
Liabilities and Deferred Inflows of Resources			
Net Pension and OPEB Liabilities	1,793	625	186.9%
Other	403	18	2,138.9%
Total Liabilities	**2,196**	**643**	**241.5%**
Deferred Inflows of Resources	**148**	**12**	**1,133.3%**
Total Liabilities and Deferred Inflows of Resources	**2,344**	**655**	**257.9%**
Net Position Restricted for Other Postemployment Benefits	**($1,542)**	**$41**	**(3,861.0%)**

Changes in Fiduciary Net Position
(Dollars in Thousands)

Additions	2018	2017	Percent Change
Employer Contributions	$28,218	$29,117	(3.1%)
Net Investment Income	18	11	63.6%
Total Additions	**28,236**	**29,128**	**(3.1%)**
Deductions			
Premiums Paid	28,036	28,929	(3.1%)
Administrative Expenses	578	168	244.0%
Total Deductions	**28,614**	**$29,097**	**(1.7%)**
Increase (Decrease) in Net Position	**(378)**	**31**	**(1,319.4%)**
Net Position Restricted for Other Postemployment Benefits			
Beginning of the Year–As Previously Reported	41	10	310.0%
Less: Adjustment for Application of GASB 75[1]	1,205	–	100.0%
Beginning of the Year–As Adjusted	(1,164)	10	(11,740.0%)
End of the Year	**($1,542)**	**$41**	**(3,861.0%)**

[1]Refer to Note 2 in the Notes to the Basic Financial Statements for discussion of the adjustment to beginning net position due to the implementation of GASB Statement No. 75.

• Net pension and OPEB liabilities increased 186.9 percent or $1.2 million primarily due to the recognition of the MPP Program's share of the state's net OPEB liability as a result of the implementation of GASB Statement No. 75. The increase is also partly due to the increase in the MPP Program's proportionate share of the state's NPL, which increased in fiscal year 2017–18.

Additionally, these factors resulted in increases of 1,133.3 percent or $0.1 million and 117.0 percent or $0.1 million in deferred inflows and outflows of resources, respectively.

• Employer contributions and premiums paid for the MPP Program both decreased 3.1 percent or $0.9 million, primarily due to a decrease in plan participants. Contributions to the MPP Program are limited to the cost of benefits provided (premiums paid). Accordingly, as the number of plan participants decreased, the cost of benefits provided decreased and led to reduced contributions to the plan.

• Administrative expenses increased 244.0 percent or $0.4 million primarily due to higher OPEB expense resulting from the implementation of GASB Statement No. 75 Additionally, the state's pension expense increased for fiscal year 2017–18, which resulted in a corresponding increase to the MPP Program's proportionate share of pension expense.

• The net position for the MPP Program reflects a net deficit of $1.5 million as of June 30, 2018. This deficit is primarily due to the recognition of the program's share of the state's NPL and net OPEB liability, which represent long-term liabilities reported on an accrual basis and do not adversely impact the viability of the program.

Teachers' Deferred Compensation Fund

The TDCF is a trust fund established to account for ancillary activities associated with various deferred compensation plans and programs offered by CalSTRS, such as the 403(b) and 457(b) plans.

Fiduciary Net Position
(Dollars in Thousands)

Assets and Deferred Outflows of Resources	2018	2017	Percent Change
Investment Assets	$1,389	$1,102	26.0%
Cash	–	1	(100.0%)
Investment Receivables	6	3	100.0%
Other Receivables	155	132	17.4%
Total Assets	**1,550**	**1,238**	**25.2%**
Deferred Outflows of Resources	**800**	**262**	**205.3%**
Total Assets and Deferred Outflows of Resources	**2,350**	**1,500**	**56.7%**
Liabilities and Deferred Inflows of Resources			
Net Pension and OPEB Liabilities	5,612	1,212	363.0%
Other	1,141	554	106.0%
Total Liabilities	**6,753**	**1,766**	**282.4%**
Deferred Inflows of Resources	**429**	**2**	**21,350.0%**
Total Liabilities and Deferred Inflows of Resources	**7,182**	**1,768**	**306.2%**
Net Position Restricted for Pensions	**($4,832)**	**($268)**	**(1,703.0%)**

Changes in Fiduciary Net Position
(Dollars in Thousands)

Additions	2018	2017	Percent Change
Net Investment Income	$17	$9	88.9%
Other Income	1,607	1,453	10.6%
Total Additions	**1,624**	**1,462**	**11.1%**
Deductions			
Administrative Expenses	2,198	1,542	42.5%
Other Expenses	–	22	(100.0%)
Total Deductions	**2,198**	**1,564**	**40.5%**
Decrease in Net Position	**(574)**	**(102)**	**(462.7%)**
Net Position Restricted for Pensions			
Beginning of the Year–As Previously Reported	(268)	($166)	(61.4%)
Less: Adjustment for Application of GASB 75[1]	3,990	-	100.0%
Beginning of the Year–As Adjusted	(4,258)	(166)	(2,465.1%)
End of the Year	**($4,832)**	**($268)**	**(1,703.0%)**

[1]Refer to Note 2 in the Notes to the Basic Financial Statements for discussion of the adjustment to beginning net position due to the implementation of GASB Statement No. 75.

• Investment assets increased 26.0 percent or $0.3 million primarily due to an increase in administrative fees collected for the Pension2 programs.

• Net pension and OPEB liabilities increased 363.0 percent or $4.4 million primarily due to the recognition of the TDCF’s share of the state’s net OPEB liability as a result of the implementation of GASB Statement No. 75. The increase is also partly due to the increase in the TDCF’s proportionate share of the state’s NPL, which increased in fiscal year 2017–18.

Additionally, these factors resulted in increases of 21,350.0 percent or $0.4 million and 205.3 percent or $0.5 million in deferred inflows and outflows of resources, respectively.

• Other liabilities increased 106.0 percent or $0.6 million primarily due to the recording of certain liabilities related to the 403bCompare.com website redesign.

• Administrative expenses increased 42.5 percent or $0.7 million due to higher OPEB expense resulting from the implementation of GASB Statement No. 75. Additionally, the state’s pension expense increased for fiscal year 2017–18, which resulted in a corresponding increase to the TDCF’s proportionate share of pension expense.

• The net position for the TDCF reflects a net deficit of $4.8 million as of June 30, 2018. This deficit is primarily due to the recognition of the program’s share of the state’s NPL and net OPEB liability, which represent long-term liabilities reported on an accrual basis and do not adversely impact the viability of the fund.

OVERVIEW OF FINANCIAL STATEMENTS

Management's Discussion and Analysis is also an introduction to CalSTRS' basic financial statements. CalSTRS' financial statements include the following components:

1. Statement of Fiduciary Net Position
2. Statement of Changes in Fiduciary Net Position
3. Notes to the Basic Financial Statements
4. Required Supplementary Information – Unaudited
5. Other Supplementary Information

Statement of Fiduciary Net Position

The Statement of Fiduciary Net Position presents information on all of CalSTRS' assets and liabilities, with the difference between the two reported as net position. Over time, the increase or decrease in net position serves as an indicator of CalSTRS' financial condition and our ability to fund future benefit payments.

Statement of Changes in Fiduciary Net Position

The Statement of Changes in Fiduciary Net Position reflects how CalSTRS' net position changed during the fiscal year, presenting contributions earned, benefit payments made, investment returns and the costs of plan administration.

Notes to the Basic Financial Statements

The Notes to the Basic Financial Statements provide information essential to a full understanding of the basic financial statements. The type of information provided in each note is as follows:

- Note 1 provides a general description of CalSTRS, a concise description of each of the plans, contribution information and funds administered by CalSTRS.
- Note 2 provides a summary of significant accounting policies, including the basis of accounting for CalSTRS, management's use of estimates, cash and investment accounting policies and other significant accounting policies.
- Note 3 provides a summary of the NPL of employers and the nonemployer contributing entity for the STRP in accordance with GASB Statement No. 67, *Financial Reporting for Pension Plans–an amendment of GASB Statement No. 27*.
- Note 4 provides a summary of the net OPEB liability of employers for the MPP Program in accordance with GASB Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans*.
- Note 5 provides information related to deposits and investments, including disclosures required by GASB Statement No. 28, *Accounting and Financial Reporting for Securities Lending Transactions*; GASB Statement No. 38, *Certain Financial Statement Note Disclosures*; GASB Statement No. 40, *Deposit and Investment Risk Disclosures–an amendment of GASB Statement No. 3*; GASB Statement No. 53, *Accounting and Financial Reporting for Derivative Instruments*; GASB Statement No. 67; GASB Statement No. 72, *Fair Value Measurement and Application;* and GASB Statement No. 74. This note discloses information about CalSTRS' investments as of June 30, 2018, and risks related to credit (including custodial credit and concentrations of credit risk), interest rate and foreign currency. In an effort to provide increased visibility to investment holdings, Note 5 also includes a Schedule of Investments that discloses the types of investments within each broad investment category.
- Note 6 provides information related to investment disclosures required by GASB Statement No. 72.
- Note 7 generally describes potential contingencies of CalSTRS.
- Note 8 provides a summary of CalSTRS' significant commitments.
- Note 9 provides a summary of new accounting and financial reporting pronouncements.

Required Supplementary Information

The Required Supplementary Information consists of six schedules. These schedules are intended to assist the reader in understanding the NPL of the STRP and net OPEB liability of the MPP Program. The information available in the Required Supplementary Information section includes:

- Schedule I – Schedule of Changes in Net Pension Liability of Employers and Nonemployer Contributing Entity
- Schedule II – Schedule of Net Pension Liability of Employers and Nonemployer Contributing Entity
- Schedule III – Schedule of Pension Contributions from Employers and Nonemployer Contributing Entity
- Schedule IV – Schedule of Money-Weighted Investment Returns for State Teachers' Retirement Plan and Medicare Premium Payment Program
- Schedule V – Schedule of Changes in Net OPEB Liability of Employers
- Schedule VI – Schedule of Net OPEB Liability of Employers

Other Supplementary Information

Other Supplementary Information includes details on administrative expenses, investment expenses, and consultant and professional services expenses. The schedules available in the Other Supplementary Information section include:

- Schedule VII – Schedule of Administrative Expenses
- Schedule VIII – Schedule of Investment Expenses
- Schedule IX – Schedule of Consultant and Professional Services Expenses

MAJOR BUSINESS COMPONENTS

The sections that follow describe the activities and results of CalSTRS' major business components (investment management and pension administration) for fiscal year 2017–18.

Investment Management

CalSTRS' primary goal is to maintain a financially sound retirement system. Our investment philosophy is "long-term patient capital" — investing for long-term net cash flows and capital gain potential at a reasonable price.

CalSTRS' investment beliefs serve as the foundation for our investment policies and describe the authority, responsibility and fiduciary duty CalSTRS has in executing our investment process. The eight investment beliefs are:

1. Diversification strengthens the fund.
2. The global public investment markets are largely, but not completely, efficient.
3. Managing investment costs yields long-term benefits.
4. Internal management is a critical capability.
5. CalSTRS can potentially capture an illiquidity risk premium.
6. Managing short-term drawdown risk can positively impact CalSTRS' ability to meet its long-term financial obligations.
7. Responsible corporate governance, including the management of environmental, social and governance (ESG) factors, can benefit long-term investors like CalSTRS.
8. Alignment of financial interests between CalSTRS and its advisors is critical.

CalSTRS uses a time-weighted return methodology to calculate returns for portfolio performance purposes. For the period ended June 30, 2018, CalSTRS earned an approximate 9.0 percent return calculated on a net of fees basis. The resulting performance is above the actuarially assumed 7.0 percent rate of return used for funding purposes. CalSTRS' returns (net of fees) reflect the following longer-term performance:

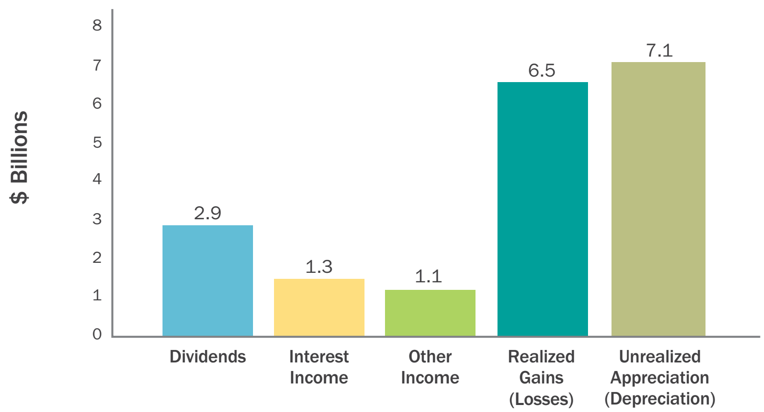
- 7.8 percent over 3 years
- 9.2 percent over 5 years
- 6.3 percent over 10 years
- 6.5 percent over 20 years

The money-weighted return net of all investment expenses based on financial statement values reflects an approximate 8.9 percent return for the period ended June 30, 2018. The money-weighted return measures the overall performance of the pension plan factoring in the impact of cash flows. Differences in the money-weighted and time-weighted returns are caused by the inherent variations in the methodology and the inputs of the two calculations.

Sources of Investment Income

The graph below displays a detailed view of the sources of investment income for the STRP, excluding securities lending income, based on the Statement of Changes in Fiduciary Net Position as of June 30, 2018.

Investment Income (Gross of Expenses)

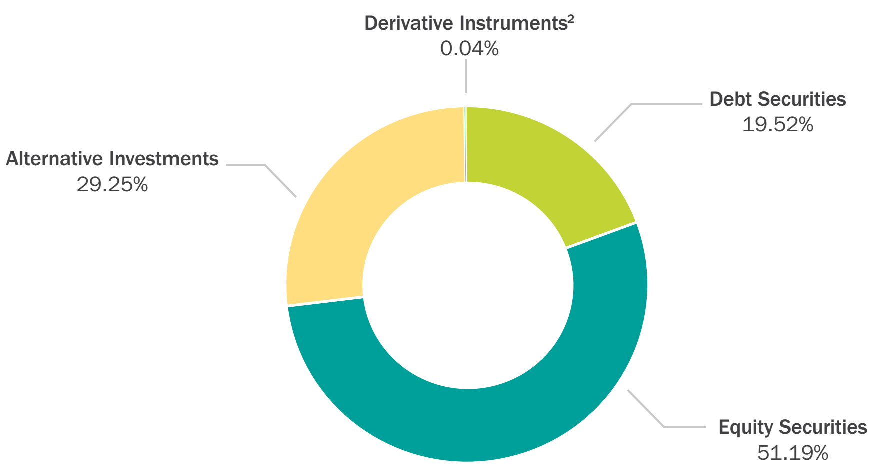


CalSTRS' investments earn income in the form of interest and dividends from holding fixed income securities and various types of equity interests in public companies, limited partnerships and co-investments. Other income consists primarily of distributed income from alternative investments (such as rent), term loans and securities litigation. Realized gains (losses) are generally a result of investment sales, write-offs and reorganizations. Unrealized appreciation (depreciation) is generated by period over period valuation fluctuations in all types of investments.

Asset Allocation and Performance

The graph below presents STRP net investments, excluding securities lending collateral and obligations, based on investment classifications within the Statement of Fiduciary Net Position as of June 30, 2018.

Statement of Fiduciary Net Position Investment Distribution[1]



[1] This chart only presents investments of the STRP as investment assets of the STRP are actively managed by CalSTRS. While CalSTRS offers investment strategies for the Pension2 programs, investment assets of the 403(b) and 457(b) plans are not actively managed by CalSTRS. Additionally, investment assets in the MPP Program and the TDCF are invested in the Surplus Money Investment Fund, which is a pooled investment program administered by the State Treasurer.

[2] Derivative instruments are reported on a net basis in the chart above. Please refer to the Schedule of Investments in the Notes to the Basic Financial Statements for more information.

The following table displays the distribution of net investments based on the portfolio allocation as compared to the classification within the Statement of Fiduciary Net Position as of June 30, 2018.

Portfolio Allocation versus Financial Statement Classification

Portfolio Allocation		Financial Statement Classification	
Asset Class/Strategy	**Asset Allocation**	**Investments**	**% of Asset Class**
Global Equity	53.7%	Equity Securities	95.9%
		Alternative Investments	2.7%
		Debt Securities	1.1%
		Other*	0.3%
Fixed Income	12.3%	Debt Securities	102.6%
		Other*	(2.6%)
Real Estate	12.8%	Alternative Investments	99.8%
		Debt Securities	0.1%
		Equity Securities	0.1%
Private Equity	8.2%	Alternative Investments	100.0%
Liquidity	1.4%	Debt Securities	99.8%
		Other*	0.2%
Inflation Sensitive	1.9%	Alternative Investments	72.1%
		Debt Securities	27.6%
		Derivative Instruments	0.3%
		Equity Securities	0.1%
		Other*	(0.1%)
Risk Mitigating Strategies	8.9%	Alternative Investments	53.9%
		Debt Securities	45.7%
		Other*	0.4%
Innovative Strategies	0.2%	Alternative Investments	100.0%
Strategic Overlay	0.6%	Debt Securities	77.9%
		Derivative Instruments	8.1%
		Equity Securities	0.2%
		Other*	13.8%
Total Fund	**100.0%**		

*Other consists of cash, payables and receivables that are reflected as such on the Statement of Fiduciary Net Position and any investment categories less than 0.1 percent.

Equity Securities

The Global Equity asset class represents 53.7 percent of total investments as of June 30, 2018, and is composed of equity securities within the U.S., non-U.S. developed countries and emerging markets. Corporate governance funds are included within the Global Equity asset class but are classified as Alternative Investments on the financial statements, as reflected in the table above. Approximately 55 percent of the Global Equity assets are managed internally by CalSTRS investment staff, while the remaining 45 percent are managed by external investment managers.

As of June 30, 2018, the STRP held $115.3 billion in equity securities across all portfolios, an increase of 1.8 percent compared to the prior year.

Global equities generated positive returns for the fiscal year. Gains in the U.S. markets were largely driven by the federal tax reform legislation passed in December 2017, which reduced corporate and individual tax rates. Positive corporate earnings and global economic growth also contributed to returns, both internationally and domestically. By 2018, many U.S. and international stock indices had reached record highs.

However, in the third quarter of the fiscal year, equities slid as market volatility surged amid rising inflation expectations, geopolitical uncertainty and global trade tensions. The announcement of U.S. tariffs on imported steel and aluminum, as well as a range of imports from China, also weighed on investor sentiment and caused market disruption. Emerging markets outperformed developed non-U.S. markets for the fiscal year as commodity prices rose and synchronized global growth created a demand for riskier assets.

Debt Securities

The Fixed Income asset class is composed of U.S. and non-U.S. dollar-based investment grade and non-investment grade securities. Approximately 84 percent of the asset class uses an enhanced core strategy. The remaining 16 percent uses broader core plus, high yield and other opportunistic strategies.

Debt securities within Fixed Income and other asset classes increased 7.3 percent from $41.0 billion as of June 30, 2017, to $44.0 billion at June 30, 2018.

Returns were modest for debt securities for the fiscal year. At the start of the year, bond markets generated positive returns from high demand as investors sought out safe-haven investments amid potential North Korean tensions. The gains were later offset as expectations of higher growth and inflation from the tax cuts led bond yields to increase, thus lowering bond prices. The Federal Reserve raised interest rates three times during the fiscal year to their highest level since April 2008 and began reducing its holdings of U.S. Treasury bonds and mortgage-backed securities in efforts to tighten monetary policy.

Alternative Investments

Alternative investments include investments in private equity, real estate, corporate governance, inflation sensitive, innovative and risk mitigating strategies. For the period ended June 30, 2018, alternative investments increased 16.8 percent from $56.4 billion to $65.9 billion. The increase was primarily due to the funding of new investments in privately held equities within Risk Mitigating Strategies (RMS). RMS represented 8.9 percent of total investments as of June 30, 2018 (up from 5.1 percent as of June 30, 2017), and includes strategies that provide protection against equity market downturns. These strategies may include long duration U.S. Treasuries, Trend following, Global Macro, and Systematic Risk Premia as identified in the Risk Mitigating Strategies Class Policy.

The Private Equity asset class is composed primarily of limited partnerships and co-investments focusing on commitments to domestic and non-U.S. partnerships as identified in the Private Equity Policy. Types of investment strategies include leveraged buyouts, venture capital and debt investments. The Private Equity asset class posted double-digit returns for the fiscal year ended June 30, 2018. For the industry as a whole, the number of private equity funds continued to rise throughout the fiscal year. Capital distributions also exceeded capital called by the funds and unfunded commitments remained at record levels. Substantial fees and costs are associated with investments in the Private Equity asset class. Consequently, emphasis is placed on negotiating and monitoring the costs of each limited partnership investment.

The Real Estate asset class is composed of investments in directly held real estate (such as wholly owned properties and joint venture investments) and non-directly held real estate, which consist primarily of commingled funds and co-investments. To more closely align the interest of CalSTRS and the real estate managers, emphasis is placed on negotiating, monitoring and managing the costs associated with each real estate investment.

Real estate investments increased $2.8 billion or 10.4 percent for the period ended June 30, 2018. Returns for the portfolio were in the double digits as of the fiscal year end primarily due to distributed income and realized and unrealized gains within the asset class.

Overall, the real estate industry remained positive during the fiscal year as economic growth boosted demand for all major commercial property types. Low vacancy rates and increased rents also contributed to rising net operating income and higher valuations. Despite the Federal Reserve's interest rate hikes throughout the fiscal year, mortgage rates remained relatively low by historical standards, and financing continued to be attractive.

In the private real estate space, performance was positive as the number of funds available grew and fundraising remained healthy. Value added and opportunistic strategies represented the majority of the funds in the market. Capital distributions also exceeded capital called by the funds, resulting in large net cash flows.

The CalSTRS Corporate Governance Program is designed to maximize the long-term value of the CalSTRS Investment Portfolio. Our corporate governance policies are guidelines used to engage companies on topics such as climate change, board governance and diversity. Ultimately, CalSTRS believes the companies we invest in should be accountable to shareholders as investors and providers of capital.

In the 2017 calendar year, CalSTRS voted on 79,229 proposals at 8,042 shareholder meetings held by companies in our Global Equity portfolio. Staff voted on proposals covering a variety of topics, including the election of directors, ratification of company auditors, approval of executive and director compensation plans, and approval of mergers and acquisitions. Recent achievements and future objectives are outlined in the fifth *Corporate Governance Annual Report*, which is available at CalSTRS.com.

CalSTRS firmly believes the best way to resolve issues involves active and direct engagement, which may include shareholder resolutions or regulatory and legislative support. In response to recent events, the 2018 Corporate Governance Engagement Plan was updated to prioritize engagement with companies that manufacture and sell firearms that are illegal in California. Should engagement efforts prove unsuccessful, the board may consider divestment or customized indices that would exclude retailers that manufacture and sell these firearms.

Asset/Liability Study

CalSTRS conducts a full asset/liability study once every four years or more frequently if there is a significant change in our assets or liabilities, with the key goal of developing an asset allocation policy that maximizes the likelihood that the investment portfolio's assets will, over the planning horizon, fund plan benefits. The most recent study was completed in fiscal year 2015–16. As a result, the Investment Committee agreed to adopt RMS as an asset class to provide further diversification of CalSTRS' overall investment portfolio. RMS is designed to provide protection against equity market downturns in the future and has an allocation target of 9 percent of the total fund assets. To integrate this new asset class, CalSTRS adopted an implementation plan in 2016, which allowed the Investment Committee to review the allocation every six months and make adjustments as needed. The portfolio was fully funded in February 2018 but not fully implemented. Staff continue to implement strategies approved by the board. RMS represented $20.0 billion or 8.9 percent of the total fund assets as of June 30, 2018.

As previously noted under Funding Levels and Risks, CalSTRS has undertaken steps to create an internal asset/liability management team and an asset/liability management framework. Beginning in 2018, the asset/liability management team will begin work on the next asset allocation study to be completed in 2019.

In addition, CalSTRS transitioned from a U.S. equity bias to global market weights for U.S. and non-U.S. equities.

Detailed information regarding the study and the long-term policy targets and ranges can be found at CalSTRS.com.

Investment Cost Report

The 2016 calendar year investment cost report presented to the board in November 2017 provided a comprehensive view of investment costs on a cash basis across asset classes and investment strategies. The report includes a total fund and asset class/investment strategy year-over-year comparison. In addition to providing internal and external management costs, CalSTRS also provided a view of public versus private market costs.

The report showed a 1.8 basis points (bps) reduction of cost from 51.8 bps in calendar year 2015 to 50.0 bps in calendar year 2016. Although the absolute dollars increased from $963 million to $973 million, the reduction to 50.0 bps reflects the increased assets under management and CalSTRS' commitment to reduce costs.

The 2016 calendar year report also presented a comparison of CalSTRS' investment costs to 14 of our global peers with assets under management that ranged from $88 billion to $524 billion. CalSTRS' investment strategies saved approximately $211 million in investment costs compared to our peers. These comparisons were compiled by third-party cost measurement service providers using various customized methodologies. CalSTRS will continue to develop standardized cost-reporting practices to enhance our investment management reporting. A copy of the report is available at CalSTRS.com.

Pension Administration

As a provider of pension and other postemployment benefits, CalSTRS must ensure that the contributions we receive and investment income we earn will fund current and future benefits owed to our members and their beneficiaries. Actuarial valuation reports are prepared on an annual basis to help assess the funded status of our programs, and are integral to our administration of benefits. As a result of requirements set forth by GASB standards, CalSTRS prepares separate actuarial valuations for financial reporting purposes and funding purposes.

Pension System Financial Reporting Actuarial Valuation

The actuarial valuation for financial reporting focuses on the obligation an employer incurs on behalf of employees through the employment-exchange process. The primary purpose of the valuation for financial reporting is to provide a consistent, standardized methodology that allows comparability of data and increased transparency of the pension liability across plans. To achieve this, GASB requires a different approach for determining the reported NPL, as compared to Unfunded Actuarial Accrued Liability (UAAL).

There are considerable differences between the UAAL and NPL. Conceptually, the UAAL is the actuary's measure of the additional amount of assets needed to pay all benefits earned to date by current plan members, while the NPL is an accrual calculation that reflects future benefits earned by plan members through the employment-exchange process in excess of the plan's fiduciary net position.

With the provision of additional member, employer and state contributions effective July 1, 2014, CalSTRS does not project a depletion of assets. CalSTRS discounted all future obligations for the STRP using the long-term assumed rate of return on plan assets gross of administrative costs (currently 7.1 percent). Based on that assumption, the STRP has an NPL of $91.9 billion as of June 30, 2018.

Pension System Funding Actuarial Valuation

The purpose of the actuarial valuations for funding the programs within the STRP is to guide decisions regarding the long-term viability of the programs. Specifically, the purpose is to analyze the sufficiency of future contributions from members, employers and the state to meet current and future obligations. Historically, CalSTRS investment income has contributed approximately 61.8 percent of the total inflows to the STRP with employer contributions making up 15.2 percent, member contributions making up 14.7 percent and state contributions making up 8.3 percent. These percentages change over time due to fluctuating net investment income as well as the adjustments to required member, employer and state contribution rates due to AB 1469.

Separate funding actuarial valuations are performed for the DB Program, DBS Program and CBB Program. An actuarial projection is performed for the Supplemental Benefit Maintenance Account (SBMA), which is a special account in the STRP that provides inflation protection to CalSTRS members whose current purchasing power has fallen below 85 percent of the purchasing power of their initial benefit. The assets in the SBMA are credited each year at the rate of investment return assumed for the DB Program. Currently, the investment rate of return and discount rate assumption for funding actuarial valuations is 7.0 percent (6.50 percent for CBB Program). The investment return assumption, according to actuarial principles, should be based on an estimated long-term investment yield for the STRP with consideration given to the nature and mix of current and expected plan investments and is the basis for determining the actuarial value of assets.

The investment return assumptions are developed by CalSTRS investment and actuarial consultants and are adopted by the board. The actuarial assumptions and methods used in the June 30, 2017, actuarial valuation were based on the 2015 Actuarial Experience Analysis adopted by the board in February 2017.

The most recent actuarial valuation indicates that the DB Program had 62.6 percent of the funds needed to pay the actuarial cost of the benefits accrued as of June 30, 2017, which decreased by 1.1 percent from the June 30, 2016, valuation. This decrease is attributable to the adoption of new actuarial assumptions by the board in February 2017, which reduced the investment return assumption and increased expected life spans of CalSTRS members. The investment return assumption was reduced from 7.50 percent in the 2015 valuation, to 7.25 percent in the 2016 valuation, and then to 7.0 percent for the 2017 valuation. Although the system may experience declines in its funded status in the short term, an upswing is projected under the funding plan as contributions increase, with a steady progress toward full funding by 2046.

Additionally, the funding actuarial valuation for the DBS Program indicates that as of June 30, 2017, the DBS Program had a funded ratio of 122.1 percent compared to the June 30, 2016, funded ratio of 111.6 percent. The funding actuarial valuation for the CBB Program indicates that as of June 30, 2017, the program had a funded ratio of 120.0 percent compared to the June 30, 2016, funded ratio of 108.8 percent. The funded ratios for both the DBS and CBB programs were provided prior to the adoption of additional earnings credit by the board in May 2018.

Interest is credited to the nominal DBS and CBB program accounts at the minimum guaranteed annual rate established by the board prior to each plan year, which was 2.64 percent for the fiscal year ended June 30, 2018. The board may credit additional earnings to members' nominal accounts if actual investment earnings exceed the minimum guaranteed annual rate and meet criteria set out by the board. The board granted additional earnings credit for the DBS and CBB programs totaling $356.9 million and $8.9 million, respectively. Awarding the credits reduced the funded ratios cited above from 122.1 percent to 118.0 percent for the DBS Program and from 120.0 percent to 115.9 percent for the CBB Program. Refer to Note 1 for additional information.

Other Postemployment Benefits (OPEB) Financial Reporting Actuarial Valuation

The financial reporting actuarial valuation for the MPP Program is performed to determine the net OPEB liability and other required financial disclosures in accordance with GASB Statement No. 74. The MPP Program pays for Medicare Part A premiums and Medicare Parts A and B late enrollment surcharges for eligible members of the DB Program. The total OPEB liability for the MPP Program was determined by using the actuarial valuation as of June 30, 2017. As of June 30, 2018, the net OPEB liability for the MPP Program is $382.8 million.

The MPP Program is funded on a pay-as-you-go basis, with contributions generally being made at the same time in the same amount as benefit payments and expenses coming due. Minimal investment assets are maintained in the fund to manage differences between estimated and actual amounts to be paid and are invested in the Surplus Money Investment Fund, which is a pooled investment program administered by the State Treasurer. For financial reporting purposes, the plan is essentially unfunded as the fiduciary net position of the plan will not be sufficient to make the projected future benefit payments. Therefore, in accordance with GASB Statement No. 74, in instances such as this, the rate used to discount the total OPEB liability represents the yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher. The discount rate as of June 30, 2018, for the MPP Program OPEB liability is 3.87 percent as measured by The Bond Buyer's 20-Bond GO Index as of June 30, 2018.

OPEB Funding Actuarial Valuation

The MPP Program is funded on a pay-as-you-go basis from redirected contributions from the DB Program. The MPP Program funding actuarial valuation measures the value of DB Program employer contributions that will be available to fund the MPP Program benefits in future periods. This valuation differs from the actuarial valuation for financial reporting for the MPP Program, which focuses on the obligation an employer incurs on behalf of employees through the employment-exchange process.

The DB Program funding actuarial valuation as of June 30, 2017, found that the MPP Program assets, along with MPP allocated funding from future employer contributions, are sufficient to finance the future MPP Program obligations of $314 million for both Part A premiums and Parts A and B surcharges.

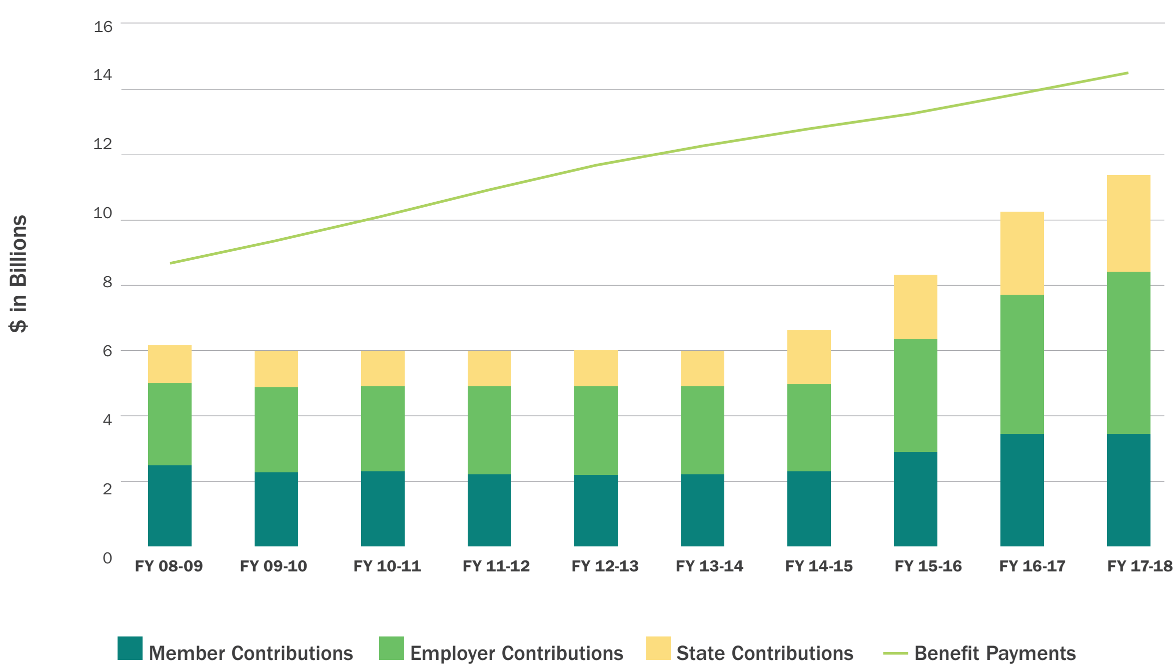
STRP Investment Income, Contributions and Benefit Payments

The following chart is a 10-year comparison of investment income, contributions and benefit payments.

STRP Contributions and Benefit Payments

The chart below shows that prior to the enactment of AB 1469 in June 2014, there had been a growing gap between contributions and benefit payments. During fiscal year 2017–18, the gap narrowed by 11.4 percent.

Contribution rates will continue to increase according to AB 1469, which has improved the long-term sustainability of the DB Program as it continues making progress toward full funding by the year 2046. Despite this, investment volatility, longevity and membership levels pose potential risks to full funding. The experience beyond 2046 may differ.



OTHER BUSINESS ACTIVITIES

Sustainability

CalSTRS believes establishing a corporate environment with sustainable principles leads to a more productive business culture, better environmental and governance practices and increased long-term viability. As trusted stewards of the system, CalSTRS continues to underscore and emphasize the need to look over a long-term, 30-year horizon — well beyond the immediate impacts of any short-term results. This entails modeling best practices in corporate governance, employing risk-mitigation policies, developing workforce succession plans and dedicating resources to increase our members' financial awareness and retirement security.

CalSTRS released our fourth annual sustainability report for fiscal year 2016–17, *Global Stewardship at Work*, which was prepared based on the Global Reporting Initiative G4 Guidelines and outlines notable achievements relating to long-term sustainability and stewardship. The report details our commitment to progressive ESG principles through our efforts concerning responsible business practices, workforce development, retirement security and sustainability-related investment risk management. For instance, CalSTRS assessed the increasing risk of cyberattacks and implemented the Center of Internet Security's 20 Critical Security Controls to strengthen our cybersecurity posture. We surveyed our vendors with contracts worth over $50,000 regarding their efforts to address ESG risks. The report also highlights CalSTRS' efforts to advance understanding of diversity among our staff through an all-day interactive workshop titled *Diversity and Inclusion: The Power of Difference*. All CalSTRS employees attended this workshop and were given the opportunity to learn how working together creates a more inclusive, supportive organizational culture. A copy of the report is available at CalSTRS.com.

CalSTRS actively engages with organizations committed to bringing transparency to sustainable practices of companies in the U.S. To this end, CalSTRS is a founding board member of the Sustainability Accounting Standards Board (SASB) and believes that companies should report on material ESG issues that affect their financial performance.

SASB is an independent nonprofit organization that sets sustainability accounting standards to help public corporations disclose material, decision-useful information to investors. SASB standards identify sustainability topics at an industry level that may constitute material information — depending on a company's specific operating context. While not required to adhere to SASB guidelines, some SASB topics are relevant to CalSTRS and include employee incentives and risk taking, employee inclusion, management of the legal and regulatory environment and integration of ESG risk factors in investment management.

The standards related to incentives and risk taking seek to provide readers with a clear understanding on how employee compensation structures may impact long-term value. CalSTRS enforces a strict incentive compensation policy based on both qualitative and quantitative performance objectives designed to align staff and system interests. The board has discretion to pay no incentives, reduce the amount of an incentive award, or defer all or part of an employee's incentive award for a plan year. This can be done if qualifying events related to investment performance, ethical violation or reputational risks occur. CalSTRS strives to sustain careers of our employees over the long term and awards high performers who have met the qualitative and quantitative requirements outlined in the policy.

The following table is a summary of incentive awards paid in fiscal year 2017–18 to qualifying employees in comparison to their regular pay:

Incentive Pay Ratio for Qualifying CalSTRS Employees (Dollars in Thousands)

	Incentive Pay	Total Pay	%*
Executives/Senior Managers[1]	$4,891	$17,784	27.5%
All Others[2]	201	2,388	8.4

*Ratio of Incentive Pay to Total Pay

[1]The Executives/Senior Managers category consists of all eligible employees classified as an Executive, Investment Director, Portfolio Manager and Associate Portfolio Manager.

[2]The All Others category represents all non-management investment staff eligible for incentive pay.

SASB standards state that significant value can be generated through meaningful employee engagement strategies and by ensuring diversity through inclusive training and development practices. CalSTRS continues to expand our efforts to grow an engaged, highly skilled and diverse workforce. Further information regarding CalSTRS' sustainability practices with respect to workforce development, including the percentage of gender and racial/ethnic group representation for CalSTRS workforce, can be found in the 2016–17 sustainability report, *Global Stewardship at Work*, available at CalSTRS.com.

SASB guidelines related to management of the legal and regulatory environment state that those who manage assets have legal obligations and fiduciary duties related to record keeping, operating and marketing, disclosure requirements and prohibitions on fraudulent activities. CalSTRS strives to maintain high ethical standards that support the CalSTRS Core Values and ensure understanding and cooperation among our staff regarding their ethics and compliance responsibilities.

In addition to periodic compliance training and communications, CalSTRS encourages the use of our various compliance programs. CalSTRS offers employees and members many ways to report unethical conduct, including the Pension Abuse Reporting Hotline or submissions through the Citizen's Complaint Act. When a report is received, the CalSTRS Office of Legal Ethics and Accountability performs an independent and thorough investigation. Additionally, the Compensation Review Unit reviews reports of inappropriate pension-related activities.

In fiscal year 2017–18, there were no significant instances of unethical conduct reported. Cases of potential pension spiking were investigated and resolved or referred to the general counsel's office. As a result of our efforts, we have not incurred any material fines or settlements related to our communications, financial fraud or other commercial issues in fiscal year 2017–18.

As a long-term investor, ESG factors are of great importance to us. While the specific factors vary by company, industry and geography, we consider relevant ESG matters when evaluating opportunities, making investment decisions, managing our investments and engaging with companies to seek improvements in business practices and disclosure.

In February 2018, CalSTRS issued the 11th *Green Initiative Task Force Annual Report* for the year ending June 30, 2017. The Green Initiative Task Force, also known as the Green Team, was established in 2007 to identify, analyze and consider investment opportunities and risk-control strategies addressing climate change. The report provides an update on the CalSTRS Investments Branch's efforts to manage environmental risks the CalSTRS portfolio faces, the methods used to integrate environmental risk factors into the investment management process and examples of investments that CalSTRS or our partnerships have made while taking into consideration environmental risk factors. One key initiative highlighted in the report is the implementation of CalSTRS' Low-Carbon Index Portfolio, which took place in July 2017. The portfolio is invested in an index designed to have significantly lower exposure to carbon emissions than the broad market and a near complete reduction in exposure to fossil fuel reserves. The initial phase represented an investment of $1.3 billion in the U.S. market. Over time, CalSTRS will invest an additional $1.2 billion between non-U.S. developed markets and emerging markets. As of June 30, 2018, the value of the investments in the U.S. market was $1.5 billion. More information can be found in the report available at CalSTRS.com.

In fiscal year 2017–18, CalSTRS concluded a rigorous 15-month process by selecting a pool of eight ESG-focused asset managers. These managers have been chosen to execute specific ESG investment strategies. While no investment funds have been committed to any of the managers, they are now eligible to receive an allocation when opportunities arise.

Diversity in management of investments is interwoven throughout the investment business goals and is consistent with the objective to invest in strategies that enhance returns at a prudent level of risk. When it comes to diversity and inclusion within the investments industry, CalSTRS proactively leverages opportunities to collaboratively engage with companies in the portfolio as well as leaders on a global scale in order to motivate positive momentum. In February 2018, CalSTRS published our annual *Diversity in Management of Investments* report for the 2017 calendar year, with details regarding efforts to improve diversity, including internal staff development, portfolio company engagement, outreach and education, and the emerging manager programs. For example, the Corporate Governance Enhanced Diversity Initiative, approved by the Investment Committee in 2016, is part of these efforts. The goal is for CalSTRS staff to have in-depth discussions with companies to understand their diversity programs and overall impact in developing diverse representation within senior executive staff, as well as strengthening the pipeline of diverse candidates to serve on their boards. Additional CalSTRS diversity initiatives are discussed in the report which is available only at CalSTRS.com.

Business Transformation

CalSTRS continues to develop as an organization, and we reflect our goals, risks and initiatives in a three-year strategic plan and annual business plan.

Fiscal Year 2017–18 Business Plan

The fiscal year 2017–18 Business Plan outlined the allocation of resources and identified key objectives scheduled for completion by the close of the fiscal year. These objectives were related to various aspects of the CalSTRS organization including: Financial, Member/Employer, Business Transformation and Workforce Transformation. CalSTRS staff made significant progress on the initiatives outlined in this plan, and results of the prior year board strategic goals were presented in the current year report.

Pension Solution Project

CalSTRS continued efforts on the Pension Solution Project, which involves the replacement of the CalSTRS legacy pension administration system. Due to the complex nature of the project, CalSTRS and CGI Group, Inc. (CGI), the vendor contracted to configure and implement the new system, identified certain challenges and risks that could cause delays in the project. To address these concerns, CalSTRS and CGI conducted a 90-day "fit-gap" exercise to carefully evaluate the gaps between CalSTRS' business needs and the out-of-the-box functionality present in the new pension administration system. In addition, CalSTRS continued to identify opportunities to reduce risk to the project schedule and scope through the Project Improvement Exercise. These exercises provided a redefined understanding of the level of effort required to design, build and implement the required functionality for the new system and led to a revised project timeline. As a result in February 2018, the board approved a $34 million contract increase for CGI to cover the proposed schedule extension and the costs associated with the refined requirements.

Additionally, the companion Data Prep Project continued to analyze and address data issues in our legacy pension system. This project will help ensure our members can rely on timely, accurate and complete information in the new pension administration system.

Long–Term Space Planning

Due to increasing complexities in investment markets, the financial services sector and public pension plan administration, CalSTRS staff has increased over the past several years, and the organization anticipates staff will continue to grow over the next two decades. The board is thoroughly vetting several options, including the associated costs and logistics of:

- Long–term lease at an existing building.
- Purchase of an existing building.
- Expansion of the headquarters campus to include a second structure.

In spring 2017, CalSTRS partnered with construction management and architectural firms to analyze the potential long-term solution of expanding the headquarters campus. CalSTRS also continued to explore local market opportunities to buy or lease space as long-term alternatives. Updates were provided to the board throughout 2017–18. A financial analysis of all alternatives will be presented to the board, and a decision on how the organization should proceed is expected to be made in November 2018.

Legislative Update

Consistent with CalSTRS' mission, the board authorizes staff to engage in the legislative process to prevent and remove obstacles that impair the ability of CalSTRS members to achieve financial security. The following is a list of bills CalSTRS is currently monitoring that have not been enacted as of June 30, 2018:

AB 2052 (Bonta) is board-sponsored legislation that, effective upon authorization by the board, requires all employers to submit their contribution payments by an electronic funds transfer method. It also allows an employer that is unable to comply with this requirement to apply to the board for a waiver to pay in an alternate manner.

SB 964 (Allen) requires the board to analyze "climate-related financial risk," as defined, to the extent that the board identifies such risk as a material risk to the fund. It also requires the board to publicly report on the analysis of the climate-related financial risks of CalSTRS' public market portfolios every three years. The bill sunsets on January 31, 2035.

H.R. 10 (Hensarling–TX) repeals provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act and changes shareholder proposal thresholds.

H.R. 985 (Goodlatte–VA) makes significant changes to laws governing class action lawsuits, including prohibiting class certification unless "each class member has suffered the same type and scope of injury." Among other provisions, it also limits the amount and timing of attorney's fees and allows defendants to automatically appeal class certifications.

H.R. 6290 (Nunes–CA) requires CalSTRS to report specified information to the U.S. Treasury Secretary each plan year using the U.S. Treasury spot rate yield curve to calculate the information, where applicable, failure to comply with the reporting requirements results in the forfeiture of federal tax benefits to bonds issued by the relevant state or political subdivision until noncompliance is remedied.

REQUESTS FOR INFORMATION

This financial report is designed to provide a general overview of CalSTRS' finances. For questions concerning the information in this report or for additional information, contact CalSTRS, P.O. Box 15275, Sacramento, CA 95851–0275.

