CALSTRS
HOW WILL YOU SPEND YOUR FUTURE?

Comprehensive Annual FINANCIAL REPORT

CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM

A COMPONENT UNIT OF THE STATE OF CALIFORNIA
FOR THE FISCAL YEAR ENDED JUNE 30, 2020

GLOBAL STEWARDSHIP AT WORK

CALIFORNIA STATE TEACHERS' RETIREMENT SYSTEM

A component unit of the State of California
Comprehensive Annual Financial Report
for the fiscal year ended June 30, 2020

Prepared by CalSTRS staff

CalSTRS Comprehensive Annual Financial Report

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Introductory section

MISSION

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

STRATEGIC GOALS

Financial/Governance

Ensure a well-governed, financially sound trust fund.

Digital Transformation

Leverage technology to securely transform business and service delivery models to maximize operational efficiency.

Member/Employer

Strengthen partnerships and services to members, employers and stakeholders.

Organizational Strength

Grow capacity and enhance efficiency in alignment with the mission and vision.

CALSTRS

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

December 1, 2020

The *Comprehensive Annual Financial Report* issued by the California State Teachers' Retirement System details the system's performance for the fiscal year beginning July 1, 2019, and ending June 30, 2020.

CalSTRS was established in 1913 as the pension plan for California's public school educators. We began by serving 120 retired members and 15,000 active members. Over a century later, we now serve more than 975,000 dedicated educators and their beneficiaries. As of June 30, 2020, CalSTRS employed more than 1,200 staff located throughout California.

With approximately $248.3 billion in net assets as of June 30, 2020, CalSTRS is the largest educator-only pension fund in the world and the second largest pension fund in the U.S. We administer a hybrid retirement system, consisting of traditional defined benefit, cash balance and defined contribution plans, and provide disability and survivor benefits for California public school educators from prekindergarten through community college. We also administer a postemployment health benefit program and a voluntary defined contribution plan. Our members include educators employed by 1,788 school districts, community college districts, county offices of education and other public education employers.

As trusted fiduciaries, we take deliberate actions and make informed, accountable decisions to ensure a sustainable organization. Our unwavering commitment to stewardship ensures we are here for our members long after they dedicate their careers to education, as we steadfastly deliver on the promise of a secure financial future.

The COVID-19 pandemic has had a profound impact to our economy, members, employers, our organization and everyday life. Despite the challenges it has brought, we continue to deliver on our mission: *Securing the financial future and sustaining the trust of California's educators.*

Responding to state and community directives, in March 2020, we temporarily reduced hours at our Contact Center from 8 a.m. to 5 p.m. and transitioned to working remotely.

In addition, at the request of the Teachers' Retirement Board, in response to the global COVID-19 pandemic and its impact to financial markets and our operations, and in order to ensure a thorough and competitive search for the next CalSTRS Chief Executive Officer, I made the decision to delay my planned retirement from September 1, 2020, to June 30, 2021.

Helping members build their futures

CalSTRS members have unique financial education and awareness needs. The average CalSTRS pension replaces about 55% of a member's final salary for those who retired in 2019–20. Financial advisors recommend income replacement rates as high as 80% to 90% to maintain a similar lifestyle in retirement, so access to and awareness of supplemental savings tools is essential. Public educators do not receive Social Security benefits for their CalSTRS service, and due to the federal

Government Pension Offset and Windfall Elimination Provision, retirees who are eligible for Social Security from other work or a spouse may have their Social Security benefits reduced when receiving a CalSTRS benefit. Most retired educators do not have employer-funded health insurance after age 65.

Our relationship with our members begins when they first enter the profession and extends through their retirement years. The average CalSTRS retired member dedicated more than 25 years to education and retired at 62 years of age. Our members live longer than the average U.S. population—and according to our most recent actuarial experience study, we expect our members to continue living longer in retirement.

Reflecting the longevity of our members' careers and their increased lifespans, we dedicate resources to promote awareness about retirees' financial needs and to provide members with retirement planning tools throughout their careers. We educate our members on the importance of saving early in their careers when they can benefit most from the power of time and compounding through targeted career-stage publications, workshops and events.

Complementing our robust financial education programs, we are increasingly focused on engaging with our partners in this responsibility—our members' employers. Accurate and complete reporting of member data is just as important to a secure retirement as the employer's role in educating employees about their benefits.

Last year, we reached members at home, online and in their communities with targeted communications, benefits planning services and workshops. Through multiple communication channels, including our member service centers' in-person and online services, websites, publications, and outreach to employers and other partners, we strive to be our members' trusted guide to retirement. CalSTRS also administers the 403bCompare.com website, a comprehensive resource that provides fee and cost comparisons for 403(b) supplemental savings plans. By providing these financial awareness and retirement planning tools, we aim to empower our members to meet their future income needs.

Our commitment to global stewardship at work

We demonstrate our commitment to organizational sustainability by modeling best practices in corporate governance, employing risk-mitigation policies, hiring and developing staff to meet the needs of our changing business environment, 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 is the essence of our commitment to the theme of "Global Stewardship at Work," which is reinforced in several of our annual reports.

We have a fiduciary duty to be principled and effective within our operations, and we believe a corporate environment that values sustainability is key to long-term value creation and responsible investment strategies. Major initiatives with significant investments, benefits and administrative impact are summarized in the sections that follow.

Major initiatives

The CalSTRS Collaborative Model

The CalSTRS Collaborative Model is an investment strategy to manage more assets internally—to reduce costs, control risks and increase expected returns—and leverage our external partnerships to achieve similar benefits.

The main strategy is to search for long-term cost savings and hybrid opportunities through investment management and by leveraging existing relationships. These efforts are projected to reduce costs and generate higher returns to support a strong investment portfolio in line with our mission—all for the benefit of California educators and their beneficiaries.

Pension Solution project

CalSTRS is continuing efforts to replace the legacy pension administration system with modern functionality. Through this multi-year project, we seek to increase our ability to respond to customer and business needs; enhance services to members and their beneficiaries, staff and employers; gain long-term operational efficiencies; and improve internal controls.

West Sacramento headquarters expansion

Construction is underway to expand our West Sacramento headquarters facilities. The new 10-story tower is expected to be completed in 2022 and will include 260,000 square feet of additional office space. The expansion is designed to support sustainable green building practices—including green technologies, sustainable construction, energy conservation and whole-building integrated energy efficiency measures—as well as employee wellness.

The project is being financed through tax-exempt lease-revenue green bonds issued through a conduit issuer, the California Infrastructure and Economic Development Bank.

Low-carbon economy transition workplan

CalSTRS recognizes that climate change presents a material and existential risk to society and the economy. We are committed to influencing public policy, engaging with companies and investing to promote an orderly transition to a low-carbon economy. In fiscal year 2019–20, we embarked on a Low-Carbon Transition Work Plan that seeks to reduce climate-related risk and identify opportunities to invest in climate-related solutions for maximum benefit to our members. As part of the plan, the Teachers' Retirement Board adopted an investment belief related to climate risk: *Investment risks associated with climate change and the related economic transition—physical, policy and technology driven—materially impact the value of CalSTRS' investment portfolio.* In addition, CalSTRS began a phased approach of assessing transition readiness for each investment asset class, and we are seeking to expand investments in low-carbon solutions that are additive to the goals of the fund.

Sustainable investment and stewardship

We regularly engage with portfolio companies based upon our stewardship priorities: corporate and market accountability, board effectiveness, the transition to a low-carbon economy, and a responsible firearms industry. We continue to expand our engagement efforts to drive positive change within our portfolio. We see engagement as a powerful tool to influence the market and ensure companies are sustainable and provide long-term risk adjusted returns to strengthen the fund.

One area of emphasis in our engagement efforts is the need for better disclosures on human capital management, including a board's role in ensuring the effective management and the future preparedness of their workforce for changing times. As a long-term shareowner, our duty is to protect our assets by ensuring that the companies in which we invest effectively manage and mitigate material risks to long-term value through the pursuit of good governance and operational accountability.

Enterprise risk management

We regularly review enterprise-level risks related to the accomplishment of our strategic goals and objectives, while considering internal and external factors that could be catalysts for emerging risks.

Preparing for potential disaster scenarios, including a pandemic, is a fundamental responsibility of operations management within CalSTRS. Even before the issuance of the first "stay at home" directive, CalSTRS activated our Emergency Operations Center team. We effectively executed our existing emergency business continuity plans to ensure core business functions—paying benefits, collecting contributions and managing investments—were maintained while shifting most staff to working from home.

Information security is another area of risk that can threaten the sustainability of any organization today. We focus substantial attention on information security and are vigilant in detecting threats, proactively mitigating identified risks, and adapting to the rapidly evolving nature of the cybersecurity landscape. We have several key initiatives underway to ensure our policies and technology continue to secure the confidentiality and integrity of data and member information.

In fiscal year 2019–20, we launched a Compliance and Ethics Hotline—a safe, secure and confidential way to report unethical acts or pension abuse. Any member of the public or CalSTRS employee can make anonymous reports online or by phone.

Progress on full funding of the Defined Benefit Program

CalSTRS' primary goal is to ensure a financially sound retirement system. We remain focused on achieving full funding of the CalSTRS Defined Benefit Program according to the plan established in June 2014.

The CalSTRS Funding Plan, set in motion via Chapter 47, Statutes of 2014 (California Assembly Bill 1469–Bonta), established a schedule of contribution rate increases shared between members, employers and the state to bring CalSTRS toward full funding by 2046. The funding plan is a model of shared responsibility and works with investment portfolio performance to advance us along the path of long-term sustainability. Today, CalSTRS is financially stronger and better positioned than 10 years ago to react to a potential recession and achieve full funding thanks to the adoption of the CalSTRS Funding Plan.

While a gap remains between our current assets and the obligations facing the Defined Benefit Program—known as the unfunded actuarial obligation, or unfunded liability—we continue 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, 2019, actuarial valuation (released in May 2020) reflects an improving funding picture. The unfunded actuarial obligation decreased from $107.2 billion at the June 30, 2018, valuation to $105.7 billion as of the June 30, 2019, report. The funded ratio—the amount of assets on hand to pay for obligations—improved from 64.0% at the June 30, 2018, valuation to 66.0% as of June 30, 2019. One of the main factors for the improvement in the funding level since the 2018 valuation is the supplemental payments made by the state last year. Note that these actuarial valuation numbers are computed differently than the net pension liability amounts as defined by Governmental Accounting Standards Board pronouncements, which are reported in the basic financial statements (Note 3 - Net pension liability of employers and nonemployer contributing entity) of this report.

The valuation did not reflect the potential impact of investment market activity that occurred since the valuation date, most notably the historic volatility associated with the COVID-19 pandemic. CalSTRS is a long-term investor, and we think in terms of decades—not days, weeks or months. The CalSTRS Investment Portfolio is broadly diversified in order to respond to periods of market volatility. When taking into account the impact of the COVID-19 pandemic on world economies and investment markets, as well as changes made to both employer and state contribution rates as part of the State of California budget for fiscal year 2020–21, funding progress over the next few years is now expected to be slower than previously anticipated in the actuarial valuation. Still, CalSTRS expects the Defined Benefit Program to make progress toward full funding, with both the state and employers expected to be able to eliminate their share of CalSTRS unfunded liability, by 2046.

The CalSTRS Defined Benefit Program continues to mature, with the ratio of retirees to active members rising. This increases the system's sensitivity to investment volatility, especially for the state contribution rate. The largest risk facing CalSTRS' ability to reach full funding is risk from future investment returns falling short of the assumed rate of return. Other risks include decreases in the size of the active membership or lower than anticipated increases in future payroll.

Management responsibility

The basic financial statements were prepared in accordance with accounting principles generally accepted in the U.S. CalSTRS management is responsible for the contents of this report, and the integrity and fairness of the information presented in the basic 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 basic financial statements, accompanying schedules and statistical tables are fairly presented in all material respects.

Letter of transmittal

Financial statements

The basic financial statements and the accompanying notes, along with management's discussion and analysis, in this report present and analyze the changes in CalSTRS' fiduciary net position for the fiscal year ended June 30, 2020. The markets are dynamic and fluid: any judgment of the financial statements should also consider current market conditions. Crowe LLP conducted an independent audit of the financial statements in accordance with auditing standards generally accepted in the U.S. and the standards applicable to financial audits contained in *Government Auditing Standards,* issued by the Comptroller General of the United States. Crowe LLP issued an unmodified opinion on CalSTRS' financial statements, which can be found in the independent auditor's report in the Financial section.

Investment 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. Considering these factors, CalSTRS has been effective in using our resources in a cost-efficient manner to ensure benefits continue to flow to CalSTRS members and their beneficiaries. Over the last year, the portfolio generated a 3.9% one-year net of fees return calculated on a time-weighted performance basis.

See the Investment section of this report for more detailed information on the performance of the portfolio.

Actuarial reports

A summary of demographic and economic assumptions adopted from experience studies that CalSTRS generally conducts every four years is highlighted in the Actuarial section. These assumptions are applied to an actuarial valuation that is 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. See the Actuarial section of this report for detailed information.

Statistical reports

The Statistical section of this report 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 a 10-year comparison including the previous fiscal year. This historical view reveals overall trends in our programs and membership demographics that help us forecast our future ability to meet our members' retirement needs.

Awards and recognition

The Government Finance Officers Association of the U.S. and Canada awarded a Certificate of Achievement for Excellence in Financial Reporting to CalSTRS for our *Comprehensive Annual Financial Report* for the year ended June 30, 2019. This is the 25th consecutive year CalSTRS has received this prestigious award. In order to be awarded a certificate, a government entity must publish an easily readable and efficiently organized *Comprehensive Annual Financial Report.* This report must satisfy both generally accepted accounting principles and applicable legal requirements.

The certificate is valid for a period of one year. We believe our current *Comprehensive Annual Financial Report* continues to meet the Certificate of Achievement program's requirements and are submitting it to the GFOA to determine its eligibility.

The Public Pension Coordinating Council presented CalSTRS with its Public Pension Standards Award for Administration for the fiscal year ended June 30, 2020, for meeting professional standards for administration as set forth in the Public Pension Standards. The PPCC 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. This award is valid for a period of one year.

Acknowledgements

The 2020 *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 securing the financial future of our members.

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

Respectfully submitted,

Jack Ehnes

Jack Ehnes

Chief Executive Officer

CalSTRS

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, 2019

Christopher P. Morrill

Executive Director/CEO

Public Pension Coordinating Council

Recognition Award for Administration 2020

Presented to

California State Teachers' Retirement System

In recognition of meeting professional standards for
plan 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
Program Administrator

Teachers' Retirement Board

HARRY M. KEILEY
Board Chair
K–12 Classroom Teacher
Term: January 1, 2020 –
December 31, 2023

SHARON HENDRICKS
Board Vice Chair
Community College Instructor
Term: January 1, 2020 –
December 31, 2023

KEELY BOSLER
Director of Finance
Ex Officio Member

DENISE BRADFORD
K–12 Classroom Teacher
Term: January 1, 2020 –
December 31, 2023

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

FIONA MA
State Treasurer
Ex Officio Member

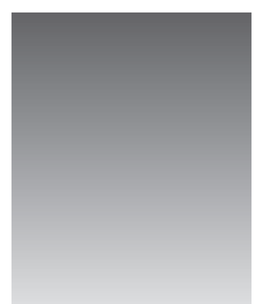
WILLIAM PREZANT
Public Representative
Term: March 26, 2019 –
December 31, 2022

TONY THURMOND
Superintendent of Public Instruction
Ex Officio Member

JENNIFER URDAN
Public Representative
Term: August 12, 2020 –
December 31, 2023

KAREN YAMAMOTO
Retiree Representative
Term: February 13, 2020 –
December 31, 2023