Respectfully submitted,

Julie Underwood

Chief Financial Officer

Basic Financial Statements

STATEMENT OF FIDUCIARY NET POSITION

As of June 30, 2018
(Dollars in Thousands)

	State Teachers' Retirement Plan	Pension2 403(b) Plan	Pension2 457(b) Plan	Medicare Premium Payment Program	Teachers' Deferred Compensation Fund	Total
Assets						
Investments:						
Debt Securities	$43,973,511	$388,108	$15,323	$605	$1,389	$44,378,936
Equity Securities	115,337,965	534,331	26,402	–	–	115,898,698
Alternative Investments	65,894,125	–	–	–	–	65,894,125
Derivative Instruments	233,040	–	–	–	–	233,040
Securities Lending Collateral	21,931,891	–	–	–	–	21,931,891
Total Investment Assets	**247,370,532**	**922,439**	**$41,725**	**$605**	**$1,389**	**$248,336,690**
Cash	153,256	–	–	–	–	153,256
Receivables:						
Investments Sold	2,517,825	–	–	–	–	2,517,825
Interest and Dividends	558,795	–	–	6	6	558,807
Member, Employer and State	714,785	12,330	323	–	–	727,438
Loans Receivable	2,723,533	4,084	247	–	–	2,727,864
Other	30,338	–	–	–	155	30,493
Total Receivables	**6,545,276**	**16,414**	**570**	**6**	**161**	**6,562,427**
Other Assets:						
Capital Asset, Net of Accumulated Depreciation	276,001	–	–	–	–	276,001
Other	244	–	–	–	–	244
Total Other Assets	**276,245**	**–**	**–**	**–**	**–**	**276,245**
Total Assets	**254,345,309**	**938,853**	**42,295**	**611**	**1,550**	**255,328,618**
Deferred Outflows of Resources	**117,457**	–	–	**191**	**800**	**118,448**
Total Assets and Deferred Outflows of Resources	**254,462,766**	**938,853**	**42,295**	**802**	**2,350**	**255,447,066**
Liabilities						
Investments:						
Derivative Instruments	140,070					140,070
Total Investment Liabilities	**140,070**	**–**	**–**	**–**	**–**	**140,070**
Investments Purchased Payable	3,346,989	–	–	–	–	3,346,989
Loans Payable	2,731,737	–	–	–	–	2,731,737
Benefits in Process of Payment	263,254	–	–	–	–	263,254
Net Pension and OPEB Liabilities	835,204	–	–	1,793	5,612	842,609
Securities Lending Obligation	21,917,706	–	–	–	–	21,917,706
Other	303,893	1,877	1	403	1,141	307,315
Total Liabilities	**29,538,853**	**1,877**	**1**	**2,196**	**6,753**	**29,549,680**
Deferred Inflows of Resources	**55,278**	**–**	**–**	**148**	**429**	**55,855**
Total Liabilities and Deferred Inflows of Resources	**29,594,131**	**1,877**	**1**	**2,344**	**7,182**	**29,605,535**
Net Position Restricted for Pensions/ Other Postemployment Benefits	**$224,868,635**	**$936,976**	**$42,294**	**($1,542)**	**($4,832)**	**$225,841,531**

The accompanying notes are an integral part of these statements.

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

For the Fiscal Year Ended June 30, 2018
(Dollars in Thousands)

	State Teachers' Retirement Plan	Pension2 403(b) Plan	Pension2 457(b) Plan	Medicare Premium Payment Program	Teachers' Deferred Compensation Fund	Total
Additions						
Contributions:						
Member	$3,496,245	$122,113	$7,038	$–	$–	$3,625,396
Employer	4,866,661	369	85	28,218	–	4,895,333
State of California	2,796,673	–	–	–	–	2,796,673
Total Contributions	**11,159,579**	**122,482**	**7,123**	**28,218**	**–**	**11,317,402**
Investment Income:						
Net Appreciation/(Depreciation) in Fair Value of Investments	13,653,813	49,382	1,842	–	(1)	13,705,036
Interest, Dividends and Other	5,349,855	15,722	713	18	18	5,366,326
Securities Lending Income	361,103	–	–	–	–	361,103
Investment Expenses:						
Cost of Lending Securities	(312,391)	–	–	–	–	(312,391)
Other Investment Expenses	(378,843)	–	–	–	–	(378,843)
Net Investment Income	**18,673,537**	**65,104**	**2,555**	**18**	**17**	**18,741,231**
Other Income	105,144	309	11	-	1,607	107,071
Total Additions	**29,938,260**	**187,895**	**9,689**	**28,236**	**1,624**	**30,165,704**
Deductions						
Retirement, Disability, Death and Survivor Benefits	14,270,878	–	–	–	–	14,270,878
Premiums Paid	–	–	–	28,036	–	28,036
Distributions and Withdrawals	–	48,481	1,411	–	–	49,892
Purchasing Power Benefits	161,932	–	–	–	–	161,932
Refunds of Member Contributions	103,886	5,614	88	–	–	109,588
Administrative Expenses	216,083	2,406	100	578	2,198	221,365
Borrowing Costs	94,249	–	–	–	–	94,249
Other Expenses	1,678	–	–	–	–	1,678
Total Deductions	**14,848,706**	**56,501**	**1,599**	**28,614**	**2,198**	**14,937,618**
Net Increase (Decrease) in Net Position	**15,089,554**	**131,394**	**8,090**	**(378)**	**(574)**	**15,228,086**
Net Position Restricted for Pensions/Other Postemployment Benefits						
Beginning of the Year–As Previously Reported	210,289,900	805,582	34,204	41	(268)	211,129,459
Adjustment for Application of GASB 75[1]	(510,819)	–	–	(1,205)	(3,990)	(516,014)
Beginning of the Year–As Adjusted	**209,779,081**	**805,582**	**34,204**	**(1,164)**	**(4,258)**	**210,613,445**
End of the Year	**$224,868,635**	**$936,976**	**$42,294**	**($1,542)**	**($4,832)**	**$225,841,531**

[1]Refer to Note 2 in the Notes to the Basic Financial Statements for discussion of the adjustment to beginning net position due to the implementation of GASB Statement No. 75.

The accompanying notes are an integral part of these statements.

1. DESCRIPTION OF CALSTRS AND CONTRIBUTION INFORMATION

The California State Teachers' Retirement System (CalSTRS) administers a hybrid retirement system consisting of a defined benefit plan, two defined contribution plans, a postemployment benefit plan and a fund used to account for ancillary activities associated with various deferred compensation plans and programs:

- State Teachers' Retirement Plan (STRP)
- CalSTRS Pension2® Program (Pension2)
- Medicare Premium Payment (MPP) Program
- Teachers' Deferred Compensation Fund (TDCF)

CalSTRS provides pension benefits, including disability and survivor benefits, to California full-time and part-time public school teachers from pre-kindergarten through community college and certain other employees of the public school system. The Teachers' Retirement Law (California Education Code Section 22000 et seq.), as enacted and amended by the California Legislature and Governor, established these plans and CalSTRS as the administrator. The terms of the plans may be amended through legislation.

CalSTRS is a component unit of the State of California (the state). These financial statements include only the accounts of CalSTRS. The state includes CalSTRS' various plans and funds as fiduciary funds in its financial statements.

The Teachers' Retirement Board (the board) has exclusive control over the administration of the retirement system plans and the investment of funds, makes rules, sets policies and has the authority to hear and determine all facts pertaining to application for benefits under the retirement system. It is composed of 12 members:

- Five members appointed by the Governor and confirmed by the Senate: one school board representative, one retired CalSTRS member and three public representatives;
- Four ex-officio members: the Superintendent of Public Instruction, the State Treasurer, the State Controller and the Director of Finance; and
- Three member-elected positions representing current educators.

State Teachers' Retirement Plan

The STRP is a multiple-employer, cost-sharing defined benefit plan composed of four programs: Defined Benefit (DB) Program, Defined Benefit Supplement (DBS) Program, Cash Balance Benefit (CBB) Program and Replacement Benefits (RB) Program. The STRP holds assets for the exclusive purpose of providing benefits to members and beneficiaries of these programs. CalSTRS also uses plan assets to defray reasonable expenses of administering the STRP. Although CalSTRS is the administrator of the STRP, the state is the sponsor and obligor of the trust. In addition, the state is both an employer and nonemployer contributing entity to the STRP.

STRP Defined Benefit Program

As of June 30, 2018, there were 1,740 contributing employers (school districts, community college districts, county offices of education, charter schools and regional occupational programs). Membership is mandatory for all employees meeting certain statutory requirements and optional for all other employees performing creditable service activities. The DB Program provides retirement benefits based on members' final compensation, age and years of service credit. In addition, the program provides benefits to members upon disability and to their survivors or beneficiaries upon the death of eligible members.

As of June 30, 2018, membership consisted of:

Active Members	
Vested	315,082
Nonvested	134,473
Inactive Members	
Vested	40,015
Nonvested	158,171
Retirees and Benefit Recipients	301,629
Total Members, Retirees and Beneficiaries	**949,370**

The DB Program has two benefit formulas:

- CalSTRS 2% at 60: Members first hired on or before December 31, 2012, to perform service that could be creditable to CalSTRS.
- CalSTRS 2% at 62: Members first hired on or after January 1, 2013, to perform service that could be creditable to CalSTRS.

There are several differences between the two benefit formulas, which are noted below.

<u>CalSTRS 2% at 60</u>

- CalSTRS 2% at 60 members are eligible for normal retirement at age 60, with a minimum of five years of credited service. The normal retirement benefit is equal to 2.0 percent of final compensation multiplied by the number of years of credited service. Early retirement options are available at age 55 with five years of credited service or as early as age 50 with 30 years of credited service. The age factor for retirements after age 60 increases with each quarter year of age to a maximum of 2.4 percent at age 63 or older. Members who have 30 years or more of credited service receive an additional increase of up to 0.2 percent to the age factor, up to the 2.4 percent maximum.
- CalSTRS calculates retirement benefits based on one-year final compensation for members with 25 or more years of credited service, or for classroom teachers with fewer than 25 years of credited service if the employer entered into, extended, renewed or amended an agreement prior to January 1, 2014, to elect to pay the additional benefit cost for all of its classroom teachers. One-year final compensation means a member's highest average annual compensation earnable for 12 consecutive months based on the creditable compensation that the member could earn in a school year while employed on a full-time basis. For most members with fewer than 25 years of credited service, final compensation is the highest average annual compensation earnable for any 36 consecutive months based on the creditable compensation that the member could earn in a school year while employed on a full-time basis.
- For fiscal year 2017–18, the limit on compensation that can be counted toward a member's benefit is $270,000, if hired on or after July 1, 1996. The limit is increased based on cost-of-living increases calculated per Internal Revenue Code (IRC) section 401(a)(17). No contributions are paid by the member, employer or the state on compensation in excess of the limit, and any compensation beyond the limit is excluded from determining final compensation.
- Final compensation is based on salary and certain other types of remuneration. Other types of compensation, such as allowances, cash in lieu of fringe benefits and compensation for unused accumulated leave are not creditable compensation and do not count toward any CalSTRS benefit program. Limited-period compensation and compensation determined to have been paid to enhance a benefit are creditable to the DBS Program.
- Members who accumulated at least 30 years of credited service by December 31, 2010, receive a longevity bonus of $200, $300 or $400 per month for 30, 31 or 32 or more years of credited service, respectively.

<u>CalSTRS 2% at 62</u>

- CalSTRS 2% at 62 members are eligible for normal retirement at age 62, with a minimum of five years of credited service. The normal retirement benefit is equal to 2.0 percent of final compensation multiplied by the number of years of credited service. An early retirement option is available at age 55. The age factor for retirement after age 62 increases with each quarter year of age to 2.4 percent at age 65 or older.
- All CalSTRS 2% at 62 members have their final compensation based on their highest average annual compensation earnable for 36 consecutive months based on the creditable compensation that the member could earn in a school year while employed on a full-time basis.
- The limit on creditable compensation that can be counted toward a member's benefit is adjusted each fiscal year based on changes in the Consumer Price Index. In fiscal year 2017–18, the limit was $143,082.
- Compensation paid in cash by an employer, pursuant to a publicly available written contractual agreement, for

each pay period in which creditable service is performed is creditable to CalSTRS benefit programs for CalSTRS 2% at 62 members. Other compensation, such as allowances, cash in lieu of fringe benefits, limited-period compensation and compensation determined to have been paid to enhance a benefit, is not creditable to any CalSTRS benefit program.

The following provisions apply to both CalSTRS 2% at 60 and 2% at 62 members:

- After earning five years of credited service, members become vested to receive service retirement benefits.
- After five years of credited service, a member (younger than age 60 if under disability Coverage A or no age limit if under disability Coverage B) is eligible for disability benefits of 50 percent of final compensation plus 10 percent of final compensation for each eligible child, up to a maximum addition of 40 percent. The member must have a disability that can be expected to last continuously for at least 12 months to qualify for a benefit.
- Contributions on compensation for service in excess of one year due to overtime or working additional assignments are credited to the DBS Program at the lowest annual pay rates up to the creditable compensation limit.
- A family benefit is available if an active member dies and has at least one year of credited service.
- Members' accumulated contributions are refundable with interest upon separation from CalSTRS. The board determines the credited interest rate each fiscal year. For the fiscal year ended June 30, 2018, the rate of interest credited to members' accounts was 0.90 percent.
- There is a postretirement annual benefit increase of 2 percent per year on a simple (rather than compound) basis. This benefit is vested for members who pay the higher contribution rates enacted in AB 1469 or retired in 2014.
- The member's benefit is reduced dollar for dollar, regardless of age, for the first 180 calendar days after retirement if the member performs activities in the public schools that could be creditable to CalSTRS, unless the governing body of the school district takes specified actions with respect to a member who is above normal retirement age.
- There is an annual limitation on earnings from activities that could be creditable to CalSTRS for retired members. The member's benefit is reduced dollar for dollar by the amount of any earnings in excess of $43,755 in 2017–18.
- Any enhancements to the CalSTRS DB Program made on or after January 1, 2013, apply only to service performed on or after the effective date of the enhancement.
- A CalSTRS member who is convicted of committing a felony in the course of his or her official duties, including specifically a felony involving a child with whom the member had contact as part of the member's official duties, forfeits a right to any benefits accrued beginning with the commission of the felony.

Purchasing Power Protection

Purchasing power protection is provided to members of the DB Program through annual distributions (in quarterly payments) to retired and disabled members and beneficiaries to restore purchasing power up to 85 percent of the initial monthly benefit. Funding for purchasing power protection is from School Lands Revenue generated from the use of school lands (land granted to California by the federal government to support schools) and in lieu lands (properties purchased with the proceeds from the sale of school lands) and from the Supplemental Benefit Maintenance Account (SBMA).

Public Resources Code section 6217.5 allocates School Lands Revenue to the system for purchasing power protection. In addition, a continuous appropriation from the state's General Fund is made to the SBMA in an amount equal to 2.5 percent of the total creditable compensation of the fiscal year ending in the immediately preceding calendar year, reduced by $72 million, pursuant to Education Code section 22954. For the year ended June 30, 2018, School Lands Revenue and the amount contributed to the SBMA were $6.2 million and $695.2 million, respectively.

Contributions

The parameters for member, employer and state contribution rates are set by the California Legislature and Governor and detailed in the Teachers' Retirement Law.

A summary of statutory contribution rates and other sources of contributions to the DB Program are as follows:

Members—Pursuant to AB 1469, the CalSTRS member contribution rates effective for fiscal year 2017–18 and beyond are summarized in the table below:

Effective Date	2% at 60 Members	2% at 62 Members
July 1, 2017	10.25%	9.205%
July 1, 2018	10.25%	10.205%*

*According to current law, the contribution rate for CalSTRS 2% at 62 members is adjusted if the normal cost increases or decreases by more than 1 percent since the last time the member contribution rate was set. Based on the June 30, 2017, valuation adopted by the board in May 2018, the increase in normal cost was greater than 1 percent. Therefore, contribution rates for CalSTRS 2% at 62 members will increase by 1 percent effective July 1, 2018.

Employers—Pursuant to AB 1469, CalSTRS employer contribution rate increases effective for fiscal year 2017–18 through fiscal year 2045–46 are summarized in the table below:

Effective Date	Pre AB 1469 Rate	Increase	Total
July 1, 2017	8.25%	6.18%	14.43%
July 1, 2018	8.25%	8.03%	16.28%
July 1, 2019	8.25%	9.88%	18.13%
July 1, 2020	8.25%	10.85%	19.10%
July 1, 2021–June 30, 2046	8.25%	*	*
July 1, 2046	8.25%	Increase from prior rate ends in 2046–47	

*The board cannot adjust the employer rate by more than 1 percent in a fiscal year, and the increase to the contribution rate above the 8.25 percent base contribution rate cannot exceed 12 percent for a maximum of 20.25 percent.

State—Also as a result of AB 1469, the additional state appropriation required to fully fund the benefits in effect as of 1990 by 2046 is specified in subdivision (b) of Education Code section 22955.1. The increased contributions end as of fiscal year 2045–46. The CalSTRS state contribution rates effective for fiscal year 2017–18 and beyond are summarized in the table below.

As shown in the subsequent table, the state rate will increase to 5.311 percent on July 1, 2018, to continue paying down the unfunded liabilities associated with the benefits structure that was in place in 1990 prior to certain enhancements in benefits and reductions in contributions.

Effective Date	Base Rate	AB 1469 Increase For 1990 Benefit Structure	SBMA Funding[1]	Total
July 1, 2017	2.017%	4.811%	2.50%	9.328%
July 1, 2018	2.017%	5.311%[2]	2.50%	9.828%
July 1, 2019–June 30, 2046	2.017%	[3]	2.50%	[3]
July 1, 2046 and thereafter	2.017%	[4]	2.50%	4.517%[4]

[1] This rate does not include the $72 million reduction in accordance with Education Code section 22954. Refer to Note 1, Purchasing Power Protection section, for further discussion.

[2] In May 2018, the board exercised its limited authority to increase the state contribution rate by 0.5 percent of the payroll effective July 1, 2018.

[3] The board has limited authority to adjust state contribution rates annually through June 2046 in order to eliminate the remaining unfunded actuarial obligation associated with the 1990 benefit structure. The board cannot increase the rate by more than 0.50 percent in a fiscal year, and if there is no unfunded actuarial obligation, the contribution rate imposed to pay for the 1990 benefit structure would be reduced to 0 percent.

[4] From July 1, 2046, and thereafter, the rates in effect prior to July 1, 2014, are reinstated, if necessary, to address any remaining 1990 unfunded actuarial obligation.

Benefit Enhancements

A school employer may provide, at the employer's cost, an additional two years of service credit to increase the amount of the member's monthly retirement benefit. This may be paid for by the employer in installments not to exceed eight years. If the employer chooses to pay in installments, the employer is charged interest on the unpaid balance at the actuarially assumed rate of return on investments for the DB Program (currently 7.0 percent). As of June 30, 2018, the outstanding balance of receivables for benefit enhancements was $12.3 million.

STRP Defined Benefit Supplement Program

The DBS Program, established pursuant to Chapter 74, Statutes of 2000 (AB 1509), is a cash balance defined benefit pension program that operates within the STRP. All members of the DB Program who make contributions to CalSTRS on creditable compensation earned on or after January 1, 2001, have an account under the DBS Program and are eligible to receive a DBS benefit based on the amount of funds contributed to the DBS account. Membership in the DBS Program is mandatory.

Interest is credited to the nominal DBS Program accounts at the minimum guaranteed annual rate established by the board prior to each plan year, which was 2.64 percent for the fiscal year ended June 30, 2018. The board may credit additional earnings to members' nominal accounts if actual investment earnings exceed the minimum guaranteed annual rate and meet criteria set out in the board policy. In May 2018, the board elected to award Additional Earnings Credits (AEC) of 4.12 percent of DBS members' June 30, 2017, nominal account balances. The total value of the AEC awarded was approximately $356.9 million.

Contributions

Beginning July 1, 2002, for creditable service performed by DB members in excess of one year of service credit within one fiscal year, member contributions of 8 percent and employer contributions of 8 percent are credited to the members' nominal DBS Program account (up to any applicable compensation cap). Also, member contributions of 8 percent and employer contributions of 8 percent for compensation as a result of retirement incentives or limited-term enhancements are credited to DBS Program accounts for CalSTRS 2% at 60 members.

STRP Cash Balance Benefit Program

The CBB Program, established under Chapter 592, Statutes of 1995 (AB 1298), and subsequently merged into the STRP by Chapter 1048, Statutes of 1998 (SB 2085), is a cash balance defined benefit pension program. The CBB Program is designed for employees of California's public schools who are hired to perform creditable service for less than 50 percent of the full-time equivalent for a position in a school district or county office of education or on a part-time or temporary basis for not more than 67 percent of a full-time position in a community college district. Participation in the CBB Program is optional; a school district, community college district, county office of education or regional occupational program may elect to offer the CBB Program. Under such election, the program will automatically cover each eligible employee, unless the employee elects to participate in the DB Program or an alternative plan provided by the employer within 60 days of hire or the election period determined by the employer. As of June 30, 2018, there were 29 contributing school districts and 39,894 contributing participants.

Interest is credited to nominal CBB Program accounts at the minimum guaranteed annual rate established by the board prior to each plan year, which was 2.64 percent for the fiscal year ended June 30, 2018. The board may credit additional earnings to members' nominal accounts if actual investment earnings exceed the minimum guaranteed annual rate and meet criteria set out in the board policy. In May 2018, the board elected to award an AEC of 3.62 percent of CBB members' June 30, 2017, nominal account balances. The total value of the AEC awarded was approximately $8.9 million.

Contributions

A summary of statutory contribution rates for the CBB Program is as follows:

Participants — 4.0 percent of applicable participant earnings

Employers — 4.0 percent of applicable participant earnings

Employers may enter into a collective bargaining agreement to pay different rates if certain minimum conditions are met.

STRP Replacement Benefits Program

The STRP RB Program is an excess benefits arrangement for DB Program members that is administered as a qualified excess benefit arrangement through a separate pension program apart from the other three STRP programs. It is established in accordance with IRC section 415(m). IRC section 415(b) imposes a dollar limit on the annual retirement benefits an individual may receive from a qualified defined benefit pension plan. The limit for individual CalSTRS 2% at 60 members varies based on the age at which they retire. For calendar year 2018, the federal dollar limit applicable to a 65-year-old CalSTRS member is $186,907. CalSTRS 2% at 62 members will not receive any benefits in excess of the IRC section 415(b) limit.

The program is funded as needed. Contributions that would otherwise be credited to the DB Program each month are instead credited to the RB Program to fund monthly program costs. Monthly employer contributions are received and paid to members in amounts equivalent to the benefits not paid as a result of IRC section 415(b), subject to withholding for any applicable income or employment taxes. As of June 30, 2018, there were 353 retirees, beneficiaries and non-member spouses receiving benefits from the RB Program.

CalSTRS Pension2 Program

Pursuant to Chapter 291, Statutes of 1994 (AB 3064), Pension2 was established to include two tax-deferred defined contribution plans under the IRC sections 403(b) and 457(b). Voya Institutional Plan Services (Voya) and the Teachers Insurance and Annuity Association (TIAA) are responsible for administrative services, including custody and record-keeping, while CalSTRS performs the investment management functions of determining, monitoring and maintaining the plans' investments.

The 403(b) plan and the 457(b) plan had 14,452 and 854 plan participants and 927 and 67 participating employers, respectively, with account balances as of June 30, 2018. Pension2 is available to all full-time California pre-kindergarten through community college district and county office of education employees. Part-time employees' eligibility is determined by their employers. Enrollment in the 457(b) plan is by employer adoption only. Employee contributions to the plans are voluntary and require no minimum limitations; however, the IRC imposes an annual maximum amount that can be contributed to the plans. Pension2 is not directly affected by the California Public Employees' Pension Reform Act of 2013 (PEPRA). However, according to PEPRA, employers may provide a contribution to a defined contribution plan, such as Pension2, for 2% at 62 member compensation in excess of the compensation cap.

The Pension2 investments are composed of a selection of mutual funds with underlying investments that include stocks, bonds, real estate investments and guaranteed annuity contracts, which are participant-directed. The Pension2 benefits are the accumulation of contributions and investment earnings credited to the members' accounts.

Medicare Premium Payment Program

The MPP Program is a cost-sharing multiple-employer other postemployment benefit (OPEB) plan established pursuant to Chapter 1032, Statutes of 2000 (SB 1435). CalSTRS administers the MPP Program through the Teachers' Health Benefit Fund (THBF). The MPP Program pays Medicare Part A premiums and Medicare Parts A and B late enrollment surcharges for eligible members of the DB Program who were retired or began receiving a disability allowance prior to July 1, 2012, and were not eligible for premium-free Medicare Part A. The MPP Program is closed to new entrants as members who retire on or after July 1, 2012, are not eligible for coverage under the MPP Program.

As of June 30, 2018, 5,984 retirees participated in the MPP Program. The number of retired members who will participate in the program in the future is unknown because eligibility cannot be predetermined.

The MPP Program is funded on a pay-as-you-go basis from a portion of monthly employer contributions. In accordance with California Education Code section 25930, contributions that would otherwise be credited to the DB Program each month are instead credited to the MPP Program to fund monthly program and administrative costs. Total redirections to the MPP Program are monitored to ensure that total incurred costs do not exceed the amount initially identified as the cost of the program.

Teachers' Deferred Compensation Fund

The TDCF was established pursuant to Chapter 655, Statutes of 2006 (SB 1466), and is used to account for ancillary activities associated with various deferred compensation plans and programs offered by CalSTRS to enhance the tax-deferred financial options for the members and their beneficiaries.

The TDCF is funded by the fee revenues received by CalSTRS from deferred compensation plans, a vendor registration program and an employer compliance assistance program.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting

CalSTRS maintains our accounting records using the accrual basis of accounting. We recognize member contributions in the period in which the contributions are required by statute. Furthermore, CalSTRS recognizes employer and state contributions when required by statute and the employer or the state has made a formal commitment to provide the contributions. Also, CalSTRS recognizes benefits when due and payable in accordance with our retirement and benefits programs. Purchases and sales of investments are recorded on the trade date. Interest income is recorded on an accrual basis. Dividends are recorded on the ex-dividend date.

Use of Estimates in the Preparation of Financial Statements

The preparation of CalSTRS' financial statements in conformity with accounting principles generally accepted in the U.S. requires management to make estimates and assumptions that affect certain amounts and disclosures. The most significant estimates made by management in the accompanying financial statements include the estimates related to contribution revenues, the total pension liability and the fair value of certain alternative investments. Refer to Notes 3 and 6, respectively, for further discussion of these estimates. Actual results could differ from those estimates.

Cash

Cash held by CalSTRS includes foreign currency, deposits with the State Treasury and master custodian and cash held at commercial banks for operational purposes.

Investments

Under the California Constitution, article 16, section 17, the board has the sole and exclusive fiduciary responsibility over the assets of the retirement system and to administer the system in a manner that will assure prompt delivery of benefits and related services to the members and their beneficiaries. As a public pension fund, CalSTRS is not subject to the Employee Retirement Income Security Act (ERISA), which governs corporate pension plans. However, the CalSTRS investment decision-making criteria are based on the "prudent investor" standard, for which the ERISA standards serve as a basis.

Additionally, the California Constitution, article 16, section 17, and the California Education Code, part 13, chapter 4, section 22250 require the diversification of investments so as to minimize the risk of loss and maximize the rate of return, unless, under the circumstances, it is clearly not prudent to do so. The CalSTRS Investment Policy and Management Plan is established, and may be amended, by a majority vote of the board. It allows for investments consisting of debt and equity securities, alternative investments and derivative instruments. See Note 5 regarding the Schedule of Investments.

In the Statement of Changes in Fiduciary Net Position, CalSTRS presents the net appreciation (depreciation) in the fair value of its investments, which consists of the realized gains and losses on securities sold and the unrealized appreciation (depreciation) on those investments still held in the portfolio.

The value and performance of CalSTRS investments are subject to various risks, including credit risk, interest rate risk, concentration of credit risk, custodial credit risk and foreign currency risk, which are in turn affected by economic and market factors impacting certain industries, sectors or geographies. See Note 5 for disclosures related to these risks.

Most investments are reported at fair value. The diversity of the investment types held by CalSTRS requires a wide range of valuation techniques to determine fair value. See Note 6 for disclosures related to fair value.

Investment Risk Management

CalSTRS enters into currency forwards and option contracts to protect the value of non-U.S. investments against foreign currency fluctuation. CalSTRS could be exposed to risk if the counterparties to the forward and option contracts are unable to meet the terms of their contracts. CalSTRS also enters into futures contracts, swaps and options to hedge risks in the equity and fixed income markets. CalSTRS seeks to minimize risk from counterparties by establishing minimum credit quality standards and the use of master trading agreements, which require a daily exchange of collateral that is marked to market as required to help offset counterparty risk. See Note 5 for disclosures related to these risks.

Capital Assets

Capital assets held by CalSTRS, which consist of land, building, equipment and intangible assets, are recorded at cost and reflected on the Statement of Fiduciary Net Position, net of accumulated depreciation/amortization. The capitalization threshold is $1 million. Depreciation/amortization is charged to operations using the straight-line method on the estimated useful life of the related asset and is included in administrative expenses on the Statement of Changes in Fiduciary Net Position. Estimated useful lives range from a minimum of five years for equipment and amortizable intangible assets, and 40 years for buildings. As of June 30, 2018, accumulated depreciation/amortization was $84.6 million, and depreciation/amortization expense was $8.7 million. CalSTRS reviews our capital assets for impairment whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. As of June 30, 2018, there has been no impairment of capital assets.

Administrative Expenses

The cost of administering the CalSTRS system is financed through contributions and investment earnings. The Schedule of Administrative Expenses provides a listing of administrative expenses by type.

Income Taxes

The STRP and MPP Program are organized as tax-exempt retirement plans under the IRC. Pension2, which includes IRC 403(b) and 457(b) plans, is organized as a tax-deferred supplemental program under the IRC. The TDCF is also organized as a tax-deferred supplemental program under the IRC. CalSTRS management believes that it has operated these funds and programs within the constraints imposed by federal tax law.

Investment Expenses

Expenses directly associated with investment management, operations and servicing, as well as foreign taxes, have been included as Other Investment Expenses in the Statement of Changes in Fiduciary Net Position. The Schedule of Investment Expenses provides a listing of investment expenses by type. Broker commissions for securities trades and private asset fees are capitalized, with the exception of certain equity and derivative securities for which they are expensed.

Securities Lending Transactions

CalSTRS reports securities lent, reinvested cash collateral and the related liabilities resulting from securities lending transactions on the Statement of Fiduciary Net Position. CalSTRS also reports the income earned and costs of lending securities as investment income and expenses on the Statement of Changes in Fiduciary Net Position.

Reserves

CalSTRS maintains accounts within the net position restricted for pensions and OPEB as reserve accounts for various operating purposes. These include four reserve accounts for the DBS Program, four reserve accounts for the CBB Program, one reserve account for the SBMA and other reserves not legally required for disclosure.

Defined Benefit Supplement Contribution, Accumulated Interest and Annuitant Reserve

Section 25002 of the Education Code formed the DBS Annuitant Reserve to establish and maintain a segregated account for expenditures on annuities payable under the DBS Program. The DBS Program is a cash balance defined benefit pension program that provides a supplemental benefit in addition to the regular DB Program benefit. During a member's career, credits and interest accumulate in the DBS Program's Contribution and Accumulated Interest reserves, respectively. When a member retires, the reserve funds are either paid out as a lump sum or transferred to the DBS Annuitant Reserve if the participant elects to receive their benefit as an annuity.

Defined Benefit Supplement Gain and Loss Reserve

Section 25001 of the Education Code establishes the DBS Gain and (Loss) Reserve, which represents a segregated account that may be used to: 1) credit interest to member DBS accounts at the minimum interest rate for plan years in which the obligation cannot be met from the plan's investment earnings, 2) make additional earnings credits to DBS accounts upon a decision by the board to allocate excess investment earnings, or 3) provide additions to the DBS Annuitant Reserve for annuities payable under the DBS Program.

Cash Balance Benefit Active Contribution, Accumulated Interest and Annuitant Reserve

Section 26204 of the Education Code establishes the CBB Annuitant Reserve for the payment of monthly annuities with respect to the CBB Program. The CBB Program is an optional cash balance pension plan for part-time certified educators available to CalSTRS employers as an alternative to the DB Program, Social Security and other retirement plans. During a participant's career, credits and interest accumulate in the Cash Balance Benefit Active Contribution and Accumulated Interest reserves, respectively, as described in the table below. When a participant retires, the reserve funds are either paid out as a lump sum or transferred to the Cash Balance Benefit Annuitant Reserve if the participant elects to receive their benefit as an annuity.

Cash Balance Benefit Gain and Loss Reserve

Section 26202 of the Education Code establishes the CBB Gain and (Loss) Reserve, which may be used to: 1) credit interest to participants' accounts at the minimum interest rate during years in which CalSTRS investment earnings with respect to the CBB Program are not sufficient for that purpose, 2) make additional earnings credits to participants' accounts upon a decision by the board to allocate excess investment earnings, or 3) where necessary, to provide additions to the CBB Annuitant Reserve for monthly annuity payments.

Supplemental Benefit Maintenance Account

Section 22400 of the Education Code establishes the SBMA to separately maintain and manage the annual supplemental payments disbursed in quarterly installments to all benefit recipients whose purchasing power has fallen below 85 percent of the purchasing power of the initial benefit, as long as funds are available. The SBMA is primarily funded by contributions from the state, School Lands monies and the interest earned on the SBMA reserve balance credited at the actuarially assumed interest rate.

Other Reserves Not Legally Required For Disclosure

These reserves represent accumulated changes in operations reflecting contributions earned, benefit payments made, investment returns and the costs of plan administration for the STRP, Pension2, MPP Program and TDCF.

The reserve balances as of June 30, 2018, are summarized in the table below:

Reserve Type	Reserve Balance (Dollars in Thousands)
Defined Benefit Supplement Contribution Reserve	$6,692,579
Defined Benefit Supplement Accumulated Interest Reserve	2,471,994
Defined Benefit Supplement Annuitant Reserve	649,281
Defined Benefit Supplement Gain and (Loss) Reserve	3,359,667
Cash Balance Benefit Active Contribution Reserve	202,325
Cash Balance Benefit Accumulated Interest Reserve	61,894
Cash Balance Benefit Annuitant Reserve	6,923
Cash Balance Benefit Gain and (Loss) Reserve	56,878
Supplemental Benefit Maintenance Account Reserve	15,756,201
Other Reserves Not Legally Required for Disclosure	196,583,789
Total	**$225,841,531**

Beginning Net Position Adjustment

The implementation of GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*, resulted in an adjustment to the beginning net position in fiscal year 2017–18 for the STRP, MPP Program and TDCF of $510.8 million, $1.2 million and $4.0 million, respectively.

CalSTRS determined it is not practical to restate periods prior to fiscal year 2017–18. As such, the adjustments represent the cumulative effect of implementing the requirements of GASB Statement No. 75. The adjustments do not include deferred outflows of resources or deferred inflows of resources. Additionally, these adjustments resulted in a net deficit position for the MPP Program as of June 30, 2018, and increased the net deficit in the TDCF.

3. NET PENSION LIABILITY OF EMPLOYERS AND NONEMPLOYER CONTRIBUTING ENTITY

The components of the net pension liability (NPL) of the STRP for participating employers and the state (nonemployer contributing entity) as of June 30, 2018, are as follows (dollars in millions):

	June 30, 2018
Total Pension Liability	$316,776
Less: STRP Fiduciary Net Position	224,869
NPL of Employers and the State of California	$91,907
STRP Fiduciary Net Position as a Percentage of the Total Pension Liability	**71.0%**

Actuarial Methods and Assumptions

The total pension liability for the STRP was determined by applying update procedures to the financial reporting actuarial valuation as of June 30, 2017, and rolling forward the total pension liability to the June 30, 2018. In determining the total pension liability, the financial reporting actuarial valuation used the following actuarial methods and assumptions:

	June 30, 2018
Valuation Date	June 30, 2017
Experience Study	July 1, 2010, through June 30, 2015
Actuarial Cost Method	Entry age normal
Investment Rate of Return[1]	7.1%
Consumer Price Inflation	2.75%
Wage Growth	3.5%
Postretirement Benefit Increases	2% simple for DB (annually) Maintain 85% purchasing power level for DB Not applicable for DBS/CBB

[1]Net of investment expenses but gross of administrative expenses.

CalSTRS uses a generational mortality assumption, which involves the use of a base mortality table and projection scales to reflect expected annual reductions in mortality rates at each age, resulting in increases in life expectancies each year into the future. The base mortality tables are CalSTRS custom tables derived to best fit the patterns of mortality among our members. The projection scale was set equal to 110 percent of the ultimate improvement factor from the Mortality Improvement Scale (MP-2016) table issued by the Society of Actuaries.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. The best-estimate ranges were developed using capital market assumptions from CalSTRS' general investment consultant (Pension Consulting Alliance–PCA) as inputs to the process. The actuarial investment rate of return assumption was adopted by the board in February 2017 in conjunction with the most recent experience study. For each future valuation, CalSTRS consulting actuary (Milliman) reviews the return assumption for reasonableness based on the most current capital market assumptions. Best estimates of expected 20-year geometrically linked real rates of return and the assumed asset allocation for each major asset class as of June 30, 2018, are summarized in the following table:

Asset Class	Assumed Asset Allocation	Long-Term Expected Real Rate of Return[1]
Global Equity	47.0%	6.30%
Fixed Income	12.0	0.30
Real Estate	13.0	5.20
Private Equity	13.0	9.30
Risk Mitigating Strategies	9.0	2.90
Inflation Sensitive	4.0	3.80
Cash/Liquidity	2.0	(1.00)

[1] 20-year average.

Discount Rate

The discount rate used to measure the total pension liability was 7.1 percent. The projection of cash flows used to determine the discount rate assumed that contributions from plan members and employers are made at statutory contribution rates in accordance with the rate increases as disclosed in Note 1. Projected inflows from investment earnings were calculated using the long-term assumed investment rate of return (7.1 percent) and assuming that contributions, benefit payments and administrative expenses occur midyear. Based on those assumptions, the STRP's fiduciary net position was projected to be available to make all projected future benefit payments to current plan members. Therefore, the long-term assumed investment rate of return was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity of the NPL to Changes in the Discount Rate

Presented below is the NPL of employers and the state using the current discount rate of 7.1 percent, as well as what the NPL would be if it were calculated using a discount rate that is 1 to 3 percent lower or 1 to 3 percent higher than the current rate:

Discount Rate	NPL of Employers and Nonemployer Contributing Entity (Dollars in Millions)
3% Decrease (4.1%)	$250,291
2% Decrease (5.1%)	186,631
1% Decrease (6.1%)	134,633
Current Discount Rate (7.1%)	91,907
1% Increase (8.1%)	56,483
2% Increase (9.1%)	26,865
3% Increase (10.1%)	1,983

4. NET OTHER POSTEMPLOYMENT BENEFIT (OPEB) LIABILITY OF EMPLOYERS

The components of the net OPEB liability of the MPP Program for participating employers as of June 30, 2018, are as follows (dollars in thousands):

	June 30, 2018
Total OPEB Liability	$381,228
Less: MPP Program Fiduciary Net Position	(1,542)
Net OPEB Liability of Employers	$382,770
MPP Program Fiduciary Net Position as a Percentage of the Total OPEB Liability	**(0.40%)**

Actuarial Methods and Assumptions

The total OPEB liability for the MPP Program as of June 30, 2018, was determined by applying update procedures to the financial reporting actuarial valuation as of June 30, 2017, and rolling forward the total OPEB liability to June 30, 2018, using the assumptions listed below.

	June 30, 2018
Valuation Date	June 30, 2017
Experience Study	July 1, 2010, through June 30, 2015
Actuarial Cost Method	Entry age normal
Investment Rate of Return	3.87%
Medicare Part A Premium Costs Trend Rate[1]	3.70%
Medicare Part B Premium Costs Trend Rate[1]	4.10%

[1] The assumed increases in the Medicare Part A and Part B Cost Trend Rates vary by year; however, the increases are approximately equivalent to a 3.70 percent and 4.10 percent increase each year for Medicare Part A and Part B, respectively.

In addition, assumptions were made about future participation (enrollment) into the MPP Program because CalSTRS is unable to determine which members not currently participating meet all eligibility criteria for enrollment in the future. Assumed enrollment rates were derived based on past experience and are stratified by age with the probability of enrollment diminishing as the members' age increases. This estimated enrollment rate was then applied to the population of members who may meet criteria necessary for eligibility and are not currently enrolled in the MPP Program. Based on this, the estimated number of future enrollments used in the financial reporting valuation was 459 or an average of 0.27 percent of the potentially eligible population (171,593).

CalSTRS uses a generational mortality assumption, which involves the use of a base mortality table and projection scales to reflect expected annual reductions in mortality rates at each age, resulting in increases in life expectancies each year into the future. The base mortality tables are CalSTRS custom tables derived to best fit the patterns of mortality among our members. The projection scale was set equal to 110 percent of the ultimate improvement factor from the Mortality Improvement Scale (MP-2016) table issued by the Society of Actuaries.

The MPP Program is funded on a pay-as-you-go basis with contributions generally being made at the same time and in the same amount as benefit payments and expenses coming due. Any funds within the MPP Program as of June 30, 2018, were to manage differences between estimated and actual amounts to be paid and were invested in the Surplus Money Investment Fund, which is a pooled investment program administered by the State Treasurer.

Discount Rate

The discount rate used to measure the total OPEB liability was 3.87 percent. The MPP Program is funded on a pay-as-you-go basis as described in Note 1, and under the pay-as-you-go method, the OPEB plan's fiduciary net position was not projected to be sufficient to make projected future benefit payments. Therefore, a discount rate of 3.87 percent, which is The Bond Buyer's 20-Bond GO Index from Bondbuyer.com as of June 30, 2018, was applied to all periods of projected benefit payments to measure the total OPEB liability. The discount rate increased 0.29 percent from 3.58 percent as of June 30, 2017.

Presented below is the net OPEB liability of employers using the current discount rate as well as what the net OPEB liability would be if it were calculated using a discount rate that is 1 percent lower or 1 percent higher than the current rate:

Discount Rate	Net OPEB Liability of Employers (Dollars in Thousands)
1% Decrease (2.87%)	$423,362
Current Discount Rate (3.87%)	382,770
1% Increase (4.87%)	346,117

Medicare Costs Trend Rate

The June 30, 2017, valuation uses the 2018 Medicare Part A and Part B premiums as the basis for future premium calculations. Future premiums are assumed to increase with a medical trend rate that varies by year, as shown in the following table:

	Trend Assumption	
	Assumed Annual Increase	
Years[1]	Part A	Part B
2018–2026	3.4%	4.0%
2027–2036	4.6%	5.2%
2037–2046	4.1%	4.7%
2047 & Later	3.9%	4.5%

[1] Trend rates indicate medical inflation in the specific year and, therefore, affect the premiums for the following years. For example, the projected 2019 premium is the 2018 premium increased by the assumed 2018 trend rate.

The Part A trend is approximately equivalent to assuming a fixed 3.7 percent increase each year. The Part B trend is approximately equivalent to assuming a fixed 4.1 percent increase each year.

Presented below is the net OPEB liability of employers using the current Medicare costs trend rates, as well as what the net OPEB liability would be if it were calculated using Medicare costs trend rates that are 1 percent lower and 1 percent higher than the current rate:

Medicare Costs Trend Rate	Net OPEB Liability of Employers (Dollars in Thousands)
1% Decrease (2.7% Part A and 3.1% Part B)	$349,047
Current Rates (3.7% Part A and 4.1% Part B)	382,770
1% Increase (4.7% Part A and 5.1% Part B)	419,037

Actuarial valuations of an ongoing plan involve estimates of the value of reported amounts (for example, Medicare premiums) and assumptions about the probability of occurrence of events far into the future (for example, mortality, disabilities and retirees eligible for the program). Actuarially determined amounts are subject to continual review and potential modifications, as actual results are compared with past expectations and new estimates are made about the future.

Projections of benefits for financial reporting purposes are based on the substantive plan and include the types of benefits provided at the time of each valuation and the historical pattern of benefit costs. The projection of benefits for financial reporting purposes does not explicitly incorporate the potential effects of legal or contractual funding limitations.

Actuarial calculations reflect a long-term perspective and take into account the premiums and surcharges paid after termination of employment until the death of the employee. In many cases, actuarial calculations reflect several decades of payments after termination of employment.

5. DEPOSITS AND INVESTMENTS

Money-Weighted Rate of Return

For the period ended June 30, 2018, the money-weighted rate of return on STRP investments, net of pension plan investment expenses, was 8.9 percent. While the MPP Program is funded on a pay-as-you-go basis, any excess funds are held in the Surplus Money Investment Fund. The money-weighted rate of return on MPP Program investments, net of OPEB plan investment expenses, was 1.3 percent. The money-weighted rate of return expresses investment performance, taking into account the impact of cash infusion into and disbursements from the pension plan or OPEB plan.

Schedule of Investments

CalSTRS is authorized to invest and reinvest the monies to meet the objectives of the Investment Policy and Management Plan as established by the board.

The following table represents the detailed investments by type within debt securities, equity securities, alternative investments and derivative instruments presented in the Statement of Fiduciary Net Position.