BETTY YEE
State Controller
Ex Officio Member



VACANT
School Board Representative

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

Executive staff

Executive

JACK EHNES
Chief Executive Officer

Investments

CHRISTOPHER J. AILMAN
Chief Investment Officer

CASSANDRA LICHNOCK
Chief Operating Officer

Financial Services

JULIE UNDERWOOD
Chief Financial Officer

General Counsel

BRIAN J. BARTOW
General Counsel

Administrative Services

LISA BLATNICK
Chief of Administrative Services

Benefits and Services

WILLIAM PEREZ
Chief Benefits Officer

Public Affairs

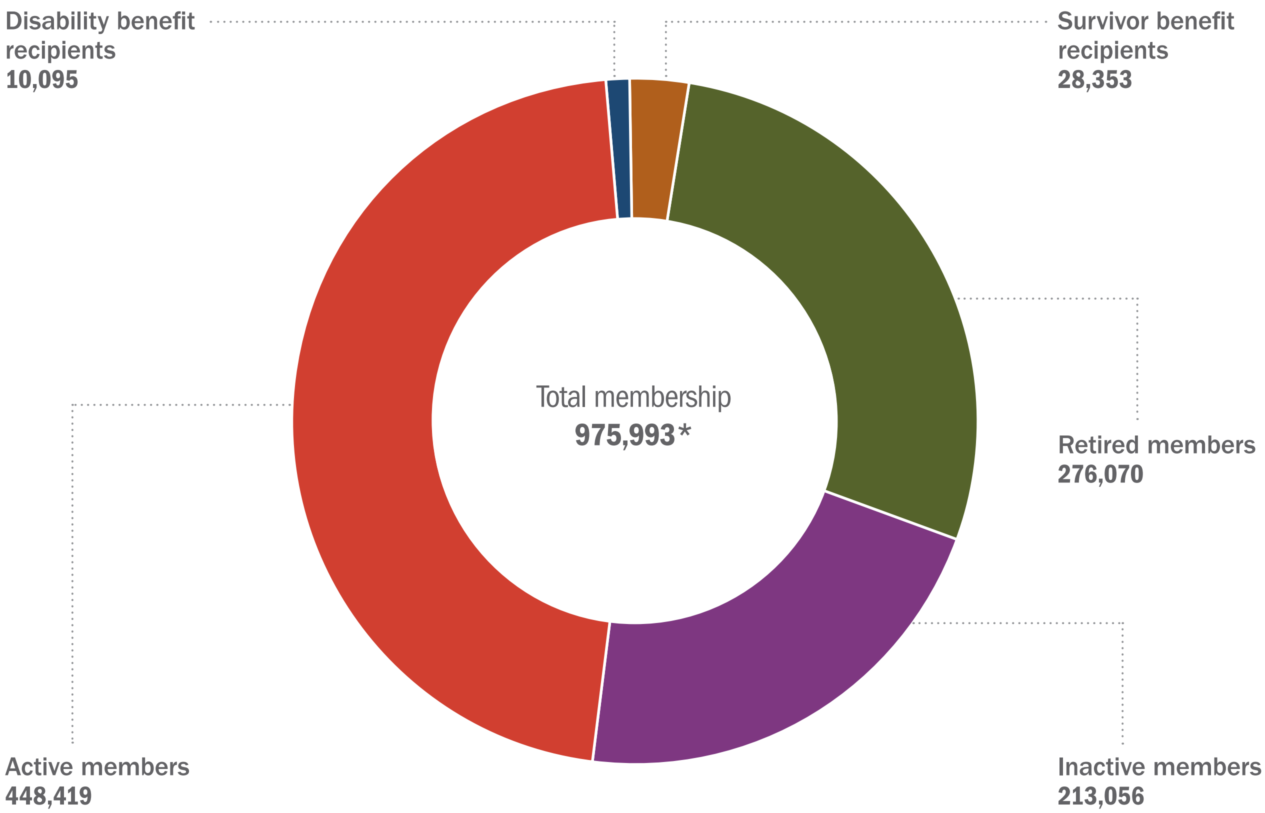
VACANT
Chief Public Affairs Officer

Technology Services

ASHISH JAIN
Chief Technology Officer

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

MEMBERS BY THE NUMBERS



*Due to the timing of when Defined Benefit membership numbers were retrieved, 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 are involved in activities that support public education, including teaching, mentoring, selecting and preparing instructional materials, providing vocational or guidance counseling or supervising people engaged in those activities. Membership is in effect as long as contributions remain on deposit with CalSTRS. Members are employed in 1,788 public school districts, community college districts, county offices of education, charter schools, state agencies and regional occupational programs. The CalSTRS Defined Benefit Program includes retirement, disability and survivor benefits. Members can elect an option to provide a monthly lifetime income for their beneficiaries upon the member's death.

Benefits to members and their beneficiaries

Service retirement

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

11,706	Members who retired in fiscal year 2019–20
5.1%	Decrease from fiscal year 2018–19

Disability benefits

95%	Applications processed within 150 days
609	Applications received in 2019–20
380	Applications approved in 2019–20
3.6%	Decrease in number of disability applications received from fiscal year 2018–19

Survivor benefits

93%	Payments processed within 30 days of receiving all necessary information
9,541	Notifications of death received in 2019–20
3.5%	Decrease in number of notifications from fiscal year 2018–19

Communicating with our members and beneficiaries

Customer service

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

265,405	Member inquiries answered
79%	Member calls answered within 30 seconds
54 seconds	Average wait time to talk with a Contact Center agent
95%	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. Seventy-six percent of members were "highly satisfied" with their Contact Center experience.

Member communications

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

Newsletters

CalSTRS reaches out to members and their 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 planning, 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 their 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.

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 to four groups of CalSTRS members when they reach a career milestone. The first three career milestones—newly vested, midcareer and near retirement—are based on the member's age and years of service credit. The last member kit is sent when the member reaches the fourth milestone—retirement.

In addition, CalSTRS produces publications that cover specific topics including, but not limited to:

- *Cash Balance Benefit Program*
- *Community Property Guide*
- *Concurrent Retirement*
- *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.

The Pension Sense blog at CalSTRS.com/pension-sense-blog offers website visitors and email subscribers the latest information on member benefits, our investment portfolio, corporate engagement activities and more.

***my*CalSTRS**, our secure self-service site for members, provides members convenient access to their account. 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 plan 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 plans side by side, and get information on how to enroll and start contributions. 403bCompare was created by CalSTRS pursuant to state statute.

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

Benefits planning services

CalSTRS has eight member service centers: West Sacramento (headquarters), Glendale, Santa Clara, Irvine, Riverside, San Diego, Fresno and Redding. Member service centers offer educational and benefits planning services, including individual and group benefits planning sessions and financial savings workshops. These member service centers serve the greater Sacramento, Los Angeles, Bay Area, Orange County, Inland Empire, San Diego, Shasta Cascade and Central Valley regions. Although CalSTRS offices are generally open Monday through Friday, 8 a.m. to 5 p.m., office hours and services may be limited due to the COVID-19 pandemic. Certain locations and some Saturday services are available by appointment only.

Members can attend educational workshops and meet with CalSTRS benefits specialists by appointment. 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 leased office space staffed by CalSTRS staff located in county offices of education across the state. These offices typically provide workshops, group and individual benefits planning sessions and further assistance, in addition to reviewing and receiving completed forms.

This year, prior to the COVID-19 pandemic, 41,524 members attended group or individual benefits planning sessions or workshops, while 8,374 members took advantage of the opportunity to walk in and receive immediate assistance. An additional 6,368 members received services at outreach events, including job fairs and on-campus presentations. Another convenient service for members is the estimate-only service, which provided 7,502 members with updated retirement benefit estimates during fiscal year 2019–20. CalSTRS continues to focus on providing services that increase accessibility for members, reflect individual member needs and increase member self-education.

During the pandemic, CalSTRS shifted to focus on serving members remotely, by phone or online. To protect the health and safety of members and employees, member service centers are closed until further notice. After starting the transition to provide remote services to our members in mid-March, we completed over 4,000 one-on-one telephone benefits planning sessions, 125 webinars and nearly 500 estimate-only requests by June 30, 2020. Additionally, we are currently piloting online group benefits planning sessions with a plan to begin offering web-based one-on-one benefits planning sessions.