Schedule of Investments
As of June 30, 2018
(Dollars in Thousands)

Investments	State Teachers' Retirement Plan	Pension2 403(b) Plan	Pension2 457(b) Plan	Medicare Premium Payment Program	Teachers' Deferred Compensation Fund	Total
Assets:						
Debt Securities						
Asset-Backed Securities	$288,492	$-	$-	$-	$-	$288,492
Corporate Bonds	10,031,922	-	-	-	-	10,031,922
Foreign Government Issues	487,812	-	-	-	-	487,812
Mortgage-Backed Securities	7,884,654	-	-	-	-	7,884,654
Municipal Securities	178,463	-	-	-	-	178,463
U.S. Government and Agency Obligations	19,935,049	-	-	-	-	19,935,049
Short-Term Securities	5,167,119	7,014	334	605	1,389	5,176,461
Mutual Funds-Bond Funds	-	65,633	2,921	-	-	68,554
Guaranteed Annuity Contracts	-	315,461	12,068	-	-	327,529
Total Debt Securities	**43,973,511**	**388,108**	**15,323**	**605**	**1,389**	**44,378,936**
Equity Securities						
Common Stocks	107,892,853	-	-	-	-	107,892,853
Depository Receipts	3,351,794	-	-	-	-	3,351,794
Mutual Funds-Stock Funds	684,730	534,331	26,402	-	-	1,245,463
Preferred Stocks	455,262	-	-	-	-	455,262
Real Estate Investment Trusts	2,953,326	-	-	-	-	2,953,326
Total Equity Securities	**115,337,965**	**534,331**	**26,402**	-	-	**115,898,698**
Alternative Investments						
Debt-Privately Held	2,087,701	-	-	-	-	2,087,701
Equity-Privately Held	34,287,135	-	-	-	-	34,287,135
Real Estate-Directly Held	19,226,692	-	-	-	-	19,226,692
Real Estate-Non-Directly Held	10,292,597	-	-	-	-	10,292,597
Total Alternative Investments	**65,894,125**	-	-	-	-	**65,894,125**
Derivative Instruments						
Forwards	101,540	-	-	-	-	101,540
Futures	118,415	-	-	-	-	118,415
Options	7,552	-	-	-	-	7,552
Rights and Warrants	2,258	-	-	-	-	2,258
Swaps	3,275	-	-	-	-	3,275
Total Derivative Instruments	**233,040**	-	-	-	-	**233,040**
Securities Lending Collateral	**21,931,891**	-	-	-	-	**21,931,891**
Total Investment Assets	**247,370,532**	**922,439**	**41,725**	**605**	**1,389**	**248,336,690**
Liabilities:						
Derivative Instruments						
Forwards	81,223	-	-	-	-	81,223
Futures	39,000	-	-	-	-	39,000
Options	1,134	-	-	-	-	1,134
Swaps	18,713	-	-	-	-	18,713
Total Derivative Instruments	**140,070**	-	-	-	-	**140,070**
Total Investment Liabilities	**140,070**	**-**	**-**	**-**	**-**	**140,070**
Total Net Investments	**$247,230,462**	**$922,439**	**$41,725**	**$605**	**$1,389**	**$248,196,620**

Debt Securities

Debt securities consist primarily of long-term investments issued by the U.S. government and U.S. government-sponsored agencies, municipal securities, foreign governments, corporations, securitized offerings backed by residential and commercial mortgages, and inflation-indexed bonds (also known as inflation-linked bonds). Debt securities also consist of short-term securities that by definition typically have maturities of less than one year. Debt securities in Pension2 include securities such as bond mutual funds and guaranteed annuity contracts.

Short-term investments consist of money market funds, certificates of deposits and similar instruments with maturities and/or holding periods generally of less than one year. Deposits in the Pooled Money Investment Account (classified under short-term securities), administered by the State Treasurer, represent various investments with approximately 193 average days to maturity. The State Treasury pools these monies with those of other state agencies for investing in short-term securities. The monies are available for withdrawal at any time. Deposits in Short-Term Investment Fund, administered by State Street Bank & Trust Co (State Street Bank), represent various investments with approximately 30 average days to maturity.

Pension2 offers bond mutual funds and annuity contracts to individual participants. The annuity contracts offered guarantee a specified minimum interest rate, which is subject to change at any time.

Equity Securities

Equity securities consist primarily of domestic and international common stocks, preferred stocks, depository receipts, real estate investment trusts (REITs), exchange-traded funds (ETFs) and stock mutual funds.

Alternative Investments

Alternative investments consist primarily of limited partnership structures invested in privately held debt, including distressed mezzanine debt, or privately held equity, including venture capital, buyouts, co-investments and equity expansion, as well as investments in real estate, infrastructure, agriculture and timberland. They include investments held within the private equity, real estate, global equity, inflation sensitive, risk mitigating and innovative asset classes or investment strategies.

Alternative investments are generally long-term and illiquid in nature. As a result, investors are subject to redemption restrictions, which generally limit distributions and restrict the ability of limited partners to exit a partnership investment prior to its dissolution.

Investments in real estate directly held assets are in separate accounts and joint ventures, which are primarily composed of retail, office, industrial and multi-family properties. Real estate non-directly held investments primarily include commingled limited partnership investments in which CalSTRS does not have a controlling interest.

While corporate governance funds are included in the global equity asset class, they are classified as alternative investments on the financial statements due to their structure. These funds employ specific investment strategies and co-investments, including, but not limited to, publicly traded equity securities of companies on U.S., Asian, Canadian and European exchanges.

Derivative Instruments

CalSTRS holds investments in futures, foreign currency forward contracts, options, swaps, rights and warrants.

CalSTRS invests in futures and foreign currency forward contracts. A futures contract is an exchange-traded contract whereby the purchaser agrees to buy an asset at a stated price on a specific future date. A foreign currency forward contract is a customized, bilateral agreement to exchange a specified currency at a specified future settlement date at a forward price agreed to on the trade date.

CalSTRS invests in exchange-traded options and over-the-counter options. An option is a contract that entitles the holder to purchase or sell a specific amount of contracts or notional amount at a specified price (strike price). The underlying asset, quantity of the underlying or notional amount, expiration date and strike price are standardized for exchange-traded options and are customized for over-the-counter options.

Swaps are derivative instruments in which two parties agree to exchange one stream of cash flows against another stream or a guarantee. These streams are called the legs of the swap, and usually at least one leg has a rate that is variable. The variable leg can depend on a reference rate, the total return of an asset or an economic statistic. Cash flows are calculated based on a notional amount, which are usually not exchanged between counterparties.

Rights and warrants held by CalSTRS are typically acquired through corporate actions. A right is a privilege granted to shareholders of a corporation to subscribe to shares of a new issue of common stock before it is offered to the public. A warrant gives the holder the right to buy, but not the obligation to buy an underlying security at a given price and quantity during a specified period.

Securities Lending

California statutes and board policies permit CalSTRS to make short-term, collateralized loans of its securities to broker-dealers and other entities in order to earn incremental income. CalSTRS has contracted with our custodian (State Street Bank), third-party securities lending agents and their respective custodians to lend global equity and debt securities. The majority of the security loans can be terminated on demand by either CalSTRS or the borrower. The underlying securities on loan are reported as assets on the Statement of Fiduciary Net Position. Collateral in the form of cash or other securities is required for 102 percent and 105 percent of the fair value of domestic and international securities loaned, respectively. For non-U.S. debt securities loaned, CalSTRS follows market practice, which requires collateral of 102 percent of the fair value of the loaned securities. Since the majority of loans are terminable at will, their duration does not generally match the duration of the investments made with the cash collateral. As of June 30, 2018, the weighted duration difference between the investments and these loans was 16 days.

As of June 30, 2018, the fair value of the securities on loan was $24.8 billion. The securities lending cash collateral obligations were $21.9 billion. The fair value of the re-invested cash collateral was $21.9 billion, the non-cash collateral was $3.5 billion, and the calculated mark (collateral adjustment requested for the next business day) was $8.7 million. The invested collateral and corresponding obligation are reflected in the Statement of Fiduciary Net Position as assets and liabilities, respectively. The re-invested cash collateral securities in this program are typically held to maturity and are expected to mature at par.

In accordance with GASB Statement No. 28, *Accounting and Financial Reporting on Securities Lending Transactions*, the non-cash collateral of $3.5 billion is not reported in the Statement of Fiduciary Net Position because CalSTRS is not permitted to pledge or sell these collateral securities received unless the borrower defaults. The contracts with the securities lending agents require them to indemnify CalSTRS if the borrowers fail to return the securities (or if the collateral is not sufficient to replace the securities lent) or if the borrowers fail to pay CalSTRS for income distributions by the securities' issuers while the securities are on loan.

Real Estate Debt Service

Real estate investments are classified as investments in accordance with GASB Statement No. 72, *Fair Value Measurement and Application*. Certain real estate investments are leveraged through partnerships using a combination of equity contributions from CalSTRS and other investors and through the utilization of debt. CalSTRS engages real estate advisors and operating partners who are responsible for managing a portfolio's day-to-day activities, performance and reporting. As of June 30, 2018, the estimated fair value of real estate investments (net of all outstanding debt) totaled approximately $29.5 billion. The CalSTRS share of outstanding debt is $9.1 billion, excluding obligations of limited partnership interests in commingled funds. The CalSTRS portion of real estate debt service requirements includes both recourse and nonrecourse loans.

The chart below details the repayment of real estate debt, excluding obligations of limited partnership interests in commingled funds, as of June 30, 2018:

Real Estate Debt Service Requirements
(Dollars in Thousands)

	Principal	Interest	Total
Period Ended June 30, 2019	$2,011,753	$322,072	$2,333,825
2020	2,019,586	239,691	2,259,277
2021	1,990,571	169,090	2,159,661
2022	872,209	102,162	974,371
2023	569,412	69,919	639,331
2024 - 2028	1,458,272	130,172	1,588,444
2029 - 2033	101,671	16,490	118,161
2034 - 2038	62,831	7,925	70,756
2039 - 2043	11,246	2,892	14,138
2044 - Thereafter	7,892	626	8,518
Total	**$9,105,443**	**$1,061,039**	**$10,166,482**

This table includes $1.8 billion of loans for CalSTRS interest in real estate investments from the Master Credit Facility Portfolio discussed further below.

Real estate debt currently bears interest at fixed and variable rates ranging from 1.88 to 18.0 percent and 1.10 to 7.75 percent, respectively.

CalSTRS Master Credit Facility Portfolio consists of three separate unsecured credit facilities and one secured loan. The proceeds from the Master Credit Facility Portfolio provide the source of funds for managing capital flows of investment strategies. As of June 30, 2018, the total available lines of credit in the Master Credit Facility Portfolio were $3.9 billion. The total principal amount borrowed was $2.7 billion, and the remaining amount available was approximately $1.2 billion. These credit facilities will mature between December 2018 and April 2021.

The CalSTRS Real Estate Investment Policy states that leverage shall be used to enhance investment returns. Careful consideration is given to the impact of leverage on investment and portfolio risks. Leverage within each segment of the asset class is regularly monitored and reported to the board for compliance. As of June 30, 2018, the loan to value on the Real Estate asset class, excluding obligations of limited partnership interests in commingled funds, was 32.6 percent. CalSTRS does not have any debt obligations under the real estate limited partnership interests held in commingled funds.

Investment Risk Schedules

In accordance with GASB Statement No. 40, *Deposit and Investment Risk Disclosures–an amendment of GASB Statement No. 3,* the following investment risk schedules disclose CalSTRS investments that are subject to certain types of risks, including credit risk, interest rate risk, concentration of credit risk, custodial credit risk and foreign currency risk. The policies addressing each risk, discussed in more detail below, are contained within the Investment Policy and Management Plan reviewed and approved annually by the board.

CalSTRS has no investment (other than those issued or explicitly guaranteed by the U.S. government) in any one organization that represents 5 percent or more of the STRP's fiduciary net position as of June 30, 2018.

Credit Risk

Credit risk is the risk that an issuer or other counterparty to a debt instrument will not fulfill its obligations. This is measured by the assignment of ratings by nationally recognized statistical rating organizations.

CalSTRS Investment Guidelines require that, at the time of purchase, at least 95 percent of the market value of the corporate securities comprising the credit portion of the core fixed income portfolio be rated investment grade as defined by the Bloomberg Barclays U.S. Aggregate Bond Index. The ratings used to determine the quality of the individual securities in the table below are the ratings provided by S&P Global Inc. Obligations issued or guaranteed by the U.S. federal government or government-sponsored agencies are eligible without limit. Furthermore, the total position of the outstanding debt of any non-agency mortgage-backed, asset-backed and commercial mortgage-backed securities issuer shall be limited to 10 percent of the market value of the portfolio, on the basis of each separate trust (pool of assets), at the time of purchase. Obligations of other issuers are not to exceed 5 percent per issuer, at the time of purchase, of the market value of any individual portfolio. The Investment Guidelines also include an allocation to opportunistic strategies, which allows for the purchase of bonds rated below investment grade. Limitations on the amount of debt of any one issuer each investment manager may hold are negotiated on a manager-by-manager basis.

CalSTRS may invest in an unrated security if the security is comparable in quality to other rated securities that are eligible for purchase. The notation NR represents those securities that are not rated, and NA represents those securities for which the rating disclosure requirements are not applicable, such as obligations of the U.S. government and obligations explicitly guaranteed by the U.S. government.

As of June 30, 2018, the credit ratings of all debt securities and securities lending collateral are as follows:

Debt Securities
(Dollars in Thousands)

Ratings	Asset-Backed Securities	Corporate Bonds	Foreign Government Issues	Mortgage-Backed Securities	Municipal Securities	U.S. Government and Agency Obligations	Short-Term Securities	Mutual Funds - Bond Funds	Guaranteed Annuity Contracts	Total
Long-term Ratings										
AAA	$136,819	$280,306	$69,160	$83,146	$25,730	$-	$-	$15,947	$-	$611,108
AA	9,316	809,818	57,688	42,574	95,546	1,287,493	-	18,070	-	2,320,505
A	1,562	2,684,621	83,046	30,746	46,919	-	-	-	-	2,846,894
BBB	5,017	3,868,184	173,957	2,888	10,268	-	-	-	-	4,060,314
BB	1,086	919,403	35,984	4,634	-	-	-	-	-	961,107
B	9,188	889,495	12,333	3,956	-	-	-	-	-	914,972
CCC	-	170,560	-	5,129	-	-	-	-	-	175,689
CC	4,934	1,589	-	-	-	-	-	-	-	6,523
D	-	231	-	2,227	-	-	-	-	-	2,458
NR	120,570	407,715	55,644	6,044,331	-	834	-	-	327,529	6,956,623
NA	-	-	-	1,665,023	-	18,646,722	-	34,537	-	20,346,282
Short-term Ratings										
A-1	-	-	-	-	-	-	36,825	-	-	36,825
NR	-	-	-	-	-	-	4,446,836	-	-	4,446,836
NA	-	-	-	-	-	-	692,800	-	-	692,800
Total	**$288,492**	**$10,031,922**	**$487,812**	**$7,884,654**	**$178,463**	**$19,935,049**	**$5,176,461**	**$68,554**	**$327,529**	**$44,378,936**

Securities Lending Collateral
(Dollars in Thousands)

Ratings	Asset-Backed Securities	Corporate Bonds	Mortgage-Backed Securities	Mutual Funds - Bond Funds	U.S. Government and Agency Obligations	Short-Term Securities	Total
Long-term Ratings							
AAA	$1,381,858	$24,998	$28,616	$-	$-	$-	$1,435,472
AA	-	1,499,750	-	-	-	-	1,499,750
A	-	1,409,105	3,122	-	-	-	1,412,227
CC	264	-	-	-	-	-	264
NA	-	-	-	296,187	14,851	-	311,038
NR	1,056,282	109,939	44,560	-	-	-	1,210,781
Short-term Ratings							
A-1	-	-	-	-	-	281,830	281,830
NA	-	-	-	-	-	14,727	14,727
NR	-	-	-	-	-	15,765,782	15,765,782
Total	**$2,438,404**	**$3,043,792**	**$76,298**	**$296,187**	**$14,851**	**$16,062,339**	**$21,931,871**

Cash total of $20 (in thousands) is not included in the total above but is included in the Securities Lending Collateral line item in the Statement of Fiduciary Net Position.

Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment.

Investments may contain terms that increase the sensitivity of their fair values to increasing and decreasing interest rates. Although CalSTRS has investments that have an inherent prepayment risk as well as caps, floors and step-up features, these are mitigated through the diversification of asset classes, security selection, maturity and credit quality.

The Investment Guidelines allow the core long-term investment grade portfolios the discretion to deviate the average duration of the portfolio within a range of +/- 20 percent (80 to 120 percent) of the weighted average effective duration of the performance benchmark.

As of June 30, 2018, the overall weighted effective duration and benchmark of the long-term Fixed Income portfolios were 5.62 years and 5.73 years, respectively. The following table presents the net asset values, durations and associated benchmarks by investment type held in the long-term Fixed Income portfolios.

Long-Term Fixed Income Duration
(Dollars in Thousands)

Investment Type (by portfolio)	Portfolio Net Asset Value	Effective Duration	Benchmark Duration	Difference
Core Portfolio				
Commercial Mortgage-Backed Securities	$485,247	5.22	5.22	0.00
Credit Obligations	6,919,965	6.82	6.92	(0.10)
Mortgage-Backed Securities	6,391,509	4.73	4.66	0.07
U.S. Government and Agency Obligations	8,797,427	5.96	5.90	0.06
Debt Opportunistic				
Corporate High Yield	1,378,451	3.59	4.03	(0.44)
Debt Core Plus	2,734,657	5.66	5.63	0.03
Leveraged Loans	701,372	0.60	0.25	0.35
Special Situations	18,835	0.18	5.73	(5.55)
Total	**$27,427,463**			

The U.S. Treasury Inflation Protected Securities (TIPS), CalSTRS Home Loan Program, long-duration U.S. Treasury securities and other debt securities in non-Fixed Income portfolios are not included in the table above. The U.S. TIPS had a net asset value of $589.8 million with an effective duration of 7.69 years compared to the benchmark duration of 7.68 years. CalSTRS Home Loan Program had a net asset value of $58.5 million with a weighted average to maturity of 21.00 years. The long-duration U.S. Treasury securities had a net asset value of $9.2 billion with an effective duration of 17.58 years compared to the benchmark duration of 17.59 years. Other debt securities in non-Fixed Income portfolios had a market value of $915.4 million with a weighted average to maturity of 7.3 years. Cash and accruals totaling ($436.0) million and swaps and other collateral totaling $10.4 million are included in the net asset value within the Fixed Income portfolios but are not included in debt securities on the Statement of Fiduciary Net Position.

As of June 30, 2018, the segmented time distribution for the short-term securities based upon the expected maturity or first reset dates are as follows:

Short-Term Fixed Income Segmented Time Distribution
(Dollars in Thousands)

Investment Type	0–30 days	31–90 days	91–120 days	121–180 days	181–365 days	366+ days	Total
Asset-Backed Securities	$122,426	$-	$-	$-	$-	$-	$122,426
Corporate Bonds	159,855	289,626	15,002	-	-	-	464,483
Money Market Securities	1,757,889	1,440,116	107,038	10,002	44,542	-	3,359,587
Mortgage-Backed Securities	637	105	-	-	-	-	742
Pooled Money Investment Account	208,275	-	-	-	-	-	208,275
Short-Term Investment Fund	355,658	-	-	-	-	-	355,658
U.S. Government and Agency Obligations	699,269	440,584	154,216	163,695	199,426	24,703	1,681,893
Total	**$3,304,009**	**$2,170,431**	**$276,256**	**$173,697**	**$243,968**	**$24,703**	**$6,193,064**
Weightings	**53.35%**	**35.05%**	**4.46%**	**2.80%**	**3.94%**	**0.40%**	**100.00%**

The primary investment objective for the short-term investments is to seek the preservation of capital and liquidity and to generate the highest possible current income consistent with a prudent level of risk. The previous table includes $1.0 billion debt securities that are managed within the short-term fixed income portfolio but may have original maturities of over a year. However, the Investment Guidelines of the short-term portfolio state that the average maturity of the investments shall be managed such that it will not exceed 180 days.

As of June 30, 2018, the segmented time distribution based upon the expected maturity or first reset date for the invested securities lending cash collateral are as follows:

Securities Lending Collateral Segmented Time Distribution
(Dollars in Thousands)

Investment Type	0–1 days	2–6 days	7–29 days	30–59 days	60–89 days	90+ days	Total
Asset-Backed Securities	$-	$-	$2,337,575	$-	$-	$100,829	$2,438,404
Corporate Bonds	2	150,015	824,036	1,100,655	889,203	79,881	3,043,792
Mortgage-Backed Securities	-	-	9,191	-	31,099	36,008	76,298
Mutual Funds - Bond Funds	-	-	296,187	-	-	-	296,187
U.S. Government and Agency Obligations	-	-	-	-	-	14,851	14,851
Short-Term Securities	1,689,906	2,957,009	5,312,875	2,630,563	2,125,467	1,346,519	16,062,339
Total	**$1,689,908**	**$3,107,024**	**$8,779,864**	**$3,731,218**	**$3,045,769**	**$1,578,088**	**$21,931,871**
Weightings	**7.71%**	**14.17%**	**40.02%**	**17.01%**	**13.89%**	**7.20%**	**100.00%**

Cash total of $20 (in thousands) is not included in the total above but is included in the Securities Lending Collateral line item in the Statement of Fiduciary Net Position.

The invested securities lending cash collateral is diversified among different investment types with the maximum remaining effective maturity of any instrument being three years at the time of purchase. The fund must remain liquid to meet collateral returns.

Pension2

The primary objectives of Voya Fixed Plus III and TIAA Traditional Annuities are the guarantee of principal and a guaranteed minimum interest rate of 1.0 percent for the life of the contract. The interest rate guarantees under the contracts are subject to the claim-paying abilities of Voya Retirement Insurance and Annuity Company and TIAA.

As of June 30, 2018, the weighted average maturity of investments for the Pension2 403(b) and 457(b) plans on the Statement of Fiduciary Net Position are as follows:

Pension2
Weighted Average Maturity
(Dollars in Thousands)

Investment	Maturity	Fair Value
CREF Money Market Account	46 days	$66
Federated U.S. Treasury Cash Reserves	45 days	7,282
Vanguard Inflation-Protected Securities Fund	8.4 years	34,537
Vanguard Short-Term Bond Index Fund	2.8 years	18,070
Vanguard Total Bond Market Index Fund	8.4 years	15,947
Total		**$75,902**

Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of CalSTRS' investment in a single issuer. As of June 30, 2018, CalSTRS has no single issuer that exceeds 5 percent of total investments. Investments issued or explicitly guaranteed by the U.S. government and investments in mutual funds, external investment pools and other pooled investments are excluded. The CalSTRS Investment Policy and Management Plan states that no more than 3 percent of the total fund shall be invested or exposed to any one security or corporation, with the exception of U.S. Treasury or Agency Obligations.

Custodial Credit Risk

Custodial credit risk is the risk that if a depository institution or counterparty fails, CalSTRS would not be able to recover the value of our deposits, investments or collateral securities. As of June 30, 2018, all of CalSTRS non-cash investments are not exposed to custodial credit risk because they are held in CalSTRS name. Demand and time deposits held by the various financial institutions and the state banks are insured up to $250,000 by the Federal Deposit Insurance Corporation (FDIC) or by collateral held by the State Treasurer's Office or an agency of that office in the state's name. CalSTRS does not have a general policy relating to custodial credit risk.

Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit. As of June 30, 2018, CalSTRS investments in foreign currencies are as follows:

Foreign Currency Risk
(Dollars in Thousands)
(In U.S. Dollar Equivalents)

Currency Name	Cash	Equity	Fixed Income	Spot Contracts	Forward Contracts	Total Exposure
Argentine Peso	$204	$ -	$1,382	$ -	$ -	$1,586
Australian Dollar	19,429	2,189,322	14,127	(7)	4,255	2,227,126
Brazilian Real	1,523	842,690	(11,461)	(3)	1,642	834,391
Canadian Dollar	38,426	3,578,305	-	36	489	3,617,256
Chilean Peso	749	65,626	-	-	(2,933)	63,442
Colombian Peso	4	8,744	-	-	(789)	7,959
Czech Koruna	61	7,223	-	2	593	7,879
Danish Krone	2,739	706,233	12,151	(28)	862	721,957
Egyptian Pound	10	-	-	-	-	10
Euro Currency	70,454	14,168,956	121,475	630	6,388	14,367,903
Hong Kong Dollar	16,159	3,825,673	(48,362)	(4)	(65)	3,793,401
Hungarian Forint	360	77,717	-	(3)	(903)	77,171
Indian Rupee	7,274	1,031,137	-	-	(2,245)	1,036,166
Indonesian Rupiah	1,111	231,101	9,712	-	(2,098)	239,826
Japanese Yen	125,029	8,889,862	7,675	41	3,091	9,025,698
Kenyan Shilling	-	4,608	-	-	-	4,608
Malaysian Ringgit	3,552	182,136	-	(1)	(375)	185,312
Mexican Peso	2,748	296,245	28,204	69	6,127	333,393
New Israeli Sheqel	1,777	97,626	9,576	(1)	4,944	113,922
New Taiwan Dollar	5,769	1,409,559	(48,205)	-	183	1,367,306
New Zealand Dollar	1,443	100,482	16,288	-	679	118,892
Norwegian Krone	2,043	364,941	15,320	-	325	382,629
Pakistan Rupee	133	34,998	-	-	-	35,131
Peruvian Nouveau Sol	4	-	-	-	(1)	3
Philippine Peso	331	93,010	-	-	95	93,436
Polish Zloty	1,163	104,306	7,465	(6)	(1,322)	111,606
Pound Sterling	58,387	7,071,814	55,861	(98)	2,762	7,188,726
Qatari Rial	816	38,290	-	-	-	39,106
Russian Ruble	19	-	14,210	-	(2,261)	11,968
Singapore Dollar	7,438	571,973	-	-	(923)	578,488
South African Rand	655	722,030	23,197	(12)	(11,233)	734,637
South Korean Won	14,081	2,118,542	(111,840)	(1)	7,036	2,027,818
Sri Lanka Rupee	-	1,955	-	-	-	1,955
Swedish Krona	2,185	978,674	-	5	383	981,247
Swiss Franc	2,492	2,366,214	202	(2)	1,603	2,370,509
Thailand Baht	5,107	306,971	-	-	1,433	313,511
Turkish Lira	1,240	253,318	4,613	3	974	260,148
UAE Dirham	425	71,226	-	-	-	71,651
Yuan Renminbi	2,037	196,831	4,197	9	1,601	204,675
Total	**$397,377**	**$53,008,338**	**$125,787**	**$629**	**$20,317**	**$53,552,448**

CalSTRS investments denominated in foreign currencies are reported within derivative instruments and investment receivables or payables on the Statement of Fiduciary Net Position.

Foreign currency is composed of international investment proceeds and income to be repatriated into U.S. dollars and funds available to purchase international securities. Foreign currency is held temporarily in foreign accounts until it is able to be repatriated or expended.

In accordance with the Investment Policy and Management Plan, CalSTRS has established a strategic allocation to non-dollar public and private equity assets (i.e. private equity investments and real estate). Considering this commitment to non-dollar assets and the impact currency fluctuations can have on the total return of dollar-based investors, CalSTRS has recognized the need to implement strategies designed to address the management of currency risk. CalSTRS believes that our Currency Management Program should emphasize the protection of the value of its non-dollar public and private equity assets against a strengthening U.S. dollar first, yet recognizes that opportunities also exist for alpha generation (the ability to derive a return in excess of a market return) within the currency markets.

CalSTRS Fixed Income staff has management and oversight responsibilities for the Currency Management Program. The position range has been designed to allow for some degree of symmetry around the underlying exposure to the foreign-denominated assets within CalSTRS in order to both protect the translation value of the assets against a strengthening U.S. dollar and to enhance returns in a declining U.S. dollar environment.

As of June 30, 2018, the Pension2 403(b) and 457(b) plans do not expose CalSTRS to foreign currency risk.

Derivative Instruments

As of June 30, 2018, the derivative instruments held by CalSTRS are considered investments and not hedges for accounting purposes. The term hedging, as it is used elsewhere in the notes to these financial statements, denotes an economic activity and not an accounting method. The gains and losses arising from this activity are recognized as incurred in the Statement of Changes in Fiduciary Net Position.

All investment derivatives discussed below are included within the Investment Risk Schedules, which precede this section. Investments in derivative instruments are disclosed separately to provide a comprehensive view of this activity and its impact on the overall investment portfolio.

The table below presents the related net appreciation (depreciation) in fair value, fair value and notional amount of derivative instruments outstanding as of June 30, 2018.

Investment Derivatives
(Dollars in Thousands)

Derivative Instruments	Net Appreciation (Depreciation) in Fair Value of Investments through June 30, 2018 — Classification	Amount	Fair Value	Notional Amount[1]	
Commodity Forward Swaps	Investment Income / (Loss)	($553)	$(377)	402	Units
Credit Default Swaps	Investment Income / (Loss)	1,380	(3,683)	331,101	
Interest Rate Swaps	Investment Income / (Loss)	3,090	(1,387)	328,680	
Total Return Swaps	Investment Income / (Loss)	33,898	(9,776)	(803,587)	
Variance Swaps	Investment Income / (Loss)	(215)	(215)	34,763	
Foreign Currency Forwards	Investment Income / (Loss)	(105,184)	20,317	10,273,940	
Commodity Futures	Investment Income / (Loss)	465	1,643	(11,541)	
Futures (Domestic and Foreign)	Investment Income / (Loss)	(44,513)	77,772	3,016,421	
Options	Investment Income / (Loss)	(61,315)	6,418	1,756,647	
Rights	Investment Income / (Loss)	2,901	2,248	35,342	Units
Warrants	Investment Income / (Loss)	19	10	2,084	Units
Total Derivative Instruments		**($170,027)**	**$92,970**		

[1]In U.S. dollars unless otherwise indicated.

Counterparty Credit Risk

The table below depicts the counterparty credit ratings of CalSTRS non-exchange traded investment derivative instruments outstanding and subject to loss as of June 30, 2018.

Counterparty Credit Rating[1]
(Dollars in Thousands)

S&P Rating	Commodity Forward Swaps	Credit Default Swaps	Interest Rate Swaps	Total Return Swaps	Variance Swaps	Foreign Currency Forwards	Fixed Income Options	Total
AA	$ –	$ –	$ -	$ -	$ -	$3,030	$ -	$3,030
A	50	159	569	160	-	29,885	-	30,823
BBB	-	33	8	-	-	-	-	41
Subtotal Investments in Asset Position	**50**	**192**	**577**	**160**	**-**	**32,915**	**-**	**33,894**
Investments in Liability Position	(427)	(3,875)	(1,964)	(9,936)	(215)	(12,598)	(7)	(29,022)
Total Investments in Asset / (Liability) Position	**($377)**	**($3,683)**	**($1,387)**	**($9,776)**	**($215)**	**$20,317**	**($7)**	**$4,872**

[1]The counterparty credit exposure for similar instruments with the same counterparty is netted for presentation purposes.

The ratings used to determine the quality of the individual counterparty are S&P ratings. The aggregate fair value of investment derivative instruments in an asset position subject to counterparty credit risk as of June 30, 2018, was $33.9 million. This represents the maximum loss that would be recognized at the reporting date if all counterparties failed to perform as contracted. However, master agreements exist that call for daily exchange of collateral for the mark-to-market to minimize this risk.

CalSTRS may enter into a master netting arrangement with a counterparty. In the event of default or early termination, the master agreement permits the non-defaulting party the right to close-out all transactions in a single net settlement to one net amount payable by one counterparty to the other. As of June 30, 2018, there were assets of $94.9 million, including collateral held by CalSTRS, and liabilities of $83.2 million from non-exchange traded derivatives subject to master netting agreements. As of June 30, 2018, CalSTRS did not have any significant exposure to counterparty credit risk with any single party.

Custodial Credit Risk

The custodial credit risk disclosure for exchange traded derivative instruments is made in accordance with the custodial credit risk disclosure requirements of GASB Statement No. 40. As of June 30, 2018, all of CalSTRS investments in derivative instruments are held in CalSTRS name or CalSTRS nominee's name and are not exposed to custodial credit risk as of June 30, 2018.

Interest Rate Risk

As of June 30, 2018, CalSTRS is exposed to interest rate risk on its derivative instruments described below by maturity period.

Investment Maturities
(Dollars in Thousands)

		Investment Maturities (in years)			
Investment Type	Fair Value	Less Than 1	1–5	6–10	More than 10
Credit Default Swaps	($3,683)	($38)	($3,671)	$26	$ -
Interest Rate Swaps	(1,387)	-	(2,039)	517	135
Total Return Swaps	(9,776)	(9,776)	-	-	-
Fixed Income Options	(7)	(7)	-	-	-
Total	**($14,853)**	**($9,821)**	**($5,710)**	**$543**	**$135**

As of June 30, 2018, the table below shows swaps that are highly sensitive to changes in interest rates. The table below details the reference rate, fair value and notional amount of these derivative instruments:

Derivative Instruments Highly Sensitive to Interest Rate Changes
(Dollars in Thousands)

Investment Type	Reference Rate/Asset	Fair Value	Notional Amount
Interest Rate Swap	Receive Fixed 1.498%, Pay Variable 6-month Euro Interbank Offered Rate	$-	$3,339
Interest Rate Swap	Receive Fixed 2.25%, Pay Variable 3-month London Interbank Offered Rate	(686)	29,367
Interest Rate Swap	Receive Fixed 2.85%, Pay Variable 3-month London Interbank Offered Rate	(45)	73,830
Interest Rate Swap	Receive Fixed 2.9563%, Pay Variable 3-month London Interbank Offered Rate	8	3,000
Interest Rate Swap	Receive Fixed 3.47%, Pay Variable 0-month United Kingdom Retail Price Index	63	3,697
Interest Rate Swap	Receive Fixed 7.33%, Pay Variable 1-month Mexico Interbank Equilibrium Interest Rate	(585)	30,246
Interest Rate Swap	Receive Fixed 7.3505%, Pay Variable 1-month Mexico Interbank Equilibrium Interest Rate	(723)	44,121
Interest Rate Swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 1.00%	139	115,906
Interest Rate Swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 2.25%	343	5,800
Interest Rate Swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 2.50%	35	1,000
Interest Rate Swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 2.75%	128	2,800
Interest Rate Swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 2.95%	(24)	12,235
Interest Rate Swap	Receive Variable 6-month Euro Interbank Offered Rate, Pay Fixed 1.498%	(40)	3,339
Interest Rate Swaps Total		**($1,387)**	**$328,680**
Total Return Swap	Receive BCOMF1T Index, Pay 3-month U.S. Treasury Bill plus 0.14%	(161)	(52,804)
Total Return Swap	Receive BCOMTR Index, Pay 3-month U.S. Treasury Bill plus 0.13%	(8)	(2,908)
Total Return Swap	Receive BCOMTR1 Index, Pay 3-month U.S. Treasury Bill plus 0.14%	(92)	(35,249)
Total Return Swap	Receive BCOMTR2 Index, Pay 3-month U.S. Treasury Bill plus 0.14%	(154)	(59,394)
Total Return Swap	Receive 1-month Johannesburg Interbank Agreed Rate minus 0.60%, Pay MSCI South Africa Net Return Index	(9)	2,711
Total Return Swap	Receive 1-month Johannesburg Interbank Agreed Rate minus 0.60%, Pay MSCI South Africa Net Return Index	28	18,788
Total Return Swap	Receive 1-month Johannesburg Interbank Agreed Rate minus 0.60%, Pay MSCI South Africa Net Return Index	(41)	1,697
Total Return Swap	Receive 1-month London Interbank Offered Rate plus 0.30%, Pay MSCI Thailand Net Return Index	244	2,355
Total Return Swap	Receive 1-month London Interbank Offered Rate plus 0.10%, Pay MSCI Isreal Net Return Index	(5)	470
Total Return Swap	Receive MSCI Brazil Net Return Index, Pay 1-month Brazil Interbank Deposit Rate minus 0.35%	1	(950)
Total Return Swap	Receive MSCI China Net Return Index, Pay 1-month Hong Kong Interbank Offered Rate plus 0.50%	(4,360)	(48,362)
Total Return Swap	Receive RBCAECTO Index, Pay 3-month U.S. Treasury Bill plus 0.10%	(162)	(99,486)
Total Return Swap	Receive 1-month Turkish Lira Reference Interest Rate minus 0.50%, Pay MSCI Turkey Net Return Index	(5)	850
Total Return Swap	Receive 1-month Warsaw Interbank Offered Rate minus 0.35%, Pay MSCI Poland Net Return Index	18	366
Total Return Swap	Receive 3-month U.S. Treasury Bill plus 0.12%, Pay BCOMTR Index	2	619
Total Return Swaps Total		**($4,704)**	**($271,297)**

Foreign Currency Risk

As of June 30, 2018, CalSTRS is exposed to foreign currency risk on its investments in derivative instruments.

Foreign Currency Risk
(Dollars in Thousands)
(In U.S. Dollar Equivalents)

						Currency Forward Contracts		
Currency Name	Futures	Options	Rights	Swaps	Warrants	Investment Asset	Investment Liability	Total Exposure
Australian Dollar	$847	$ -	$24	$ -	$6	$8,402	($4,147)	$5,132
Brazilian Real	-	-	-	184	-	6,791	(5,149)	1,826
Canadian Dollar	602	-	-	-	-	5,497	(5,008)	1,091
Chilean Peso	-	-	-	-	-	1,364	(4,297)	(2,933)
Colombian Peso	-	-	-	-	-	270	(1,059)	(789)
Czech Koruna	-	-	-	-	-	1,477	(884)	593
Danish Krone	-	-	-	-	-	862	-	862
Euro Currency	(2,083)	3,734	1,607	(15)	4	14,319	(7,931)	9,635
Hong Kong Dollar	(424)	-	-	(4,360)	-	29	(94)	(4,849)
Hungarian Forint	-	-	-	-	-	2,077	(2,980)	(903)
Indian Rupee	-	-	-	-	-	131	(2,376)	(2,245)
Indonesian Rupiah	-	-	-	-	-	1,431	(3,529)	(2,098)
Japanese Yen	(1,547)	-	-	-	-	5,591	(2,500)	1,544
Malaysian Ringgit	(53)	-	-	-	-	-	(375)	(428)
Mexican Peso	328	-	-	(1,308)	-	9,365	(3,238)	5,147
New Israeli Sheqel	-	-	-	(2)	-	5,414	(470)	4,942
New Taiwan Dollar	-	-	-	(18)	-	1,756	(1,573)	165
New Zealand Dollar	-	-	-	-	-	1,523	(844)	679
Norwegian Krone	-	-	-	-	-	788	(463)	325
Peruvian Nouveau Sol	-	-	-	-	-	4	(5)	(1)
Philippine Peso	-	-	-	-	-	589	(494)	95
Polish Zloty	-	-	-	405	-	306	(1,628)	(917)
Pound Sterling	(743)	-	611	63	-	6,790	(4,028)	2,693
Russian Ruble	-	-	-	-	-	153	(2,414)	(2,261)
Singapore Dollar	(6)	-	-	-	-	1,641	(2,564)	(929)
South African Rand	21	-	-	(21)	-	3,619	(14,852)	(11,233)
South Korean Won	(1,361)	-	-	(5,851)	-	8,593	(1,557)	(176)
Swedish Krona	-	-	-	-	-	1,448	(1,065)	383
Swiss Franc	-	-	-	-	-	1,604	(1)	1,603
Thailand Baht	526	-	-	-	-	2,487	(1,054)	1,959
Turkish Lira	(99)	-	-	(44)	-	3,947	(2,973)	831
Yuan Renminbi	-	-	-	-	-	3,272	(1,671)	1,601
Total	**($3,992)**	**$3,734**	**$2,242**	**($10,967)**	**$10**	**$101,540**	**($81,223)**	**$11,344**

As of June 30, 2018, the net unrealized gain on the foreign currency forward contracts was $20.3 million.

Investment Allocation Policy

In accordance with GASB Statement No. 67 for pension plans and GASB Statement No.74 for OPEB plans, CalSTRS discloses investment policies pertaining to asset allocation and changes to any significant investment policies. The board approves the allocation of investment assets as described in the board policy manual. The key goal of the asset allocation process is to develop an asset allocation policy that maximizes the likelihood that the investment portfolio's assets will, over the planning horizon, fund plan benefits. CalSTRS conducts an asset allocation study every three years, or more frequently if there is a significant change in the liabilities or assets. The asset allocation study involves a comprehensive review of the financial condition of the plan, including the actuarial requirements of the plan, such as future benefit payments and expected cash flow of contributions. In conjunction with the long-term strategic target, a range for each asset class is established to provide flexibility designed to reduce rebalancing costs and adapt to changing market conditions. The board approved changes to asset allocation ranges effective January 1, 2018.

The following table displays the previous and current board-approved target allocation, the policy range and the actual allocation for the STRP per the portfolio allocation and management structure as of June 30, 2018.

Asset Class / Strategy	Previous Target Allocation as of June 30, 2017	Current Target Allocation as of June 30, 2018	Policy Range	Actual Allocation as of June 30, 2018
Global Equity	55.0%	54.0%	+/- 6%	53.7%
Fixed Income	15.0%	13.0%	+/- 3%	12.3%
Real Estate	12.0%	12.0%	+/- 3%	12.8%
Private Equity	8.0%	8.0%	+/- 3%	8.2%
Cash / Liquidity	2.0%	2.0%	+/- 3%	1.4%
Inflation Sensitive	2.0%	2.0%	+/- 3%	1.9%
Risk Mitigating Strategies	6.0%	9.0%	+/- 3%	8.9%
Innovative Strategies	0.0%	0.0%	+/- 3%	0.2%
Strategic Overlay	0.0%	0.0%		0.6%
Total Asset Allocation	**100.0%**	**100.0%**		**100.0%**

All excess monies from the MPP Program and TDCF are invested into the Surplus Money Investment Fund, which is a pooled investment program administered by the State Treasurer.

6. FAIR VALUE MEASUREMENTS

The fair value of a financial instrument is the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (the exit price). Fair value is a market-based measurement, not a CalSTRS-specific measurement; hence, valuation assumptions reflect those that market participants would use to price assets and liabilities at the measurement date.

U.S. Generally Accepted Accounting Principles (GAAP) establishes a hierarchy that prioritizes and ranks the inputs to valuation techniques used to measure fair value based on observability. Market price observability may be affected by a number of factors, including the investment type, investment-specific characteristics, state of the marketplace and existence and transparency of transactions between market participants.

CalSTRS follows the fair value measurement and disclosure guidance under U.S. GAAP, which establishes a hierarchical disclosure framework. This framework prioritizes and ranks the level of market price observability used in measuring investments at fair value. U.S. GAAP also allows investments to be valued at cost or net asset value (NAV). The Fair Value Leveling Hierarchy table that follows presents CalSTRS investments at their fair value level, but also includes certain investments at cost or NAV.

Investments with readily available active quoted prices or for which fair value can be measured from actively quoted prices in an orderly market generally will have a higher degree of market price observability and a lesser degree of judgment used in measuring fair value. In all cases, an instrument's level within the hierarchy is based upon the market pricing transparency of the instrument and does not necessarily correspond to CalSTRS' perceived risk or the liquidity of the instrument.

Assets and liabilities measured at fair value are classified into one of the following categories:

Level 1 – Fair value is determined using unadjusted quoted prices in active markets for identical assets or liabilities accessible on the measurement date.

Level 2 – Fair value is determined using quoted prices in inactive markets or significant observable inputs (including, but not limited to, quoted prices for similar investments, interest rates, foreign exchange rates, volatility and credit spreads), either directly or indirectly. These inputs may be derived principally from, or corroborated by, observable market data through correlation or by other means.

Level 3 – Fair value is determined using unobservable inputs, including situations where there is little market activity, if any, for the asset or liability.

The fair value hierarchy level within which a fair value measurement falls is determined based on the lowest level input that is significant to the fair value measurement. The availability of valuation techniques and observable inputs may vary and is affected by factors such as the type of security, whether the security is established in the marketplace and market liquidity. Inputs used to measure fair value may require significant judgment or estimation, and CalSTRS may use models or other valuation methodologies to estimate fair value. Accordingly, the degree of judgment exercised by CalSTRS in estimating fair value is greatest for assets and liabilities categorized in Level 3.

Fair Value Leveling Hierarchy

(Dollars in Thousands)

	June 30, 2018	Fair Value Measurements Using: Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Investments by Fair Value Level				
Debt Securities				
Asset-Backed Securities	$288,492	$-	$272,805	$15,687
Corporate Bonds	10,031,922	-	10,024,652	7,270
Foreign Government Issues	487,812	-	487,181	631
Mortgage-Backed Securities	7,884,654	-	7,825,357	59,297
Municipal Securities	178,463	-	178,463	-
U.S. Government and Agency Obligations	19,935,049	-	19,935,049	-
Short-Term Securities	3,976,988	363,007	3,613,981	-
Mutual Funds-Bond Funds	68,554	68,554	-	-
Guaranteed Annuity Contracts	327,529	-	-	327,529
Total Debt Securities	**43,179,463**	**431,561**	**42,337,488**	**410,414**
Equity Securities				
Common Stocks	107,892,853	107,856,494	29,037	7,322
Depository Receipts	3,351,794	3,344,016	-	7,778
Mutual Funds-Stock Funds	1,245,463	1,245,463	-	-
Preferred Stocks	455,262	453,480	1,601	181
Real Estate Investment Trusts	2,953,326	2,950,382	2,944	-
Total Equity Securities	**115,898,698**	**115,849,835**	**33,582**	**15,281**
Alternative Investments				
Debt-Privately Held	881	-	-	881
Equity-Privately Held	2,791	-	-	2,791
Real Estate-Directly Held	19,226,692	-	-	19,226,692
Total Alternative Investments	**19,230,364**	**-**	**-**	**19,230,364**
Derivative Instruments				
Forwards	101,540	-	101,540	-
Futures	118,415	118,415	-	-
Options	7,552	-	7,552	-
Rights and Warrants	2,258	2,254	-	4
Swaps	3,275	-	3,275	-
Total Derivative Instruments	**233,040**	**120,669**	**112,367**	**4**
Securities Lending Collateral	**17,377,383**	**1,757,392**	**15,619,991**	**-**
Total Investment Assets Recorded at Fair Value	**195,918,948**	**118,159,457**	**58,103,428**	**19,656,063**
Investments Measured at Cost				
Short-Term Securities	1,199,473			
Securities Lending Collateral	4,554,508			
Total Investments Measured at Cost	**5,753,981**			
Investments Measured at NAV				
Debt-Privately Held	2,086,820			
Equity-Privately Held	34,284,344			
Real Estate-Non-Directly Held	10,292,597			
Total Investments Measured at NAV	**46,663,761**			
Total Investment Assets	**$248,336,690**			
Liabilities:				
Investments by Fair Value Level				
Derivative Instruments				
Forwards	81,223	-	81,223	-
Futures	39,000	39,000	-	-
Options	1,134	-	1,134	-
Swaps	18,713	-	18,713	-
Total Derivative Instruments	**140,070**	**39,000**	**101,070**	**-**
Total Investment Liabilities Recorded at Fair Value	**$140,070**	**$39,000**	**$101,070**	**$-**
Total Net Investments	**$248,196,620**			

Level 1 measurements are generally valued at the official closing price (usually the last trade price) or the last bid price on the security's primary exchange. Such investments generally include common stocks, REITs, depository receipts and mutual funds.