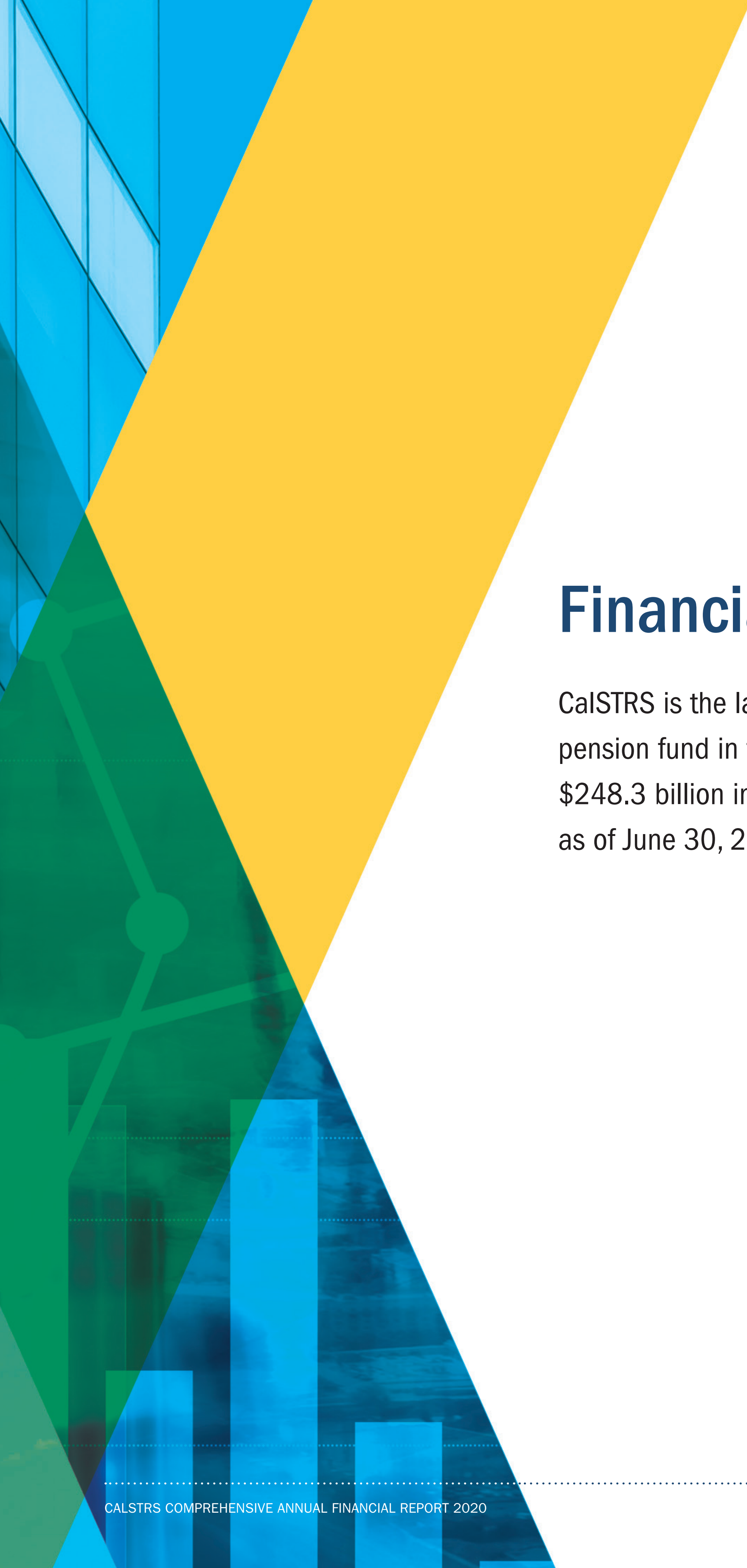
Services to employers, member and client organizations

CalSTRS staff supports our employer reporting partners by providing dedicated service, training, outreach and technical guidance. CalSTRS has enhanced the delivery of contribution reporting education by making it available electronically and on demand for the employer while supplementing this information with in-person training and timely responses to their inquiries. The Secure Employer Website, a secure channel for employers to submit their monthly reporting data, includes rules and feedback to ensure contribution reporting data is timely and accurate.

CalSTRS is committed to preventing pension abuse by dedicating staff to reviewing reported compensation and other inputs to our members' retirement benefits. The CalSTRS Compensation Review Unit has increased reviews of potential abuse cases through collaboration with partner business areas responsible for establishing benefit payments, historical data mining to review prior benefits and the online Pension Abuse Reporting Hotline.

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, Crowe LLP is the independent financial statement auditor, and Meketa Investment Group provides investment consulting services. 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 Investment section also lists entities to whom CalSTRS paid broker commissions during the fiscal year.



Financial section

CalSTRS is the largest educator-only pension fund in the world, with $248.3 billion in net position as of June 30, 2020.

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, 2020, 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, 2020, 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, 2019, the System's independent actuaries determined that, at June 30, 2020, the value of the State Teachers' Retirement Plan (STRP) total pension liability exceeded the STRP fiduciary net position by $96.9 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 $82.9 billion as of June 30, 2020, 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 29 - 45 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 rate of return 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 83 - 88 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, Investment 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, Investment 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 22, 2020 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 the effectiveness of the System's 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

October 22, 2020
Sacramento, California

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, 2020. The discussion and analysis focus on business events and resulting changes for fiscal year 2019–20. This discussion is more meaningful when read in conjunction with CalSTRS' basic financial statements and accompanying notes.

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

Over the past 107 years, CalSTRS' mission has remained the same — *securing the financial future and sustaining the trust of California's educators*. Since CalSTRS was founded in 1913, we have grown from no assets and about 15,000 members to net assets of approximately $248.3 billion serving 976,045 members and their beneficiaries as of June 30, 2020. In 1913, the annual benefit was $500; today, the average annual member-only benefit is approximately $50,500. CalSTRS is the largest educator-only pension fund in the world.

Year in review

The paragraphs that follow discuss significant events, changes and updates on ongoing efforts for fiscal year 2019–20 that affect CalSTRS operations.

Planning for economic uncertainties

In early 2020, the world experienced an unprecedented global health crisis as the COVID-19 pandemic caused significant social and economic disruptions. On March 19, 2020, Governor Gavin Newsom issued a shelter-in-place order for all but essential activities. In response, CalSTRS staff transitioned to a remote working environment in late March 2020 while successfully maintaining all business operations. CalSTRS continues to pay benefits timely and manage the investment portfolio during market volatility. We are taking a proactive approach in monitoring risks and evaluating impacts to our members to ensure we continue meeting our mission. However, the ultimate impacts of the pandemic on CalSTRS' future financial and operational performance are uncertain, difficult to assess and depend on future developments. The estimates and assumptions underlying the basic financial statements are based on the information available as of June 30, 2020, including judgments about the financial market and economic conditions which may change over time.

State of California budget impacts

Due to the COVID-19 pandemic, California experienced a significant decline in economic activity with corresponding negative effects on state revenue forecasts. As a result, Governor Newsom's administration (the administration) commenced immediate measures to help mitigate the financial impact to the state.

Pursuant to the Budget Act of 2020 (California Assembly Bill 89, Chapter 7, Statutes of 2020), the administration enacted mandatory state-wide reductions to administrative expenditures across all departments. These reductions will affect nearly all state operations for fiscal years 2020–21 and 2021–22.

In support of the administration's objectives and the long-term implications to CalSTRS members and employers as a result of the decreases in projected state revenues, CalSTRS engaged with the administration and reduced the 2020–21 board-approved operating budget from $364.6 million to $355.9 million. In addition, the mitigations mandated by the administration affect CalSTRS as follows:

- Reductions to CalSTRS staff employee compensation for fiscal years 2020–21 and 2021–22, suspension of the general salary increase until 2022–23 and the associated impact of these reductions on benefits. Other provisions will slightly offset these reductions, including the suspension of employee-paid other postemployment benefit (OPEB) contributions.
- Reductions to state department budgets beginning in 2021–22.
- Contributions recognized in fiscal year 2018–19 pursuant to California Senate Bill 90 (SB 90) enacted in June 2019 to reduce employers' long-term liabilities will be repurposed to assist school districts with contribution relief over the next two fiscal years. Employer contribution rates will be reduced by 2.95% and 2.18% for fiscal years 2020–21 and 2021–22, respectively. Member rates are unaffected.
- The board's limited rate-setting authority for the state contribution rate was suspended for one year, and the state contribution rate for 2020–21 will remain at the 2019–20 level. However, pursuant to SB 90, the state will transfer $297 million of California Proposition 2 (Rainy Day Budget Stabilization Fund Act) funds to CalSTRS. The combined contributions are estimated to be higher than what was originally expected before the 2020–21 rate was frozen.

- Funding to schools will be deferred by the state beginning in early 2021. CalSTRS will be monitoring employers' ability to pay contributions.

Overall, the changes to contributions in the short term are not expected to affect funding levels when compared to projected funding levels under the terms of the CalSTRS Funding Plan, which was enacted into law in June 2014 with the passage of California Assembly Bill 1469. CalSTRS is currently assessing the long-term effects on the CalSTRS Funding Plan, staff resources and our operational budget. However, CalSTRS remains committed to meeting our mission to our members.

Retirement announcement of chief executive officer

At the request of the board, CalSTRS' Chief Executive Officer (CEO), Jack Ehnes, will continue to serve as CEO through June 30, 2021. Ehnes previously announced an earlier retirement date at the March 2020 board meeting. The June 2021 retirement will let CalSTRS maintain organizational focus in response to the COVID-19 pandemic and will allow the board to postpone the executive search for a new CEO to ensure the most thorough and competitive process possible. Ehnes joined CalSTRS as CEO in February 2002.

Actuarial experience analysis

CalSTRS, through its consulting actuary, performs an actuarial experience analysis (or experience study) generally every four years to evaluate long-term demographic and economic assumptions used when performing actuarial projections. The latest experience study analyzed the period July 1, 2015, through June 30, 2018, and was presented to the board in January 2020. CalSTRS advanced its completion by one year in order to align with the asset allocation review which was completed in November 2019.

The board adopted changes to some key demographic assumptions, including termination rates and service retirement rates. Assumed termination rates were lowered to reflect the trend of teachers staying in service longer than previously assumed. Additionally, service retirement rates were changed to better reflect the anticipated effect of years of service on retirements.

No changes were made to key economic assumptions including the long-term investment return assumption of 7.00%, the inflation assumption of 2.75% and the wage growth assumption of 3.50%. The recommendation to keep the investment return assumption of the Defined Benefit (DB) Program at 7.00% was based on the CalSTRS capital market assumptions adopted by the board in May 2019 and reflects the asset allocation adopted by the board in November 2019. The adopted actuarial assumptions and methods are being used in actuarial valuations of CalSTRS benefit programs beginning with the June 30, 2019, actuarial valuations. Additionally, these assumptions will be used for all applicable member calculations as part of the administration of CalSTRS benefits beginning in September 2020.

CalSTRS contracted with an independent actuarial consulting firm (Cheiron) to review and replicate Milliman's analysis in the latest experience study. Overall, Cheiron was in agreement with the rationales and processes that led to Milliman's recommendations.

New investment belief

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. In January 2020, the board added a ninth belief to the CalSTRS investment belief statements: *Investment risks associated with climate change and the related economic transition—physical, policy and technology driven—materially impact the value of CalSTRS' investment portfolio*. CalSTRS believes that public policies, technologies and physical impacts associated with climate change are driving a transition to a lower-carbon economy. As a fiduciary and global investor, CalSTRS must understand the transition's impact on companies, industries and countries and consider actions to mitigate risk and identify sound investment approaches across all asset classes. Refer to the "Investment management" section of this discussion and analysis for additional information on CalSTRS' investment beliefs.

Teachers' Retirement Board update

Dana Dillon vacated her seat on the board effective December 31, 2019, after serving since her first election in 2003. Denise Bradford, who replaced Dillon, was elected for a term beginning January 1, 2020, and will serve through December 31, 2023. Bradford is an elementary school teacher with the Saddleback Valley Unified School District and also serves as the president of the Saddleback Valley Educators Association. Additionally, Harry M. Keiley and Sharon Hendricks were certified elected by CalSTRS' CEO for four-year terms which also began January 1, 2020. In February 2020, Karen Yamamoto was reappointed to the board by Governor Newsom for a term through December 31, 2023. Nora Vargas' term ended on December 31, 2019, and her former seat remained vacant as of June 30, 2020. In August 2020, Jennifer Urdan was appointed to this board seat by Governor Newsom, pending confirmation by the Senate, for a term through December 31, 2023.

Headquarters Expansion project

In November 2018, the board approved the construction of an expansion to CalSTRS' West Sacramento headquarters using bond financing at a cost not to exceed $300 million, excluding the cost of financing. The expansion will allow the organization to meet the long-term space needs resulting from the increase in size and complexity of the system. Construction began in the fall of 2019.

On December 5, 2019, CalSTRS issued $340.6 million ($272.6 million par and $68.0 million original issue premium) in tax-exempt lease-revenue green bonds (Series 2019 Bonds) through a conduit issuer, the California Infrastructure and Economic Development Bank (IBank), a public instrumentality of the state, which provides financing for business development and public improvements. Additional detail and discussion of Series 2019 Bonds can be found in Note 7 of the basic financial statements.

In March 2020, Governor Newsom issued a shelter-in-place order in response to the COVID-19 pandemic which restricted all non-essential activities. However, under the order, critical infrastructure workers were deemed essential which provided the authority for construction of the Headquarters Expansion project to continue. Construction activities are progressing as planned and management continues to monitor potential risks of delays due to the global COVID-19 pandemic.

Pension Solution project

The Pension Solution project is an ongoing effort by CalSTRS to modernize the legacy pension administration system. The project is the largest technology effort in CalSTRS' history and encompasses the implementation of a new benefits program management system to support program and policy changes, incorporate automated internal controls and improve processing times. It will interface with multiple systems, including our financial and imaging systems and will provide upgraded secure portals for members and employers. In November 2019, the board approved a $53.0 million budget augmentation for additional internal staff, contractor and vendor costs associated with the 2018 mitigation and diligence activities and resulting schedule and scope modifications. The COVID-19 pandemic and contractor delays in system testing have added additional risks to the $304.8 million project. The project team continues to develop mitigation strategies to ensure project deliverables are met and staff continue to monitor and report to the board on the significant risks facing the project. Despite the recent challenges, the project remains on schedule to be completed in early 2022.

CalSTRS Collaborative Model

The CalSTRS Collaborative Model is an investment strategy to manage more assets internally — to reduce costs, control risks and increase expected returns — and leverage our external partnerships to achieve similar benefits, which will have long-term benefits for the system and our members. This approach embraces partnerships and collaboration by expanding direct investment opportunities through various investment structures, including peer partnerships, joint ventures, co-investments and passive and controlling stakes in investment companies, while building additional direct investing capabilities. Continued implementation efforts of the CalSTRS Collaborative Model will involve resources across four enterprise-wide Pillars: Human Resources, Procurement, Travel and Other (such as Legal, Technology, Financial Services and Communications). Staff continues to provide the Investment Committee with updates on the cost savings resulting from this model as well as the progress of efforts across the enterprise-wide Pillars.

Financial highlights

This section discusses major changes in account balances for the State Teachers' Retirement Plan (STRP), CalSTRS Pension2 Programs (Pension2), Medicare Premium Payment (MPP) Program and the Teachers' Deferred Compensation Fund (TDCF). Comparative financial statement information is presented for the STRP through condensed versions of the statement of fiduciary net position and statement of changes in fiduciary net position as of and for the fiscal years ended June 30, 2020, and June 30, 2019.

State Teachers' Retirement Plan

The STRP is a multiple-employer, cost-sharing defined benefit plan composed of four programs: the 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 — STRP

(dollars in thousands)

Assets and deferred outflows of resources	2020	2019	% Change
Investment assets[1]	$274,030,480	$261,270,852	4.9%
Cash	151,903	321,051	(52.7%)
Investment receivables	3,302,364	4,763,939	(30.7%)
Member, employer, state and other receivables	3,589,214	5,830,354	(38.4%)
Capital and other assets	385,685	317,418	21.5%
Total assets	**281,459,646**	**272,503,614**	**3.3%**
Deferred outflows of resources	**77,097**	**68,561**	**12.5%**
Total assets and deferred outflows of resources	**281,536,743**	**272,572,175**	**3.3%**
Liabilities and deferred inflows of resources			
Investment liabilities	235,813	123,852	90.4%
Investments purchased payable	4,236,611	5,194,433	(18.4%)
Loans and bonds payable	2,836,805	2,787,387	1.8%
Benefits in process of payment	1,615,087	1,513,766	6.7%
Net pension and OPEB liabilities	849,609	816,327	4.1%
Securities lending obligation	24,057,981	22,786,907	5.6%
Securities sold short	208,581	–	100.0%
Other	395,718	369,832	7.0%
Total liabilities	**34,436,205**	**33,592,504**	**2.5%**
Deferred inflows of resources	**116,794**	**117,783**	**(0.8%)**
Total liabilities and deferred inflows of resources	**34,552,999**	**33,710,287**	**2.5%**
NET POSITION RESTRICTED FOR PENSIONS	**$246,983,744**	**$238,861,888**	**3.4%**

1 Includes securities lending collateral of $24.0 billion and $22.8 billion as of June 30, 2020, and June 30, 2019, respectively.