Level 2 measurements are generally valued using indicative prices from vendors, brokers or ask prices. These indicative measurements often use matrix pricing, the Black-Scholes-Merton model or a lattice model and incorporate observable inputs such as yield, prepayment speeds, credit spreads, volatility curves or currency curves. Such investments generally include debt securities, bonds and over-the-counter derivatives. Other factors such as infrequent trading, inactive market or adjusted quoted prices may also result in Level 2 measurements.

Level 3 measurements are generally valued using significant inputs that are unobservable to the marketplace. This may occur if an investment is illiquid or is internally estimated. For CalSTRS, such investments primarily include directly held real estate. Properties are appraised using discounted cash flows, income capitalization, adjusted comparable sales and replacement cost (if recent) methods. The method chosen is the one most relevant to how an investor would assess a property as a potential buyer.

Debt Securities

Certain debt securities have an active market for identical securities and are valued using the close or last traded price on a specific date. Debt securities that are not as actively traded are valued by pricing vendors using modeling techniques that include market observable inputs as well as unobservable inputs required to develop a fair value. Typical inputs include recent trades, yields, price quotes, cash flows, maturity, credit ratings and other assumptions based upon the specifics of the investment type.

Short-term investments are reported at fair value or at cost or amortized cost. For those investments that are reported at fair value, the investments are valued using similar methodologies as debt securities traded in active markets.

Bond mutual funds offered by Voya and TIAA are open-ended funds that are priced daily at NAV based generally upon the exchange traded official closing price of the securities held by the funds. CalSTRS allocation in the Voya annuity contracts is carried at contract value, which approximates fair value.

Equity Securities

The majority of equity securities held by CalSTRS are actively traded on major stock exchanges. These exchanges make information on trades of securities available daily on a last trade or official close basis. If such information is not available, other pre-established means are used to determine a price. Stock mutual funds, held in the STRP and Pension2, are open-ended funds that are priced daily at NAV by the fund sponsor based generally upon the exchange traded official closing price of the securities held by the fund.

Alternative Investments

Partnership interests are valued using their respective NAV calculated in accordance with the general partner's fair valuation policy as of the measurement date and are audited annually. The most significant input into the NAVs of such an entity is the fair value of its investment holdings, which are typically valued on a quarterly or semi-annual basis by the general partners. The valuation assumptions are based upon the nature of the investment and the underlying business. The valuation techniques vary by investment type and involve a certain degree of expert judgment.

Corporate governance funds structured as limited partnerships have been valued using the NAV of the entity, with the most significant input into the NAV being the value of its investment holdings. The general partners obtain prices for their holdings in a manner similar to that described above for equity securities.

Investments in real estate directly held assets are subject to independent third-party appraisals performed annually in accordance with the Uniform Standards of Professional Appraisal Practice. On a quarterly basis, fair values are estimated by the third-party advisor or operating partner using general market and property-specific assumptions, which are reviewed by CalSTRS valuation consultant. Leverage may be used to enhance investment returns as set forth in the CalSTRS Real Estate Investment Policy. See Note 5 regarding the disclosure relating to Real Estate leverage.

Real estate investments in non-directly held limited partnership interests in commingled funds are valued by CalSTRS using the NAV of the partnership provided by the general partner. The most significant input into the NAV of such an entity is the fair value of its investment holdings. These holdings are valued using the general partners' fair valuation policy on a continuous basis, audited annually and periodically appraised by an independent third-party as directed by the governing document for each commingled fund investment. The valuation assumptions use both market and property-specific inputs.

Derivative Instruments

The fair value of exchange-traded derivative instruments such as futures, options, rights and warrants are determined based on the quoted market prices or mean prices. The fair value of derivative instruments that are not exchange-traded, such as swaps, is determined by external pricing services.

Futures contracts are exchange-traded financial instruments that derive their value from underlying securities, indices or reference rates and are marked-to-market at the end of each day. The fair value of futures are accounted for as unrealized appreciation or depreciation until the contract is closed.

The fair value of the foreign currency forward contracts is the unrealized gain or loss calculated based on the difference between the specified exchange rate and the closing forward rate as of June 30, 2018.

Investment in Certain Entities that Calculate Net Asset Value Per Share

CalSTRS measures certain investments that do not have a readily determinable fair value using NAV as a practical expedient. These investments are generally structured as limited partnerships with an investment manager and are created by raising pools of capital from investors that will be invested according to one or more specific investment strategies. Investors commit capital to the fund, and as the investment manager identifies investment opportunities, the committed capital is called to purchase the investments.

NAV is calculated using measurement principles similar to investment companies. CalSTRS updates the NAV for cash contributions, cash distributions and changes in the fair value of the underlying investments using capital account statements and estimates if the NAV is not updated as of the reporting date. CalSTRS does not currently have any plans to sell any of these investments before their stated term.

The following table displays information regarding investments that use NAV per share (or equivalent) as their fair value measurement:

NAV Practical Expedient
(Dollars in Thousands)

	Fair Value June 30, 2018	Total Unfunded Commitments	Redemption Frequency if Currently Eligible	Redemption Notice Period
Debt-Privately Held[1]	$2,086,820	$1,862,683	N/A	N/A
Equity-Privately Held				
Private Equity Funds[2]	18,752,321	11,032,919	N/A	N/A
Risk Mitigating Strategies Funds[3]	10,772,896	-	Monthly	2-60 days
Corporate Governance Funds[4]	3,300,346	45,483	N/A, Annually	60-120 days
Other[5]	1,458,781	-	Daily, Monthly, Quarterly	3-90 days
Real Estate-Non-Directly Held				
Real Estate Funds[6]	6,510,804	3,473,507	N/A	N/A
Other[7]	3,781,793	207,081	Quarterly	30-90 days
Total Investments Measured at NAV	**$46,663,761**	**$16,621,673**		

[1] This category includes private equity funds that invest in privately held debt, such as distressed debt and mezzanine debt. CalSTRS investment in each fund is generally not subject to redemption and is normally returned through distributions as a result of the liquidation of the underlying assets over a weighted-average period of approximately nine years at June 30, 2018.

[2] This category includes private equity funds that invest in nonmarketable securities of private companies, which ultimately may become public in the future and whose strategies include leveraged buyouts, expansion capital and venture capital. Generally, CalSTRS investment in each fund in this category may not be subject to redemption and is normally returned through distributions as a result of the liquidation of the underlying assets over a weighted-average period of approximately nine years at June 30, 2018.

[3] This category includes funds that include investment strategies with structural aspects that provide improved diversification and potential protection in negative equity markets. Investments in this category can be redeemed monthly upon written notice.

[4] This category includes funds that invest strategically in publicly traded equities of companies on U.S. and non-U.S. exchanges to achieve capital appreciation and income. The funds in this category are generally subject to a lockup period before redemption is permissible. Investments representing 10.5 percent and 77.0 percent of the value of the investments in this category can be redeemed annually and at the end of a three-year or rolling three-year period, respectively. The remaining 12.5 percent of the value of the investments in this category is not subject to redemption and is normally returned through distributions as a result of the liquidation of the underlying assets.

[5] This category includes funds that invest primarily in equities, fixed income securities, opportunistic, and other funds. Investments representing 20.6 percent, 38.2 percent and 41.2 percent in this category can be redeemed daily, monthly and quarterly, respectively, upon written notice.

[6] This category includes funds that invest directly in real estate and real estate related assets, including retail, industrial, office, residential and hotels. Generally, CalSTRS investment in each fund in this category may not be subject to redemption and is normally returned through distributions as a result of the liquidation of the underlying assets over a weighted-average period of approximately six years at June 30, 2018.

[7] This category includes open-ended funds that invest directly in real estate and real estate related assets, including retail, industrial, office, residential and hotels. Investments in this category can be redeemed quarterly upon written notice.

7. CONTINGENCIES

CalSTRS is involved in litigation relating to various matters. In the opinion of management, after consultation with legal counsel, the outcome of these matters is not expected to have a material adverse effect on CalSTRS financial statements.

8. COMMITMENTS

In connection with the purchase of partnership interests under various investment portfolios, CalSTRS has remaining unfunded commitments of approximately $22.9 billion at June 30, 2018.

The following table depicts the unfunded commitments by asset strategy:

Asset Class / Strategy	Unfunded Commitments (Dollars in Thousands)
Global Equity (Corporate Governance)	$45,483
Inflation Sensitive	1,610,451
Innovative Strategies	218,412
Private Equity	15,596,505
Real Estate	5,430,588
Total	**$22,901,439**

These unfunded commitments include agreements for acquisitions not yet initiated, which are not included in the NAV Practical Expedient table. In addition, Real Estate has $9.9 billion of discretionary contractual arrangements with joint ventures, which are directly held investments, and co-investment with general partners, not shown in the table above. Discretionary contractual arrangements provide CalSTRS the ability to cancel or redirect our investment commitment.

Medicare Premium Payment Program

Under current board policy, assets are set aside from the future employer contributions to the DB Program to fund the MPP Program. Based on the funding actuarial valuation for the DB Program, as of June 30, 2017, the assets set aside are equal to the actuarial obligation of the MPP Program less the value of any assets already in the program. As of June 30, 2017, the future employer contributions committed to funding the MPP Program totaled $314 million, which equals the projected cost of the program. This amount is a funding measure that assumes the value of these contributions will be available to fund the MPP Program benefits in future periods, as the assets currently in the program are not sufficient to fund the projected future benefits. This differs from the net OPEB liability as of June 30, 2018, of $382.8 million, which was measured in accordance with GASB Statement No. 74 and represents the actuarial present value of projected benefit payments that is attributable to the MPP Program participants.

9. NEW ACCOUNTING PRONOUNCEMENTS

Management performs ongoing evaluations of new accounting pronouncements set forth by GASB, and assesses potential impacts to CalSTRS' financial reporting. Pronouncements that have an impact to CalSTRS' financial statements as of June 30, 2018, or may have an impact to CalSTRS financial reporting in future reporting periods follow:

GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*, addresses reporting by governments that provide OPEB to their employees and for governments that finance OPEB for employees of other governments. GASB Statement No. 75 replaces the requirements of GASB Statement No. 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*. This statement requires governments to report a liability on the face of the financial statements for OPEB they provide by reporting, according to specified criteria, either a net OPEB liability, their proportionate share of the collective OPEB liability, or the total OPEB liability related to their employees. GASB Statement No. 75 requires governments in all types of OPEB plans to present more extensive note disclosures and required supplementary information about their OPEB liabilities. CalSTRS recognized its proportionate share of the net OPEB liability, deferred outflows of resources, deferred inflows of resources and OPEB expense related to its participation in the California Employers' Retiree Benefit Trust Fund administered by California Public Employees' Retirement System, as required by GASB Statement No. 75 in the financial statements for the fiscal year ended June 30, 2018. The impact of GASB Statement No. 75 is not material to the financial statements as a whole.

Furthermore, CalSTRS will not provide additional note disclosures or supplementary information required by GASB Statement No. 75 because presenting information about CalSTRS OPEB liability as an employer, in addition to the disclosure for the collective OPEB liability of the MPP Program under GASB Statement No. 74, may confuse or mislead the users of CalSTRS financial statements.

GASB Statement No. 84, *Fiduciary Activities*, establishes criteria for identifying fiduciary activities of all state and local governments and clarifies whether and how business-type activities should report their fiduciary activities. The statement provides that governments should report activities meeting certain criteria in a fiduciary fund in the basic financial statements and present a statement of fiduciary net position and a statement of changes in fiduciary net position. The requirements of this statement are effective for reporting periods beginning after December 15, 2018. Management is evaluating GASB Statement No. 84 and its impact to CalSTRS financial reporting and, if applicable, will implement it in the financial statements for the fiscal year ending June 30, 2020.

GASB Statement No. 85, *Omnibus 2017*, specifically addresses timing of the measurement of pension or OPEB liabilities and expenditures recognized in financial statements prepared using the current financial resources measurement focus, recognizing on-behalf payments for pensions or OPEB in employer financial statements, presenting payroll-related measures in required supplementary information for purposes of reporting by OPEB plans and employers that provide OPEB, and various other topics. The requirements of this statement are effective for reporting periods beginning after June 15, 2017. CalSTRS' MPP Program is impacted by the requirements related to the presentation of payroll-related measures, which have been implemented in the Schedule of Net OPEB Liability of Employers in the required supplementary information.

GASB Statement No. 87, *Leases*, increases the usefulness of governments' financial statements by requiring recognition of certain lease assets and liabilities that previously were classified as operating leases. The requirements of this statement are effective for reporting periods beginning after December 15, 2019. Management is evaluating GASB Statement No. 87 and its impact to CalSTRS financial reporting and, if applicable, will implement it in the financial statements for the fiscal year ending June 30, 2021.

GASB Statement No. 88, *Certain Disclosures Related to Debt, including Direct Borrowings and Direct Placements*, clarifies which liabilities governments should include in their note disclosures related to debt. GASB Statement No. 88 requires that all debt disclosures present direct borrowings and direct placements of debt separately from other types of debt. The requirements of this statement are effective for reporting periods beginning after June 15, 2018. Management is evaluating GASB Statement No. 88 and its impact to CalSTRS financial reporting and, if applicable, will implement it in the financial statements for the fiscal year ending June 30, 2019.

GASB Statement No. 89, *Accounting for Interest Cost Incurred before the End of a Construction Period*, establishes accounting requirements for interest cost incurred before the end of a construction period. Such interest cost includes all interest that previously was accounted for in accordance with the requirements of paragraphs 5 through 22 of GASB Statement No. 62, *Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements*. This statement requires that interest cost incurred before the end of a construction period be recognized as an expense in the period in which the cost is incurred for financial statements prepared using the economic resources measurement focus. The requirements of this statement are effective for reporting periods beginning after December 15, 2019. Management is evaluating GASB Statement No. 89 and its impact to CalSTRS financial reporting and, if applicable, will implement it in the financial statements for the fiscal year ending June 30, 2021.

GASB Statement No. 90, *Majority Equity Interests—an amendment of GASB Statements No. 14 and No. 61*, clarifies the definition of a majority equity interest, and specifies that a majority equity interest in a legally separate organization should be reported as an investment if a government's holding of the equity interest meets the definition of an investment. In addition, it provides guidance for reporting a component unit if a government acquires a 100 percent equity interest in that component unit. The requirements of this statement are effective for reporting periods beginning after December 15, 2018. Management is evaluating GASB Statement No. 90 and its impact to CalSTRS' financial reporting and, if applicable, will implement it in the financial statements for the fiscal year ending June 30, 2020.

Required Supplementary Information (Unaudited)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY OF EMPLOYERS AND NONEMPLOYER CONTRIBUTING ENTITY

(Dollars in Millions) **Schedule I[1]**

State Teachers' Retirement Plan (STRP)

Year Ended June 30[2]	2018	2017	2016	2015	2014
Total Pension Liability					
Service Cost	$7,142	$6,064	$5,874	$5,556	$5,338
Interest	21,496	20,227	19,332	18,556	17,822
Differences Between Expected and Actual Experience	(94)	399	(1,209)	(1,312)	-
Changes of Assumptions	-	19,988[3]	-	-	-
Benefit Payments, Including Refunds of Member Contributions	(14,537)	(13,903)	(13,149)	(12,565)	(12,035)
Net Change in Total Pension Liability	**14,007**	**32,775**	**10,848**	**10,235**	**11,125**
Beginning Total Pension Liability	**302,769**	**269,994**	**259,146**	**248,911**	**237,786**
Ending Total Pension Liability (a)	**316,776**	**302,769**	**269,994**	**259,146**	**248,911**
Plan Fiduciary Net Position					
Member Contributions	3,496	3,441	2,957	2,510	2,264
Employer Contributions	4,867	4,173	3,391	2,678	2,272
State Contributions	2,797	2,478	1,940	1,426	1,383
Net Investment Income	18,674	25,165	2,305	7,612	30,402
Other Income	106	72	42	4	2
Benefit Payments, Including Refunds of Member Contributions	(14,537)	(13,903)	(13,149)	(12,565)	(12,035)
Administrative Expense	(216)	(182)	(180)	(145)	(154)
Borrowing Costs[4]	(94)	(58)	-	-	-
Other Expenses	(2)	(10)	(15)	(10)	(9)
Net Change in Plan Fiduciary Net Position	**15,091**	**21,176**	**(2,709)**	**1,510**	**24,125**
Beginning Plan Fiduciary Net Position–As Previously Reported	**210,289**	**189,113**	**191,822**	**190,474**	**166,349**
Adjustment for Application of New GASB Statements[5]	(511)	-	-	(162)	-
Beginning Plan Fiduciary Net Position–As Adjusted	**209,778**	**189,113**	**191,822**	**190,312**	**166,349**
Ending Plan Fiduciary Net Position (b)	**224,869**	**210,289**	**189,113**	**191,822**	**190,474**
Ending Net Pension Liability of Employers and the State (a) - (b)	**$91,907**	**$92,480[6]**	**$80,881**	**$67,324**	**$58,437[7]**

[1] Some numbers in this schedule are rounded for presentation purposes, and may differ slightly from those presented in the Statement of Changes in Fiduciary Net Position.

[2] This is a 10-year schedule. However, the information in this schedule is not available for periods prior to fiscal year 2013–14. Years will be added to this schedule in future fiscal years until 10 years of information is available.

[3] The assumptions used in determining the Total Pension Liability of the STRP changed as a result of the actuarial experience study for the period starting July 1, 2010, and ending June 30, 2015. The assumption changes were to price inflation, wage growth, discount rate and the mortality tables.

[4] Borrowing costs of $94 million and $58 million, associated with the master credit facility portfolio, which were previously recorded within net investment income, have been reclassified for the years ended June 30, 2018, and 2017, respectively.

[5] Adjustments were made to the STRP's beginning net position in fiscal year 2017–18 and fiscal year 2014–15 due to the implementation of requirements from GASB Statement No. 75 and GASB Statement No. 68, respectively.

[6] The net pension liability (NPL) for fiscal year 2016–17 does not include the $511 million reduction to the net position as a result of CalSTRS implementation of GASB Statement No. 75.

[7] The NPL for fiscal year 2013–14 does not include the $162 million reduction to the net position as a result of CalSTRS implementation of GASB Statement No. 68.

SCHEDULE OF NET PENSION LIABILITY OF EMPLOYERS AND NONEMPLOYER CONTRIBUTING ENTITY

(Dollars in Millions) **Schedule II[1]**

State Teachers' Retirement Plan

Year Ended June 30[2]	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	NPL of Employers and the State (a–b)	Plan Fiduciary Net Position as a Percentage of Total Pension Liability (b/a)	Covered Payroll (c)	NPL of Employers and the State as a Percentage of Covered Payroll (a–b)/c
2018	$316,776	$224,869	$91,907	71.0%	$34,753	264.5%
2017	302,769[3]	210,289	92,480[4]	69.5%	34,126	271.0%
2016	269,994	189,113	80,881	70.0%	31,910	253.5%
2015	259,146	191,822	67,324	74.0%	32,026[5]	210.2%
2014	248,911	190,474	58,437[6]	76.5%	27,486	212.6%

[1] Some numbers in this schedule are rounded for presentation purposes, and may differ slightly from those presented in the Statement of Changes in Fiduciary Net Position.

[2] This is a 10-year schedule. However, the information in this schedule is not available for periods prior to fiscal year 2013–14. Years will be added to this schedule in future fiscal years until 10 years of information is available.

[3] The assumptions used in determining the Total Pension Liability of the STRP changed as a result of the actuarial experience study for the period starting July 1, 2010, and ending June 30, 2015. The assumption changes were to price inflation, wage growth, discount rate and the mortality tables.

[4] The net pension liability for fiscal year 2016–17 does not include a $510.8 million reduction to the net position as a result of CalSTRS implementation of GASB Statement No. 75.

[5] In fiscal year 2013–14, CalSTRS reported pensionable compensation as part of GASB Statement No. 67 implementation. In fiscal year 2014–15, GASB clarified the requirement to be covered-employee payroll, which includes both pensionable and non-pensionable compensation. In fiscal year 2015–16, GASB Statement No. 82 was issued, which amended GASB Statements No. 67 and 68, to instead require the presentation of covered payroll, which is pensionable compensation. The amount reported in the schedule above for fiscal year 2014–15 includes pensionable and non-pensionable compensation, however; the covered payroll amount for fiscal year 2014–15 is $30.5 billion.

[6] The net pension liability for fiscal year 2013–14 does not include a $161.9 million reduction to the net position as a result of CalSTRS' implementation of GASB Statement No. 68.

SCHEDULE OF PENSION CONTRIBUTIONS FROM EMPLOYERS AND NONEMPLOYER CONTRIBUTING ENTITY

(Dollars in Millions) **Schedule III**

The information presented in this schedule for the STRP is required for defined benefit pension plans.

State Teachers' Retirement Plan								
Year Ended June 30[1]	Actuarially Determined Contributions (a)	Legally Required Contributions for Employers and the State	Employer Contributions[2,3] (b)	State Contributions[4] (c)	Total Contributions (b + c)	Contribution Deficiency (excess) a–(b + c)	Covered Payroll (d)	Contributions as a Percentage of Covered Payroll (b + c)/d
2018	$9,577	$7,664	$4,867	$2,797	$7,664	$1,913	$34,753	22.1%
2017	7,959	6,651	4,173	2,478	6,651	1,308	34,126	19.5%
2016	7,748	5,318	3,378	1,940	5,318	2,430	31,910	16.7%
2015	7,707	4,093	2,667	1,426	4,093	3,614	32,026[5]	12.8%
2014	7,158	3,641	2,258	1,383	3,641	3,517	27,486	13.2%

[1]This is a 10-year schedule. However, the information in this schedule is not available for periods prior to fiscal year 2013–14. Years will be added to this schedule in future fiscal years until 10 years of information is available.

[2]Excludes $10.3 million, $13.3 million, $13.5 million, $12.5 million and $14.5 million for fiscal years 2017–18, 2016–17, 2015–16, 2014–15 and 2013–14, respectively, in contributions to separately finance specific liabilities, such as benefit enhancements, of an individual employer.

[3]Includes employer contributions under Education Code sections 22711, 22713, 22905, 22950, 22951, 24260 and 26503.

[4]Includes state contributions under Education Code sections 22954 and 22955, as well as Public Resources Code section 6217.

[5]In fiscal year 2013–14, CalSTRS reported pensionable compensation as part of GASB Statement No. 67 implementation. In fiscal year 2014–15, GASB clarified the requirement to be covered-employee payroll, which includes both pensionable and non-pensionable compensation. In fiscal year 2015–16, GASB Statement No. 82 was issued, which amended GASB Statements No. 67 and 68, to instead require the presentation of covered payroll, which is pensionable compensation. The amount reported in the schedule above for fiscal year 2014–15 includes pensionable and non-pensionable compensation, however; the covered payroll amount for fiscal year 2014–15 is $30.5 billion.

Methods and Assumptions Used in Calculations of Actuarially Determined Contributions

The actuarially determined contribution (ADC) for the STRP for 2018 presented in this Schedule of Pension Contributions from Employers and Nonemployer Contributing Entity was determined based on the assumptions used in the June 30, 2016, actuarial valuation. The following actuarial methods and assumptions were used to determine the ADC:

	State Teachers' Retirement Plan[1]
Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percent of Payroll Basis
Amortization Period	Closed/Open[2]
Remaining Amortization Period	30 years
Asset Valuation Method	Adjustment to market value
Actuarial Assumptions:	
Investment Rate of Return	7.25%[3]
Interest on Accounts	3.00%
Wage Growth	3.50%
Consumer Price Inflation	2.75%
Postretirement Benefit Increases	2.00% simple

[1]The assumptions shown above are for the ADC of the Defined Benefit (DB) Program. The ADC for the year ending June 30, 2018, is the statutory contribution rate as of the June 30, 2016, actuarial valuation applied to actual DB Program payroll for the fiscal year ended June 30, 2018. For the Defined Benefit Supplement (DBS), Cash Balance Benefit (CBB), and Supplemental Benefit Maintenance Account programs, the ADC reflects the contributions recognized on an accrual basis for the fiscal year ended June 30, 2018.

[2] The actuarial gains/losses and the unfunded actuarial obligation are amortized over a closed period for the DB Program, in contrast to the use of an open amortization period for the DBS and CBB programs.

[3]The actuarially determined contribution for the fiscal year ending June 30, 2018, was calculated based on the economic and demographic assumptions in place for the funding actuarial valuation as of June 30, 2016. This valuation was performed using a 7.25 percent assumed investment rate of return, net of investment and administrative expenses. For financial reporting purposes, the NPL (shown in Note 3 of the basic financial statements) was calculated using actuarial assumptions adopted in 2017, which included an assumed rate of return of 7.10 percent, net of investment expenses but gross of administrative expenses.

SCHEDULE OF MONEY-WEIGHTED INVESTMENT RETURNS FOR STATE TEACHERS' RETIREMENT PLAN AND MEDICARE PREMIUM PAYMENT PROGRAM

Schedule IV

State Teachers' Retirement Plan

Year Ended June 30[1]	Money-Weighted Rate of Return, Net of Investment Expenses
2018	8.9%
2017	13.4%
2016	1.2%
2015	4.1%
2014	18.6%

[1]This is a 10-year schedule. However, the information in this schedule is not available for periods prior to fiscal year 2013–14. Years will be added to this schedule in future fiscal years until 10 years of information is available.

Medicare Premium Payment (MPP) Program[1]

Year Ended June 30[2]	Money-Weighted Rate of Return, Net of Investment Expenses
2018	1.3%
2017	0.9%

[1]The funds within the MPP Program as of June 30, 2018, were to manage differences between estimated and actual amounts to be paid and were invested in the Surplus Money Investment Fund, which is a pooled investment program administered by the State Treasurer.

[2]This is a 10-year schedule. However, the information in this schedule is not available for periods prior to fiscal year 2016–17. Years will be added to this schedule in future fiscal years until 10 years of information is available.

SCHEDULE OF CHANGES IN NET OPEB LIABILITY OF EMPLOYERS

(Dollars in Thousands) **Schedule V**

Medicare Premium Payment Program

Year Ended June 30[1]	2018	2017
Total OPEB Liability		
Interest	$14,567	$12,928
Differences Between Expected and Actual Experience	(15,759)	(41)
Changes of Assumptions	(10,293)	(31,240)
Premiums Paid	(28,036)	(28,929)
Net Change in Total OPEB Liability	**(39,521)**	**(47,282)**
Total OPEB Liability–Beginning	**420,749**	**468,031**
Total OPEB Liability–Ending (a)	**381,228**	**420,749**
Plan Fiduciary Net Position		
Employer Contributions	28,218	29,117
Net Investment Income	18	11
Premiums Paid	(28,036)	(28,929)
Administrative Expense	(578)	(168)
Net Change in Plan Fiduciary Net Position	**(378)**	**31**
Beginning Plan Fiduciary Net Position–As Previously Reported	**41**	**10**
Adjustment for Application of New GASB Statements[2]	(1,205)	-
Ending Plan Fiduciary Net Position–As Adjusted (b)	**(1,542)**	**41**
Ending Net OPEB Liability of Employers (a) - (b)	**$382,770**	**$420,708[3]**

[1] This is a 10-year schedule. However, the information in this schedule is not available for periods prior to fiscal year 2016–17. Years will be added to this schedule in future fiscal years until 10 years of information is available.

[2] An adjustment was made to the MPP Program's beginning net position in fiscal year 2017–18 due to the implementation of requirements from GASB Statement No. 75.

[3] The net OPEB liability for fiscal year 2016–17 does not include the $1.2 million reduction to the net position as a result of CalSTRS implementation of GASB Statement No. 75.

SCHEDULE OF NET OPEB LIABILITY OF EMPLOYERS

(Dollars in Thousands) **Schedule VI**

Medicare Premium Payment Program

Year Ended June 30[1]	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability of Employers (a - b)	Plan Fiduciary Net Position as a Percentage of Total OPEB Liability (b/a)
2018	$381,228	$(1,542)	$382,770	(0.40%)
2017	420,749	41	420,708	0.01%

[1]This is a 10-year schedule. However, the information in this schedule is not available for periods prior to fiscal year 2016–17. Years will be added to this schedule in future fiscal years until 10 years of information is available.

Other Supplementary Information

SCHEDULE OF ADMINISTRATIVE EXPENSES

(Dollars in Thousands) **Schedule VII**

	State Teachers' Retirement Plan	Pension2 403(b) Plan	Pension2 457(b) Plan	Medicare Premium Payment Program	Teachers' Deferred Compensation Fund	Totals
Personnel Services:						
Salaries and Wages	$68,697	$-	$-	$287	$473	$69,457
Staff Benefits	15,080	-	-	70	87	15,237
Accrued Pension and OPEB Expense	55,506	-	-	134	518	56,158
Total Personnel Services	**139,283**	**-**	**-**	**491**	**1,078**	**140,852**
Operating Expenses and Equipment:						
General	1,000	-	-	76	87	1,163
Depreciation/Amortization	8,681	-	-	-	-	8,681
Printing	737	-	-	-	-	737
Communications	972	-	-	-	-	972
Postage	836	-	-	-	-	836
Insurance	24	-	-	-	-	24
Travel	858	-	-	-	33	891
Training	1,197	-	-	-	-	1,197
Facilities Operations	8,943	-	-	-	-	8,943
Consultants and Professional Services	29,343	2,406	100	-	948	32,797
Information Technology	10,932	-	-	-	-	10,932
Indirect State Central Services	9,160	-	-	11	52	9,223
Equipment	4,079	-	-	-	-	4,079
Other	38	-	-	-	-	38
Total Operating Expenses and Equipment	**76,800**	**2,406**	**100**	**87**	**1,120**	**80,513**
Total	**$216,083**	**$2,406**	**$100**	**$578**	**$2,198**	**$221,365**

SCHEDULE OF INVESTMENT EXPENSES

(Dollars in Thousands) **Schedule VIII**

	Contract Start Date	Amount
Investment Management Fees		
Aberdeen Asset Management, Inc.	12/15/06	$1,929
Acadian Asset Management, LLC	2/1/18	269
AGF Investments America, Inc.	3/19/07	1,106
Analytic Investors, LLC	9/1/14	221
AQR Capital Management Holdings, LLC	12/1/14	21,122
Arrowstreet Capital, Ltd.	8/1/15	7,942
Baillie Gifford Overseas, Ltd.	1/15/06	8,316
Bivium Capital Partners, LLC	2/15/08	2,476
BlackRock Financial Management, Inc.	5/12/99	6,596
BlackRock Institutional Trust, N.A.	10/27/98	7,169
Chicago Equity Partners	11/1/98	50
Columbia Management Investment Advisers, LLC	10/1/11	1,232
Credit Suisse Asset Management, LLC	9/1/11	1,818
FDO Partners, LLC	1/1/10	1,743
Fidelity Institutional Asset Management Co.	2/1/00	2,721
First Quadrant, LP	11/1/98	748
FIS Group, Inc.	2/27/04	3,090
Gateway Investment Advisers, LLC	12/1/14	235
Generation Investment Management	3/19/07	13,377
Geneva Capital Management, LLC	5/1/16	265
JP Morgan Investment Management, Inc.	1/1/14	7,266
Lazard Asset Management, LLC	5/18/99	13,928
Leading Edge Investment Advisors, LLC	2/15/08	2,797
Lee Overlay Partners, Ltd.	10/15/09	3,121
LM Capital Group, LLC	10/30/06	810
Lyxor Asset Management, Inc.	8/1/16	8,799
Macquarie Investment Management	11/1/98	2,115
Millennium Global Investments, Ltd.	7/1/10	3,625
Mondrian Investment Partners, Ltd.	5/13/99	15,758
Oechsle International Advisors, LLC	5/19/99	1,434
Parametric Portfolio Associates, LLC	12/1/14	322
PIMCO	2/28/17	704
Post Advisory Group, LLC	1/31/02	1,409
Principal Global Investors, LLC	7/15/17	1,693
Progress Investment Management	2/15/08	3,312
Pzena Investment Management, LLC	7/1/15	3,773
Robeco Institutional Asset Management	2/1/18	325
Sasco Capital, Inc.	10/30/98	576
Schroder Investment Management	9/1/14	7,926
Silvercrest Asset Management	7/1/11	1,592
State Street Global Advisors Trust Company	12/1/00	7,093
Sterling Capital Management, LLC	3/11/04	1,415
T. Rowe Price Associates, Inc.	1/15/06	7,991
Templeton Asset Management, Ltd.	5/18/99	3,758

SCHEDULE OF INVESTMENT EXPENSES

(Dollars in Thousands) **Schedule VIII (continued)**

	Contract Start Date	Amount
Western Asset Management Co.	10/30/06	$3,469
Total Investment Management Fees		**187,436**
Advisors and Consultants		
Altus Group U.S., Inc.	7/1/15	812
Bard Consulting, LLC	9/20/07	1,031
Bickmore Risk Services and Consulting	12/1/16	88
Callan Associates	9/20/07	153
Cambridge Associates, LLC	5/31/14	2,835
Courtland Partners, Ltd.	9/20/07	223
Crosswater Realty Advisors, LLC	6/1/16	188
David L. Bonuccelli & Associates, Inc.	9/20/07	658
Ernst & Young U.S. LLP	1/1/16	281
Hamilton Lane Advisors, LLC	7/1/16	26
Lyxor Asset Management, Inc.	8/1/16	700
Meketa Investment Group, Inc.	1/1/12	1,479
Pavilion Alternatives Group, LLC	1/1/12	1,588
Pension Consulting Alliance, LLC	6/1/14	1,587
RCLCO Fund Advisors, LLC	1/15/18	79
The Townsend Group, Inc.	3/1/13	335
Valuation Research Corporation	8/1/01	218
Total Advisors and Consultants		**12,281**
External Services-Legal and Attorney Fees		
Berman DeValerio	4/19/11	150
BLA Schwartz, PC	11/1/13	1,159
Covington & Burling, LLP	4/20/11	19
Cox, Castle & Nicholson, LLP	11/30/09	3,710
Jackson Walker, LLP	7/30/15	197
Morgan, Lewis & Bockius, LLP	12/9/10	414
Proskauer, LLP	3/9/11	587
Reed Smith, LLP	7/1/15	193
Steptoe & Johnson, LLP	3/1/17	28
Miscellaneous	N/A	15
Total External Services-Legal and Attorney Fees		**6,472**
Master Custodian		
State Street Bank & Trust Co	7/1/01	3,088
Total Master Custodian		**3,088**
Research and Rating Services		
Accounting Research & Analytics, LLC	1/1/18	25
Activist Insight, Ltd.	9/1/17	16
CEM Benchmarking, Inc.	1/1/17	70
Cornerstone Macro, LP	1/1/18	70
CPR & CDR Alpha, LLC	3/1/18	60

(Dollars in Thousands) **Schedule VIII (continued)**

	Contract Start Date	Amount
Creditsights, Inc.	12/30/17	$26
Equilar, Inc.	7/1/17	45
eVestment Alliance, LLC	8/1/17	31
FactSet Research System, Inc.	7/1/16	715
Global Financial Data, Inc.	5/9/18	27
GNA Services, LLC	1/1/18	25
Hawking, LLC	7/1/17	16
ICE Benchmark Administration	7/1/17	16
Informa Investment Solutions	1/12/18	24
Institutional Shareholder Services	7/1/17	99
KDP Investment Advisors, Inc.	10/1/17	37
London Stock Exchange PLC	1/1/18	38
Management CV, Inc.	1/1/18	15
Mergermarket Limited US	1/28/17	13
Moody's Investors Service	1/1/17	475
MSCI ESG Research, Inc.	1/1/18	126
MSCI, Inc.	1/1/17	548
PEI Media, Ltd.	3/29/18	15
Real Estate Research Corporation	9/20/07	212
Russell Investment Group	7/1/17	298
Standard & Poor's	8/1/16	580
Strategas Securities, LLC	7/1/17	64
Sustainable Investments Institute	7/1/17	31
Sustainalytics U.S., Inc.	1/1/18	10
Technical Analysis Group, LLC	2/3/18	28
Thomson Reuters Markets, LLC	7/1/17	145
Trepp, LLC	7/1/17	60
Zeno Consulting Group, LLC	10/1/17	23
Miscellaneous	N/A	5
Total Research and Rating Services		**3,988**
Risk Management Systems		
Barclays Bank PLC	7/1/17	150
BlackRock Financial Management, Inc.	7/1/06	6,258
MSCI, Inc. d/b/a Barra, LLC	4/1/18	139
Total Risk Management Systems		**6,547**
Trading Systems		
Bloomberg, LP	7/1/16	979
Fixed Income Clearing Corp	7/1/16	12
Intex Solutions, Inc.	9/1/17	168
Market Axess Corporation	10/1/17	19
Markit N.America Inc. / Markit Group	10/14/17	40
Omgeo, LLC	7/1/16	25
Miscellaneous	N/A	11
Total Trading Systems		**1,254**

SCHEDULE OF INVESTMENT EXPENSES

(Dollars in Thousands) **Schedule VIII (continued)**

	Contract Start Date	Amount
Operating Expenses		
Administrative Costs		$48,683
Aon Risk Insurance		989
Council of Institutional Investors		30
Total Operating Expenses		**49,702**
Subtotal		**270,768**
Other Investment Expenses		
Broker Commissions		27,100
Foreign Tax Withheld		67,984
Real Estate		79
Miscellaneous		12,912
Total Other Investment Expenses		**108,075**
Total		**$378,843**

SCHEDULE OF CONSULTANT AND PROFESSIONAL SERVICES EXPENSES

(Dollars in Thousands) **Schedule IX**

Individual or Firm	Commission/Fee	Nature of Services
State Teachers' Retirement Plan		
Milliman, Inc.	$230	
Segal Consulting	91	
	321	**Actuarial Services**
Crowe LLP	2,676	
Grant Thornton, LLP	322	
KPMG, LLP	352	
Macias, Gini & O'Connell, LLP	182	
State Personnel Board	60	
	3,592	**Auditing Services**
Accuity, Inc.	82	
Acuity Technical Solutions	266	
Agile Global Solutions, Inc.	166	
Avante Solutions, Inc.	71	
Background Profiles, Inc.	11	
Bank of America Merrill Lynch, N.A.	13	
Business Advantage Consulting, Inc.	322	
CEB, Inc.	28	
CEM Benchmarking, Inc.	65	
CGI Technologies and Solutions, Inc.	14,974	
Cloud Services Integrators, Inc.	135	
Daniel J. Edelman, Inc.	166	
Deloitte Consulting, LLP	3,070	
Department of General Services	12	
Department Of Human Resources	49	
Digital Deployment, Inc.	65	
Employment Development Department	57	
Entisys 360, Inc.	183	
Estrada Consulting, Inc.	306	
Eventus Solutions Group, LLC	414	
Everyone Counts, Inc.	131	
ExamWorks, Inc.	63	
Forrester Research, Inc.	82	
Gartner, Inc.	272	
Global Governance Advisors, LLC	69	
GoldLink Pacific, Inc.	1,252	
Government Operations Agency	215	
Grant Thornton, LLP	855	
Hogan Lovells US, LLP	240	
Infinite Solutions, Inc.	152	
InfoCap Networks, LLC	122	
Infojini, Inc.	127	
Integrated Consulting and Management	15	
IntelliSurvey	43	

SCHEDULE OF CONSULTANT AND PROFESSIONAL SERVICES EXPENSES

(Dollars in Thousands) **Schedule IX (continued)**

Individual or Firm	Commission/Fee	Nature of Services
International Network Consulting	$384	
Jaykumar Maistry	169	
Jayson Carpenter Photography	10	
LexisNexis	24	
Linea Solutions, Inc.	850	
Macias, Gini & O'Connell, LLP	78	
Mailing Systems, Inc.	46	
MaritzCX Research, LLC	25	
Matthew Bender & Company, Inc.	17	
Maximus Human Services, Inc.	1,511	
McLagan Partners, Inc.	14	
Menlo Technologies, Inc.	67	
Meridian Wealth Management	26	
MG Systems and Software, LLC	380	
Montridge Consulting	162	
Mosaic Governance Advisors, LLC	153	
National Disability Evaluations, Inc.	39	
NTT DATA, Inc.	4,608	
O.C. Tanner Recognition Company	40	
Oak Technical Services, LLC	369	
OnCore Consulting, LLC	376	
Pension Benefit Information, LLC	139	
Performance Technology Partners, LLC	95	
Pinnacle Consulting	229	
Providence Technology Group	638	
R Systems, Inc.	160	
Radian Solutions, LLC	51	
Ridge Capital, Inc.	1,166	
Robert J. Yetman	48	
SAP Public Services, Inc.	821	
Sierra Metrics, Inc.	140	
Signal Perfection, Ltd.	15	
Solutions Simplified	57	
State Controller's Office	1,815	
State Personnel Board	76	
SupportFocus, Inc.	327	
Technology Management Solutions	71	
The Highlands Consulting Group, LLC	121	
Thomas V. Ennis Consulting	184	
Thomas/Ferrous, Inc.	83	
University Enterprises, Inc.	219	
Vasquez & Company, LLP	76	
Vector Consulting, Inc.	58	
Verizon Business Network Services	158	
Visionary Integration Professionals	1,600	
	41,788	**Consulting Services**

SCHEDULE OF CONSULTANT AND PROFESSIONAL SERVICES EXPENSES

(Dollars in Thousands) **Schedule IX (continued)**

Individual or Firm	Commission/Fee	Nature of Services
Department of General Services	$18	
Klinedinst, PC	95	
Murphy Austin Adams Schoenfeld, LLP	14	
Olson, Hagel & Fishburn, LLP	80	
Pillsbury Winthrop Shaw Pittman, LLP	105	
Reed Smith, LLP	278	
Shaw Law Group, PC	52	
Sheppard Mullin Richter & Hampton	471	
Steptoe & Johnson, LLP	123	
	1,236	**Legal Services**
Fresno County Office of Education	385	
Humboldt County Office of Education	50	
Kern County Office of Education	179	
Placer County Office of Education	14	
Santa Barbara County Office of Education	214	
Santa Cruz County Office of Education	141	
	983	**Regional Counseling Services**
Others	80	
	80	**Vaious Services Under $10K**
Gross Consulting and Professional Services	**48,000**	
Less: Amounts Capitalized	18,657	
Consulting and Professional Services Net of Amounts Capitalized	**$29,343**	
Pension2 – IRC 403(b) Plan		
TIAA	21	
Voya Institutional Plan	2,385	
Consulting and Professional Services	**$2,406**	**Administrative Services**
Pension2 – IRC 457(b) Plan		
TIAA	1	
Voya Institutional Plan	99	
Consulting and Professional Services	**$100**	**Administrative Services**
Teachers' Deferred Compensation Fund		
Jem Resource Partners, LP	510	
Meridian Wealth Management	79	
MG Systems and Software, LLC	123	
Morningstar, Inc.	75	
OnCore Consulting, LLC	161	
	$948	**Consulting Services**

INVESTMENTS

The CalSTRS Investment Portfolio generated **9.0 percent absolute return** net of manager fees on its investments for the fiscal year ending June 30, 2018.

Investments

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PCA PENSION CONSULTING ALLIANCE

The CalSTRS Investment Portfolio produced a strong positive absolute return over the latest fiscal year, besting its benchmark return and the median fund return. The portfolio increased by $15.1 billion over the past 12 months, ending with a value of $223.8 billion on June 30, 2018, despite significant net cash outflows during the year. As highlighted below, the CalSTRS portfolio is broadly diversified, holding investments ranging from publicly traded short-term bonds to privately held partnerships. Clearly, the scale and breadth of investments make the management and oversight of these assets highly complex. In light of these factors, CalSTRS has been effective in utilizing its resources in a cost-efficient manner to ensure that benefits continue to flow to CalSTRS participants.

Investment Allocation

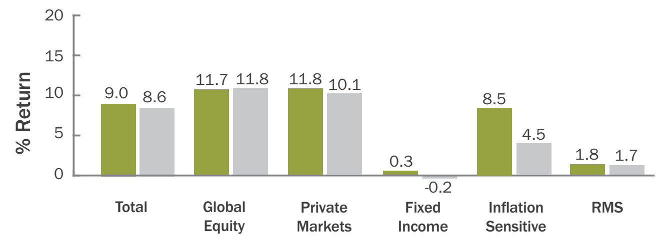
The Teachers' Retirement Board adopts long-term strategic allocation targets to be implemented over several years. The fiscal year-end report reflects strategic allocation guidelines for the 2017-18 fiscal year as adopted by the Board. As of year-end, the portfolio's actual allocation was slightly different from policy (see table below). As of June 30, 2018, the Real Estate class was slightly overweighted, while Fixed Income and Cash were slightly underweighted. All of these classes were, however, within policy ranges. Moreover, the remaining classes were in-line with policy.

Asset Allocation as of June 30, 2018

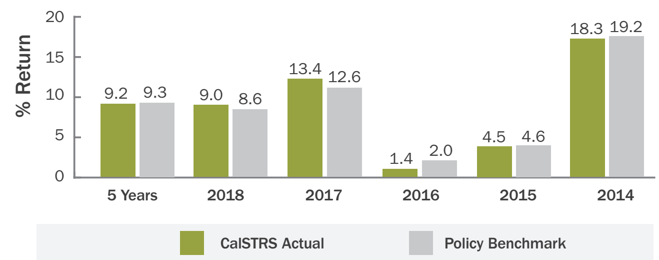
	CalSTRS Policy	CalSTRS Actual*
Cash	2%	1%
Global Equity	54%	54%
Private Equity	8%	8%
Real Estate	12%	13%
Fixed Income	13%	12%
Inflation Sensitive	2%	2%
Risk Mitigating Strategies (RMS)	9%	9%

*Additional assets (<1%) held in the *Innovative Strategies* and *Strategic Overlay* classes
Note: Allocations may not sum to 100% due to rounding

Last 12 Months Ending June 30 (Net of Mgr Fees)



Periods Ending June 30 (Net of Mgr Fees)



Investment Results (Net of Manager Fees)

Over the last year, the CalSTRS portfolio produced an absolute return of 9.0 percent (net of manager fees), ranking in the second quartile among its large public pension fund peers[1]. During this period, the CalSTRS portfolio results bested the policy benchmark[2] return by 40 basis points (top bar chart). Relative outperformance was primarily driven by the Private Markets, Fixed Income, and Inflation Sensitive classes.