Changes in fiduciary net position — STRP

(dollars in thousands)

Additions	2020	2019	% Change
Member contributions	$3,735,042	$3,647,999	2.4%
Employer contributions	6,080,060	5,644,472	7.7%
State of California contributions	4,446,836	5,334,860	(16.6%)
Net investment income	10,103,078	14,897,833	(32.2%)
Other income	101,423	127,603	(20.5%)
Total additions	**24,466,439**	**29,652,767**	**(17.5%)**
Deductions			
Benefit payments	15,921,966	15,196,087	4.8%
Refunds of member contributions	102,711	99,893	2.8%
Administrative expenses	218,868	253,953	(13.8%)
Borrowing costs	94,689	105,306	(10.1%)
Other expenses	6,349	4,275	48.5%
Total deductions	**16,344,583**	**15,659,514**	**4.4%**
Increase in net position	**8,121,856**	**13,993,253**	**(42.0%)**
Net position restricted for pensions			
Beginning of the year	**238,861,888**	**224,868,635**	**6.2%**
END OF THE YEAR	**$246,983,744**	**$238,861,888**	**3.4%**

Net position for the STRP increased approximately $8.1 billion or 3.4% from $238.9 billion as of June 30, 2019, to $247.0 billion as of June 30, 2020, primarily due to positive investment returns.

The STRP's time-weighted investment return for fiscal year 2019–20 was 3.9% (net of fees). This resulted in net investment income of $10.1 billion for the same period. Although the returns for fiscal year 2019–20 were positive, net investment income decreased $4.8 billion, or 32.2%, compared to the prior fiscal year, which had an investment return of 6.8% (net of fees) and net investment income of $14.9 billion. Investment assets increased $12.8 billion, or 4.9%, from $261.3 billion as of June 30, 2019, to $274.0 billion as of June 30, 2020, primarily due to positive returns. Additional discussion of the STRP's investment returns is in the "investment management" section of this analysis.

Total member, employer and state of California contributions decreased $0.4 billion, or 2.5%, primarily due to a reduction in one-time, supplemental state contributions received compared to the prior fiscal year. Pursuant to SB 90, the state made an approximately $2.2 billion supplemental contribution in fiscal year 2018–19 compared to a $1.1 billion supplemental contribution in fiscal year 2019–20.

The overall decrease in contributions was partially offset by an increase in regular member and employer contributions due to an increase in active members, creditable compensation and contribution rates. Additionally, member, employer, state and other receivables decreased $2.2 billion, or 38.4%, in line with reduced contributions from the state as well as the timing of when contribution payments were received.

Capital and other assets increased $68.3 million, or 21.5%, primarily due to incurred costs for the Headquarters Expansion project and the Pension Solution project.

Benefit payments increased $0.7 billion, or 4.8%, due to an increase in the STRP's retirees and their beneficiaries and the annual benefit adjustment added to benefit allowances.

Investment receivables decreased $1.5 billion, and investments purchased payable decreased $1.0 billion due to the timing of settlement of investment purchases and sales. Investment liabilities increased $0.1 billion, or 90.4%, due to an increase in futures and forwards contracts in a liability position as of June 30, 2020. Furthermore, securities sold short is a new investment activity in the STRP beginning in fiscal year 2019–20, which represents the fair value of equity securities sold short.

Other programs and funds

In addition to the STRP, CalSTRS administers two defined contribution plans within the CalSTRS Pension2 Program, a postemployment benefit plan known as the MPP Program and the TDCF that accounts for ancillary activities associated with deferred compensation plans and programs. The following discussion provides noteworthy changes for each of these programs and funds.

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.

Net position for the Pension2 403(b) Plan increased $0.2 billion, or 14.9%, to $1.3 billion as of June 30, 2020, primarily due to positive net investment income and increased member contributions, which are voluntary for the 403(b) Plan.

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.

Net position for the Pension2 457(b) Plan increased $12.2 million, or 23.4%, to $64.4 million as of June 30, 2020, primarily due to positive net investment income and increased member contributions, which are voluntary for the 457(b) Plan.

Medicare Premium Payment Program

CalSTRS administers the MPP Program through the Teachers' Health Benefits Fund. 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. Members who retire on or after July 1, 2012, are not currently eligible for coverage under the MPP Program.

The MPP Program has reflected a net deficit for the past three years primarily resulting from the implementation of Governmental Accounting Standards Board (GASB) Statement No. 68, *Accounting and Financial Reporting for Pensions—an Amendment of GASB Statement No. 27*, in fiscal year 2014–15 and GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*, in fiscal year 2017–18. The implementation of these standards resulted in the program incurring increased administrative expenses from the recognition of its share of the state's net pension liability (NPL) and net OPEB liability. The amounts recognized represent long-term liabilities reported on an accrual basis and do not adversely impact the viability of the fund or its ability to meet current obligations.

Operationally, 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. The net deficit remained at approximately $3.0 million as of June 30, 2020, with no significant change in activity compared to fiscal year 2018–19.

Teachers' Deferred Compensation Fund

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

The TDCF has reflected a net deficit for the past six years primarily resulting from the implementation of GASB Statement No. 68 and GASB Statement No. 75. The implementation of these standards resulted in the TDCF incurring increased administrative expenses from the recognition of its share of the state's NPL and net OPEB liability. The amounts recognized represent long-term liabilities reported on an accrual basis and do not adversely impact the viability of the fund or its ability to meet current obligations.

The current net deficit of the TDCF improved slightly to approximately $4.2 million as of June 30, 2020, with no significant change in activity compared to fiscal year 2018–19.

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:

- Basic financial statements
  - Statement of fiduciary net position
  - Statement of changes in fiduciary net position
- Notes to the basic financial statements
- Required supplementary information (unaudited)
- 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 and presents 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 summary of information on the significant provisions of CalSTRS' plans and programs.
- 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 information regarding the NPL of employers and nonemployer contributing entity for the STRP, including the actuarial assumptions and methods used to determine the total pension liability.
- Note 4 provides information regarding the net OPEB liability of employers for the MPP Program including the actuarial assumptions and methods used to determine the total OPEB liability.
- Note 5 provides information related to deposits, investments and risks (credit, interest rate and foreign currency) in addition to a schedule of investments that discloses the types of investments within each broad investment category.
- Note 6 provides information related to the fair value measurement of investments.
- Note 7 provides information on the various outstanding debt obligations for CalSTRS.
- Note 8 provides information on the potential contingencies of CalSTRS.
- Note 9 provides a summary of CalSTRS' significant commitments.

Required supplementary information

The required supplementary information section consists of six unaudited schedules intended to assist readers in understanding the NPL of the STRP and the net OPEB liability of the MPP Program. The information available in this 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 this 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 the fiscal year ended June 30, 2020.

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. The Chief Investment Officer has authority to oversee and manage the investments and assets of the system in compliance with policy guidelines adopted by the board or by its Investment Committee.

Investment beliefs

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 nine 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 draw down 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.
9. Investment risks associated with climate change and the related economic transition — physical, policy and technology driven — materially impact the value of CalSTRS' investment portfolio.

Environmental, social and corporate governance

CalSTRS recognizes that ESG affect the performance of the investment portfolio to varying degrees across companies, sectors, regions and asset classes. CalSTRS continuously looks to improve ESG disclosures and integration that support long-term value creation and provide leadership in the global marketplace as long-term investors.

As a result, CalSTRS Investment staff prepare the following annual reports: Green Initiative Task Force Report, Sustainability Report and Diversity in the Management of Investments Report, all of which are available on CalSTRS.com