During the last three years, the CalSTRS portfolio generated a 7.8 percent average annual return (net of manager fees), ranking in the first quartile among peer funds. Over the last five years, the CalSTRS portfolio produced an average annual return of 9.2 percent, trailing its policy benchmark by 10 basis points per year (bottom bar chart) but ranking in the first quartile among peers. Due in large part to the benchmark not fully reflecting the opportunity set, the Private Equity strategic class was the primary contributor to the relative underperformance versus the benchmark over this period. Overall, these total portfolio results outpaced the CalSTRS actuarial rate of return. Previous fiscal year periods are presented here as well. The CalSTRS Investment Portfolio outperformed its policy benchmark (net of manager fees) in two of the last five fiscal years[3].

Pension Consulting Alliance, LLC

[1] Per State Street Universe of Master Trust Public Funds with assets in excess of $10 billion.

[2] The policy benchmark consists of passively managed strategic class portfolios weighted by CalSTRS policy allocations. The difference between actual results and the benchmark are due to two factors: i) deviations from policy, and ii) active decisions on the part of CalSTRS and its investment managers.

[3] CalSTRS investment performance is calculated using a daily time-weighted return geometrically linked to calculate a monthly return. Periods longer than one month are geometrically linked to calculate annualized "time-weighted" rates of return.

MEKETA INVESTMENT GROUP

BOSTON MA
CHICAGO IL
MIAMI FL
PORTLAND OR
SAN DIEGO CA
LONDON UK

2018 CalSTRS Investment Review

During the fiscal year ending June 30, 2018, the value of CalSTRS' investments increased from $208.7 billion to $223.8 billion. A positive investment return of 9.0% (net of fees) more than offset the cash outflows to pay for benefits in excess of contributions. We highlight below the portfolio allocation, performance, and investment attribution. The investment portfolio remains well diversified by asset type and geography, in a mix of private and public investments in the United States and abroad.

Asset Allocation

During fiscal year 2017-18, the Teachers' Retirement staff continued to spend time moving assets systematically toward the new Asset Allocation Policy that was adopted during the previous fiscal year, specifically within the RMS portfolio.

Most asset class allocations were very close to targets at fiscal year-end, with 54% of assets in Global Equity, 12% in Fixed Income, 8% in Private Equity, 13% in Real Estate, 9% in Risk Mitigating Strategies, 1% in Cash, 2% in Inflation Sensitive, and well under 1% in Innovative Strategies.

Investment Performance and 2018 Fiscal Year Market Environment Overview

The fiscal year was largely a story of two environments. In 2017, we saw synchronized global growth, low volatility, tax cuts in the U.S. at year-end, and a weak U.S. dollar. During the last two quarters of 2017 most asset classes were up, particularly riskier ones. Emerging markets lead the way in Q3 (+7.9%[1]) and Q4 (+7.4%[1]). U.S. and international equities also posted strong returns over both quarters, while fixed income assets were modestly up.

The trends of 2017 persisted into early 2018, but the environment quickly changed. In 2018, we have seen volatility increase from its very low levels, interest rates and inflation rise, the U.S. dollar rebound, and trade tensions between the U.S. and others heat-up. In this environment, U.S. equities were one of the few asset classes to produce positive returns, while international equities and most fixed income asset classes fell. High yield bonds did post a modest gain (+0.2%[2]) in the first two quarters of 2018.

The net result of the two environments on the fiscal year returns ending June 2018 was that equities increased, particularly in the U.S, while in fixed income TIPS and high yield bonds posted relatively modest returns and the broad U.S. bond market slightly declined. Emerging market bonds fell.

For the fiscal year, U.S. equities, as represented by the Russell 3000, rose +14.8%. The trend of U.S. growth stocks outperforming value stocks persisted, and small capitalization stocks (+17.6%) outperformed large capitalization (+14.5%) and mid-capitalization (+12.3%) stocks. The MSCI EAFE, representing foreign developed markets, grew at less than half the rate of U.S. equities, up +6.8%. Emerging market equities' strong returns in 2017 were balanced by an 8.0% decline in the second quarter of 2018, as a stronger dollar and trade tensions weighed on results. The MSCI Emerging Markets Equity index gained +8.2% for the full fiscal year.

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1 MSCI Emerging Markets Index.
2 Barclays High Yield.

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Within fixed income, positive returns in the final two quarters of 2017 moved to concerns over rising interest rates and inflation, creating headwinds in 2018. In the U.S., the Federal Reserve increased interest rates for the seventh time in June to a range of 1.75% to 2.00%, and continued to reduce its balance sheet. The rate increases contributed to the flattening of the U.S. yield curve during the fiscal year. Over the trailing year, TIPS (+2.1%) and high yield bonds (+2.6%) increased, while the broad U.S. bond market, represented by the Barclays Aggregate Index, fell 0.4%. Similar to emerging market equities, returns for emerging market bonds in the second quarter of 2018 weighed on the fiscal year results. In this case, more dramatically as the 10.4% decline in the second quarter for emerging market bonds (as represented by JPM GBI-EM Global Diversified – Local Currency) led to a -2.3% return for the trailing year.

Within other asset classes, natural resource stocks (S&P Global Natural Resources Index) rose +24.8% commodities (Bloomberg Commodity Index) gained +7.4%, and REITS (MSCI U.S. REIT Index) gained +3.6%. Oil prices finished the fiscal year at over $60/barrel, representing a dramatic increase from their recent lows. Cuts from OPEC and strong growth globally contributed to the rise in oil prices.

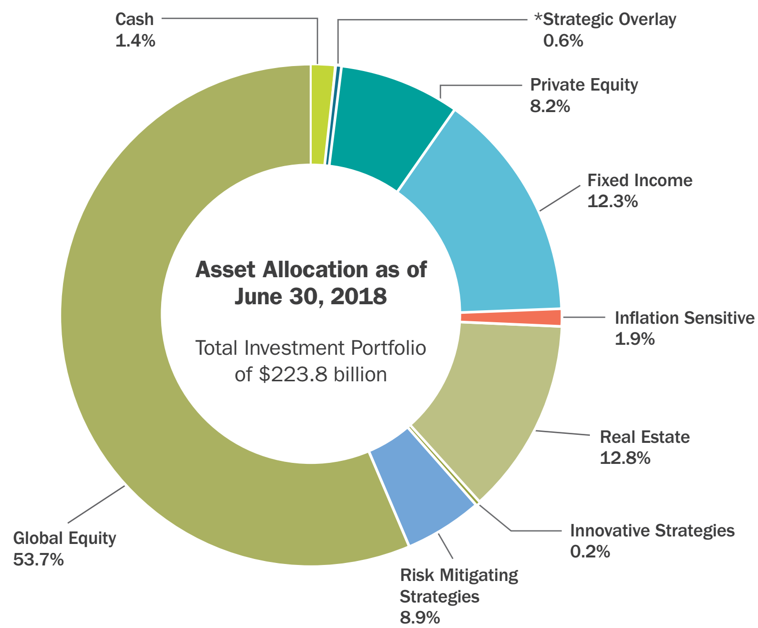
Sincerely,

Stephen P. McCourt, CFA
Managing Principal

INVESTMENTS

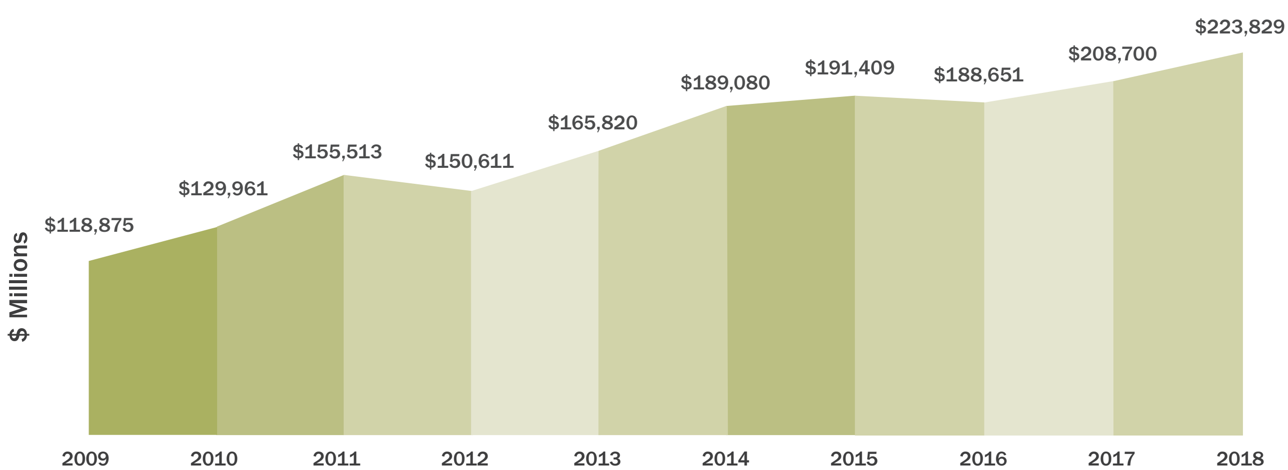
Investment values and the related returns for the CalSTRS Investment Portfolio (Total Fund) are presented differently within the Investments and Financial sections of the CAFR for various reasons; therefore, the reader needs to understand the methodology presented in each section. In the following pages, news releases and on CalSTRS website, the investment values and related returns are presented using common investment industry practices that reflect the way in which CalSTRS manages its investment portfolio. The presentation based on investment industry practices provides timely information that is easily compared to benchmarks and peer results.

Within the Financial Section, the same information is reported in accordance with U.S. Generally Accepted Accounting Principles. The primary difference between the presentations is the categorization of the investments. Additional differences result from the timing of recognition of performance for certain investments in the portfolio. In accordance with investment industry practices, private asset performance is reported with a quarter lag; for financial reporting purposes, adjustments are made to bring results current. Both sets of numbers are relevant but reflect different methodologies and serve different purposes.



*Strategic Overlay consists of the Currency Management Program and Derivative Overlay.

Table 1 Market Value of Investments (Fiscal years ended June 30)



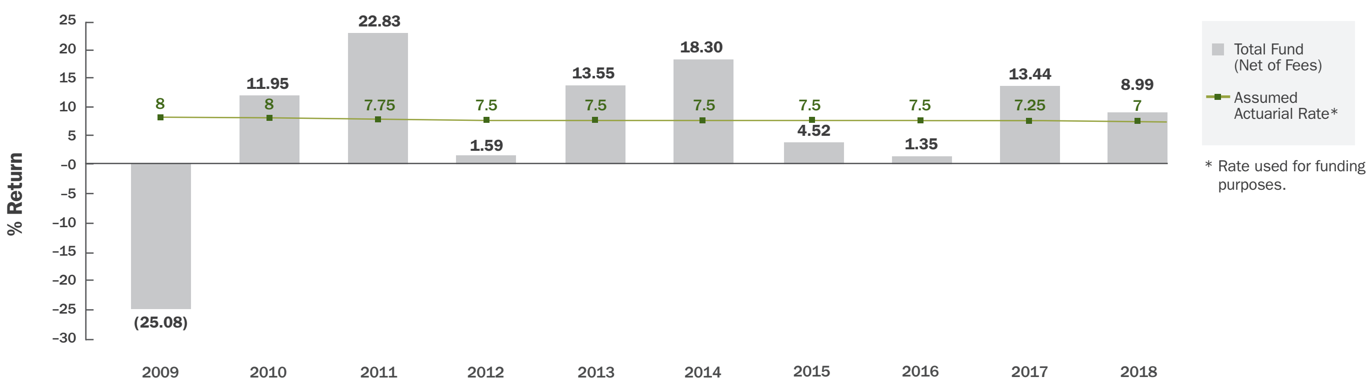
INVESTMENTS

Performance information in this section is reported net of fees and is calculated using a time-weighted return methodology. Also, the investment information on the CalSTRS website is reported consistent with investment industry standards and is comparable to the global financial markets and other pension plans and institutional investors. For more information, see CalSTRS.com.

CalSTRS Investment Portfolio performed above standards due to a very strong second half of the fiscal year and shifts to a more global portfolio. In the 2017–18 fiscal year, CalSTRS generated 8.99 percent return net of fees, well above the 7.00 percent actuarial rate of return for funding purposes, above the policy benchmark of 8.65 percent, and near the top of all public pension plans in the U.S.; however, one year is a very short time period when you have a 30-year investment horizon. As a long-term investor it is much more meaningful to review the CalSTRS investment performance over longer time periods. At June 30, 2018, the investment portfolio generated 7.81 percent return net of fees over the past three years, 9.15 percent over the last five years and 6.50 over the past 20 years. Compared to other U.S. public pensions plans, CalSTRS investment returns ranked in the top quartile over three and five years ending June 30, 2018.

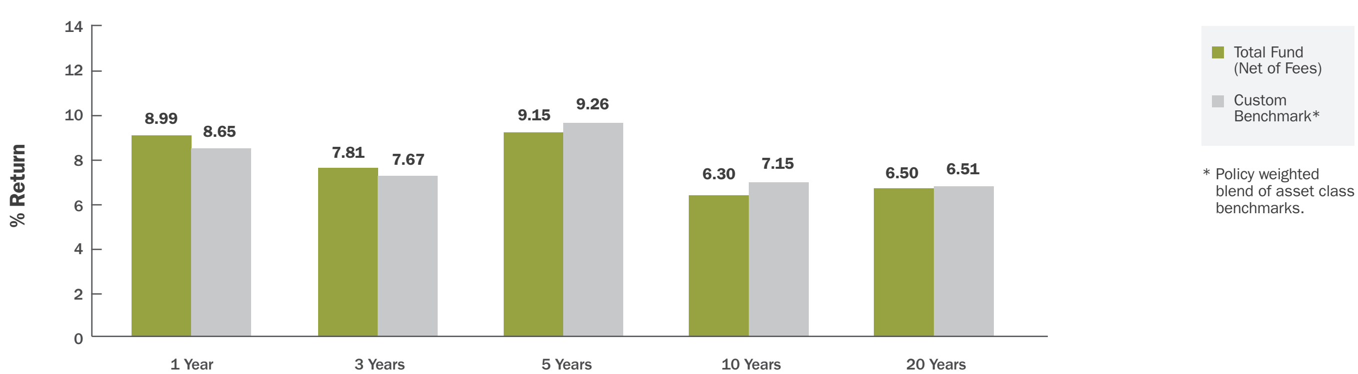
While this annual report provides a significant amount of information regarding the CalSTRS Investment Portfolio, it only represents one point in time: June 30, 2018. It is difficult to compare this time measurement to the movement and complexity of the investment portfolio in this highly dynamic global financial market. For more current investment information, as well as videos detailing key aspects of the investment portfolio, see CalSTRS.com.

Table 2 10 Years of Time-Weighted Annual Returns (Fiscal years ended June 30)



* Rate used for funding purposes.

Table 3 Time-Weighted Returns (as of June 30, 2018)



* Policy weighted blend of asset class benchmarks.

Table 4 Time-Weighted Returns Net of Fees by Portfolio Types (as of June 30, 2018)

Portfolio Type/Associated Index[1]	1 Yr	3 Yr	5 Yr	10 Yr
Global Equity	**11.67**	**9.24**	**10.84**	**7.60**
Global Equity Custom Index[2]	11.83	9.21	10.76	7.57
U.S. Equity	**15.42**	**11.63**	**13.39**	**10.12**
Russell 3000 Custom Index	15.30	11.60	13.33	10.17
Non-U.S. Equity	**8.19**	**5.93**	**6.63**	**3.05**
MSCI All Country World Index ex-U.S. Custom Investable Market Index	7.98	5.27	6.12	2.53
Fixed Income	**0.26**	**2.36**	**2.97**	**4.47**
U.S. Debt Custom Index[3]	(0.24)	1.91	2.43	3.96
Real Estate	**10.50**	**9.90**	**10.77**	**1.50**
Real Estate Custom Index[4]	7.11	9.00	10.42	6.29
Private Equity	**13.82**	**11.12**	**12.35**	**8.82**
Private Equity Custom Index[5]	14.66	10.50	12.97	11.28
Inflation Sensitive	**8.51**	**7.24**	**5.37**	**—**
Inflation Sensitive Custom Index[6]	4.50	4.50	4.47	—
Risk Mitigating Strategies[7]	**1.78**	**(2.92)**	**0.19**	**—**
Risk Mitigating Strategies Custom Index[8]	1.71	(2.55)	(0.94)	—
Innovative Strategies[9]	**11.44**	**5.77**	**3.64**	**—**
Innovative Strategies Custom Index[10]	6.51	6.30	4.17	—
Cash/Liquidity[11]	**1.61**	**1.25**	**0.93**	**0.20**
Bloomberg Barclays Capital 3-Month Treasury Bill	1.37	0.69	0.44	0.38

CalSTRS' investment performance is calculated using a daily time-weighted return geometrically linked to calculate a monthly return. Periods longer than one month are geometrically linked to calculate annualized 'time-weighted' rates of return. Custom public indices are updated quarterly in accordance with CalSTRS restricted securities list. Exclusions include tobacco, illegal California firearms, geopolitical and thermal coal companies.

[1] Index benchmarks are as of June 30, 2018 and are subject to be updated based on changes within the portfolio policies. For additional information on benchmarks, please refer to the respective investment policies at CalSTRS.com.

[2] Custom weighted blend of MSCI All Country World Index ex-U.S. Investable Market and Russell 3000 custom indices.

[3] 95% Bloomberg Barclays U.S. Aggregate + 5% Bloomberg Barclays U.S. High Yield 2% Issuer Capped custom indices.

[4] NCREIF ODCE Value Weighted Index net of fees qtr lag. Previously NCREIF Property Index qtr lag through June 2013.

[5] Weighted blend of the underlying sub-asset components. Previously, Russell 3000 Custom Index qtr lag + 3% from July 2008 through June 2014.

[6] Weighted blend of Bloomberg Barclays Global Inflation Linked Series L Index, Alerian MLP Daily Index and CPI+4% qtr lag. Previously, a weighted blend of Bloomberg Barclays Global Inflation Linked Series L Index and CPI+4% qtr lag from July 2014 to April 2016. Prior to July 2014, weighted blend of Bloomberg Barclays Global Inflation Linked Series L Index and CPI+5% qtr lag.

[7] New asset class approved by the board in November 2015 and established in July 2016. Prior to July 2016, the assets in this program were part of Absolute Return.

[8] Weighted blend of Bloomberg Barclays U.S. Treasury 20+year Total Return Index, SG Trend Index, HFRI Macro: Discretionary Thematic Index and the Eurekahedge MF Risk Premia Index.

[9] Prior to July 2016, this investment strategy was part of Absolute Return. Returns prior to the restructure reflects the historical Absolute Return performance.

[10] Weighted blend of 60% MSCI EAFE + Canada/ 40% BarCap U.S. blended and Bloomberg Barclays Capital 3-Month Treasury Bill. Previously, a weighted blend of 60% MSCI EAFE + Canada/ 40% BarCap U.S. blended, Custom Tactical index and Bloomberg Barclays Capital 3-Month Treasury Bill from July 2016 to December 2016. Returns prior to July 2016 reflects Absolute Return historical performance.

[11] Includes the Securities Lending Program loss incurred in FY 2008-2009 and subsequent income earned through December 2013.

Global Equity

For the fiscal year ending June 30, 2018, the $120.3 billion Global Equity Portfolio represented 53.7 percent of the Total Fund. Approximately half of the portfolio's assets are internally managed in passively implemented index strategies, and the remaining assets are managed by external investment managers. As of June 30, 2018, the portfolio had 54 percent of its assets in U.S. equity and 46 percent in non-U.S. equity.

As shown on Table 4, the Global Equity Portfolio generated 11.67 percent one year return net of fees, trailing its policy benchmark by 16 basis points. The relative underperformance was attributable to the portfolio's exposure to governance funds whose deep value strategies struggled to keep up in a market environment that primarily rewarded growth-oriented stocks.

Table 5 lists the largest public equity holdings as of June 30, 2018, which represents 9.3 percent of the Global Equity Portfolio.

For more information about the Global Equity Portfolio, please refer to the Investments section at CalSTRS.com.

Table 5 Largest Public Equity Holdings (as of June 30, 2018)
(CalSTRS maintains a complete list of portfolio holdings)

Security Name	Shares	Market Value
APPLE INC	10,134,316	$1,875,963,235
MICROSOFT CORP	16,671,931	1,644,019,116
AMAZON.COM INC	905,740	1,539,576,852
ALPHABET INC	1,289,303	1,447,195,197
FACEBOOK INC A	5,165,665	1,003,792,023
JOHNSON + JOHNSON	6,428,737	780,062,948
EXXON MOBIL CORP	9,256,525	765,792,313
BERKSHIRE HATHAWAY INC CL B	4,063,074	758,372,762
JPMORGAN CHASE + CO	7,057,703	735,412,653
SAMSUNG ELECTRONICS CO LTD	15,024,733	628,895,284

Corporate Governance

For the fiscal year ending June 30, 2018, the Corporate Governance Portfolio had approximately $6.0 billion of assets under management, which include the governance and sustainability funds and low carbon index within the Global Equity Portfolio. The governance funds invest in companies with poor governance structures and engage management to improve governance and enhance long-term shareholder value. The sustainability funds integrate environmental, social and governance (ESG) factors into their long-term investment strategy to deliver market outperformance. Lastly, the low carbon index strategies managed internally focus on an index designed to have significantly lower exposures to carbon emissions and to fossil fuel reserves than the broad market. The Corporate Governance Portfolio had a one year return net of fees of 9.62 percent.

CalSTRS believes voting proxies is an important fundamental shareholder right, and staff always exercises our rights in a manner consistent with the interests of our beneficiaries, California public school teachers. We believe we can use our proxy votes to affect necessary changes designed to enhance the company's long-term value. Over the course of each year, CalSTRS votes approximately 8,000 proxies, with more than half of them being voted during U.S. proxy season, which occurs in the months of April, May and June.

When voting proxies, CalSTRS follows our Corporate Governance Principles, which can be found at CalSTRS.com. These principles, which serve as guidelines for our proxy voting, consider best corporate governance practices on topics such as the board of directors, auditors, executive and director compensation, compensation plans and governance structure.

During fiscal year 2017–18, CalSTRS voted on 83,828 proposals at 8,613 meetings held by companies in our Global Equity Portfolio, which represented 5.0 percent increase from the 79,782 proposals voted in the prior fiscal year. These meetings resulted in CalSTRS voting on proposals covering a variety of topics, including director elections, auditor ratifications, advisory votes on executive compensation, compensation plans, mergers and acquisitions, and shareholder proposals. For additional information on shareholder voting, please refer to the Corporate Governance Annual Report available at CalSTRS.com.

CalSTRS believes the overall market continues to demonstrate improved governance with many large companies reflecting governance best practices. These companies are also engaging shareholders on various issues, including executive compensation, board composition, and ESG concerns during the proxy off-season. However, there are some companies that continue to demonstrate suboptimal governance and, because of this, CalSTRS will continue to use our proxy votes to enhance their long-term shareholder value.

For additional information on the Corporate Governance program, please refer to the Corporate Governance section at CalSTRS.com.

Fixed Income

For the fiscal year ending June 30, 2018, the Fixed Income Portfolio had total assets of $27.5 billion representing 12.3 percent of the Total Fund. The Fixed Income Unit operates a hybrid model portfolio that takes advantage of the benefits and efficiencies of both internal and external asset management. Eighty-four percent of the portfolio's assets are managed by internal staff using enhanced core and high yield strategies with a moderate level of risk. The remaining 16 percent is managed by external managers using broader opportunistic strategies which assume a higher level of risk and therefore a higher level of expected return.

As shown on Table 4, the Fixed Income Portfolio generated 0.26 percent one year return net of fees, outperforming its benchmark by 50 basis points. The three, five and 10 year net returns were positive and have outperformed the benchmark by 45, 54 and 51 basis points, respectively. The portfolios overweight to credit, both investment grade and high yield, accounted for much of the outperformance.

Table 6 lists the largest fixed income holdings as of June 30, 2018, which represents 9.9 percent of the Fixed Income Portfolio.

The Fixed Income Unit manages two additional programs: Securities Lending and Currency Management discussed in the next two sections. For more information about the Fixed Income Portfolio, refer to the Investments section at CalSTRS.com.

Table 6 Largest Fixed Income Holdings (as of June 30, 2018)
(CalSTRS maintains a complete list of portfolio holdings)

Security Name	Maturity Date	Interest Rate	Par Value	Market Value
US TREASURY N/B	6/15/20	1.500%	$340,000,000	$333,346,197
US TREASURY N/B	5/15/21	2.625	305,000,000	305,057,965
US TREASURY N/B	11/30/24	2.125	300,000,000	288,095,994
US TREASURY N/B	2/28/21	1.125	295,000,000	283,854,900
US TREASURY N/B	2/15/47	3.000	278,250,000	279,229,454
US TREASURY N/B	12/31/23	2.250	270,000,000	262,890,892
US TREASURY N/B	5/15/44	3.375	245,000,000	262,382,752
US TREASURY N/B	5/15/47	3.000	245,520,000	246,261,475
US TREASURY N/B	3/31/24	2.125	246,363,500	237,829,476
US TREASURY N/B	1/31/19	1.125	235,000,000	233,538,295

Securities Lending Program

The Securities Lending Program is a low-risk strategy that allows the fund to use its existing asset base and lending expertise to generate additional income. For the fiscal year ended June 30, 2018, the Securities Lending Program earned approximately $98.1 million in additional net income for the fund, which was an increase of just under a million dollars over the previous year. The increase in earnings is attributed to several factors: increased utilization of U.S. treasuries over the past year, increased balances from rising equity markets and a generally improving fixed income intrinsic rate over the year. For additional information on the Securities Lending Program, refer to the Investments section at CalSTRS.com.

Currency Management Program

The Currency Management Program is designed to address the global nature of all the fund's assets and attempts to add value on a fund-wide basis. The currency markets are some of the most liquid and volatile markets CalSTRS operates within. The internally managed core strategy underperformed by 1.6 basis points for the year ending June 30, 2018, while the opportunistic external strategy underperformed by over 59 basis points for the same period. For the internally managed portion, returns were roughly flat as currency valuations were left largely unchanged on the year. For the externally managed program, some of the detracted performance can be attributed to an overall underperformance of carry and commodity currencies, in which the managers were generally long on those currencies. Since inception, the Currency Management Program has outperformed its benchmark by nearly 45 basis points on an annualized basis.

Home Loan Program

The CalSTRS Home Loan Program was established by legislation in 1984 and provided home ownership to qualified participants, which attributed to CalSTRS' investment mortgage asset objectives. New home loan origination activity was suspended by the board on October 1, 2011. Staff continues to manage the existing assets of $58.5 million for the fiscal year ending June 30, 2018, within the Fixed Income Portfolio.

Private Equity

The Private Equity Portfolio ended the June 30, 2018, fiscal year with a market value of $18.3 billion or 8.2 percent of the Total Fund. The portfolio consists primarily of investments in limited partnerships, which accounts for 93.1 percent of the allocation with the remaining assets consisting of co-investments.

As shown in Table 4, the Private Equity Portfolio generated 13.82 percent one-year return net of fees and 11.12 percent three-year return net of fees, underperforming its policy benchmark by 84 basis points and outperforming by 62 basis points, respectively. The portfolio has underperformed its benchmark for the five-year and 10-year periods, primarily due to the reasons described in the following paragraph.

Private Equity is difficult to benchmark; the CalSTRS Private Equity Portfolio benchmark has changed twice over the past decade. Regarding the longer term performance metrics, the benchmark for these periods includes a large component linked to public equity market performance plus a spread. Given the abnormally strong performance of public equity markets in the wake of the global financial crisis of 2008, it is neither surprising nor atypical that the CalSTRS Private Equity Portfolio is underperforming such a benchmark. Regarding the short-term performance metrics, the Private Equity Portfolio has substantially increased its investment pace over the past two years and therefore J-curve affects are influencing performance.

For current information on the CalSTRS Private Equity Portfolio, please refer to the Investments section at CalSTRS.com.

Real Estate

The Real Estate Portfolio ended fiscal year 2017–18 with a market value of $28.7 billion or 12.8 percent of the Total Fund. Over the last several years, staff has emphasized an increase in joint ventures, separate accounts and open ended funds in order to increase internal management control and lower fees. As of June 30, 2018, these strategies combined made up 82.4 percent of the Real Estate Portfolio. In addition, staff has emphasized an increase in investments in core and value-add strategies. The core strategy has reached its policy target of 60 percent.

Real Estate is a long-term asset with performance results influenced by various factors. As shown on Table 4, the Real Estate Portfolio generated 10.50 percent one-year return net of fees outperforming its policy benchmark by 339 basis points. The 10-year underperformance is due to a historical over weight in pre-crisis higher risk strategies. The bulk of those investments have been liquidated. Staff is focused on increasing investments in higher control vehicles with low to moderate leverage and risk. Investments that staff has recommended since the global financial crisis of 2008 have outperformed the benchmark in all time periods.

For current information on the CalSTRS Real Estate Portfolio, please refer to the Investments section at CalSTRS.com.

Inflation Sensitive

For the fiscal year ending June 30, 2018, the $4.2 billion Inflation Sensitive Portfolio represented 1.9 percent of the Total Fund. The Inflation Sensitive Portfolio invests in strategies that include infrastructure, commodities, U.S. treasury inflation protected securities, timberland and agriculture. The long-term allocation target, as set by the board in April 2016, for the Inflation Sensitive Portfolio is 4 percent of the Total Fund.

For the fiscal year ending June 30, 2018, the Inflation Sensitive Portfolio generated an 8.51 percent one–year return net of fees, outperforming its policy benchmark return of 4.50 percent by 401 basis points. The outperformance can be attributed to the continued execution of the infrastructure strategy, which includes investments across a variety of risk characteristics which provide essential services in businesses with high barriers to entry. Also, this strategy has begun to enter a more mature phase and is beginning to achieve greater cash flow potential.

The infrastructure strategy returned a net 12.1 percent, beating its benchmark by 629 basis points. The commodities strategy returned a net 7.8 percent, beating its benchmark by 196 basis points. The U.S. treasury inflation protected securities strategy had a net return of 2.2 percent, besting its benchmark by 38 basis points. The timberland and agriculture strategies had less than one year of performance since inception and are in their development stage. Over the previous three-years, the Inflation Sensitive Portfolio outperformed its benchmark by 274 basis points.

For more information about the Inflation Sensitive Portfolio, refer to the Investments section at CalSTRS.com.

Risk Mitigating Strategies

For the fiscal year ending June 30, 2018, the Risk Mitigating Strategies (RMS) Portfolio had total assets of $20.0 billion representing 8.9 percent of the Total Fund. The RMS Portfolio was established on July 1, 2016, with a long-term target allocation of 9.0 percent of the Total Fund. Prior to this, the assets in this program were part of the Absolute Return Portfolio. The RMS Portfolio invests in strategies that further diversify CalSTRS' overall investment portfolio and primarily its significant equity exposure. These strategies include trend following, long-duration U.S. Treasuries, global macro and systematic risk premia. Rather than focusing on achieving a specific return objective, the RMS Portfolio is expected to help the Total Fund achieve its return objective by protecting capital during extended equity downturns or volatile periods.

The RMS portfolio generated a positive 1.78 percent one- year return net of fees for the fiscal year ending June 30, 2018, slightly outperforming its policy benchmark by 7 basis points. The outperformance is due to strong positive relative performance from global macro and a slight positive relative contribution from long-duration U.S. Treasuries. This was almost fully offset by negative relative performance from trend following. The long-term returns for the RMS portfolio are expected to be positive and exhibit low correlation to equity markets.

For more information about the RMS Portfolio, refer to the Investments section at CalSTRS.com.

Innovative Strategies

For the fiscal year ending June 30, 2018, the $483.1 million Innovative Strategies Portfolio represented 0.2 percent of the Total Fund. The objective of this portfolio is to help mitigate the Total Fund's dependency on economic growth and low inflation to meet long-term expectations. This is achieved by incubating and graduating new strategies expected to diversify the risk of the Total Fund while providing attractive real returns over a market cycle. The framework will help improve CalSTRS' investment process and provide tools to mitigate the impact of a severe macroeconomic or market event. As shown on Table 4, for the fiscal year ending June 30, 2018, the Innovative Strategies Portfolio generated 11.44 percent one-year return net of fees outperforming its policy benchmark of 6.51 percent. With the graduation of RMS into its own asset class in July 2016, returns longer than one year reflects the historical Absolute Return Portfolio performance. For more information about the Innovative Strategies Portfolio, refer to the Investments section at CalSTRS.com.

INVESTMENTS

Table 7 represents the investment summary by portfolio type and the comparative totals between current and prior year.

Table 7 Investment Summary for the Current and Previous Fiscal Year
(Dollars in Millions)

	June 30, 2017		June 30, 2018			
Portfolio Type	**Book Value**	**Net Asset Value**	**Book Value**	**Net Asset Value**	**% of Net Asset Value**	**Net Value Change**
Global Equity	$91,730	$117,746	$92,286	$120,282	53.7%	$2,536
Fixed Income	30,818	30,725	28,612	27,495	12.3	(3,230)
Private Equity	19,558	16,911	21,338	18,316	8.2	1,405
Real Estate	27,056	26,230	28,956	28,733	12.8	2,503
Inflation Sensitive	2,615	2,760	3,876	4,178	1.9	1,418
Risk Mitigating Strategies	11,697	10,657	20,576	19,990	8.9	9,333
Innovative Strategies	317	413	348	483	0.2	70
Strategic Overlay	301	200	918	1,288	0.6	1,088
Cash	3,054	3,058	3,057	3,064	1.4	6
PORTFOLIO TOTAL	**$187,146**	**$208,700**	**$199,967**	**$223,829**	**100%**	**$15,129**
Adjustments:						
Securities Lending Collateral		18,191		21,932		
Accruals		2,387		1,622		
Cash & Cash Equivalent		(459)		(153)		
STRP PLAN ASSETS-INVESTMENTS		**$228,819**		**$247,230**		

Table 8 summarizes the investment expenses by portfolio types for the fiscal year ending June 30, 2018.

Table 8 Investment Expenses
July 1, 2017, through June 30, 2018 **(Dollars in Thousands)**

Portfolio Type	Net Asset Value	Investment Expenses*	Basis Points
Global Equity	$120,281,611	$197,050	16.4
Fixed Income	27,494,646	20,249	7.4
Private Equity	18,316,311	9,723	5.3
Real Estate	28,733,081	17,075	5.9
Inflation Sensitive	4,177,378	1,998	4.8
Risk Mitigating Strategies	19,989,905	15,687	7.8
Innovative Strategies	483,137	150	3.1
Strategic Overlay	1,288,323	8,888	**
Cash	3,064,376	948	3.1
Total Assets and Expenses	**$223,828,768**	**$271,768**	**12.1**

* Investment Expenses reflected in this table generally represent direct costs associated with investing. Certain expenses including carried interest and management fees related to private assets are not included; however, these certain expenses may be reflected within the net asset value.

** Strategic Overlay calculates basis points using notional values instead of net asset values.

Table 9 summarizes the broker commissions for the fiscal year ending June 30, 2018.

Table 9 **Broker Commissions**
July 1, 2017, through June 30, 2018

Broker Name	Commission	Shares	Commission Per Share (Avg)
CITIGROUP	$3,597,415	1,055,112,494	$0.003
INSTINET	2,303,786	981,406,843	0.002
MERRILL LYNCH	2,274,990	850,286,825	0.003
J P MORGAN	2,072,872	567,983,423	0.004
GOLDMAN SACHS	2,072,486	668,565,700	0.003
MORGAN STANLEY	1,506,759	601,227,110	0.003
UBS	1,472,749	664,713,538	0.002
CREDIT SUISSE FIRST BOSTON	1,363,586	813,853,402	0.002
BARCLAYS CAPITAL	784,771	108,467,405	0.007
STATE STREET BANK AND TRUST CO	665,773	168,746,797	0.004
ALL OTHER BROKERS	8,984,653	2,351,727,138	0.004
TOTAL COMMISSIONS	**$27,099,840**	**8,832,090,675**	**$0.003**

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ACTUARIAL

CalSTRS administers retirement, disability and survivor **benefits for California's 986,414 public school educators** (from pre-kindergarten through community college) and their beneficiaries.

Defined Benefit (DB) Program and Schedules

ACTUARIAL

Defined Benefit Supplement (DBS) Program and Schedules

Cash Balance Benefit (CBB) Program and Schedules

Cash Balance Benefit (CBB) Program and Schedules (continued)

Medicare Premium Payment (MPP) Program and Schedules

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November 12, 2018

Teachers' Retirement Board
California State Teachers' Retirement System

Re: Valuation of the Defined Benefit Program

Dear Members of the Board:

The basic financial goal of the Defined Benefit Program of the California State Teachers' Retirement System (CalSTRS) is to establish contributions which fully fund the obligations and which, as a percent of payroll, remain level for each generation of active members. Annual actuarial valuations measure the progress toward this goal, as well as test the adequacy of the contribution rates.

CalSTRS measures its funding status as the Funded Ratio of the actuarial value of valuation assets over the actuarial accrued liabilities. The funding status based on the past three actuarial valuations is shown below:

Valuation Date	Funded Ratio
June 30, 2015	69%
June 30, 2016	64%
June 30, 2017	63%

Based on the June 30, 2017 actuarial valuation, the scheduled income from member, employer, and State contributions is projected to finance the DB Program on an actuarially sound basis. CalSTRS is projected to reach approximately a 100% Funded Ratio in 2046.

The June 30, 2017 valuation results are based on the membership data and the asset information provided by CalSTRS. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes, although we have not audited the data at the source. 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 found to be materially inaccurate or incomplete, our calculations will need to be revised.

Milliman did not prepare the summaries or schedules shown in the Financial and Actuarial Sections. However, the actuarial information contained in the Financial Section and in this Actuarial Section was derived from our June 30, 2017 actuarial valuation report for funding and our 2018 GASB 67/68 report that communicated the actuarial results for financial reporting for June 30, 2018.

The actuarial computations presented in the valuation report are for purposes of determining the recommended funding amounts for CalSTRS consistent with our understanding of their funding requirements and goals. The liabilities are determined by using the entry age normal funding method. The actuarial assets are determined by using a one-third smoothed recognition method of the difference between the actual market value to the expected actuarial value.

Milliman

Teachers' Retirement Board
November 12, 2018
Page 2

The valuation is based on our understanding of the current benefit provisions of the DB Program and the actuarial assumptions adopted by the Board. The assumptions are reviewed annually for reasonableness, with a detailed experience analysis completed every four or five years. The last detailed experience analysis was completed in February of 2017 when the Board adopted the current assumptions. The assumptions are scheduled to be reviewed in detail again for use in the June 30, 2019 funding valuation and the GASB 67/68 valuation for reporting date June 30, 2020. The assumptions and methods used for financial reporting under GASB 67/68 are the same as the funding valuation assumptions with the following exceptions:

1. The discount rate of 7.10% is gross of administrative expenses; and
2. The market value of assets is used for the Fiduciary Net Position.

For financial reporting purposes, all programs within the State Teachers' Retirement Plan are reported in aggregate.

We believe the actuarial assumptions and methods are internally consistent, reasonable and meet the parameters of Governmental Accounting Standards Board Statement Numbers 67, 68 and 82 for fulfilling financial reporting requirements and meet the parameters set forth in the relevant Actuarial Standards of Practice (ASOPs). Nevertheless, the emerging costs will vary from those presented in our report to the extent that actual experience differs from that projected by the actuarial assumptions. Future actuarial measurements may differ significantly from the current measurements as presented in the valuation report due to many factors. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

Our valuation report and this letter have been prepared exclusively for CalSTRS for a specific and limited purpose. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. It is a complex, technical analysis that assumes a high level of knowledge concerning CalSTRS operations, and uses CalSTRS data, which Milliman has not audited. 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 these assignments are pension 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.

We certify that the June 30, 2017 valuation was performed in accordance with the Actuarial Standards Board (ASB) standards of practice and by qualified actuaries. We are members of the American Academy of Actuaries and have experience in performing valuations for public retirement systems.

Respectfully submitted,

Mark C Olleman

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

Nick Collier

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

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DEFINED BENEFIT (DB) PROGRAM AND SCHEDULES

Actuarial Methods

CalSTRS administers the Defined Benefit (DB) Program, a cost-sharing multiple employer program. In order to value and fund the DB Program, CalSTRS has adopted actuarial methods with the objective of funding the program in a manner which minimizes year-to-year variation in cost while ensuring sufficient assets are accumulated over each member's working career. The following is a summary of the various methods used.

Actuarial Cost Method

For funding purposes, the entry age normal cost method was selected for the DB Program, which is the most common cost method among public sector pension plans. The advantage of using this method is that the cost over time tends to remain fairly level as a percentage of overall payroll. This is well-suited to most public systems, which benefit from a stable contribution rate for budgeting and planning purposes. The actuarial cost method was reviewed and re-adopted by the Teachers' Retirement Board as part of the experience study review.

Asset Smoothing Method

The asset smoothing method, as adopted by the board, projects an Expected Value of Assets using the assumed rate of investment return, then one-third of the difference between the Expected Value and the Market Value is recognized in the Actuarial Value of Assets.

Funding Method

The system receives contributions from members, employers and the state. In 2014, the California legislature and the Governor enacted the CalSTRS funding plan, a joint commitment set forth in statute with the goal of achieving full funding of the system by 2046. Actuarial gains and losses and the unfunded actuarial obligation are amortized over a closed period ending June 30, 2046.

Member Contributions: For members covered by the 2% at 60 benefit formula the contribution rate is 10.25 percent of creditable compensation. For members covered by the 2% at 62 benefit formula, the contribution rate is equal to one-half of the Normal Cost rate determined in the valuation rounded to the nearest quarter percent, plus a supplemental amount. The contribution rate for 2% at 62 members only changes when the Normal Cost rate changes by more than 1 percent of pay as compared to the initial Normal Cost rate (or at the time of the last adjustment). For fiscal year ended June 30, 2018, the member contribution rate was equal to 9.205 percent of creditable compensation.

Employer Contributions: Employers pay a base contribution rate of 8.25 percent of creditable compensation. Additionally, employers contribute a supplemental contribution rate for the purpose of amortizing the employers' share of the unfunded actuarial obligation by the fixed date of June 30, 2046. Currently the supplemental contributions follow a fixed schedule set in statute. The total employer contribution rate is set to increase to 19.1 percent of creditable compensation by the 2020–21 fiscal year. Effective with the 2021–22 fiscal year, the board will have limited authority to adjust the contribution rate to amortize the remaining unfunded actuarial obligation by the 2046 deadline. For fiscal year ended June 30, 2018, the total employer contribution rate was equal to 14.43 percent of creditable compensation.

State Contributions: The state contributes a base contribution rate of 2.017 percent of creditable compensation. Additionally, the state contributes a supplemental contribution rate for the purpose of amortizing the state's share of the unfunded actuarial obligation by the fixed date of June 30, 2046. The board currently has limited authority to adjust the state contribution rate to amortize the unfunded actuarial obligation by the 2046 deadline. For fiscal year ended June 30, 2018, the total state contribution rate was equal to 6.828 percent of creditable compensation.

The state contributes on the creditable compensation of the fiscal year ending in the immediately preceding calendar year upon which members' contributions are based, calculated annually on October 1 and updated on or before the subsequent April 15 and paid in four equal quarterly payments.

The state contributes an additional 2.5 percent of members' creditable earnings to protect retirees' purchasing power.

Financial Reporting Method

Under GASB 67, financial reporting for the State Teachers' Retirement Plan includes the Defined Benefit, Defined Benefit Supplement, Cash Balance Benefit, Supplemental Benefit Maintenance Account and Teachers' Replacement Benefits programs. For financial reporting, the aggregate assets of all programs in the State Teachers' Retirement Plan on a market basis are used in the determination of the Net Pension Liability.

Actuarial Assumptions

The actuarial valuation utilizes two different types of assumptions: economic and demographic. Economic assumptions are related to the general economy and its impact on CalSTRS. Demographic assumptions predict the future experience of the membership with respect to eligibility and benefits and are directly related to the specific experience of CalSTRS members.

CalSTRS, through its consulting actuary, performs an experience study generally every four years to determine appropriate demographic and economic assumptions. These assumptions are then applied when the consulting actuary performs an actuarial valuation to monitor the funding status of the DB Program. The most recent experience study examined data for the five year period spanning July 1, 2010, through June 30, 2015, and was adopted by the board in February 2017.

Below is a summary of the different types of assumptions used.

Economic Assumptions
The two major economic assumptions are investment return and wage growth, and each is affected by the underlying assumed rate of inflation. The assumption for investment return, also known as the discount rate, is 7.00 percent, net of investment and administrative expenses. The assumption for general wage increase is 3.50 percent, of which 2.75 percent is due to inflation and 0.75 percent is due to expected gain in productivity.

As required by GASB 67, for financial reporting the discount rate is net of investment expenses but gross of administrative expenses, equivalent to 7.10%.

Table 6 provides a summary of the economic actuarial assumptions for this program as reflected in the most recent actuarial valuation.

Demographic Assumptions
Demographic assumptions are based upon the most recent CalSTRS experience study and include assumptions for postretirement mortality; probabilities of retirement, disability or withdrawal from the system; assumptions for pay increases due to promotions; and various other assumptions needed to value the benefits.

Tables 1–5 and 7–8 provide a summary of the demographic assumption information for this program as reflected in the most recent actuarial valuation.

Changes Since Prior Valuation

Changes in Actuarial Methods
There were no changes in the actuarial methods for the Defined Benefit Program.

Changes in Actuarial Assumptions
On February 1, 2017, the board lowered the discount rate from 7.50 percent to 7.00 percent using a phased in approach. The June 30, 2016, actuarial valuation used a discount rate of 7.25 percent. For the June 30, 2017, actuarial valuation the discount rate was reduced to 7.00 percent.

Changes in Plan Provisions
There were no changes in plan provisions reflected in the June 30, 2017, actuarial valuation. Note that after the June 30, 2017, valuation was completed, the board increased the lump-sum death benefit payment by 3.4 percent. This change was deemed immaterial for financial reporting purposes and is not reflected in any of the actuarial calculations.

Valuation Results

The most recent actuarial valuation was completed as of June 30, 2017. This valuation determined there is an unfunded actuarial obligation for this program. The valuation projected the program will reach approximately 100 percent funding by 2046 as contributions increase according with the funding plan.

Tables 10–14 provide summaries of the valuation results. The data displayed in Table 10 is as of June 30 of the specified year. Other information, specifically annual payroll amounts, reported in the Financial Section of this report will generally not be consistent with this data as the financial data reflects payroll for all individuals who were active during the year, while Table 10 only includes those individuals who are active as of June 30. It does not include those individuals who were active at some point during the year but not as of June 30.

In addition, amounts provided in Table 11 represent the status of the population as of June 30 of the indicated year. The information provided in the “Removed from Rolls” and “Rolls End of Year” columns include the application of the annual postretirement 2 percent non-compounded benefit adjustment.

The data provided for each year in Table 11 is a snapshot of the population taken following year-end closing for the indicated period. It is likely adjustments will be made subsequent to this closing. No attempt is made to update the data in Table 11 for these adjustments.

With one exception, actuarial valuations have been performed every year since June 30, 1997, to analyze the sufficiency of the statutory contributions to meet the current and future obligations of the program. By using the actuarial methods and assumptions adopted by the board, the actuarial valuation provides the best estimate of the program's long-term financing.

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

Actuarial gains reduce the unfunded actuarial obligation as of the valuation date, and actuarial losses increase the unfunded actuarial obligation. Most actuarial gains and losses are a result of short-term fluctuations in experience or changes in actuarial assumptions. Because of the long-term nature of actuarial assumptions, future patterns of emerging experience may offset these short-term fluctuations.

Independent Actuarial Review

Actuarial services for CalSTRS are provided under contract by a qualified independent actuarial firm, with additional review provided by CalSTRS actuarial staff. The current actuarial firm, Milliman, has been the program's actuarial firm since January 15, 2000.

In addition to the review performed by CalSTRS actuarial staff, all independent actuarial services are subject to a periodic independent review. The selection of the firm performing the independent review is done generally every five years through the competitive bid process.

A review of the 2016 Actuarial Experience Study of the DB Program was performed by the actuarial firm Cheiron. The result of the review was reported to the board on February 1, 2017. Cheiron found the recommendations made by Milliman in the 2016 Actuarial Experience Study to be reasonable, and the work performed by Milliman on the experience study meets the Actuarial Standards of Practice.

A review of the 2015 Actuarial Valuation of the DB Program was performed by the actuarial firm Segal Consulting. The result of the review was reported to the board on April 6, 2017. Overall Segal found that the results of the June 30, 2015, DB Actuarial Valuation were reasonable and accurate. Segal was able to match the valuation results and the individual sample test lives within an acceptable range and found the economic assumptions and cost method used were appropriate. Segal stated that Milliman adhered to reasonable quality control procedures and the valuation was performed in accordance with the principles and practices of the California Actuarial Advisory Panel, the Public Plan Committee of the Conference of Consulting Actuaries, the Actuarial Standards Board, the American Academy of Actuaries, the Society of Actuaries and the Joint Board for the Enrollment of Actuaries.

Summary of Defined Benefit Program Provisions

The provisions used in the June 30, 2017 valuation of the DB program are summarized below.

Normal Retirement

Eligibility Requirement

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

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

Benefit

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

Benefit Factors

Credited Service—For each year of membership, credited service is granted based on the ratio of creditable compensation earned to compensation earnable. No more than one full year of service credit is allowed during any school year; however, the contributions for any service in excess of one year are deposited to the member and employer contribution accounts within the DBS Program.

Contributions received for DBS compensation that are attributable to increases under AB 1469 will be returned to school district employers. School district employers return excess member contributions to their employees, and the returned pre-tax contributions will be considered taxable income in the year they are received by the employee.

Final Compensation—CalSTRS 2% at 60 Members: Highest average annual compensation earnable for 36 consecutive months of credited service. For members with 25 years of service, the calculation is based on the highest average annual compensation earnable for 12 consecutive months.

CalSTRS 2% at 62 Members: Final compensation is based on the highest average annual compensation earnable for 36 consecutive months. Compensation is limited to 120 percent of the Social Security wage base in effect January 1, 2013, adjusted each fiscal year based on the changes in the Consumer Price Index for All Urban Consumers: U.S. City Average.

IRC Section 401(a)(17)—Compensation is limited under IRC section 401(a)(17) and assumed to increase at the rate of inflation.

Sick Leave Service Credit—Credited service is granted for unused sick leave at the time of retirement. Up to 0.2 years of credited service for sick leave may be used for eligibility for one-year final compensation or to attain the career factor or the longevity bonus for eligible members.

Career Factor—If a CalSTRS 2% at 60 member has 30 years of credited service, the age factor is increased by 0.2 percent. However, the maximum age factor is 2.4 percent. The career factor does not apply to CalSTRS 2% at 62 members.

Longevity Bonus—For CalSTRS 2% at 60 members attaining 30 years of service by January 1, 2011, a longevity bonus of $200 per month is added to the Member-Only Benefit. The bonus is increased to $300 per month with 31 years of service and $400 per month with 32 or more years of service. The longevity bonus does not apply to CalSTRS 2% at 62 members.

Postretirement Benefit Adjustment

Benefit Improvement Factor—Two percent simple increase on September 1 following the first anniversary of the effective date of the benefit, applied to all continuing benefits.

IRC Section 415(b)—For CalSTRS 2% at 60 members, benefits are subject to limits imposed under IRC section 415(b). However, no limits are imposed in the valuation of the DB Program in order to address the potential pay-as-you-go funding needs of the Teachers' Replacement Benefits Program Fund. CalSTRS 2% at 62 members will not receive any benefits in excess of the federal limit.

Early Retirement

Eligibility Requirement—CalSTRS 2% at 60 Members: Age 55 with five years of credited service, or age 50 with 30 years of credited service.

CalSTRS 2% at 62 Members: Age 55 with five years of credited service.

Benefit Reduction—CalSTRS 2% at 60 Members: A 0.5 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 0.25 percent for each full month or partial month the member is younger than age 55.

CalSTRS 2% at 62 Members: A 0.5 percent reduction in the normal retirement allowance for each full month or partial month the member is younger than age 62.

Late Retirement

Benefit—CalSTRS 2% at 60 Members: For members who continue to earn additional service credit after age 60. The 2 percent age factor increases by 0.033 percent for each quarter year of age that the member is over age 60, up to a maximum of 2.4 percent.

CalSTRS 2% at 62 Members: For members who continue to earn additional service credit after age 62, the 2 percent age factor increases by 0.033 percent for each quarter year of age that the member is over age 62, up to a maximum of 2.4 percent.

Deferred Retirement

Benefit—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.

Disability Allowance—Coverage A

Eligibility Requirement—Member has five years of credited California service and has not attained age 60, or if a member has earned one year of creditable service and is disabled due to an unlawful act of bodily harm committed by another person while performing creditable service.

Benefit—Fifty percent of final compensation.

- or -

Five percent of final compensation for each year of service credit if over age 45 with fewer than 10 years of service credit.

Children's Benefit—Ten percent for each eligible dependent child, up to a maximum of 40 percent of final compensation. The increment for each eligible child continues until the child marries or attains age 22.

Offsets—Benefit, 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

Eligibility Requirement—Member has five years of credited California service, or if a member has earned one year of creditable service and is disabled due to an unlawful act of bodily harm committed by another person while performing creditable service.

Benefit—Fifty percent of final compensation, regardless of age and service credit.

Children's Benefit—Ten percent for each eligible child up to four children, for a maximum of 40 percent 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 benefit 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 benefit.

Lump-Sum Payment—The one-time death benefit recipient receives a $6,163 lump-sum payment.

Benefit—The surviving spouse or registered domestic partner with eligible children will receive a family benefit of 40 percent of final compensation for as long as there is at least one eligible child. An additional 10 percent of final compensation is payable for each eligible child up to a maximum benefit of 90 percent.

If there is no surviving spouse or registered domestic partner, a benefit of 10 percent of final compensation is payable to eligible children up to a maximum benefit of 50 percent.

When there are no eligible children, the spouse or registered domestic partner may elect to receive one-half of a 50 percent joint and survivor benefit projected to age 60 or take a lump-sum payment of the remaining contributions and interest.

Death Before Retirement—Coverage B

Eligibility—One or more years of service credit for active members.

Lump-Sum Payment—The one-time death benefit recipient receives a $24,652 lump-sum payment.

Benefit—A lump-sum payment of the contributions and interest.

- or -

One-half of a 50 percent joint and survivor benefit, beginning on the member's 60th birthday or immediately with a reduction based on the member's age and that of the spouse or registered domestic partner at the time the benefit begins.

If the surviving spouse or registered domestic partner elects a monthly benefit, or there is no surviving spouse, each eligible child would receive 10 percent of the member's final compensation, with a maximum benefit of 50 percent.

Death After Retirement

Lump-Sum Payment—The one-time death benefit recipient receives a $6,163 lump-sum payment.

Members of retirement age may make a preretirement election of an option to designate a beneficiary.

Annuity Form—If the retired member had elected one of the joint and survivor options, the retirement benefit would be reduced in accordance with the option elected.

If no option had been elected, payment of the unpaid contributions and interest, if any, remaining in the member's account will be made to the beneficiary, if one is named, or to the deceased member's estate.

Termination From CalSTRS

Refund—Refund of the member's 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 program.

Re-entry After Refund—Former members who re-enter the program 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 program benefits.

All demographic assumptions used in the funding actuarial valuation were adopted by the board when the experience study was adopted on February 1, 2017. Following are the assumptions adopted by the board for this program.

Table 1 Postretirement Mortality for Sample Ages

	Male	Female
Age	2017 CalSTRS Retired Male	2017 CalSTRS Retired Female
50	0.240%	0.133%
55	0.354	0.211
60	0.474	0.280
65	0.674	0.422
70	1.079	0.696
75	1.936	1.280
80	3.553	2.455
85	6.831	4.896
90	13.161	9.948
95	22.456	18.616

Table 2 Probabilities of Retirement for Sample Ages[1]

		2% at 60 Members			2% at 62 Members
	Age	1990 Benefits	Under 30 years	30 or More Years	All Years
Male	55	5.8%	2.7%	6.0%	3.0%
	60	25.0	6.3	25.0	9.0
	65	20.0	14.0	32.5	30.0
	70	100.0	12.0	25.0	20.0
	75	100.0	100.0	100.0	100.0
Female	55	7.0%	3.5%	8.0%	4.0%
	60	22.0	7.0	29.0	9.0
	65	18.0	17.0	37.5	30.0
	70	100.0	14.0	30.0	20.0
	75	100.0	100.0	100.0	100.0

[1]Probabilities of retirement are adjusted for members with service between 25 and 30 years.

Table 3 Probabilities of Withdrawal from Active Service Before Age and Service Retirement for Sample Duration in Years

Male	
Duration	
0	16.0%
1	11.0
2	8.5
3	6.3
4	4.0
5	3.5
10	1.8
15	1.2
20	0.9
25	0.7
Female	
Duration	
0	15.0%
1	9.0
2	7.0
3	5.5
4	4.0
5	3.0
10	1.8
15	1.2
20	0.9
25	0.7

Table 4 Probabilities of Refund by Sample Duration in Years of Members and Sample Entry Ages

	Entry Ages				
Duration	Under 25	25–29	30–34	35–39	40+
Male					
Under 5	100%	100%	100%	100%	100%
5	60	60	60	56	45
10	46	46	38	36	36
15	38	38	31	21	—
20	31	31	15	—	—
25	15	15	—	—	—
Duration	**Under 25**	**25–29**	**30–34**	**35–39**	**40+**
Female					
Under 5	100%	100%	100%	100%	100%
5	60	60	60	52	35
10	34	34	32	32	29
15	27	24	24	24	—
20	19	14	14	—	—
25	10	10	—	—	—

Table 5 Assumption for Pay Increases Due to Promotions and Longevity for Sample Ages in Years

(Exclusive of the assumed general wage increase, which includes inflation)

	Entry Ages					
Duration	Under 25	25–29	30–34	35–39	40–44	45+
1	6.4%	5.8%	5.3%	4.8%	4.5%	3.7%
5	5.2	4.8	4.3	3.9	3.8	2.8
10	3.7	3.4	3.0	2.7	2.5	1.8
20	1.3	1.2	1.2	0.8	0.8	0.6
30	0.9	0.8	0.7	0.5	—	—
40	0.8	0.7	—	—	—	—

Table 6 Economic Assumptions

Consumer Price Inflation	2.75%
Investment Yield (Net of Expenses)	7.00
Wage Inflation	3.50
Interest on Member Accounts	3.00

Table 7 Mortality Assumptions

	Retired Members[1]
Male	2016 CalSTRS Retired Male
Female	2016 CalSTRS Retired Female
	Active Members
Male	RP-2014 White Collar Employee Male set back 2 years
Female	RP-2014 White Collar Employee Female set back 2 years
	Beneficiaries[1]
Male	2016 CalSTRS Retired Male
Female	2016 CalSTRS Retired Female
	Disabled[1,2]
Male	RP-2014 Disabled Retiree Male set back 2 years
Female	RP-2014 Disabled Retiree Female set back 2 years

[1]For futue years, the projected improvement is based on 110% of the MP-2016 Ultimate Projection Scale.

[2]Select rates in first three years for both Males and Females.

Table 8 Disability Rates for Sample Ages

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

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

Table 9 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 Sevice is increased by 1.8%.	
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% Male spouses are assumed to be three years older than female spouses.	Female: 65%
Number of Children	Married members under age 60 are assumed to have the following number of children:	
	Member's Gender	**Assumed Number of Children**
	Male	0.65
	Female	0.50
Assumed Offsets	There are no assumed offsets to death and disability benefits under Coverage A or Coverage B.	

Table 10 Schedule of Active Member Valuation Data

		Active Members			
Valuation Date (as of June 30)[1]	Number of Participating Employers[2]	Number	Annual Payroll	Annual Average Pay	% Increase In Average Pay
2008	1,428	461,378	$27,118,230,762	$58,777	3.4%
2009	1,472	459,009	27,327,386,616	59,536	1.3
2010	1,514	441,544	26,274,889,981	59,507	—
2011	1,587	429,600	25,576,008,636	59,534	—
2012	1,660	421,499	25,388,209,920	60,233	1.2
2013	1,670	416,643	25,479,056,693	61,153	1.5
2014	1,690	420,887	26,469,883,008	62,891	2.8
2015	1,724	429,460	28,013,191,853	65,229	3.7
2016	1,739	438,537	29,826,149,337	68,013	4.3
2017	1,746	445,935	31,136,104,704	69,822	2.7

[1] Actuarial valuation results as of June 30, 2018, are expected to be available by May 2019.

[2] Number of employers is based on employers who submit the last contribution line for the active member in each respective fiscal year; however, the number of employers in the Financial Section is based on contributing employers as of the end of the respective fiscal year.

Table 11 Schedule of Retired Members and Beneficiaries Added to and Removed from Rolls[1]

	Added to Rolls		Removed from Rolls		Rolls – End of Year			
Date (as of June 30)	Number	Annual Allowances[2]	Number	Annual Allowances[2]	Number	Annual Allowances[2]	% Increase in Annual Allowances	Average Annual Allowances
2009	13,420	$657,984	6,163	$149,998	228,969	$8,340,671	8.2%	$36,427
2010	16,201	777,293	6,499	165,404	243,796	9,171,309	10.0	37,619
2011	14,559	671,868	6,938	181,927	253,041	9,802,995	6.9	38,741
2012	14,316	635,935	6,860	187,271	262,039	10,458,555	6.7	39,912
2013	12,377	555,751	7,119	205,779	269,429	11,091,944	6.1	41,168
2014	11,383	507,801	7,299	221,733	275,627	11,624,220	4.8	42,174
2015	11,952	558,655	7,759	247,766	282,100	12,197,828	4.9	43,239
2016	12,014	591,902	7,871	262,170	288,195	12,792,104	4.9	44,387
2017	12,823	649,503	8,381	289,955	294,874	13,439,239	5.1	45,576
2018	13,340	682,533	8,606	300,558	301,859	14,114,787	5.0	46,760

[1] Each year's data populaion is a snapshot taken following year-end closings; subsequent adjustments made to snapshots of data prior to the current period are not reflected in the table.

[2] Dollars in thousands.

DEFINED BENEFIT (DB) PROGRAM AND SCHEDULES

Table 12 Solvency Test
(Dollars in Millions)

	Aggregate Accrued Liabilities for				Funding of Liabilities		
Valuation Date (as of June 30)[1]	(1) Active Member Contributions on Deposit	(2) Future Benefits to Benefit Recipients	(3) Service Already Rendered by Active Members (Financed by Employer)	Actuarial Value of Assets	(1)	(2)	(3)
2008	$26,881	$81,984	$68,869	$155,215	100.0%	100.0%	67.3%
2009	27,477	88,927	69,279	145,142	100.0	100.0	41.5
2010	27,105	99,135	70,075	140,291	100.0	100.0	20.1
2011	27,038	109,984	71,383	143,930	100.0	100.0	9.7
2012	27,245	116,475	71,469	144,232	100.0	100.0	0.7
2013	27,683	121,714	72,884	148,614	100.0	99.4	—
2014	28,290	126,235	76,688	158,495	100.0	100.0	5.2
2015	28,935	131,451	81,367	165,553	100.0	100.0	6.4
2016	30,046	145,108	91,550	169,976	100.0	96.4	—
2017	31,523	154,618	100,809	179,689	100.0	95.8	—

[1] Actuarial valuation results as of June 30, 2018, are expected to be available by May 2019.

Table 13 Analysis of Financial Experience
(Gains and losses in unfunded actuarial obligation resulting from differences between assumed and actual experience)
(Dollars in Millions)

	Actuarial Valuation as of June 30[1]	
	2017	2016
Actuarial Obligation at June 30	$266,704	$241,753
Normal Cost	6,312	5,463
Benefit Payments	(13,314)	(12,608)
Expected Interest	19,319	17,869
Expected Actuarial Obligation at June 30	**279,021**	**252,477**
Expected Actuarial Value of Assets at June 30	177,767	172,251
Expected Unfunded Actuarial Obligation at June 30	**101,254**	**80,226**
Actuarial (Gains) / Losses		
Change in Assumptions	8,706	13,227
Investment Return Assumptions	(1,709)	2,590
Demographic Assumptions	(777)	1,000
Net Change Other Sources	(213)	(315)
Total Actuarial (Gains) / Losses	**6,007**	**16,502**
Unfunded Actuarial Obligation at June 30	**$107,261**	**$96,728**
Funded Ratio	63%	64%

[1] Actuarial valuation results as of June 30, 2018, are expected to be available by May 2019.

Table 14 Schedule of Funding Progress

(Dollars in Millions)

Actuarial Valuation Date as of June 30[1]	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (Funding Excess) (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
2008	$155,215	$177,734	$22,519	87%	$27,118	83%
2009	145,142	185,683	40,541	78	27,327	148
2010	140,291	196,315	56,024	71	26,275	213
2011	143,930	208,405	64,475	69	26,592	242
2012	144,232	215,189	70,957	67	26,404	269
2013	148,614	222,281	73,667	67	26,483	278
2014	158,495	231,213	72,718	69	26,398	275
2015	165,553	241,753	76,200	69	28,640	266
2016	169,976	266,704	96,728	64	30,324	319
2017	179,689	286,950	107,261	63	31,961	336

[1] Actuarial valuation results as of June 30, 2018, are expected to be available by May 2019.

Note: Information of actuarially determined and actual contributions for the State Teachers' Retirement Plan is provided in the Financial Section, Schedule III, Contributions of Employer and Nonemployer Contributing Entity table.

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November 12, 2018

Teachers' Retirement Board
California State Teachers' Retirement System

Re: Valuation of the Defined Benefit Supplement Program

Dear Members of the Board:

The basic financial goal of the Defined Benefit Supplement (DBS) Program of the California State Teachers' Retirement System (CalSTRS) is to maintain sufficient resources to fully fund the obligations. Annual actuarial valuations measure the progress toward this goal, as well as test the adequacy of the contribution rates.

CalSTRS measures its funding status as the Funded Ratio of the actuarial value of valuation assets over the actuarial accrued liabilities. The funding status based on the past three actuarial valuations is shown below:

Valuation Date	Funded Ratio
June 30, 2015	115%
June 30, 2016	112%
June 30, 2017	118%

The actual return was greater than the assumed return for the fiscal year ended in 2017 which, combined with other factors, caused an increase in the Funded Ratio. As of June 30, 2017, the Market Value of Assets for the DBS Program exceeds the Actuarial Obligation. Additional interest credits were granted based on the Program's funded level and are reflected in the Funded Ratio shown above. Prior to the additional credits, the Funded Ratio was 122%.

The June 30, 2017 valuation results are based on the membership data and the asset information provided by CalSTRS. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes, although we have not audited the data at the source. 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 found to be materially inaccurate or incomplete, our calculations will need to be revised.

Milliman did not prepare the summaries or schedules shown in the Financial and Actuarial Sections. However, the actuarial information contained in the Financial Section and in this Actuarial Section was derived from our June 30, 2017 actuarial valuation report for funding and our 2018 GASB 67/68 report that communicated the actuarial results for financial reporting for June 30, 2018.

The actuarial computations presented in the valuation report are for purposes of determining the recommended funding amounts for CalSTRS consistent with our understanding of their funding requirements and goals. The liabilities are determined by using the traditional unit credit funding method. The actuarial assets are equal to fair market value.

Milliman

Teachers' Retirement Board
November 12, 2018
Page 2

The funding valuation is based on our understanding of the current benefit provisions of the DBS Program and the actuarial assumptions adopted by the Board. The assumptions are reviewed annually for reasonableness, with a detailed experience analysis completed every four or five years. The last detailed experience analysis was completed in February of 2017 when the Board adopted the current assumptions. The assumptions are scheduled to be reviewed in detail again for use in the June 30, 2019 funding valuation and the GASB 67/68 valuation for reporting date June 30, 2020. The assumptions and methods used for financial reporting under GASB 67/68 are the same as the funding valuation assumptions with the following exceptions:

1. The discount rate of 7.10% is gross of administrative expenses; and
2. The individual entry age normal cost method is used.

For financial reporting purposes, all programs within the State Teachers' Retirement Plan are reported in aggregate.

We believe the actuarial assumptions and methods are internally consistent, reasonable and meet the parameters of Governmental Accounting Standards Board Statement Numbers 67, 68 and 82 for fulfilling financial accounting requirements and meet the parameters set forth in the relevant Actuarial Standards of Practice (ASOPs). Nevertheless, the emerging costs will vary from those presented in our report to the extent that actual experience differs from that projected by the actuarial assumptions. Future actuarial measurements may differ significantly from the current measurements as presented in the valuation report due to many factors. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

Our valuation report and this letter have been prepared exclusively for CalSTRS for a specific and limited purpose. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. It is a complex, technical analysis that assumes a high level of knowledge concerning CalSTRS operations, and uses CalSTRS data, which Milliman has not audited. 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 these assignments are pension 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.

We certify that the June 30, 2017 valuation was performed in accordance with the Actuarial Standards Board (ASB) standards of practice and by qualified actuaries. We are members of the American Academy of Actuaries and have experience in performing valuations for public retirement systems.

Respectfully submitted,

Mark C Olleman   Nick Collier   Julie D. Smith

Mark Olleman, FSA, EA, MAAA	Nick Collier, ASA, EA, MAAA	Julie Smith, FSA, EA, MAAA
Principal and Consulting Actuary	Principal and Consulting Actuary	Valuation Actuary

Actuarial Methods

The Defined Benefit Supplement (DBS) Program was established January 1, 2001. In order to value and fund the DBS Program, CalSTRS has adopted the following actuarial methods.

Actuarial Cost Method

For funding purposes, the traditional unit credit cost method was selected for the Defined Benefit Supplement Program since the projected benefits of each individual member are allocated by a consistent formula to valuation years. As a result, the actuarial obligation for non-retired members is equal to the accumulated account balances, and the normal cost is equal to the total annual contribution. The DBS Program does not provide cost-of-living adjustments for benefit recipients.

Asset Valuation Method

The Defined Benefit Supplement Program uses the fair market value of assets for actuarial valuation purposes. Asset smoothing is not used for this program.

Funding Method

Member and employer contributions are credited to the member's DBS account for service greater than one year during a single school year, and for CalSTRS 2% at 60 members, compensation for limited-term payments and retirement incentives are credited.

There is currently no provision in the Education Code to increase contributions to make up for any future shortfalls, if they were to occur. However, the assumed return on investments exceeds the Minimum Interest Rate. To the extent that the assets earn more than the accounts are credited in the future, this may be sufficient to make up any potential shortfall.

Financial Reporting Method

Under GASB 67, financial reporting for the State Teachers' Retirement Plan includes the Defined Benefit, Defined Benefit Supplement, Cash Balance Benefit, Supplemental Benefit Maintenance Account and Teachers' Replacement Benefits programs. For financial reporting, the aggregate assets of all programs in the State Teachers' Retirement Plan on a market basis are used in the determination of the Net Pension Liability.

GASB 67 also specifies that, for financial reporting purposes, the entry age normal cost method should be used to calculate pension liability.

Actuarial Assumptions

The actuarial valuation utilizes two different types of assumptions: economic and demographic. Economic assumptions are related to the general economy and its impact on CalSTRS. Demographic assumptions predict the future experience of the membership with respect to eligibility and benefits and are directly related to the specific experience of CalSTRS members. The DB Program and the DBS Program share the same population, so it is reasonable to use most of the same assumptions for both programs.

The assumptions for this program will have minimal impact under the traditional unit credit cost method or only have significance when participants elect to annuitize the account balance. Under the program, a member must have at least $3,500 in their account to elect to annuitize the account balance.

CalSTRS, through its consulting actuary, performs an experience study every four or five years to determine appropriate demographic and economic assumptions. These assumptions are then applied when the consulting actuary performs an actuarial valuation to monitor the funding status of the DBS Program. The most recent experience study examined data for the five year period spanning July 1, 2010, through June 30, 2015, and was adopted by the board in February 2017.

Below is a summary of the different types of assumptions used.

Economic Assumptions

The two major economic assumptions are investment return and wage growth, and each is affected by the underlying assumed rate of inflation. The assumption for investment return, also known as the discount rate, is 7.00 percent, net of investment and administrative expenses. The assumption for general wage increase is 3.50 percent, of which 2.75 percent is due to inflation and 0.75 percent is due to expected gain in productivity.

As required by GASB 67, for financial reporting the discount rate is net of investment expenses but gross of administrative expenses, equivalent to 7.10%.

Table 5 provides a summary of the economic actuarial assumptions for this program as reflected in the most recent actuarial valuation.

Demographic Assumptions
Demographic assumptions are based upon the most recent CalSTRS experience study and include assumptions for postretirement mortality, probabilities of retirement, disability or withdrawal from the system, assumptions for pay increases due to promotions and various other assumptions needed to value the benefits.

Tables 1–4 and 6–7 provide a summary of the demographic assumption information for this program as reflected in the most recent actuarial valuation.

Changes Since Prior Valuation

Changes in Actuarial Methods
There were no changes in the actuarial methods for the Defined Benefit Program.

Changes in Actuarial Assumptions
On February 1, 2017, the board lowered the discount rate from 7.50 percent to 7.00 percent using a phased in approach. The June 30, 2016, actuarial valuation used a discount rate of 7.25 percent. For the June 30, 2017, actuarial valuation the discount rate was reduced to 7.00 percent.

Changes in Plan Provisions
On May 10, 2018, the board adopted a 4.12 percent additional earnings credit for the fiscal year ending June 30, 2017.

Valuation Results

The most recent actuarial valuation was completed as of June 30, 2017. This valuation determined there was an actuarial surplus of $2,224,206,000 before the awarding of any additional earnings credit. The valuation was presented to the board on May 10, 2018, at which time the board adopted an additional earnings credit of 4.12 percent for the fiscal year ending June 30, 2017. After awarding the additional earnings credit, the actuarial surplus was reduced to $1,867,280,000.

Tables 8–12 provide summaries of the valuation results.

Independent Actuarial Review

Actuarial services for CalSTRS are provided under contract by a qualified independent actuarial firm, with additional review provided by CalSTRS actuarial staff. The current actuarial firm, Milliman, has been the program's actuarial firm since January 15, 2000.

In addition to the review performed by CalSTRS actuarial staff, all independent actuarial services are subject to a periodic independent review. The selection of the firm performing the independent review is done generally every five years through the competitive bid process.

A review of the 2016 Actuarial Experience Study was performed by the actuarial firm Cheiron. The result of the review was reported to the board on February 1, 2017. Cheiron found the recommendations made by Milliman in the 2016 Actuarial Experience Study to be reasonable, and the work performed by Milliman on the experience study meets the Actuarial Standards of Practice.

A review of the 2015 Actuarial Valuation of the DBS Program was also performed by Cheiron. The result of the review was reported to the board on April 6, 2017. Overall, Cheiron was able to replicate the results of the actuarial valuation with no material differences. Cheiron commented that the actuarial valuation was performed by qualified actuaries and in accordance with generally accepted actuarial principles. Cheiron further stated that appropriate methods, checking and reviewing procedures were followed in the preparation of the valuation and that the communication in the valuation report was clear and complete given the underlying plan of the benefits.

Summary of Defined Benefit Supplement Program Provisions

The following is a summary of the provisions used in the valuation of this program.

Membership

Eligibility Requirement—All members of the DB Program who perform creditable service and earn creditable compensation after December 31, 2000, have a DBS account.

Member—An eligible employee with creditable service subject to coverage who has contributions credited in the program or is receiving an annuity from the program.

DEFINED BENEFIT SUPPLEMENT (DBS) PROGRAM AND SCHEDULES

Account Balance

Account Balance—Nominal accounts are established for the purpose of determining DBS benefits payable to the member. Accounts are credited with contributions, interest at the minimum interest rate and, if applicable, additional earnings credits.

Contributions—Member and employer contributions are credited to the member's DBS account for service greater than one year during a single school year, and for CalSTRS 2% at 60 members, compensation for limited-term payments and retirement incentives are credited.

Minimum Interest Rate—Annual rate determined for the plan year by the board in accordance with federal laws and regulations. The minimum interest rate is equal to the average of the yields on 30-year Treasury Notes for the twelve months ending in February preceding the beginning of the plan year, rounded to the next highest basis point. The minimum interest rate is not less than the rate at which interest is credited under the DB Program.

Additional Earnings Credit—Annual rate determined for the plan year by the board based on the actual earnings during the plan year but only to the extent the earnings are sufficient to credit the minimum interest rate and provide any additions to the gain and loss reserve deemed warranted by the board. The board adopted an additional earnings credit of 4.12 percent for the fiscal year ending June 30, 2017.

Normal Retirement

Eligibility Requirement—Receipt of a corresponding benefit under the DB Program.

Benefit—The account balance at the benefit effective date subject to limits imposed under IRC section 415.

Form of Payment—The normal form of payment is a lump-sum distribution. Annuity options are available if the account balance is at least $3,500.

Early Retirement

Eligibility Requirement—Same as Normal Retirement.

Benefit and Form of Payment—Same as Normal Retirement.

Late Retirement

Benefit and Form of Payment—Same as Normal Retirement.

Contributions and earnings may continue to be credited to the account balance.

Deferred Retirement

Benefit—A member must receive a DBS Program benefit when the corresponding benefit is received under the DB Program.

Disability Benefit

Eligibility Requirement—Receipt of a corresponding benefit under the DB Program.

Benefit—The account balance at the date the disability benefit becomes payable.

Form of Payment—Same as Normal Retirement. An annuity benefit is discontinued upon termination of the corresponding DB Program benefit.

Death Before Retirement

Eligibility Requirement—Deceased member has an account balance.

Benefit—The account balance at the date of death payable to the designated beneficiary.

Form of Payment—Similar to Normal Retirement.

Death After Retirement

Eligibility Requirement—The deceased member was receiving an annuity.

Benefit—According to the terms of the annuity elected by the member.

Termination from the Program

Eligibility Requirement—Termination of all CalSTRS-covered employment.

More than five years has elapsed since the most recent termination benefit, if any, has been paid.

Benefit and Form of Payment—Lump-sum distribution of the account balance as of the date of distribution.

DEFINED BENEFIT SUPPLEMENT (DBS) PROGRAM AND SCHEDULES

All of the assumptions used in the funding actuarial valuation were adopted by the board when the experience study was adopted on February 1, 2017. Following are the assumptions adopted by the board for this program. Tables 2, 3, 4 and 7 are used in the GASB 67 financial reporting valuation and not for the funding valuation.

Table 1 Postretirement Mortality for Sample Ages

	Male	Female
Age	2017	2017
50	0.240%	0.133%
55	0.354	0.211
60	0.474	0.280
65	0.674	0.422
70	1.079	0.696
75	1.936	1.280
80	3.553	2.455
85	6.831	4.896
90	13.161	9.948
95	22.456	18.616

Table 3 Probabilities of Withdrawal from Active Service Before Age and Service Retirement for Sample Duration in Years

Male	
Duration	
0	16.0%
1	11.0
2	8.5
3	6.3
4	4.0
5	3.5
10	1.8
15	1.2
20	0.9
25	0.7
Female	
Duration	
0	15.0%
1	9.0
2	7.0
3	5.5
4	4.0
5	3.0
10	1.8
15	1.2
20	0.9
25	0.7

Table 2 Probabilities of Retirement for Sample Ages[1]

		2% at 60 Members			2% at 62 Members
	Age	1990 Benefits	Under 30 years	30 or More Years	All Years
Male	55	5.8%	2.7%	6.0%	3.0%
	60	25.0	6.3	25.0	9.0
	65	20.0	14.0	32.5	30.0
	70	100.0	12.0	25.0	20.0
	75	100.0	100.0	100.0	100.0
Female	55	7.0%	3.5%	8.0%	4.0%
	60	22.0	7.0	29.0	9.0
	65	18.0	17.0	37.5	30.0
	70	100.0	14.0	30.0	20.0
	75	100.0	100.0	100.0	100.0

[1] Probabilities of retirement are adjusted for members with service between 25 and 30 years.

Table 4 Assumption for Pay Increases Due to Promotions and Longevity for Sample Ages in Years

(Exclusive of the assumed general wage increase, which includes inflation)

	Entry Ages					
Duration	Under 25	25–29	30–34	35–39	40–44	45+
1	6.4%	5.8%	5.3%	4.8%	4.5%	3.7%
5	5.2	4.8	4.3	3.9	3.8	2.8
10	3.7	3.4	3.0	2.7	2.5	1.8
20	1.3	1.2	1.2	0.8	0.8	0.6
30	0.9	0.8	0.7	0.5	—	—
40	0.8	0.7	—	—	—	—

Table 5 Economic Assumptions

Consumer Price Inflation	2.75%
Investment Yield (Net of Expenses)	7.00
Wage Inflation	3.50
Interest on Member Accounts	7.00

Table 6 Mortality Assumptions

	Retired Members[1]
Male	2016 CalSTRS Retired Male
Female	2016 CalSTRS Retired Female
	Active Members
Male	RP-2014 White Collar Employee Male set back 2 years
Female	RP-2014 White Collar Employee Female set back 2 years
	Beneficiaries[1]
Male	2016 CalSTRS Retired Male
Female	2016 CalSTRS Retired Female
	Disabled[1,2]
Male	RP-2014 Disabled Retiree Male set back 2 years
Female	RP-2014 Disabled Retiree Female set back 2 years

[1] For futue years, the projected improvement is based on 110% of the MP-2016 Ultimate Projection Scale.

[2] Select rates in first three years for both Males and Females.

Table 7 Disability Rates for Sample Ages

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

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

Table 8 Schedule of Active Member Valuation Data

		Active Members			
Valuation Date (as of June 30)[1]	Number of Participating Employers[2]	Number	Annual Payroll	Annual Average Pay	% Increase in Average Pay
2008	1,428	460,961	$28,574,701,507	$61,989	4.3%
2009	1,472	458,736	28,763,266,744	62,701	1.1
2010	1,514	441,326	27,340,840,174	61,952	(1.2)
2011	1,587	423,366	26,758,301,370	63,204	2.0
2012	1,660	403,117	26,556,820,635	65,879	4.2
2013	1,670	390,465	26,444,290,250	67,725	2.8
2014	1,690	386,766	27,582,572,209	71,316	5.3
2015	1,724	388,314	29,306,186,224	75,470	5.8
2016	1,739	391,636	31,253,254,759	79,802	5.7
2017	1,746	394,923	32,653,004,548	82,682	3.6

[1] Actuarial valuation results as of June 30, 2018, are expected to be available by May 2019.

[2] Number of employers is based on employers who submit the last contribution line for the active member in each respective fiscal year; however, the number of employers in the Financial Section is based on contributing employers as of the end of the respective fiscal year.

DEFINED BENEFIT SUPPLEMENT (DBS) PROGRAM AND SCHEDULES

Table 9 Schedule of Retired Members and Beneficiaries Added to and Removed from Annuity Rolls[1]

	Added to Rolls		Removed from Rolls		Rolls - End of Year			
Date (as of June 30)	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances	% Increase in Annual Allowances	Average Annual Allowances
2009	6,668	$22,090,439	1,582	$4,948,230	23,010	$55,237,098	48.1%	$2,401
2010	8,796	31,707,577	1,816	6,612,662	30,048	80,571,112	45.9	2,681
2011	8,811	31,693,536	343	1,329,718	36,110	103,087,388	27.9	2,855
2012	8,257	32,650,936	2,386	11,666,909	42,055	124,148,784	20.4	2,952
2013	7,425	30,392,875	2,657	13,354,982	47,014	141,044,393	13.6	3,000
2014	6,753	27,678,797	3,115	16,285,428	50,963	153,375,082	8.7	3,010
2015	7,097	31,304,181	3,423	18,040,255	54,901	167,972,370	9.5	3,060
2016	7,324	35,828,397	3,335	17,497,131	59,075	187,434,597	11.6	3,173
2017	7,813	39,827,784	3,444	18,242,423	63,653	209,657,263	11.9	3,294
2018	7,873	40,794,850	3,535	19,256,485	68,194	231,963,834	10.6	3,402

[1] Each year's data populaion is a snapshot taken following year-end closings; subsequent adjustments made to snapshots of data prior to the current period are not reflected in the table.

Table 10 Solvency Test

	Aggregate Accrued Liabilities for				Funding of Liabilities		
Valuation Date (as of June 30)[1]	(1) Active Member Contributions on Deposit	(2) Future Benefits to Benefit Recipients	(3) Service Already Rendered by Active Members (Financed by Employer)	Actuarial Value of Assets	(1)	(2)	(3)
2008	$5,434,171,000	$193,173,000	$ —	$5,636,113,000	100.0%	100.0%	— %
2009	6,316,154,000	283,161,000	—	5,145,981,000	81.5	—	—
2010	7,012,291,000	444,151,000	—	6,412,180,000	91.4	—	—
2011	7,196,652,000	577,115,000	—	8,054,962,000	100.0	100.0	—
2012	7,280,977,000	710,586,000	—	8,042,090,000	100.0	100.0	—
2013	7,641,488,000	850,275,000	—	8,983,919,000	100.0	100.0	—
2014	8,077,762,000	942,945,000	—	10,493,062,000	100.0	100.0	—
2015	8,532,216,000	1,021,092,000	—	10,940,917,000	100.0	100.0	—
2016	8,604,042,000	1,200,485,000	—	10,943,296,000	100.0	100.0	—
2017	9,020,170,000	1,381,932,000	—	12,269,382,000	100.0	100.0	—

[1] Actuarial valuation results as of June 30, 2018, are expected to be available by May 2019.

Table 11 Analysis of Financial Experience

(Gains and losses in unfunded actuarial obligation resulting from differences between assumed and actual experience)
(Dollars in Thousands)

	Actuarial Valuation as of June 30[1]	
	2017	2016
Actuarial Obligation at June 30	$9,804,527	$9,553,308
Expected Changes:		
Contributions	263,200	251,393
Benefits Paid	(404,737)	(352,606)
Expected Earnings/Credits	705,697	712,703
Expected Actuarial Obligation at June 30	**10,368,687**	**10,164,798**
Expected Actuarial Value of Assets at June 30	11,590,017	11,656,477
Expected Unfunded Actuarial Obligation (Surplus) at June 30	**(1,221,330)**	**(1,491,679)**
Actuarial (Gains) / Losses		
(Gain) on Actuarial Obligation	(323,511)	(360,271)
(Gain) / Loss on Assets	(679,365)	713,181
Total Actuarial (Gains) / Losses	**(1,002,876)**	**352,910**
Additional Earnings Credit	356,926	—
Unfunded Actuarial Obligation (Surplus) at June 30	**($1,867,280)**	**($1,138,769)**
Funded Ratio	118%	112%

[1] Actuarial valuation results as of June 30, 2018, are expected to be available by May 2019.

Table 12 Schedule of Funding Progress

(Dollars in Millions)

Actuarial Valuation Date as of June 30[1]	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (Funding Excess) (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll[2] (c)	UAAL as a % of Covered Payroll ((b-a)/c)
2008	$5,636	$5,627	($9)	100%	$27,118	— %
2009	5,146	6,599	1,453	78	28,763	5
2010	6,412	7,456	1,044	86	27,340	4
2011	8,055	7,774	(281)	104	27,666	(1)
2012	8,042	7,992	(50)	101	27,407	—
2013	8,984	8,492	(492)	106	27,461	(2)
2014	10,493	9,021	(1,472)	116	27,396	(5)
2015	10,941	9,553	(1,388)	115	29,991	(5)
2016	10,943	9,805	(1,138)	112	31,894	(4)
2017	12,269	10,402	(1,867)	118	33,607	(6)

[1] Actuarial valuation results as of June 30, 2018, are expected to be available by May 2019.

[2] For the June 30, 2008 valuation, covered payroll excludes limited term incentive pay and extra service credit pay in order to present the payroll based most relevant to the funding of any unfunded actuarial accrued liabilities of the Defined Benefit Supplement Program.

Note: Information of actuarially determined and actual contributions for the State Teachers' Retirement Plan is provided in the Financial Section, Schedule III, Contributions of Employer and Nonemployer Contributing Entity table.

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November 12, 2018

Teachers' Retirement Board
California State Teachers' Retirement System

Re: Valuation of the Cash Balance Benefit Program

Dear Members of the Board:

The basic financial goal of the Cash Balance Benefit (CBB) Program of the California State Teachers' Retirement System (CalSTRS) is to maintain sufficient resources to fully fund the obligations. Annual actuarial valuations measure the progress toward this goal, as well as test the adequacy of the contribution rates.

CalSTRS measures its funding status as the Funded Ratio of the actuarial value of valuation assets over the actuarial accrued liabilities. The funding status based on the past three actuarial valuations is shown below:

Valuation Date	Funded Ratio
June 30, 2015	113%
June 30, 2016	109%
June 30, 2017	116%

The actual return was greater than the assumed return for the fiscal year ended in 2017 which, combined with other factors, caused an increase in the Funded Ratio. As of June 30, 2017, the Market Value of Assets for the CBB Program exceeds the Actuarial Obligation. Additional interest credits were granted based on the Program's funded level and are reflected in the Funded Ratio shown above. Prior to the additional credits, the Funded Ratio was 120%.

The June 30, 2017 valuation results are based on the membership data and the asset information provided by CalSTRS. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes, although we have not audited the data at the source. 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 found to be materially inaccurate or incomplete, our calculations will need to be revised.

Milliman did not prepare the summaries or schedules shown in the Financial and Actuarial Sections. However, the actuarial information contained in the Financial Section and in this Actuarial Section was derived from our June 30, 2017 actuarial valuation report for funding and our GASB 67/68 report which communicated the actuarial results for financial reporting for June 30, 2018.

The actuarial computations presented in the valuation report are for purposes of determining the recommended funding amounts for CalSTRS consistent with our understanding of their funding requirements and goals. The liabilities are determined by using the traditional unit credit funding method. The actuarial assets are equal to fair market value.

Milliman

Teachers' Retirement Board
November 12, 2018
Page 2

The funding valuation is based on our understanding of the current benefit provisions of the CBB Program and the actuarial assumptions adopted by the Board. The assumptions are reviewed annually for reasonableness, with a detailed experience analysis completed every four or five years. The last detailed experience analysis was completed in February of 2017 when the Board adopted the current assumptions. The assumptions are scheduled to be reviewed in detail again for use in the June 30, 2019 funding valuation and the GASB 67/68 valuation for reporting date June 30, 2020. The assumptions and methods used for financial reporting under GASB 67/68 are the same as the funding valuation assumptions with the following exceptions:

1. The discount rate of 7.10% is gross of administrative expenses; and
2. The individual entry age normal cost method is used.

For financial reporting purposes, all programs within the State Teachers' Retirement Plan are reported in aggregate.

We believe the actuarial assumptions and methods are internally consistent, reasonable and meet the parameters of Governmental Accounting Standards Board Statement Numbers 67, 68 and 82 for fulfilling financial accounting requirements and meet the parameters set forth in the relevant Actuarial Standards of Practice (ASOPs). Nevertheless, the emerging costs will vary from those presented in our report to the extent that actual experience differs from that projected by the actuarial assumptions. Future actuarial measurements may differ significantly from the current measurements as presented in the valuation report due to many factors. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

Our valuation report and this letter have been prepared exclusively for CalSTRS for a specific and limited purpose. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. It is a complex, technical analysis that assumes a high level of knowledge concerning CalSTRS operations, and uses CalSTRS data, which Milliman has not audited. 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 these assignments are pension 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.