Time-weighted returns

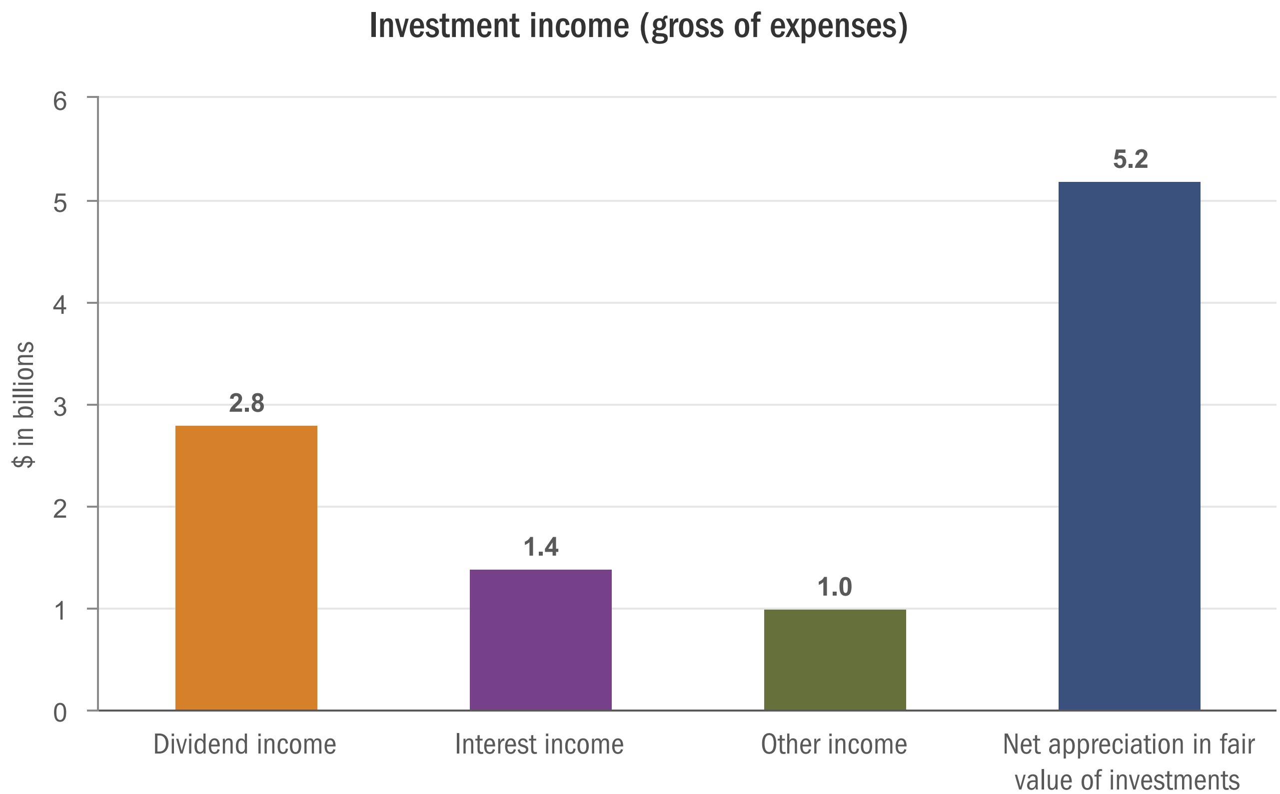
CalSTRS uses a time-weighted return to evaluate returns for portfolio performance purposes, and the discussion of investment performance that follows is based on the time-weighted methodology. CalSTRS also prepares and discloses a money-weighted return for financial reporting purposes in accordance with GASB Statement No. 67, *Financial Reporting for Pension Plans—an Amendment of GASB Statement No. 25*, and GASB Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plan*s. Additional detail and discussion of money-weighted returns can be found in Note 5 of the Notes to the Basic Financial Statements.

For the fiscal year ended June 30, 2020, CalSTRS' time-weighted return was 3.9% calculated on a net-of-fees basis. CalSTRS is a long-term investor with a goal of achieving an average return of 7.00% over a multiyear horizon to meet pension obligations. CalSTRS' returns (net of fees) reflect the following long-term performance:

- 6.5% over 3 years
- 6.8% over 5 years
- 9.3% over 10 years
- 5.8% over 20 years

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, 2020.



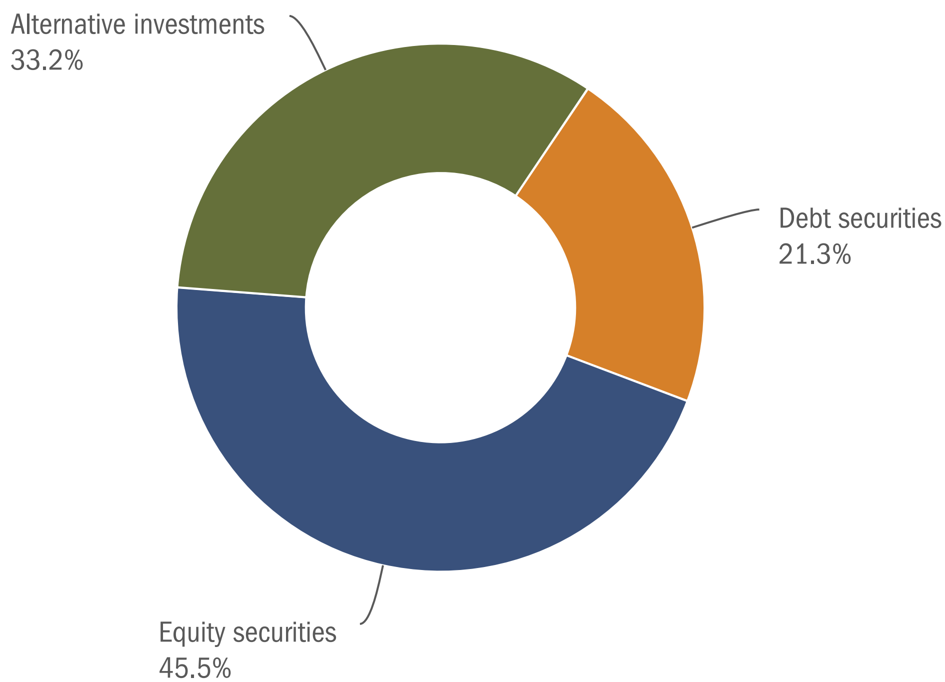
CalSTRS' investments earn income in the form of interest and dividends from holding fixed income securities and various types of equity interests in public companies, limited partnerships and co-investments.

Other income consists primarily of distributed income from alternative investments (such as rent), term loans and securities litigation. Net appreciation consists of realized gains (losses) and unrealized appreciation (depreciation). Realized gains and losses are generally a result of investment sales, write-offs and reorganizations. Unrealized appreciation and depreciation are generated by period-over-period valuation fluctuations in all types of investments.

Asset allocation and performance

The chart below presents STRP net investments (excluding bond proceeds investment, securities lending collateral, securities lending obligations and derivative instruments) based on investment classifications within the statement of fiduciary net position as of June 30, 2020.

Allocation of investments based on the statement of fiduciary net position[1]



[1] This chart only represents investment assets of the STRP as these assets are 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 California State Treasurer.

The following table displays the distribution of investments in the STRP (excluding bond proceeds investment and securities lending collateral and obligations) based on the portfolio allocation as compared to the classification within the statement of fiduciary net position as of June 30, 2020.

Portfolio allocation versus financial statement classification

Portfolio allocation		Financial statement classification	
Asset class/strategy	**Asset allocation**	**Investments**	**% of asset class**
Public Equity	47.7%	Equity securities	96.5%
		Alternative investments	2.1%
		Debt securities	1.3%
		Other[1]	0.1%
Real Estate	14.2%	Alternative investments	99.6%
		Equity securities	0.4%
Fixed Income	12.5%	Debt securities	103.5%
		Other[1]	(3.5%)
Private Equity	9.6%	Alternative investments	100.0%
Risk Mitigating Strategies	8.4%	Alternative investments	62.1%
		Debt securities	37.7%
		Other[1]	0.2%
Cash/Liquidity	3.7%	Debt securities	100.3%
		Other[1]	(0.3%)
Inflation Sensitive	3.3%	Alternative investments	72.7%
		Debt securities	27.1%
		Derivative instruments	0.2%
Innovative Strategies	0.3%	Alternative investments	100.0%
Strategic Overlay	0.3%	Debt securities	94.8%
		Derivative instruments	(7.0%)
		Other[1]	12.2%
Total Fund	**100.0%**		

[1] 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%.

Equity securities

The Public Equity asset class is composed of equity securities within the U.S., non-U.S. developed countries and emerging markets. Sustainable Investment and Stewardship Strategies (SISS) funds are included within the Public Equity asset class but are classified as Alternative Investments on the financial statements, as reflected in the table above. Approximately 68% of the Public Equity assets are managed internally by CalSTRS Investment staff, which is an increase of 7% over the prior fiscal year due to the efforts of the Collaborative Model, while the remaining 32% are managed by external investment managers.

As of June 30, 2020, the STRP held $113.4 billion in equity securities across all portfolios, a decrease of 1.1% compared to the prior year.

Returns were modest for public equities for the fiscal year. Major domestic and international indices produced mixed returns in the first quarter of the fiscal year as global markets continued to monitor trade tensions between the U.S. and China.

However, easing trade tensions and low U.S. unemployment figures drove equity prices higher during the second quarter. Several equity indices reached record levels, including increases in international and emerging markets, as global geopolitical concerns eased.