We certify that the June 30, 2017 valuation was performed in accordance with the Actuarial Standards Board (ASB) standards of practice and by qualified actuaries. We are members of the American Academy of Actuaries and have experience in performing valuations for public retirement systems.

Respectfully submitted,

Mark C Olleman   Nick Collier   Julie D. Smith

Mark Olleman, FSA, EA, MAAA	Nick Collier, ASA, EA, MAAA	Julie Smith, FSA, EA, MAAA
Principal and Consulting Actuary	Principal and Consulting Actuary	Valuation Actuary

Actuarial Methods

The Cash Balance Benefit (CBB) Program was established July 1, 1996. In order to value and fund the CBB Program, CalSTRS has adopted the following actuarial methods.

Actuarial Cost Method
For funding purposes, the traditional unit credit cost method was selected for the CBB Program since the projected benefits of each individual member are allocated by a consistent formula to valuation years. As a result, the actuarial obligation is equal to the accumulated account balances, and the normal cost is equal to the total annual contribution. The CBB Program does not provide cost-of-living adjustments for benefit recipients.

Asset Valuation Method
The CBB Program uses the fair market value of assets for actuarial valuation purposes. Asset smoothing is not used for this program.

Funding Method
Generally, participant contributions are 4 percent of salary, and employer contributions are 4 percent of salary.

Rules for contribution rates may differ for participants covered by a collective bargaining agreement, but the sum of the participant and employer contributions must equal or exceed 8 percent of salary. The employer contribution rate cannot be less than 4 percent of salary and the participant rate cannot be less than the employer rate.

The board may adjust employer contributions for a fixed number of years, but the adjustment shall not exceed 0.25 percent of salaries in any plan year.

There is currently no provision in the Education Code to increase contributions to make up for any future shortfalls, if they were to occur. However, the assumed return on investments exceeds the Minimum Interest Rate. To the extent that the assets earn more than the accounts are credited in the future, this may be sufficient to make up any potential shortfall.

Financial Reporting Method
Under GASB 67, financial reporting for the State Teachers' Retirement Plan (STRP) includes the Defined Benefit, Defined Benefit Supplement, Cash Balance Benefit, Supplemental Benefit Maintenance Account and Teachers' Replacement Benefits programs. For financial reporting, the aggregate assets of all programs in the State Teachers' Retirement Plan on a market basis are used in the determination of the Net Pension Liability.

GASB 67 also specifies that, for financial reporting purposes, the entry age normal cost method should be used to calculate pension liability.

Actuarial Assumptions

The actuarial valuation utilizes two different types of assumptions: economic and demographic. Economic assumptions are related to the general economy and its impact on CalSTRS. Demographic assumptions predict the future experience of the membership with respect to eligibility and benefits and are directly related to the specific experience of CalSTRS members.

The assumptions for this program will have minimal impact under the traditional unit credit cost method or only have significance when participants elect to annuitize the account balance. Under the program, a participant must have at least $3,500 in their account to elect to annuitize the account balance.

CalSTRS, through its consulting actuary, performs an experience study every four or five years to determine appropriate demographic and economic assumptions. These assumptions are then applied when the consulting actuary performs an actuarial valuation to monitor the funding status of the CBB Program. The most recent experience study examined data for the five year period spanning July 1, 2010, through June 30, 2015, and was adopted by the board in February 2017.

Below is a summary of the different types of assumptions used.

Economic Assumptions
The two major economic assumptions are investment return and wage growth, and each is affected by the underlying assumed rate of inflation. The assumption for investment return, also known as the discount rate, is 6.50 percent, net of investment and administrative expenses. The assumption for general wage increase is 3.50 percent, of which 2.75 percent is due to inflation and 0.75 percent is due to expected gain in productivity.

As required by GASB 67, for financial reporting the discount rate is net of investment expenses but gross of administrative expenses, equivalent to 7.10%.

Table 5 provides a summary of the economic actuarial assumptions for this program as reflected in the most recent actuarial valuation.

Demographic Assumptions
Demographic assumptions are based upon the most recent CalSTRS experience study and include assumptions for postretirement mortality, probabilities of retirement, disability or withdrawal from the system, assumptions for pay increases due to promotions and various other assumptions needed to value the benefits.

Tables 1–4 and 6–7 provide a summary of the demographic assumption information for this program as reflected in the most recent actuarial valuation.

Changes Since Prior Valuation

Changes in Actuarial Methods
There were no changes in the actuarial methods for the Cash Balance Benefit Program.

Changes in Actuarial Assumptions
On February 1, 2017, the board lowered the discount rate from 7.00 percent to 6.50 percent using a phased in approach. The June 30, 2016, actuarial valuation used a discount rate of 6.75 percent. For the June 30, 2017, actuarial valuation the discount rate was reduced to 6.50 percent.

Changes in Plan Provisions
On May 10, 2018, the board adopted a 3.62 percent additional earnings credit for the fiscal year ending June 30, 2017.

Valuation Results

The most recent actuarial valuation was completed as of June 30, 2017. This valuation determined there was an actuarial surplus of $50,324,000 before the awarding of any additional earnings credit. The valuation was presented to the board on May 10, 2018, at which time the board adopted an additional earnings credit of 3.62 percent for the fiscal year ending June 30, 2017. After awarding the additional earnings credit, the actuarial surplus was reduced to $41,465,000.

Tables 8–12 provide summaries of the valuation results.

Independent Actuarial Review

Actuarial services for CalSTRS are provided under contract by a qualified independent actuarial firm, with additional review provided by CalSTRS actuarial staff. The current actuarial firm, Milliman, has been the program's actuarial firm since January 15, 2000.

In addition to the review performed by CalSTRS actuarial staff, all independent actuarial services are subject to a periodic independent review. The selection of the firm performing the independent review is done generally every five years through the competitive bid process.

A review of the 2016 Actuarial Experience Study and the assumptions specific to the CBB Program was performed by the actuarial firm Cheiron. The result of the review was reported to the board on February 1, 2017. Cheiron found the recommendations made by Milliman in the 2016 Actuarial Experience Study to be reasonable, and the work performed by Milliman on the experience study meets the Actuarial Standards of Practice.

A review of the 2015 Actuarial Valuation of the CBB Program was also performed by Cheiron. The result of the review was reported to the board on April 6, 2017. Overall, Cheiron was able to replicate the results of the actuarial valuation with no material differences. Cheiron commented that the actuarial valuation was performed by qualified actuaries and in accordance with generally accepted actuarial principles. Cheiron further stated that appropriate methods, checking and reviewing procedures were followed in the preparation of the valuation and that the communication in the valuation report was clear and complete given the underlying plan of the benefits.

Summary of Cash Balance Benefit Program Provisions

The following is a summary of the provisions used in the valuation of this program.

Membership

Eligibility Requirement—Membership if employed at less than 50 percent of a full-time position for a California school district, community college district or county office of education that has elected to offer the Cash Balance Benefit Program.

CASH BALANCE BENEFIT (CBB) PROGRAM AND SCHEDULES

Extended eligibility to members hired by a community college district to perform creditable service on a part-time or temporary basis (semester to semester) or for not more than 60 percent of the hours per week considered a regular full-time assignment.

Participant—An eligible employee with creditable service subject to coverage who has contributions credited in the program or is receiving an annuity from the program.

Account Balance

Account Balance—Nominal accounts established for the purpose of determining benefits payable to the participant. Accounts are credited with contributions, minimum interest rate and additional earnings credits.

Contributions—Generally, participant contributions are 4 percent of salary, and employer contributions are 4 percent of salary.

Rules for contribution rates may differ for participants covered by a collective bargaining agreement, but the sum of the participant and employer contributions must equal or exceed 8 percent of salary. The employer contribution rate cannot be less than 4 percent of salary and the participant rate cannot be less than the employers rate.

The board may adjust employer contributions for a fixed number of years, but the adjustment shall not exceed 0.25 percent of salaries in any plan year.

Minimum Interest Rate—Annual rate determined for the plan year by the board in accordance with federal laws and regulations. The minimum interest rate is equal to the average of the yields on 30-year Treasury Notes for the 12 months ending in February preceding the beginning of the plan year, rounded to the next highest basis point.

Additional Earnings Credit—Annual rate determined for the plan year by the board based on the actual earnings during the plan year, but only to the extent the earnings are sufficient to credit the minimum interest rate and provide any additions to the gain and loss reserve deemed warranted by the board. The board adopted an additional earnings credit of 3.62 percent for the fiscal year ending June 30, 2017.

Normal Retirement

Eligibility Requirement—Age 60.

Benefit—The account balance at the retirement date subject to limits imposed under IRC section 415. For participants hired on or after January 1, 2013, salary credited to CalSTRS from all employers is capped at $143,082 for 2017–18 fiscal year. The limit is adjusted each fiscal year based on the changes in the Consumer Price Index for all Urban Consumers: U.S. City Average.

Form of Payment—The normal form of payment is a lump-sum distribution. Annuity options are available if the sum of the employer and employee accounts equals or exceeds $3,500.

Early Retirement

Eligibility Requirement—Age 55.

Benefit and Form of Payment—Same as Normal Retirement.

Late Retirement

Benefit and Form of Payment—Same as Normal Retirement. Contributions and interest continue to be credited to the account balances until distributed.

Deferred Retirement

Benefit—A participant may cease active service, leave the accumulated account balance on deposit and later retire upon attaining the minimum age requirement.

Disability Benefit

Eligibility Requirement—Determination by the board that the participant has a total and permanent disability.

Benefit—The account balance at the date of disability. An annuity benefit is discontinued if the participant is re-employed before age 60 and performs service creditable under the program.

Form of Payment—Same as Normal Retirement.

Death Before Retirement

Eligibility Requirement—Deceased participant has an account balance.

Benefit—The account balance at the date of death payable to the designated beneficiary.

Form of Payment—Normal distribution is a lump-sum benefit. A participant's beneficiary may elect to receive the benefit in the form of a period-certain annuity if the sum of the balance of credits to the participant's employee and employer accounts is $3,500 or more.

Death After Retirement

Eligibility Requirement—The deceased participant was receiving an annuity.

Benefit—According to the terms of the annuity elected by the participant.

Termination from the Program

Eligibility Requirement—More than five years has elapsed since the most recent termination benefit, if any, has been paid.

Benefit and Form of Payment—Lump-sum distribution of the account balance as of the date of distribution. The benefit is payable six months from the termination of creditable service.

CASH BALANCE BENEFIT (CBB) PROGRAM AND SCHEDULES

All demographic assumptions used in the actuarial valuation were adopted by the board when the experience study was adopted on February 1, 2017. The following are the assumptions adopted by the board for this program. Tables 2, 3, 4 and 7 are used in the GASB 67 financial reporting valuation and not for the the funding valuation.

Table 1 Postretirement Mortality for Sample Ages

	Male	Female
Age	2017	2017
50	0.240%	0.133%
55	0.354	0.211
60	0.474	0.280
65	0.674	0.422
70	1.079	0.696
75	1.936	1.280
80	3.553	2.455
85	6.831	4.896
90	13.161	9.948
95	22.456	18.616

Table 2 Probabilities of Retirement for Sample Ages[1]

			2% at 60 Members		2% at 62 Members
	Age	1990 Benefits	Under 30 Years	30 or More Years	All Years
Male	55	5.8%	2.7%	6.0%	3.0%
	60	25.0	6.3	25.0	9.0
	65	20.0	14.0	32.5	30.0
	70	100.0	12.0	25.0	20.0
	75	100.0	100.0	100.0	100.0
Female	55	7.0%	3.5%	8.0%	4.0%
	60	22.0	7.0	29.0	9.0
	65	18.0	17.0	37.5	30.0
	70	100.0	14.0	30.0	20.0
	75	100.0	100.0	100.0	100.0

[1] Probabilities of retirement are adjusted for members with service between 25 and 30 years.

Table 3 Probabilities of Withdrawal from Active Service Before Age and Service Retirement for Sample Duration in Years

Male		Female	
Duration		Duration	
0	16.0%	0	15.0%
1	11.0	1	9.0
2	8.5	2	7.0
3	6.3	3	5.5
4	4.0	4	4.0
5	3.5	5	3.0
10	1.8	10	1.8
15	1.2	15	1.2
20	0.9	20	0.9
25	0.7	25	0.7

Table 4 Assumption for Pay Increases Due to Promotions and Longevity for Sample Ages in Years

(Exclusive of the assumed general wage increase, which includes inflation)

	Entry Ages					
Duration	Under 25	25–29	30–34	35–39	40–44	45+
1	6.4%	5.8%	5.3%	4.8%	4.5%	3.7%
5	5.2	4.8	4.3	3.9	3.8	2.8
10	3.7	3.4	3.0	2.7	2.5	1.8
20	1.3	1.2	1.2	0.8	0.8	0.6
30	0.9	0.8	0.7	0.5	—	—
40	0.8	0.7	—	—	—	—

Table 5 Economic Assumptions

Consumer Price Inflation	2.75%
Investment Yield (Net of Expenses)	6.50
Wage Inflation	3.50
Interest on Member Accounts	6.50

Table 6 Mortality Assumptions

	Retired Members[1]
Male	2016 CalSTRS Retired Male
Female	2016 CalSTRS Retired Female
	Active Members
Male	RP-2014 White Collar Employee Male set back 2 years
Female	RP-2014 White Collar Employee Female set back 2 years
	Beneficiaries[1]
Male	2016 CalSTRS Retired Male
Female	2016 CalSTRS Retired Female
	Disabled[1,2]
Male	RP-2014 Disabled Retiree Male set back 2 years
Female	RP-2014 Disabled Retiree Female set back 2 years

[1]For future years, the projected improvement is based on 110% of the MP-2016 Ultimate Projection Scale.

[2]Select rates in first three years for both Males and Females.

Table 7 Disability Rates for Sample Ages

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

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

Table 8 Schedule of Active Participant Valuation Data

		Active Members			
Valuation Date (as of June 30)[1]	Number of Participating Employers[2]	Number	Annual Payroll	Annual Average Pay	% Increase In Average Pay
2008	33	11,627	$181,104,000	$15,576	14.0%
2009	33	11,332	182,871,332	16,138	3.6
2010	33	10,378	163,248,119	15,730	(2.5)
2011	33	9,923	158,501,388	15,973	1.5
2012	33	9,273	151,284,621	16,315	2.1
2013	31	9,129	151,281,260	16,572	1.6
2014	32	9,955	175,058,251	17,585	6.1
2015	33	10,416	193,075,185	18,536	5.4
2016	30	10,676	211,259,529	19,788	6.8
2017	30	10,480	220,767,125	21,066	6.5

[1] Actuarial valuation results as of June 30, 2018, are expected to be available by May 2019.

[2] Number of employers is based on employers who submit the last contribution line for the active member in each respective fiscal year; however, the number of employers in the Financial Section is based on contributing employers as of the end of the respective fiscal year.

Table 9 Schedule of Retired Participants and Beneficiaries Added to and Removed from Annuity Rolls[1]

	Added to Rolls		Removed from Rolls		Rolls–End of Year			
Date (as of June 30)	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances	% Increase in Annual Allowances	Average Annual Allowances
2009	12	$29,184	2	$4,104	33	$81,935	44.3%	$2,483
2010[2]	18	55,193	5	23,079	46	114,047	39.2	2,479
2011	24	66,664	2	6,899	68	173,813	52.4	2,556
2012	42	139,297	5	18,110	105	294,000	69.1	2,800
2013	30	132,912	8	26,578	127	401,112	36.4	3,158
2014	42	212,087	10	43,746	159	568,682	41.8	3,577
2015	52	164,451	11	74,583	200	658,550	15.8	3,293
2016[3]	62	261,067	10	43,035	252	841,230	27.7	3,338
2017	80	430,331	22	87,768	310	1,223,947	45.5	3,948
2018	85	475,148	25	159,001	370	1,539,585	25.8	4,161

[1] Each year's data populaion is a snapshot taken following year-end closings; subsequent adjustments made to snapshots of data prior to the current period are not reflected in the table.
[2] Revised add count for 2010 as a result of subsequent years' end counts changed in 2015.
[3] Revised add count for 2016 in 2017.

Table 10 Solvency Test

	Aggregate Accrued Liabilities for				Funding of Liabilities		
Valuation Date (as of June 30)[1]	(1) Active Member Contributions on Deposit	(2) Future Benefit to Benefit Recipients	(3) Service Already Rendered by Active Members (Financed by Employer)	Actuarial Value of Assets	(1)	(2)	(3)
2008	$97,802,000	$229,000	$ —	$98,892,000	100.0%	100.0%	— %
2009	114,338,000	354,000	—	91,793,000	80.2	—	—
2010	129,065,000	509,000	—	114,418,000	88.7	—	—
2011	143,695,000	767,000	—	151,248,000	100.0	100.0	—
2012	156,600,000	1,386,000	—	158,020,000	100.0	100.0	—
2013	174,171,000	1,952,000	—	188,551,000	100.0	100.0	—
2014	194,792,000	3,061,000	—	231,671,000	100.0	100.0	—
2015	215,851,000	3,843,000	—	248,699,000	100.0	100.0	—
2016	230,864,000	4,974,000	—	256,675,000	100.0	100.0	—
2017	253,572,000	7,411,000	—	302,448,000	100.0	100.0	—

[1] Actuarial valuation results as of June 30, 2018, are expected to be available by May 2019.

Table 11 Analysis of Financial Experience

(Gains and losses in unfunded actuarial obligation resulting from differences between assumed and actual experience)
(Dollars in Thousands)

	Actuarial Valuation as of June 30[1]	
	2017	2016
Actuarial Obligation at June 30	$235,838	$219,694
Expected Changes:		
Contributions	18,066	16,021
Benefits Paid	(12,502)	(7,045)
Expected Earnings/Credits	16,107	15,693
Expected Actuarial Obligation at June 30	**257,509**	**244,363**
Expected Actuarial Value of Assets at June 30	279,752	275,398
Expected Unfunded Actuarial Obligaion (Surplus) at June 30	**(22,243)**	**(31,035)**
Actuarial (Gains) / Losses		
(Gain) on Actuarial Obligation	(5,385)	(8,525)
(Gain) / Loss on Assets	(22,696)	18,723
Total Actuarial (Gains) / Losses	**(28,081)**	**10,198**
Additional Earnings Credit	8,859	—
Unfunded Actuarial Obligation (Surplus) at June 30	**($41,465)**	**($20,837)**
Funded Ratio	116%	109%

[1] Actuarial valuation results as of June 30, 2018, are expected to be available by May 2019.

Table 12 Schedule of Funding Progress

(Dollars in Millions)

Actuarial Valuation Date as of June 30[1]	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (Funding Excess) (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
2008	$99	$98	($1)	101%	$181	(1%)
2009	92	115	23	80	182	13
2010	114	130	16	88	163	10
2011	151	144	(7)	105	158	(4)
2012	158	158	—	100	151	—
2013	189	176	(13)	107	151	(9)
2014	232	198	(34)	117	174	(20)
2015	249	220	(29)	113	192	(15)
2016	257	236	(21)	109	209	(10)
2017	302	261	(41)	116	218	(19)

[1] Actuarial valuation results as of June 30, 2018, are expected to be available by May 2019.

Note: Information of actuarially determined and actual contributions for the State Teachers' Retirement Plan is provided in the Financial Section, Schedule III, Schedule of Pension Contributions from Employers and Nonemployer Contributing Entity.

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November 12, 2018

Teachers' Retirement Board
California State Teachers' Retirement System

Re: GASB 74 Reporting for the Medicare Premium Payment Program

Dear Members of the Board:

The basic financial goal of the Medicare Premium Payment (MPP) Program of the California State Teachers' Retirement System (CalSTRS) is to maintain sufficient resources to fully fund the obligations. Actuarial valuations are performed every year (every two years prior to 2017), and measure the progress toward this goal. The most recent valuation was as of June 30, 2017.

The MPP Program is essentially funded on a pay-as-you-go basis with a portion of contributions to the DB Program diverted to the Teachers' Health Benefit Fund to make MPP Program payments. As of June 30, 2017, $302 million of future employer contributions to the DB Program have been allocated to pay the MPP Program benefits; however, this amount is not included as an asset for GASB 74 reporting. This gives the appearance that the MPP Program is significantly underfunded in the GASB 74 results. However, based on the commitment to transfer a portion of future contributions from the DB Program to fund the MPP Program, it is our opinion that the MPP Program continues in sound financial condition as of June 30, 2017.

The June 30, 2017 valuation results are based on the membership data and the asset information provided by CalSTRS. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes, although we have not audited the data at the source. 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 found to be materially inaccurate or incomplete, our calculations will need to be revised.

Milliman did not prepare the summaries or schedules shown in the Financial and Actuarial Sections. However, the actuarial information contained in the Financial Section and in this Actuarial Section was derived from our June 30, 2017 actuarial valuation report.

The valuation is based on our understanding of the current benefit provisions of the MPP Program and the actuarial assumptions which were last reviewed and adopted by the Board at the February 2017 meeting.

We believe the actuarial assumptions and methods are internally consistent, reasonable and meet the parameters of Governmental Accounting Standards Board Statement No. 74 for fulfilling financial accounting requirements and meet the parameters set forth in the relevant Actuarial Standards of Practice (ASOPs). It should be noted that we relied on advice from Milliman's health actuaries on our recommendations of assumptions specific to health costs. Nevertheless, the emerging costs will vary from those presented in our report to the extent that actual experience differs from that projected by the actuarial assumptions. Future actuarial measurements may differ significantly from the current measurements as presented in the

Milliman

Teachers' Retirement Board
November 12, 2018
Page 2

valuation report due to many factors. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

Our valuation report and this letter have been prepared exclusively for CalSTRS for a specific and limited purpose. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. It is a complex, technical analysis that assumes a high level of knowledge concerning CalSTRS operations, and uses CalSTRS data, which Milliman has not audited. 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 these assignments are pension 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.

In conclusion, the results presented in this report satisfy GASB 74 reporting purposes. Based on the current actuarial assumptions used for financial reporting purposes, the current assets of the MPP Program as of June 30, 2018 are less than 1% of the accrued liabilities. It should be noted that these calculations do not include the future employer contributions to the DB Program that have been allocated to pay the MPP Program benefits.

We certify that the June 30, 2017 valuation was performed in accordance with the Actuarial Standards Board (ASB) standards of practice and by qualified actuaries. We are members of the American Academy of Actuaries and have experience in performing valuations for public retirement systems.

Respectfully submitted,

Mark C Olleman

Nick Collier

Daniel Wade

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

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Principal and Consulting Actuary

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Actuarial Methods

The Medicare Premium Payment (MPP) Program is a cost-sharing multiple-employer other postemployment benefit plan established on January 1, 2001, pursuant to Chapter 1032, Statutes of 2000 (SB1435). CalSTRS administers the MPP Program, through the Teachers' Health Benefit Fund (THBF). In order to value and fund the MPP Program, CalSTRS has adopted the following actuarial methods.

Actuarial Cost Method

The MPP Program is funded on a pay-as-you-go basis. This method of funding the MPP Program was selected because the MPP Program was established out of the actuarial surplus of the DB Program.

Asset Valuation Method

The program assets are valued as the allocated value of DB Program Assets. This figure is equal to the actuarial obligation of the MPP Program benefits. Asset smoothing is not used for this program.

Funding Method

The MPP Program is funded on a pay-as-you go basis from a portion of monthly employer contributions. In accordance with California Education Code Section 25930 and board policy, contributions that would otherwise be credited to the Defined Benefit (DB) Program each month are instead credited to the MPP Program to fund monthly program and administrative costs. The funding method does not require an amortization method for any unfunded actuarial obligation or surplus. Actuarial gains and losses are funded as they occur through the pay-as-you go method described above. There are no retiree contributions, per capita claims costs or pay increase assumptions.

Financial Reporting Method

For financial reporting purposes, the actuarial cost method used is the Individual Entry Age Normal method as specified by GASB 74. The asset valuation method is fair market value of assets.

Actuarial Assumptions

The actuarial valuation utilizes two different types of assumptions: economic and demographic. Economic assumptions are related to the general economy and its impact on CalSTRS. Demographic assumptions predict the future experience of the membership with respect to eligibility and benefits and are directly related to the specific experience of CalSTRS members.

CalSTRS, through its consulting actuary, performs an experience study every four or five years to determine appropriate demographic and economic assumptions. An experience study specific to the MPP Program is performed every two years to determine healthcare-related assumptions. These assumptions are then applied when the consulting actuary performs an actuarial valuation to monitor the funding status of the MPP Program. The most recent experience study for demographic, economic and healthcare-related assumptions examined data for the five-year period spanning July 1, 2010, through June 30, 2015, and was adopted by the board in February 2017.

Below is a summary of the different types of assumptions used.

Economic Assumptions

The economic assumptions used for valuation purposes are the investment return, medical inflation, and rate of inflation. The assumption for investment return, also known as the discount rate, is 7.00 percent, net of investment and administrative expenses. The assumption for premium cost trend rates vary by year; however, the increases are approximately equivalent to a 3.7 percent and 4.1 percent increase each year for Medicare Part A and Part B, respectively. The assumption for price inflation is 2.75 percent.

For financial reporting the discount rate is 3.87 percent, net of investment expenses but gross of administrative expenses. The discount rates are based on the rate for 20-year, tax exempt general obligation municipal bonds with an average rating of AA/Aa or higher as specified in GASB. The Teachers' Retirement Board has adopted The Bond Buyer's 20-Bond GO Index for these purposes.

Table 5 provides a summary of the economic actuarial assumptions for this program as reflected in the most recent actuarial valuation.

Demographic Assumptions

The MPP Program is closed to new entrants. Members who retire on or after July 1, 2012, are not eligible for coverage under the MPP Program. As such, assumptions related to active members are not applicable to this program.

MEDICARE PREMIUM PAYMENT (MPP) PROGRAM AND SCHEDULES

The primary demographic assumptions are postretirement mortality rates and program enrollment rates.

Tables 1, 6 and 9 provide a summary of the demographic assumption information for this program as reflected in the most recent actuarial valuation.

Changes Since Prior Valuation

Changes in Actuarial Methods

There were no changes in the actuarial methods for the Medicare Premium Payment Program.

Changes in Actuarial Assumptions

On February 1, 2017, the board lowered the discount rate from 7.50 percent to 7.00 percent using a phased in approach. The June 30, 2016, actuarial valuation used a discount rate of 7.25 percent. For the June 30, 2017, actuarial valuation the discount rate was reduced to 7.00 percent.

The discount rate used for 2018 financial reporting was 3.87 percent, an increase of 0.29 percent from 3.58 percent used for 2017 financial reporting.

Changes in Plan Provisions

There were no changes in the plan provisions for the MPP Program.

Valuation Results

The most recent actuarial valuation of the MPP Program was completed as of June 30, 2017. The valuation indicated that the current program assets, along with MPP-allocated funding from future employer contributions that would otherwise have been credited to the DB Program, were sufficient to finance the future MPP Program obligations of $302.2 million for both Part A premiums and Part B penalties. Note that in prior years the MPP Program funding valuation was performed every two years. In order to meet the timing requirements of GASB 74/75 the valuation is now performed annually.

Tables 10–13 provide summaries of the valuation results.

Independent Actuarial Review

Actuarial services for CalSTRS are provided under contract by a qualified independent actuarial firm, with additional review provided by CalSTRS actuarial staff. The current actuarial firm, Milliman, has been the program's actuarial firm since January 15, 2000.

In addition to the review performed by CalSTRS actuarial staff, all independent actuarial services are subject to a periodic independent review. The selection of the firm performing the independent review is done generally every five years through the competitive bid process.

A review of the assumptions specific to the MPP Program was performed by the actuarial firm Cheiron. The result of the review was reported to the board on February 1, 2017. Cheiron found the recommendations made by Milliman for the assumptions specific to the MPP Program to be reasonable, and the work performed by Milliman meets the Actuarial Standards of Practice.

A review of the 2014 Actuarial Valuation of the MPP Program was also performed by Cheiron. The result of the review was reported to the board on April 6, 2017. Overall, Cheiron was able to replicate the results of the actuarial valuation with no material differences. Cheiron commented that the actuarial valuation was performed by qualified actuaries and in accordance with generally accepted actuarial principles. Cheiron further stated that appropriate methods, checking and reviewing procedures were followed in the preparation of the valuation and that the communication in the valuation report was clear and complete given the underlying plan of the benefits.

Summary of Medicare Premium Payment Program Plan Provisions

The following is a summary of the provisions used in the valuation of this program.

Membership

Eligibility Requirement – Part A
DB Member – satisfies either:
1. Retired or disabled prior to January 1, 2001; age 65 or above; enrolled in Medicare Part A and Part B; and not eligible for Part A without premium payment

or

2. Meet all above requirements, except retired or disabled before July 1, 2012; district completed a Medicare Division election prior to retirement; and active member voted yes if they were less than 58 years of age at the time of the election

Spouse Eligibility – Spouses of members are not eligible to participate in the program.

The MPP Program is closed to new entrants as members who retire on or after July 1, 2012, are not eligible for coverage under the MPP Program.

Eligibility Requirement – Part B Late Penalty Surcharges
Only those currently enrolled are eligible.

Benefits Paid

Premium payments are made directly to the Centers for Medicare and Medicaid Services (CMS) on a monthly basis. Medicare Part A premium rates for fiscal year 2017–18 are as follows:

Medicare Part A Premium Rate[1]	
July 1, 2017 to December 31, 2017	$413
January 1, 2018 to June 30, 2018	422

[1] Individuals with 30–39 quarters of Medicare covered employment pay a reduced monthly premium rate, which was $227 and $232 for the period of July 1, 2017, to December 31, 2017, and January 1, 2018, to June 30, 2018, respectively.

Part A and B late enrollment penalties are generally 10 percent of the respective monthly premium rates; however, the fees charged to individual participants may be higher based on certain income thresholds.

Based on the published premium rates during fiscal year 2017–18, Part A late enrollment surcharges were 41.30 and 42.20 for period of July 1, 2017, to December 31, 2017, and January 1, 2018, to June 30, 2018, respectively. Part B late enrollment surcharges were 13.40 for the period of July 1, 2017, to June 30, 2018.

MEDICARE PREMIUM PAYMENT (MPP) PROGRAM AND SCHEDULES

Demographic assumptions used in the actuarial valuation were adopted by the board when the experience study was adopted on February 1, 2017. Assumptions specific to the MPP Program were also adopted on that date. Following are assumptions adopted by the board for this program.

Table 1 Postretirement Mortality for Sample Ages

	Retired Members		Disabled Members (After Year 3)[1]	
Age	**Male**	**Female**	**Male**	**Female**
50	0.240%	0.133%	1.848%	1.043%
55	0.354	0.211	2.149	1.305
60	0.474	0.280	2.437	1.541
65	0.674	0.422	2.836	1.841
70	1.079	0.696	3.517	2.390
75	1.936	1.280	4.637	3.400
80	3.553	2.455	6.420	5.036
85	6.831	4.896	9.326	7.483
90	13.161	9.948	14.127	11.045
95	22.456	18.616	21.090	16.322

Select rates for disability:		
First year of disablement	4.0%	3.0%
Second year of disablement	3.5	2.5
Third year of disablement	3.0	2.0

[1] Projected improvement based on 110% of the MP-2016 Ultimate Projection Scale. Projection scale does not apply to select minimum rates.

Table 2 Probabilities of Retirement for Sample Ages

NOT APPLICABLE

Table 3 Probabilities of Withdrawal from Active Service Before Age and Service Retirement for Sample Duration in Years

NOT APPLICABLE

Table 4 Probability of Refund

NOT APPLICABLE

Table 5 Economic Assumptions

Investment Yield (Net of Expenses)	7.00%
Medical Inflation (Varies by Year—average percentage below)	
Part A Premiums	3.70%
Part B Premiums	4.10%
Price Inflation	2.75%

Table 6 Mortality Assumptions

	Retired Members
Male	2016 CalSTRS Retired Male
Female	2016 CalSTRS Retired Female
	Active Members (Not applicable)
Male	RP-2014 White Collar Employee Male set back 2 years
Female	RP-2014 White Collar Employee Female set back 2 years
	Beneficiaries[1] (Not applicable)
Male	2016 CalSTRS Retired Male
Female	2016 CalSTRS Retired Female
	Disabled[1,2]
Male	RP-2014 Disabled Retiree Male set back 2 years
Female	RP-2014 Disabled Retiree Female set back 2 years

[1] For future years, the projected improvement is based on 110% of the MP-2016 Ultimate Projection Scale.

[2] Select rates in first three years for both Males and Females

Table 7 Service Retirement for Sample Ages

NOT APPLICABLE

Table 8 Disability Rates for Sample Ages

NOT APPLICABLE

MEDICARE PREMIUM PAYMENT (MPP) PROGRAM AND SCHEDULES

Table 9 Schedule of Medicare Part A Enrollment Rates

Assumption	Best Estimate	
	Male	Female
% of Under 65 Retirees Enrolling (Retired On or After 2001)	2.50%	2.50%
% of Under 65 Retirees Enrolling (Retired Before 2001)	3.50	3.50
% of Over 65 Retirees Enrolling (For Those Not Currently Enrolled) at Age:		
65	0.60	0.60
66	0.06	0.06
67	0.04	0.04
68	0.03	0.03
69	0.03	0.03
70–84	0.02	0.02
85 & above	—	—

Table 10 Schedule of Retired Members Added to and Removed from Medicare Part A Premium Rolls[1]

	Added to Rolls		Removed From Rolls		Rolls-End of Year			
Date (as of June 30)	Number	Annual Allowances[2]	Number	Annual Allowances[2]	Number	Annual Allowances[2]	% Increase in Annual Allowances	Average Annual Allowances
2009	399	$1,489	208	$604	6,431	$35,814[3]	14.3%	$5,569
2010	347	1,215	220	660	6,475	34,015	(5.0)	5,253
2011	537	2,202	231	695	6,709	34,677	1.9	5,169
2012	359	1,177	218	634	6,742	33,708	(2.8)	5,000
2013[4]	305	1,009	212	641	6,770	33,663	(0.1)	4,972
2014	235	751	259	703	6,684	32,047	(4.8)	4,795
2015	178	443	254	772	6,474	29,729	(7.2)	4,592
2016	166	404	264	768	6,324	28,345	(4.7)	4,482
2017	102	211	273	766	6,124	27,632	(2.5)	4,512
2018	119	451	281	751	5,917	26,947	(2.5)	4,554

[1] Each year's data populaion is a snapshot taken following year-end closings; subsequent adjustments made to snapshots of data prior to the current period are not reflected in the table.

[2] Dollars in thousands.

[3] This does not include the $8.04 million credit adjustments and deletions. If the credit adjustments and deletions were included, the Total Annual Allowance would be $28.3 million; the percentage decrease in annual allowance would be 9.6% and the average annual allowance would be $4,402.

[4] Numbers revised in 2014.

MEDICARE PREMIUM PAYMENT (MPP) PROGRAM AND SCHEDULES

Table 11 Solvency Test
(Dollars in Millions)

	Aggregate Accrued Liabilities for				Funding of Liabilities		
Valuation Date (as of June 30)[1,2]	(1) Active Member Contributions on Deposit	(2) Future Benefit to Benefit Recipients	(3) Service Already Rendered by Active Members	Actuarial Value of Assets[3]	(1)	(2)	(3)
2006	$ —	$527.6	$ —	$527.6	— %	100.0%	— %
2008	—	629.7	—	629.7	—	100.0	—
2010	—	601.8	—	601.8	—	100.0	—
2012	—	424.2	—	424.2	—	100.0	—
2014	—	341.7	—	341.7	—	100.0	—
2016	—	314.9	—	314.9	—	100.0	—
2017	—	302.2	—	302.2	—	100.0	—

[1] This is a 10-year schedule. However, the information in this schedule is not available for periods prior to fiscal year 2005–06. Years will be added to this schedule in future fiscal years until 10 years information is available.

[2] Actuarial valuation results as of June 30, 2018, are expected to be available by May 2019.

[3] For funding purposes, the assets are valued as the allocated value of DB Program assets. This figure is equal to the actuarial obligation of the MPP Program benefits.

Table 12 Analysis of Financial Experience
(Gains and losses in unfunded actuarial obligation resulting from differences between assumed and actual experience)
(Dollars in Millions)

	Reporting as of June 30[1]	
	2017	2016
Actuarial Obligation at June 30		
Expected Changes:		
Eligibility Extended	not calculated	not calculated
Benefits Paid	($29.0)	($30.0)
Interest	not calculated	not calculated
Expected Actuarial Obligation at June 30	not calculated	not calculated
Expected Actuarial Value of Assets at June 30	not calculated	not calculated
Expected Unfunded Actuarial Obligation at June 30	not calculated	not calculated
Actuarial (Gains) / Losses		
(Gain) on Medical Trend Assumption	not calculated	not calculated
(Gain) on Premium/Penalty	not calculated	not calculated
(Gain) on Part B Premium for higher earners	not calculated	not calculated
(Gain) Other Sources	not calculated	not calculated
Total Actuarial Gains / Losses	not calculated	not calculated
Unfunded Actuarial Obligation at June 30[2]	—	—
Funded Ratio[2]	100.0%	100.0%

[1] Actuarial valuation results as of June 30, 2018, are expected to be available by May 2019.

[2] Based on the Actuarial Value of Assets. For funding purposes, the MPP Program assets are valued as the allocated value of DB Program assets, which are equal to the actuarial obligation of the MPP Program benefits.

Table 13 Schedule of Funding Progress

(Dollars in Millions)

Actuarial Valuation Date as of June 30[1,2]	Actuarial Value of Assets[3] (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (Funding Excess) (UAAL) (b-a)	Funded Ratio (a/b)
2006	$527.6	$527.6	$ —	100%
2008	629.7	629.7	—	100
2010	601.8	601.8	—	100
2012	424.2	424.2	—	100
2014	341.7	341.7	—	100
2016	314.9	314.9	—	100
2017	302.2	302.2	—	100

[1] This is a 10-year schedule. However, the information in this schedule is not available for periods prior to fiscal year 2005–06. Years will be added to this schedule in future fiscal years until 10 years of information is available.

[2] Actuarial valuation results as of June 30, 2018, are expected to be available by May 2019.

[3] For funding purposes, the assets are valued as the allocated value of DB Program assets. This figure is equal to the actuarial obligation of the MPP Program benefits.

STATISTICAL

In fiscal year 2017–18, CalSTRS members, on average, retired at age 63 after about 25 years of service with **a pension replacing less than 60 percent of their highest salary**.

Cash Balance Benefit Program Schedules

Programs Administered or Overseen by the Retirement System (Pension2)

Medicare Premium Payment Program

Teachers' Deferred Compensation Fund

STATISTICAL OVERVIEW

The Statistical Section presents additional detailed information to assist users of the basic financial statements, notes to the basic financial statements and required supplementary information in assessing the economic condition of CalSTRS. The section provides financial trend information for the State Teachers' Retirement Plan (STRP), which includes Defined Benefit (DB), Defined Benefit Supplement (DBS), Cash Balance Benefit (CBB) and Replacement Benefits programs, as well as operating information for the Pension2, Medicare Premium Payment (MPP) Program and Teachers' Deferred Compensation Fund. Financial trend information for the DB, DBS and CBB programs has been consolidated and presented as the STRP to be consistent with the basic financial statements. Operating information for STRP programs continues to be presented separately because consolidation would not provide meaningful information due to the unique characteristics of those programs.

The financial trend schedules assist users in understanding and assessing how the system's financial position has changed over time and include:

- Changes in Fiduciary Net Position
- Benefit and Refund Deductions From Net Position by Type

The operating information schedules provide data about the system's operations and resources to assist users in understanding CalSTRS benefits and services and include:

- Members and Benefit Recipient Statistics
- Participating Employers Statistics

The information in this section was derived from the Financial Section and the CalSTRS pension administration system, START, except where noted.

Notes:

Supplemental statistical tables are available on request by calling CalSTRS at **800-228-5453**.

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Table 1 Changes in Fiduciary Net Position for the State Teachers' Retirement Plan
(Dollars in Millions)

Fiscal Year Ending June 30	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Additions										
Member Contributions	$3,496	$3,441	$2,958	$2,510	$2,264	$2,337	$2,280	$2,356	$2,332	$2,501
Employer Contributions	4,867	4,173	3,391	2,678	2,272	2,283	2,238	2,310	2,286	2,464
State of California Contributions[1]	2,797	2,478	1,940	1,426	1,384	1,328	1,303	1,193	1,222	1,140
Net Investment Income	18,674	25,165	2,305	7,612	30,402	20,682	1,071	30,030	15,089	(40,358)
Other Income	105	72	42	4	2	1	4	7	8	8
Total Additions	**$29,939**	**$35,329**	**$10,636**	**$14,230**	**$36,324**	**$26,631**	**$6,896**	**$35,896**	**$20,937**	**($34,245)**
Deductions										
Benefit Payments to Members[2]	$14,271	$13,626	$12,892	$12,284	$11,725	$11,133	$10,443	$9,855	$9,085	$8,256
Purchasing Power Benefits	162	161	172	193	202	222	235	238	273	348
Refunds of Member Contributions	104	116	84	88	108	105	108	116	100	106
Administrative Expenses	216	182	180	145	154	137	138	110	140	113
Borrowing Costs[3]	94	58	—	—	—	—	—	—	—	—
Other Expenses	2	10	15	9	9	4	—	—	—	—
Total Deductions	**$14,849**	**$14,153**	**$13,343**	**$12,719**	**$12,198**	**$11,601**	**$10,924**	**$10,319**	**$9,598**	**$8,823**
Change in Fiduciary Net Position	**$15,090**	**$21,176**	**($2,707)**	**$1,511**	**$24,126**	**$15,030**	**($4,028)**	**$25,577**	**$11,339**	**($43,068)**

There may be immaterial rounding differences between the figures presented in this table and in the Statement of Changes in Fiduciary Net Position.

[1] Includes SBMA contributions and school lands revenue.

[2] Includes member elected administrative transfers to purchase service credit in the Defined Benefit program.

[3] Borrowing costs associated with the master facility credit portfolio, which were previously reported in Net Investment Income, were reclassified to deductions for financial reporting purposes.

Table 2 Benefit and Refund Deductions from Fiduciary Net Position by Type

(Dollars in Millions)

Fiscal Year Ending June 30	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Type of Benefit										
Age & Service Benefits										
Retired Members[1]	$13,121	$12,538	$11,869	$11,306	$10,821	$10,281	$9,704	$9,167	$8,357	$7,609
Survivors	732	686	634	591	547	528	503	465	504	444
Death	72	66	63	76	57	74	31	35	43	37
Purchasing Power Benefits	162	161	172	193	202	222	235	238	273	348
Disability Benefits										
Retired Members	346	336	326	311	300	251	205	187	182	167
Total Benefits	**$14,433**	**$13,787**	**$13,064**	**$12,477**	**$11,927**	**$11,356**	**$10,678**	**$10,092**	**$9,359**	**$8,605**
Type of Refund										
Separation	$104	$116	$84	$88	$108	$105	$108	$116	$100	$106
Total Refunds	**$104**	**$116**	**$84**	**$88**	**$108**	**$105**	**$108**	**$116**	**$100**	**$106**

There may be immaterial rounding differences between the figures presented in this table and in the Statement of Changes in Fiduciary Net Position.

[1] Includes member elected administrative transfers to purchase service credit in the Defined Benefit program.

Table 1 Active Member Characteristics

Fiscal Year Ending June 30	Count	Average Earnable Compensation[1]	Average Age	Average Service Credit	Average Service Projected to Age 60
2009	459,009	$64,044	44.8	11.0	26.2
2010	441,544	64,156	45.1	11.3	26.3
2011	429,600	64,069	45.3	11.7	26.3
2012	421,499	64,743	45.5	11.9	26.5
2013	416,643	65,571	45.6	12.2	26.6
2014	420,887	67,276	45.6	12.3	26.6
2015	429,460	69,597	45.5	12.2	26.7
2016	438,537	72,550	45.4	12.1	26.7
2017	445,935	74,346	45.3	12.1	26.8
2018	449,595	75,604	45.2	12.1	26.9

[1] Average salary that would be paid if members worked on a full-time basis.

Table 2 Members Retired for Service During Fiscal Year 2017–18, Classified by Unmodified Allowance[1,2]

Monthly Unmodified Allowance	Count	Average Age at Retirement[3]	Average Service Credit[3]	Average Final Compensation[3,4]	Average Allowance Payable[3,5]
Less than $500	426	63.4	5.068	$3,915	$320
500–1000	652	63.2	8.847	4,428	716
1000–1500	535	62.6	11.905	5,462	1,208
1500–2000	563	62.5	14.812	6,005	1,690
2000–2500	677	62.7	16.938	6,605	2,181
2500–3000	811	63.0	18.858	7,021	2,660
3000–3500	1,007	63.1	20.988	7,325	3,126
3500–4000	1,077	63.7	22.530	7,579	3,603
4000–4500	1,020	63.4	24.599	7,924	4,095
4500–5000	929	63.4	26.713	8,062	4,557
5000–5500	861	63.6	28.509	8,153	5,055
5500–6000	938	63.3	30.189	8,338	5,499
6000 & Greater	3,282	63.7	34.270	9,688	7,452
Total	**12,778**	**63.3**	**24.264**	**$7,729**	**$4,323**

[1] Does not include formerly disabled members.
[2] Unmodified allowance includes longevity bonus.
[3] Overall averages.
[4] Excludes new retirees with no final compensation data.
[5] Includes cumulative application of annual 2 percent benefit improvement factor.

Table 3 Members Retired for Service During Fiscal Year 2017–18[1], Classifed by Age and Joint & Survivor Option Elected[2]

			Option types							
Age	Total	Unmodified	2	3	4	5	6	7	8	9
Under 55	17	11	—	—	—	—	2	3	—	1
55	445	298	—	—	—	—	73	37	11	26
56	286	183	—	—	—	—	51	29	3	20
57	327	194	—	—	—	—	59	41	9	24
58	453	271	—	—	—	—	83	62	2	35
59	528	302	—	—	—	—	103	68	7	48
60	1,055	570	—	—	—	—	209	149	16	111
61	1,420	707	—	—	—	—	281	205	30	197
62	1,537	795	—	—	—	—	314	227	28	173
63	1,553	873	—	—	—	—	278	214	24	164
64	996	523	—	—	—	—	182	143	20	128
65	958	554	—	—	—	—	170	132	13	89
66	820	487	2	—	—	—	142	90	18	81
67	600	329	3	—	—	—	107	83	22	56
68	422	249	6	—	—	—	64	54	16	33
69	347	215	2	—	—	—	56	41	9	24
70	279	183	—	—	—	—	44	28	3	21
71	213	126	3	—	—	—	35	24	6	19
72	128	84	1	—	—	—	20	9	2	12
73	108	77	2	—	1	—	11	10	1	6
74	75	39	3	1	—	—	13	7	7	5
75 and over	211	136	2	1	—	—	33	19	8	12
Total	**12,778**	**7,206**	**24**	**2**	**1**	**—**	**2,330**	**1,675**	**255**	**1,285**
% of Total	100.0%	56.4%	0.2%	0.0%	0.0%	0.0%	18.2%	13.1%	2.0%	10.1%

[1] Does not include formerly disabled members.

[2] Option Elected:

Option 2 - Beneficiary receives 100 percent of member's modified allowance.

Option 3 - Beneficiary receives 50 percent of member's modified allowance.

Option 4 - Beneficiary receives 2/3 of member's modified allowance.

Option 5 - Survivors receive 50 percent of member's modified allowance, upon death of either member or beneficiary.

Option 6 - Beneficiary receives 100 percent of member's modified allowance. If beneficiary pre-deceases the member, the allowance pops up to the unmodified amount.

Option 7 - Beneficiary receives 50 percent of member's modified allowance. If beneficiary pre-deceases the member, the allowance pops up to the unmodified amount.

Option 8 - Compound option that allows the member to provide for more than one beneficiary.

Option 9 - Beneficiary receives 75 percent of member's modified allowance. If beneficiary pre-deceases the member, the allowance pops up to the unmodified amount.

Table 4 Characteristics of Members Going on Disability During Target Fiscal Year

Fiscal Year Ending June 30	Count	Average Disability Allowance Payable	Average Service Credit	Average Final Compensation	Average Age at Disability
2009	511	$2,728	13.9	$5,567	53.8
2010	498	2,825	14.5	5,827	55.3
2011	504	2,784	14.3	5,781	55.0
2012	488	2,825	14.3	5,823	55.4
2013	571	2,788	14.8	5,742	54.9
2014	494	2,875	15.0	5,967	55.1
2015	503	2,899	15.2	6,002	54.3
2016	455	2,936	14.9	6,081	54.1
2017	394	3,056	16.0	6,365	54.4
2018	381	3,144	16.4	6,512	54.9

Table 5 Total Number of Benefit Recipients by Type of Benefit

Fiscal Year Ending June 30	Service Retirement	Disability Benefits	Benefits for Survivors	Total Benefit Recipients[1]
2009	203,649	8,380	20,588	232,617
2010	213,952	8,581	21,263	243,796
2011	222,222	8,813	22,006	253,041
2012	230,278	9,036	22,724	262,038
2013	236,487	9,374	23,413	269,274
2014	241,920	9,604	24,103	275,627
2015	247,353	9,848	24,899	282,100
2016	252,672	9,940	25,583	288,195
2017	258,550	10,023	26,301	294,874
2018	264,780	10,089	26,990	301,859

[1] Benefit recipients reported in this section will differ from those reported in the financial section due to timing of when membership numbers were pulled.

Table 6 Members Retired for Service Characteristics by Year of Retirement[1]

Effective Date of Retirement by Service Credit	Number of Retirements	Average Service Credit	Average Unmodified Allowance	Average Final Compensation	Average Age at Retirement
7/1/2008 thru 6/30/2009[2]					
0–5	126	2.4	$291	$5,814	62.4
5–10	1,022	7.4	668	4,236	62.8
10–15	1,145	12.4	1,336	5,140	62.1
15–20	1,323	17.7	2,235	5,995	61.8
20–25	1,535	22.3	3,116	6,537	62.1
25–30	1,406	27.1	4,125	7,076	62.2
30–35	3,161	32.4	5,687	7,506	61.1
35–40	2,574	37.2	7,122	7,866	61.7
40 & over	461	42.2	8,594	8,316	64.9
Total	**12,753**	**26.3**	**$4,396**	**$6,796**	**61.6**
7/1/2009 thru 6/30/2010[2]					
0–5	148	2.3	$289	$5,535	61.4
5–10	1,356	7.4	686	4,287	63.0
10–15	1,436	12.6	1,446	5,385	62.4
15–20	1,663	17.6	2,326	6,138	62.3
20–25	2,323	22.4	3,236	6,658	62.4
25–30	1,885	27.1	4,231	7,165	62.5
30–35	3,620	32.4	5,665	7,478	61.2
35–40	2,481	37.2	7,228	7,999	61.6
40 & over	581	42.3	8,759	8,409	65.4
Total	**15,493**	**25.5**	**$4,256**	**$6,800**	**62.2**
7/1/2010 thru 6/30/2011[2]					
0–5	194	2.4	$305	$6,182	62.0
5–10	1,388	7.3	663	4,187	62.9
10–15	1,506	12.5	1,487	5,491	62.7
15–20	1,571	17.5	2,320	6,191	62.2
20–25	2,005	22.4	3,278	6,729	62.5
25–30	1,834	27.1	4,237	7,186	62.4
30–35	2,874	32.4	5,693	7,508	61.3
35–40	2,068	37.2	7,313	8,091	61.8
40 & over	456	42.3	9,037	8,738	65.6
Total	**13,896**	**24.5**	**$4,088**	**$6,763**	**62.3**

[1] Does not include formerly disabled members.

[2] The average unmodified allowance for this fiscal year includes the longevity bonus.

Table 6 Members Retired for Service Characteristics by Year of Retirement (continued)[1]

Effective Date of Retirement by Service Credit	Number of Retirements	Average Service Credit	Average Unmodified Allowance	Average Final Compensation	Average Age at Retirement
7/1/2011 thru 6/30/2012[2]					
0–5	167	2.4	$310	$6,013	63.0
5–10	1,497	7.3	676	4,224	63.2
10–15	1,659	12.5	1,437	5,315	62.7
15–20	1,743	17.4	2,316	6,122	62.7
20–25	1,962	22.5	3,350	6,788	62.6
25–30	1,878	27.1	4,318	7,212	62.8
30–35	2,547	32.5	5,750	7,550	61.4
35–40	1,770	37.2	7,364	8,093	61.9
40 & over	396	42.1	9,487	9,113	65.2
Total	**13,619**	**23.7**	**$3,936**	**$6,670**	**62.5**
7/1/2012 thru 6/30/2013[2]					
0–5	132	2.5	$311	$6,092	62.8
5–10	1,017	7.2	710	4,540	63.1
10–15	1,298	12.6	1,521	5,528	63.1
15–20	1,678	17.4	2,392	6,272	63.0
20–25	1,760	22.6	3,367	6,802	62.8
25–30	1,817	27.2	4,319	7,169	62.7
30–35	2,150	32.5	5,700	7,528	61.6
35–40	1,522	37.2	7,329	8,038	61.8
40 & over	271	42.3	8,924	8,439	65.6
Total	**11,645**	**24.1**	**$3,980**	**$6,769**	**62.6**
7/1/2013 thru 6/30/2014[2]					
0–5	144	2.2	$268	$5,994	62.9
5–10	950	7.4	721	4,463	63.2
10–15	1,176	12.6	1,533	5,553	63.1
15–20	1,604	17.4	2,425	6,286	63.2
20–25	1,593	22.4	3,334	6,743	62.9
25–30	1,845	27.2	4,443	7,367	63.0
30–35	1,814	32.3	5,607	7,532	61.6
35–40	1,374	37.2	7,295	7,973	61.9
40 & over	236	42.2	9,197	8,741	65.5
Total	**10,736**	**23.8**	**$3,939**	**$6,774**	**62.7**

[1] Does not include formerly disabled members.

[2] The average unmodified allowance for this fiscal year includes the longevity bonus.

Table 6 Members Retired for Service Characteristics by Year of Retirement (continued)[1]

Effective Date of Retirement by Service Credit	Number of Retirements	Average Service Credit	Average Unmodified Allowance	Average Final Compensation	Average Age at Retirement
7/1/2014 thru 6/30/2015[2]					
0–5	168	2.2	$275	$6,195	62.6
5–10	855	7.4	736	4,517	63.7
10–15	1,125	12.6	1,554	5,597	63.4
15–20	1,764	17.6	2,520	6,467	63.4
20–25	1,585	22.4	3,415	6,883	63.0
25–30	2,069	27.2	4,603	7,576	63.3
30–35	1,948	32.1	5,709	7,787	62.0
35–40	1,482	37.1	7,490	8,207	62.2
40 & over	282	42.4	9,539	9,166	65.8
Total	**11,278**	**24.2**	**$4,142**	**$7,013**	**63.0**
7/1/2015 thru 6/30/2016[2,3]					
0–5	170	2.4	$314	$6,438	62.7
5–10	793	7.4	754	4,637	63.9
10–15	1,046	12.6	1,608	5,792	63.5
15–20	1,751	17.6	2,612	6,664	63.6
20–25	1,652	22.2	3,534	7,149	63.4
25–30	2,152	27.3	4,861	7,928	63.4
30–35	2,034	32.1	5,899	8,108	62.0
35–40	1,467	37.2	7,836	8,624	62.4
40 & over	309	42.5	9,666	9,215	66.4
Total	**11,374**	**24.5**	**$4,369**	**$7,329**	**63.2**
7/1/2016 thru 6/30/2017[2,3]					
0–5	155	2.2	$306	$6,402	63.6
5–10	837	7.4	773	4,709	63.9
10–15	1,075	12.6	1,628	5,861	63.5
15–20	1,836	17.7	2,701	6,857	63.7
20–25	1,932	22.2	3,628	7,326	63.6
25–30	2,246	27.3	4,955	8,082	63.5
30–35	2,423	32.2	6,126	8,438	62.1
35–40	1,414	37.3	7,807	8,711	62.4
40 & over	329	42.6	10,267	9,986	66.4
Total	**12,247**	**24.6**	**$4,475**	**$7,527**	**63.3**

[1] Does not include formerly disabled members.
[2] The average unmodified allowance for this fiscal year includes the longevity bonus.
[3] Excludes retirees with no final compensation data.

Table 6 Members Retired for Service Characteristics by Year of Retirement (continued)[1]

Effective Date of Retirement by Service Credit	Number of Retirements	Average Service Credit	Average Unmodified Allowance	Average Final Compensation[3]	Average Age at Retirement
7/1/2017 thru 6/30/2018[2,3]					
0–5	190	2.5	$335	$6,521	63.2
5–10	877	7.34	787	4,830	63.8
10–15	1,091	12.6	1,676	5,955	63.7
15–20	1,855	17.7	2,817	7,110	63.8
20–25	2,362	22.3	3,832	7,645	63.9
25–30	2,368	27.5	5,123	8,379	63.4
30–35	2,530	32.2	6,308	8,642	62.0
35–40	1,262	37.1	8,049	9,057	62.7
40 & over	243	43.2	10,476	9,956	68.1
Total	**12,778**	**24.3**	**$4,512**	**$7,729**	**63.3**

[1] Does not include formerly disabled members.
[2] The average unmodified allowance for this fiscal year includes the longevity bonus.
[3] Excludes retirees with no final compensation data.

Table 7 Members Retired for Service Characteristics[1]

Fiscal Year Ending June 30	Average Age at Retirement	Average Years of Service Credit	Average Final 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

[1] Does not include formerly disabled members.

Table 8 Retired Members by Type of Benefit and Option Elected

		Type of Benefit[1]			Option Elected[2]								
Monthly Unmodified Allowance[3]	**Total**	**1[4]**	**2**	**3**	**Unmodified**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Less than $500	16,951	14,608	65	2,278	12,298	1,134	364	56	71	1,903	662	212	251
500–1000	24,617	21,417	497	2,703	16,660	1,573	775	97	95	3,176	1,519	143	579
1000–1500	25,126	21,044	868	3,214	14,935	2,011	1,068	172	140	3,607	2,287	134	772
1500–2000	27,433	22,526	1,500	3,407	15,313	2,060	901	388	163	3,994	3,419	163	1,032
2000–2500	28,735	23,066	2,166	3,503	15,064	2,011	840	345	184	4,682	4,167	219	1,223
2500–3000	26,530	21,449	2,107	2,974	13,497	1,633	564	254	120	4,836	4,102	233	1,291
3000–3500	23,450	19,410	1,791	2,249	11,877	1,209	370	227	64	4,424	3,673	250	1,356
3500–4000	19,019	16,800	730	1,489	9,364	866	269	155	52	3,698	3,195	208	1,212
4000–4500	17,396	16,021	223	1,152	8,303	762	227	96	38	3,398	3,156	256	1,160
4500–5000	16,772	15,675	76	1,021	7,683	709	205	63	29	3,581	3,061	270	1,171
5000–5500	16,533	15,653	36	844	7,430	670	174	65	20	3,588	3,029	270	1,287
5500–6000	14,836	14,195	12	629	6,542	583	147	58	16	3,323	2,656	250	1,261
6000 & Greater	44,461	42,916	18	1,527	17,183	2,102	339	144	44	11,386	7,490	1,264	4,509
Total	**301,859[5]**	**264,780**	**10,089**	**26,990**	**156,149**	**17,323**	**6,243**	**2,120**	**1,036**	**55,596**	**42,416**	**3,872**	**17,104**

[1] Type of Benefit: 1) Service Retirement 2) Disability Benefits 3) Survivor Benefits

[2] Option Selected: Option 2 - Beneficiary receives 100 percent of member's modified allowance.
Option 3 - Beneficiary receives 50 percent of member's modified allowance.
Option 4 - Beneficiary receives 2/3 of member's modified allowance.
Option 5 - Survivors receive 50 percent of member's modified allowance, upon death of either member of beneficiary.
Option 6 - Beneficiary receives 100 percent of member's modified allowance. If beneficiary pre-deceases the member, the allowance increases up to the unmodified amount.
Option 7 - Beneficiary receives 50 percent of member's modified allowance. If beneficiary pre-deceases the member, the allowance increases up to the unmodified amount.
Option 8 - Compound option that allows the member to provide for more than one beneficiary.
Option 9 - Beneficiary receives 75 percent of member's modified allowance. If beneficiary pre-deceases the member, the allowance increases up to the unmodified amount.

[3] Unmodified allowance includes longevity bonus.

[4] Does not include formerly disabled members.

[5] Benefit recipients reported in this section will differ from those reported in the financial section due to the timing of when membership numbers were pulled.

Table 9 Principal Participating Defined Benefit and Defined Benefit Supplement Employers for Current Year and Nine Years Ago

2017–2018

Rank	Participating Employers	*Covered Employees	Percentage of Total System
1	Los Angeles Unified School District	37,443	7.26%
2	San Diego Unified School District	7,978	1.55
3	Fresno Unified School District	6,385	1.24
4	Long Beach Unified School District	5,754	1.12
5	San Francisco Unified School District	5,222	1.01
6	Elk Grove Unified School District	4,344	0.84
7	San Bernardino City Unified School District	3,861	0.75
8	Oakland Unified School District	3,467	0.67
9	Corona-Norco Unified School District	3,432	0.66
10	Los Angeles Community College District	3,207	0.62
	Top 10 Total	81,093	15.72
	All Other	434,745	84.28
	Total Covered Employees	**515,838**	**100.00**

* Covered employees are calculated as all employees for whom an employer reports service credit during the fiscal year. Covered employees in this table are counted more than once if they are reported by multiple employers. They are also counted if their employer reports service credit for a retired employee from prior fiscal years. Therefore, the total number of covered employees in this table is higher than the number of active members shown in Table 10 of the Actuarial Section under the DB Program.

2008–2009

Rank	Participating Employers	Covered Employees	Percentage of Total System
1	Los Angeles Unified School District	48,206	9.09%
2	San Diego Unified School District	10,641	2.01
3	Long Beach Unified School District	6,596	1.24
4	Fresno Unified School District	5,711	1.08
5	San Francisco Unified School District	5,140	0.97
6	Elk Grove Unified School District	4,411	0.83
7	San Bernardino City Unified School District	4,215	0.79
8	Sacramento City Unified School District	3,927	0.74
9	San Juan Unified School District	3,725	0.70
10	Garden Grove Unified School District	3,586	0.68
	Top 10 Total	96,158	18.13
	All Other	434,275	81.87
	Total Covered Employees	**530,433**	**100.00**

Table 10 Average Allowance Purchasing Power for Fiscal Year 2017–18

Calendar Year of Benefit Effective Date	CCPI Increases Since Benefit Effective Date	Average Allowance Increases Since Benefit Effective Date	Average Purchasing Power of Current Allowance	Average Increase Needed to Restore Full Purchasing Power	Average Annual Supplemental Increase
(1)	(2)	(3)	(4)	(5)	(6)
Prior to 1956	920.6%	284.9%	37.7%	165.2%	$4,277
1956	901.1%	303.6%	40.3%	148.0%	$4,651
1957	867.8%	207.6%	31.8%	214.6%	$4,941
1958	No retiree with benefit effective date in calendar years 1958 & 1959				
1959					
1960	801.3%	132.7%	25.8%	287.3%	$6,587
1961	789.1%	134.5%	26.4%	279.1%	$5,302
1962	774.3%	125.2%	25.8%	288.2%	$9,318
1963	768.5%	135.3%	27.1%	269.1%	$5,370
1964	751.6%	92.3%	22.6%	342.8%	$5,882
1965	730.0%	113.2%	25.7%	289.3%	$6,521
1966	717.1%	115.9%	26.4%	278.5%	$5,517
1967	697.2%	111.3%	26.5%	277.3%	$8,057
1968	664.7%	105.1%	26.8%	272.8%	$7,709
1969	628.6%	109.0%	28.7%	248.6%	$8,420
1970	592.0%	97.3%	28.5%	250.7%	$7,627
1971	565.7%	105.1%	30.8%	224.6%	$7,205
1972	547.6%	105.2%	31.7%	215.6%	$11,660
1973	514.3%	104.7%	33.3%	200.1%	$13,403
1974	456.9%	95.1%	35.0%	185.4%	$11,906
1975	404.4%	93.0%	38.3%	161.3%	$11,566
1976	375.2%	88.0%	39.6%	152.8%	$11,057
1977	340.8%	84.5%	41.8%	138.9%	$10,954
1978	306.0%	81.6%	44.7%	123.6%	$10,363
1979	269.4%	79.0%	48.5%	106.4%	$9,559
1980	214.9%	76.1%	55.9%	78.8%	$7,115
1981	191.1%	73.3%	59.5%	68.0%	$6,303
1982	166.3%	70.7%	64.1%	56.0%	$5,460
1983	164.7%	68.9%	63.8%	56.7%	$6,043
1984	153.2%	66.8%	65.9%	51.8%	$5,628
1985	142.0%	64.1%	67.8%	47.5%	$5,301
1986	133.8%	61.5%	69.1%	44.8%	$5,325

Explanation of source and/or calculation of data in columns 3, 4 and 5:

Column 3—Increases from all sources as a percentage of initial allowance. Obtained by dividing total current allowance by total initial allowance and adjusting to a percentage.

Column 4—Purchasing power as of June 2017. Obtained by dividing total current allowance payable by full CCPI adjusted allowance. Based on totals for all benefit types by calendar year of effective date.

Column 5—Percentage increase in current allowance payable required to restore full 100 percent purchasing power as of June 2017. Obtained by dividing the fully adjusted CCPI allowance factor (column 2) by the percentage increase to date (column 3) and adjusting to a percentage.

Example: (920.6 + 100) / (284.9 + 100) = 2.652 x 100 = 265.2 – 100 = 165.2 percent.

Table 10 Average Allowance Purchasing Power for Fiscal Year 2017–18 (continued)

Calendar Year of Benefit Effective Date	CCPI Increases Since Benefit Effective Date	Average Allowance Increases Since Benefit Effective Date	Average Purchasing Power of Current Allowance	Average Increase Needed to Restore Full Purchasing Power	Average Annual Supplemental Increase
(1)	(2)	(3)	(4)	(5)	(6)
1987	125.5%	59.6%	70.8%	41.3%	$5,140
1988	115.5%	57.4%	73.0%	36.9%	$4,381
1989	104.6%	55.9%	76.2%	31.2%	$3,255
1990	95.3%	54.1%	78.9%	26.7%	$2,318
1991	87.2%	53.5%	82.0%	22.0%	$1,211
1992	80.6%	51.3%	83.8%	19.4%	$490
1993	76.1%	49.2%	84.7%	18.0%	$103
1994	74.0%	47.5%	84.8%	18.0%	$89
1995	70.1%	45.4%	85.5%	17.0%	—
1996	67.5%	43.2%	85.5%	17.0%	—
1997	63.9%	41.4%	86.2%	15.9%	—
1998	60.3%	39.7%	87.1%	14.7%	—
1999	56.3%	36.9%	87.6%	14.2%	—
2000	50.7%	34.9%	89.5%	11.7%	—
2001	43.2%	34.8%	94.1%	6.2%	—
2002	41.1%	32.4%	93.8%	6.6%	—
2003	38.1%	30.2%	94.3%	6.1%	—
2004	34.0%	27.8%	95.4%	4.9%	—
2005	30.3%	25.7%	96.5%	3.7%	—
2006	24.4%	23.5%	99.3%	0.7%	—
2007	20.6%	21.3%	100.6%	(0.6%)	—
2008	14.9%	19.1%	103.6%	(3.5%)	—
2009	16.6%	16.9%	100.2%	(0.3%)	—
2010	15.5%	14.6%	99.2%	0.8%	—
2011	12.4%	12.4%	100.0%	0.0%	—
2012	10.3%	10.2%	99.9%	0.1%	—
2013	8.4%	8.1%	99.7%	0.3%	—
2014	6.1%	6.0%	100.0%	0.1%	—
2015	4.7%	4.0%	99.3%	0.7%	—
2016	2.6%	1.9%	99.3%	0.7%	—
2017	0.0%	0.0%	100.0%	0.0%	—

Explanation of source and/or calculation of data in columns 3, 4 and 5:

Column 3—Increases from all sources as a percentage of initial allowance. Obtained by dividing total current allowance by total initial allowance and adjusting to a percentage.

Column 4—Purchasing power as of June 2017. Obtained by dividing total current allowance payable by full CCPI adjusted allowance. Based on totals for all benefit types by calendar year of effective date.

Column 5—Percentage increase in current allowance payable required to restore full 100 percent purchasing power as of June 2017. Obtained by dividing the fully adjusted CCPI allowance factor (column 2) by the percentage increase to date (column 3) and adjusting to a percentage.

Example: (920.6 + 100) / (284.9 + 100) = 2.652 x 100 = 265.2 – 100 = 165.2 percent.

Table 11 Restoration of Allowance Purchasing Power Through Supplemental Benefit Payments

Retirees' Purchasing Power Protection Account Payments

				Income Source		
Year	Purchasing Power	Count	Total $ Paid	School Lands	Investment Earnings	General Fund
83–84	58.4%	35,654	$21,394,183	$n/a	$894,183	$20,500,000
84–85	62.4	57,189	54,306,976	10,119,124	2,426,456	41,761,396
85–86	65.5	56,811	85,675,243	7,770,757	3,994,458	73,910,028
86–87	68.2	57,343	122,275,289	4,167,970	5,511,448	112,595,871
87–88	68.2	59,092	128,231,357	6,083,374	5,317,456	116,830,527
88–89	68.2	58,037	143,061,285	4,479,266	5,956,019	132,626,000
89–90	68.2	55,971	158,274,048	2,751,075	n/a	155,522,973[1]

Supplemental Benefit Payments

				Income Source		
Year	Purchasing Power	Count	Total $ Paid	School Lands	Teachers' Retirement Fund	SBMA
90–91	68.2%	52,199	$168,922,827	$2,964,211	$111,103,596	$54,855,020
91–92	68.2	48,650	178,057,887	2,913,338	56,985,521	118,159,028
92–93	68.2	54,029	184,551,442	6,658,800	—	177,892,642
93–94	68.2	49,113	178,886,980	4,225,808	—	174,661,172
94–95	68.2	46,459	168,359,918	4,973,687	—	163,386,231
95–96	68.2	41,703	168,517,183	1,171,779	—	167,345,404
96–97	68.2	38,939	159,786,521	1,870,825	—	157,915,696
97–98	68.2[2]/75.0	44,887	179,308,000	2,586,920	—	176,721,080
98–99	75.0	42,624	197,860,324	4,168,363	—	193,691,961
99–00	75.0	41,048	190,478,334	2,704,171	—	187,774,163
00–01	75.0	44,699	189,388,495	4,023,007	—	185,365,488
01–02[3]	80.0	60,428	256,976,204	7,967,992	—	249,008,212
02–03	80.0	58,591	233,814,578	3,543,362	—	230,271,216
03–04	80.0	55,779	223,501,415	2,922,844	—	220,578,571
04–05	80.0	57,079	221,271,470	3,318,095	—	217,953,375
05–06	80.0	54,360	215,257,813	4,301,959	—	210,955,854
06–07	80.0	56,002	230,336,754	6,205,860	—	224,130,894
07–08	80.0	53,122	229,860,349	6,522,856	—	223,337,493
08–09	85.0[4]	89,142	348,105,380	7,036,201	—	341,069,179
09–10	85.0	63,949	272,579,522	6,334,670	—	266,244,852
10–11	85.0	53,870	237,572,962	1,929,606	—	235,643,356
11–12	85.0	57,337	234,612,294	5,227,046	—	229,385,248
12–13	85.0	54,847	221,451,056	10,277,064	—	211,173,992
13–14	85.0	50,331	202,231,778	10,297,864	—	191,933,914
14–15	85.0	52,474	192,831,167	4,386,099	—	188,445,068
15–16	85.0	47,764	172,292,148	5,256,886	—	167,035,262
16–17	85.0	49,519	160,729,280	4,675,196	—	156,054,084
17–18	85.0	61,476	161,932,385	4,409,980	—	157,522,405

[1] The 1989–90 appropriation was from the Teachers' Retirement Fund. This amount plus regular interest was repaid from General Fund contributions to the SBMA.

[2] Percentage changed to 75 percent effective January 1, 1998, and payable April 1, 1998 (Chapter 939, Statutes of 1997).

[3] Percentage changed to 80 percent effective January 1, 2002, and payable October 1, 2001 (Chapter 840, Statutes of 2001).

[4] Percentage changed to 85 percent effective September 30, 2008, and payable October 1, 2008 (Chapter 751, Statutes of 2008).

Table 1 Members Retired for Service During Fiscal Year 2017–18[1], Classified by Age and Option Elected

		Regular Annuity				Period Certain							
Age	Total	Single Life with Cash	100% Joint and Survivor	75% Joint and Survivor	50% Joint and Survivor	10 Years	9 Years	8 Years	7 Years	6 Years	5 Years	4 Years	3 Years
Under 55	14	7	1	1	1	2	—	—	1	—	—	—	1
55	302	102	46	5	8	53	4	3	5	6	38	9	23
56	149	44	16	3	8	30	2	2	2	4	15	5	18
57	204	57	22	5	8	46	2	8	4	7	12	9	24
58	300	76	45	1	17	57	7	4	16	13	33	10	21
59	377	102	41	4	19	82	9	5	15	19	51	9	21
60	645	153	70	20	31	152	10	4	14	22	100	17	52
61	936	217	137	32	62	196	26	13	19	23	109	41	61
62	870	243	112	27	62	160	7	19	19	17	96	31	77
63	765	211	87	17	44	158	13	8	38	23	86	19	61
64	563	150	70	29	42	105	5	3	9	26	76	11	37
65	541	169	78	8	28	102	7	—	14	8	74	18	35
66	410	133	55	14	27	78	8	3	3	12	37	11	29
67	313	77	29	18	21	76	3	2	8	2	30	9	38
68	232	75	31	2	10	51	1	4	7	3	26	3	19
69	181	50	18	4	12	49	2	2	4	4	18	5	13
70	152	46	16	10	7	36	3	1	1	2	18	5	7
71	102	33	9	2	8	27	1	3	1	1	7	1	9
72	69	24	6	—	5	13	1	1	3	1	10	1	4
73	51	13	5	1	4	7	2	—	1	2	6	2	8
74	47	13	4	1	3	18	—	—	—	3	2	—	3
75 and over	97	30	12	6	6	14	1	1	3	2	11	2	9
Total	**7,320**	**2,025**	**910**	**210**	**433**	**1,512**	**114**	**86**	**187**	**200**	**855**	**218**	**570**

[1] Does not include formerly disabled members.

Table 2 Characteristics of All Members Retired for Service and Receiving an Annuity

Fiscal Year Ending June 30	Count	Average Monthly Retirement Annuity	Average Accumulated Credits[1]	Average Age at Retirement
2009	22,474	$203	$9,019	61.6
2010	29,261	227	10,651	61.7
2011	34,917	241	12,004	61.9
2012	40,493	250	13,133	62.0
2013	45,110	254	14,088	62.1
2014	48,745	255	14,848	62.2
2015	52,335	259	15,659	62.3
2016	56,238	269	16,590	62.4
2017	60,505	280	23,873	62.5
2018	64,796	289	24,883	62.6

[1] Neither service credit nor final compensation are factors in determining a benefit from the DBS Program and, therefore, are not included in this table.

Table 3 Characteristics of All Members Retired for Disability and Receiving an Annuity

Fiscal Year Ending June 30	Count	Average Monthly Disability Annuity	Average Accumulated Credits[1]	Average Age at Retirement
2009	236	$163	$6,308	54.8
2010	336	201	7,673	55.6
2011	575	239	9,436	55.4
2012	747	239	10,404	55.5
2013	977	244	11,495	55.6
2014	1,123	239	12,407	55.8
2015	1,263	245	13,237	55.6
2016	1,340	239	13,953	55.5
2017	1,428	246	19,793	55.3
2018	1,464	244	20,232	55.2

[1] Neither service credit nor final compensation are factors in determining a benefit from the DBS Program and, therefore, are not included in this table.

Table 4 Retired Members by Type of Benefit and Option Elected
(as of June 30, 2018)

	Monthly Unmodified Allowance					
Type of Benefit	**Less than $250**	**$250–$500**	**$500–$750**	**$750–$1,000**	**$1,000 & Greater**	**Total**
Retirement	37,920	17,752	5,666	1,929	1,529	64,796
Disability	1,006	320	91	30	17	1,464
Survivors	1,116	328	115	45	54	1,658
Total	**40,042**	**18,400**	**5,872**	**2,004**	**1,600**	**67,918**
Type of Payment						
Regular Annuity						
Single Life Without Cash	1,053	1	—	—	—	1,054
Single Life With Cash	19,175	3,347	378	116	56	23,072
100% J&S	9,904	2,168	300	74	60	12,506
75% J&S	1,469	420	72	10	16	1,987
50% J&S	3,376	836	129	35	17	4,393
Period Certain Annuity						
10 Year	4,086	7,861	1,445	379	275	14,046
9 Year	181	613	141	33	36	1,004
8 Year	80	395	117	25	28	645
7 Year	88	615	288	66	54	1,111
6 Year	76	444	404	77	57	1,058
5 Year	329	1,261	1,877	522	327	4,316
4 Year	61	163	389	169	118	900
3 Year	164	276	332	498	556	1,826
Total	**40,042**	**18,400**	**5,872**	**2,004**	**1,600**	**67,918**

Table 1 Participants Retired for Service During the 2017–18 Fiscal Year Classified by Age and Type of Annuity Elected[1]

		Regular Annuity				Period Certain Annuity							
Age	Total	Participant Only[1]	100% Beneficiary[2]	75% Beneficiary[3]	50% Beneficiary[4]	10 Years	9 Years	8 Years	7 Years	6 Years	5 Years	4 Years	3 Years
Under 55	0	—	—	—	—	—	—	—	—	—	—	—	—
55	2	—	—	—	—	—	—	—	—	—	2	—	—
56	0	—	—	—	—	—	—	—	—	—	—	—	—
57	0	—	—	—	—	—	—	—	—	—	—	—	—
58	0	—	—	—	—	—	—	—	—	—	—	—	—
59	4	1	—	—	—	1	—	—	—	—	1	—	1
60	2	—	1	1	—	—	—	—	—	—	—	—	—
61	2	1	—	—	—	—	—	—	—	—	—	1	—
62	4	1	—	—	—	1	—	—	—	1	—	—	1
63	4	1	—	—	—	—	—	—	—	—	—	1	2
64	2	1	—	—	—	—	—	—	—	—	1	—	—
65	3	2	—	—	—	—	—	—	—	—	1	—	—
66	5	3	—	1	—	1	—	—	—	—	—	—	—
67	3	1	—	—	—	1	1	—	—	—	—	—	—
68	3	1	1	—	—	—	—	—	—	—	—	—	1
69	8	5	—	—	—	—	—	—	1	—	—	1	1
70	8	1	1	—	—	—	—	—	1	—	2	1	2
71	8	1	1	1	—	1	—	—	—	—	2	—	2
72	2	—	—	—	—	1	—	—	—	—	—	—	1
73	1	1	—	—	—	—	—	—	—	—	—	—	—
74	2	—	—	—	—	1	—	—	—	—	—	—	1
75 & Over	18	6	—	1	—	1	—	—	1	—	3	—	6
Total	**81**	**26**	**4**	**4**	**0**	**8**	**1**	**0**	**3**	**1**	**12**	**4**	**18**

[1] Formerly known as the Single Life Annuity with Cash Refund.
[2] Formerly known as the 100 percent Joint and Survivor Annuity.
[3] New option available for selection effective January 1, 2007.
[4] Formerly known as the 50 percent Joint and Survivor Annuity.

Table 2 Characteristics of All Members Retired for Service and Receiving an Annuity

Fiscal Year Ending June 30	Average Age At Retirement	Average Annuitant Reserve	Average Monthly Annuity
2009	67.3	$13,054	$201
2010	68.1	12,701	204
2011	67.8	13,388	215
2012	67.7	15,945	233
2013	67.1	18,442	263
2014	67.5	20,365	281
2015	67.6	20,815	251
2016	67.9	21,700	270
2017	68.0	26,501	308
2018	68.2	27,790	331

Table 3 All Participants Receiving an Annuity by Type of Benefit and Type of Annuity Elected

	Monthly Unmodified Allowance					
Type of Benefit	**Less than $250**	**$250–$500**	**$500–$750**	**$750–$1,000**	**$1,000 & Greater**	**Total**
Retirement	203	79	38	15	17	352
Disability	—	1	—	—	1	2
Survivors	8	4	—	3	1	16
Total	**211**	**84**	**38**	**18**	**19**	**370**
Type of Payment						
Regular Annuity						
Single Life With Cash	1	—	—	—	—	1
Single Life Without Cash	2	—	—	—	—	2
Participant Only	97	34	12	3	1	147
100% Beneficiary Annuity	38	4	1	1	1	45
75% Beneficiary Annuity	5	1	1	—	—	7
50% Beneficiary Annuity	7	4	1	—	1	13
Period-Certain Annuity						
10 Year	36	12	7	1	—	56
9 Year	1	3	—	1	—	5
8 Year	2	2	—	—	—	4
7 Year	1	3	3	—	—	7
6 Year	—	2	2	—	1	5
5 Year	8	6	4	7	1	26
4 Year	4	3	1	3	1	12
3 Year	9	10	6	2	13	40
Total	**211**	**84**	**38**	**18**	**19**	**370**

Table 4 Principal Participating Employers for the Cash Balance Benefit Program, Current Year and Nine Years Ago

2017–2018

Rank	Participating Employers	*Covered Employees	Percentage of Total System
1	Los Angeles Community College District	6,001	14.47%
2	Contra Costa Community College District	2,695	6.50
3	Peralta Community College District	2,486	5.99
4	West Contra Costa Unified School District	2,120	5.11
5	City College of San Francisco	2,066	4.98
6	San Jose/Evergreen Community College District	1,962	4.73
7	Foothill De Anza Community College District	1,875	4.52
8	Chabot-Las Positas Community College District	1,765	4.25
9	Glendale Community College District	1,718	4.14
10	Santa Rosa Junior College	1,579	3.81
	Top 10 Total	24,267	58.50
	All Other	17,214	41.50
	Total Covered Employees	**41,481**	**100.00%**

* Covered employees are calculated as all employees for whom an employer reports service credit during the fiscal year. Covered employees in this table are counted more than once if they are reported by multiple employers. They are also counted if their employer reports service credit for a retired employee from prior fiscal years.

2008–2009

Rank	Participating Employers	Covered Employees	Percentage of Total System
1	Los Angeles Community College District	3,759	12.05%
2	Contra Costa Community College District	2,158	6.92
3	Peralta Community College District	2,068	6.63
4	West Contra Costa Unified School District	2,024	6.49
5	City College of San Francisco	1,867	5.98
6	Chabot-Las Positas Community College District	1,609	5.16
7	San Jose/Evergreen Community College District	1,600	5.13
8	Santa Rosa Junior College	1,342	4.30
9	Glendale Community College District	1,230	3.94
10	Ventura Community College District	1,178	3.78
	Top 10 Total	18,835	60.36
	All Other	12,368	39.64
	Total Covered Employees	**31,203**	**100.00%**

Table 1A Changes in Fiduciary Net Position for the Pension2 IRC 403(b) Plan[1,2]

(Dollars in Thousands)

Fiscal Year Ending June 30	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Additions										
Participant Contributions	$122,113	$121,945	$96,347	$72,042	$66,545	$57,273	$53,111	$47,181	$53,536	$42,966
Employer Contributions	369	393	377	301	151	269	188	225	—	—
Net Investment Income	65,104	77,730	9,548	19,363	66,002	43,151	6,132	43,782	17,175	(28,479)
Other Income	309	141	120	91	28	—	—	—	—	—
Total Additions	**$187,895**	**$200,209**	**$106,392**	**$91,797**	**$132,726**	**$100,693**	**$59,431**	**$91,188**	**$70,711**	**$14,487**
Deductions										
Distributions and Withdrawals[3]	$48,481	$36,322	$32,936	$32,648	$22,173	$25,727	$19,978	$16,690	$11,892	$8,644
Refunds of Participant Contributions	5,614	4,657	4,965	7,753	2,523	—	—	—	—	—
Administrative Expenses	2,406	1,975	1,583	1,405	1,146	754	606	538	374	278
Total Deductions	**$56,501**	**$42,954**	**$39,484**	**$41,806**	**$25,842**	**$26,481**	**$20,584**	**$17,228**	**$12,266**	**$8,922**
Change in Fiduciary Net Position	**$131,394**	**$157,255**	**$66,908**	**$49,991**	**$106,884**	**$74,212**	**$38,847**	**$73,960**	**$58,445**	**$5,565**

[1] Certain reclassifications have been made to the totals for fiscal year 2008–09.

[2] This table has been updated to present employer contributions separate from participant contributions dating back to fiscal year 2008-09 to conform with the presentation on the Statement of Changes in Fiduciary Net Position in the Financial Section.

[3] Distributions and Withdrawals reflects the Benefit Payments to Participant and Refunds of Participant Contributions combined for fiscal years 2008–09 through 2012–13.

Table 1B Changes in Fiduciary Net Position for the Pension2 IRC 457(b) Plan[1]

(Dollars in Thousands)

Fiscal Year Ending June 30	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Additions										
Participant Contributions	$7,038	$6,516	$4,898	$4,025	$3,230	$2,591	$6,877	$1,289	$674	$37
Employer Contributions	85	44	77	71	51	37	37	42	—	—
Net Investment Income	2,555	3,338	426	547	1,934	1,081	219	155	60	1
Other Income	11	8	4	2	—	—	—	—	—	—
Total Additions	**$9,689**	**$9,906**	**$5,405**	**$4,645**	**$5,215**	**$3,709**	**$7,133**	**$1,486**	**$734**	**$38**
Deductions										
Distributions and Withdrawals[2]	$1,411	$769	$905	$807	$358	$530	$19	$82	$ —	$ —
Refunds of Participant Contributions	88	36	266	—	45	—	—	—	—	—
Administrative Expenses	100	79	56	47	36	22	8	2	—	—
Total Deductions	**$1,599**	**$884**	**$1,227**	**$854**	**$439**	**$552**	**$27**	**$84**	**$ —**	**$ —**
Change in Fiduciary Net Position	**$8,090**	**$9,022**	**$4,178**	**$3,791**	**$4,776**	**$3,157**	**$7,106**	**$1,402**	**$734**	**$38**

[1] This table has been updated to present employer contributions separate from participant contributions dating back to fiscal year 2008-09 to conform with the presentation on the Statement of Changes in Fiduciary Net Position in the Financial Section.

[2] Distributions and Withdrawals reflects the Benefit Payments to Participant and Refunds of Participant Contributions combined for fiscal years 2008–09 through 2012–13.

Table 2 Largest Participating Employers for CalSTRS Pension2, Current Year and Nine Years Ago

2017–2018			
Rank	Participating Employers	Covered Employees	Percentage
1	Los Angeles Unified School District	3,397	13.46%
2	Los Angeles Community College District	548	2.17
3	San Diego Unified School District	526	2.08
4	San Francisco Unified School District	357	1.41
5	Fremont Unified School District	337	1.33
6	Elk Grove Unified School District	331	1.31
7	Los Rios Community College District	262	1.04
8	City College of San Francisco	247	0.98
9	Long Beach Unified School District	247	0.98
10	Sacramento Unified School District	223	0.88
	Top 10 Total	6,475	25.65
	All Other	18,771	74.35
	Total (1,122 Employers)*	**25,246**	**100.00%**

2008–2009			
Rank	Participating Employers	Covered Employees	Percentage
1	Los Angeles Unified School District	1,230	21.53%
2	San Diego Unified School District	154	2.70
3	Long Beach Unified School District	95	1.66
4	San Juan Unified School District	72	1.26
5	Sacramento City Unified School District	70	1.23
6	San Diego Community College District	68	1.19
7	City College of San Francisco	65	1.14
8	Los Angeles Community College District	60	1.05
9	San Francisco Unified School District	58	1.02
10	Capistrano Unified School District	55	0.96
	Top 10 Total	1,927	33.74
	All Other	3,785	66.26
	Total (640 Employers)*	**5,712**	**100.00%**

* If employers offer a 403(b) or 457(b), they are counted twice; totals also include all accounts with or without balances.

MEDICARE PREMIUM PAYMENT PROGRAM

Table 1 Changes in Fiduciary Net Position for the Medicare Premium Payment Program
(Dollars in Thousands)

Fiscal Year Ending June 30	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Additions										
Employer Contributions	$28,218	$29,117	$29,982	$30,527	$33,395	$35,022	$34,614	$36,145	$31,749	$29,962
Net Investment Income	18	11	9	—	10	6	8	10	33	106
Total Additions	**$28,236**	**$29,128**	**$29,991**	**$30,527**	**$33,405**	**$35,028**	**$34,622**	**$36,155**	**$31,782**	**$30,068**
Deductions										
Premiums Paid	$28,036	$28,929	$29,661	$30,615	$32,632	$34,702	$34,412	$35,785	$35,421	$29,415
Administrative Expenses	578	168	380	360	327	340	370	345	309	316
Total Deductions	**$28,614**	**$29,097**	**$30,041**	**$30,975**	**$32,959**	**$35,042**	**$34,782**	**$36,130**	**$35,730**	**$29,731**
Change in Fiduciary Net Position	**($378)**	**$31**	**($50)**	**($448)**	**$446**	**($14)**	**($160)**	**$25**	**($3,948)**	**$337**

Table 2 Benefit and Refund Deductions from Changes in Fiduciary Net Position by Type
(Dollars in Thousands)

Fiscal Year Ending June 30	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Type of Benefit										
Age & Service Benefits										
Retired Members	$28,036	$28,929	$29,661	$30,615	$32,632	$34,702	$34,412	$35,785	$35,421	$29,415
Total Benefits	**$28,036**	**$28,929**	**$29,661**	**$30,615**	**$32,632**	**$34,702**	**$34,412**	**$35,785**	**$35,421**	**$29,415**

MEDICARE PREMIUM PAYMENT PROGRAM

Table 3 Retired Members Enrolled in Medicare Premium Payment Program During Fiscal Year 2017–18 Classified by Age at Retirement

Age	Total
<55	34
55–56	13
56–57	8
57–58	16
58–59	16
59–60	15
60–61	11
61–62	3
62–63	2
63–64	1
64–75	—
>75	—
GrandTotal	**119**

Table 4 Characteristics of All Retired Members Enrolled in Medicare Premium Payment Program

Fiscal Year Ending June 30	Average Age at Retirement	Average Monthly Medicare Premium
2009	60.3	$464
2010	60.3	438
2011	60.3	431
2012	60.3	417
2013	60.3	413
2014	60.3	400
2015	60.2	383
2016	60.2	374
2017	60.2	376
2018	60.1	380

TEACHERS' DEFERRED COMPENSATION FUND

Table 1 Changes in Fiduciary Net Position for the Teachers' Deferred Compensation Fund
(Dollars in Thousands)

Fiscal Year Ending June 30	2018	2017	2016	2015	2014	2013	2012 [1]	2011 [1]	2010	2009
Additions										
Net Investment Income	$17	$9	$6	$1	$4	$3	$3	$4	$5	$16
Other Income	1,607	1,453	1,339	1,072	1,241	563	767	497	539	386
Total Additions	**$1,624**	**$1,462**	**$1,345**	**$1,073**	**$1,245**	**$566**	**$770**	**$501**	**$544**	**$402**
Deductions										
Administrative Expenses	$2,198	$1,542	$1,433	$996	$874	$600	$698	$569	$414	$532
Other Expenses	—	22	14	14	15	30	—	—	—	—
Total Deductions	**$2,198**	**$1,564**	**$1,447**	**$1,010**	**$889**	**$630**	**$698**	**$569**	**$414**	**$532**
Change in Fiduciary Net Position	**($574)**	**($102)**	**($102)**	**$63**	**$356**	**($64)**	**$72**	**($68)**	**$130**	**($130)**

[1] Certain reclassifications have been made to the additions for fiscal years 2010–11 and 2011–12.

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