In the third quarter of the fiscal year, equities saw their worst quarterly declines since the 2008 financial crisis amid concerns over the global economic impact of the COVID-19 pandemic. The CBOE Market Volatility Index (VIX), which measures 30-day market expectations for volatility, briefly surpassed its prior peak to hit a new record high in March. All major U.S. equity sectors saw declines during the third quarter, highlighted by the energy sector, which decreased due to the oil price war and reduced global demand due to the pandemic.

Supported by global stimulus measures and the partial reopening of businesses worldwide that were closed due to the COVID-19 pandemic, the fourth quarter of the fiscal year saw global markets erase almost all losses incurred during February and March. Better than expected U.S. unemployment figures and increased retail sales led to a rebound in investor sentiment and increased appetite for riskier investments. The market rebound in the fourth quarter was highlighted by the information technology sector, which saw e-commerce and networking companies benefit from the government-imposed lockdowns due to the COVID-19 pandemic.

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 86% of the asset class continues to be managed internally by CalSTRS staff, while the remaining 14% is managed by external investment managers.

Debt securities within Fixed Income and other asset classes increased 13.2% from $47.0 billion as of June 30, 2019, to $53.2 billion as of June 30, 2020.

Fixed income assets generated positive returns for the fiscal year ended June 30, 2020. At the beginning of the fiscal year, bond prices increased as a result of continued trade tensions with the U.S. and China, and overall concern of a global economic slowdown which increased demand for safe-haven investments. Long-term treasury yields increased, thus lowering bond prices, in the second quarter as generally positive economic news eased recession fears among investors. Treasury yields reached historic lows in the third quarter as demand surged for safer assets resulting from the spread of COVID-19 and its effects on the global economy. The Federal Reserve reduced interest rates five times during the fiscal year, marking the first time the Federal Reserve decreased interest rates since the 2008 financial crisis. Unprecedented worldwide government support and improved investor sentiment contributed to an increase in bond prices in the fourth quarter, particularly for investment grade and high-yield corporate bonds.

Alternative investments

Alternative investments include investments in private equity, real estate, inflation sensitive, sustainable investment and stewardship strategies, innovative strategies and risk mitigating strategies (RMS). Alternative investments increased 8.2% from $76.6 billion to $82.9 billion. The increase was primarily due to new investments within private equity and real estate.

The RMS asset class, which seeks to construct a portfolio of strategies that provide protection to the STRP during deep and extended market downturns, posted positive returns primarily due to the performance of long-duration U.S. Treasuries during the second half of the fiscal year.

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 CalSTRS Private Equity Policy. Types of investment strategies include leveraged buyouts, venture capital, expansion capital, distressed debt and mezzanine investments. 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 Private Equity asset class posted mixed returns for the fiscal year ended June 30, 2020. For the industry, performance remained positive in the first half of the fiscal year but gradually decreased amid various global market concerns stemming from the COVID-19 pandemic in the second half of the fiscal year. Fundraising and the number of funds reaching a final close declined during the fourth quarter as the effect of global lockdown measures slowed capital raised. Capital called continued to exceed distributions during the fiscal year.

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.

The Real Estate asset class generated positive returns due to distributed income and realized and unrealized gains within the asset class. Supply and demand were in balance in the commercial property space during the first and second quarters. However, commercial property demand declined in the third and fourth quarters due to business closures and social distancing guidelines implemented to slow the spread of COVID-19. In private real estate, performance remained positive as the number of funds available in the market increased throughout the fiscal year. Overall fundraising declined during the second and third quarters due to the global economic uncertainty but increased in the fourth quarter as established funds attracted investors. Financing continued to be attractive, with mortgage rates reaching record lows by fiscal year end.

Asset Liability Management study

CalSTRS conducts an Asset Liability Management (ALM) study every four years to direct how the Investment staff allocates assets among different opportunities. This study weighs the teachers' pension liabilities versus assets needed to fund these pensions over the long term and is a critical process that drives the performance of the investment portfolio.

The culmination of the most recent study was marked by new long-term asset allocation targets adopted by the board's Investment Committee in November 2019. These targets balance the tradeoff between achieving full funding, the risk of low funding and the risk of higher contribution rates based on the CalSTRS Funding Plan.

Asset class/ investment strategy	Updated long-term target	Previous long-term target
Public Equity	42.0%	47.0%
Real Estate	15.0%	13.0%
Private Equity	13.0%	13.0%
Fixed Income	12.0%	12.0%
Risk Mitigating Strategies	10.0%	9.0%
Inflation Sensitive	6.0%	4.0%
Cash/Liquidity	2.0%	2.0%

In January 2020, the Investment Committee was presented with a plan to navigate from the current asset allocation to the new long-term targets.

CalSTRS staff plan on taking steps toward reaching the long-term targets with gradual shifts in allocations. However, staff will evaluate moving more quickly to the new targets if the right investment opportunities become available at any point during the transition period.

Investment Cost Report

The 2018 calendar year investment cost report was presented to the board in November 2019. This report provides cost trend data over a four-year period for each asset class and investment strategy, a peer comparison of investment cost data, and a capture ratio analysis to show cost effectiveness of the total fund, asset classes and strategies over time.

Total portfolio investment cost (excluding carried interest) was 55.8 basis points (bps) for calendar year 2018 compared to 50.7 bps in 2017, 50.0 bps in 2016 and 51.8 bps in 2015. The increase in cost is primarily attributable to the addition of new investment strategies and shifts in the asset allocation. However, overall costs (including carried interest) decreased from 84.0 bps in 2017 to 76.3 bps in 2018 due to a decrease in paid carried interest. Additionally, internally managed investments accounted for 44% of the total portfolio net asset value, yet represented only 3% of total portfolio costs.

A third-party cost measurement service provider used various customized methodologies to compare CalSTRS' investment costs to 15 global peers whose assets under management ranged from $86.2 billion to $588.6 billion. CalSTRS' investment strategies saved approximately $240 million in calendar year 2018 compared to our peers (adjusting for asset mix). CalSTRS continues to partner with other institutional investors and organizations to advocate best practices across asset classes to enhance transparency and improve benchmarking of cost information.

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 engages with our consulting actuary (Milliman) to produce two types of actuarial valuation reports for both the STRP and MPP Program: one for financial reporting purposes and one for funding purposes.

Pension system actuarial valuation reports

The actuarial valuation for financial reporting is performed to determine the NPL and other required financial disclosures in accordance with GASB standards. The NPL is calculated for the STRP as a whole and reflects benefits earned by plan members as of a certain date net of pension plan assets. The total pension liability for the STRP was determined by applying update procedures to the financial reporting actuarial valuation as of June 30, 2019, and rolling forward the total pension liability to June 30, 2020. CalSTRS does not project a depletion of assets with the provision of additional member, employer and state contributions resulting from the enactment of the CalSTRS Funding Plan. CalSTRS discounted all future obligations for the STRP using the long-term assumed rate of return on plan assets gross of administrative costs (currently 7.10%). Based on that assumption, the STRP has an NPL of $96.9 billion as of June 30, 2020.

The actuarial valuation for funding assesses the sufficiency of existing assets and future contributions to fund promised benefits and guides decisions regarding the long-term viability of the programs. Separate funding actuarial valuations are performed for the DB Program, DBS Program and CBB Program. An actuarial projection is also 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% of the purchasing power of their initial benefit.

Assumptions used in both the financial reporting actuarial valuation report and the funding actuarial valuation reports are the same except for the long-term rate of return, which is gross of administrative costs (7.10%) for financial reporting purposes and net of administrative costs (7.00%) for funding purposes. Investment return assumptions are developed by CalSTRS' investment and actuarial consultants and are adopted by the board.

The most recent actuarial funding valuation indicates that the DB Program had 66.0% of the funds needed to pay the actuarial cost of the benefits accrued as of June 30, 2019, which increased by 2.0% from the June 30, 2018, valuation. This increase is primarily attributable to increased contributions to the DB Program resulting from the enactment of the CalSTRS Funding Plan.

Additionally, the funding actuarial valuation for the DBS Program indicates that as of June 30, 2019, the DBS Program had a funded ratio of 125.0% compared to the June 30, 2018, funded ratio of 124.6% before consideration of additional earnings credits (AEC). The funded ratio per the funding actuarial valuation for the CBB Program remained at 121.6% as of both June 30, 2018, and June 30, 2019.

Other postemployment benefits actuarial valuation reports

The actuarial valuation for financial reporting is performed to determine the net OPEB liability (NOL) of the MPP Program and other required financial disclosures in accordance with GASB standards. The NOL reflects the present value of projected benefits to program participants as of a certain date, net of plan assets. The total OPEB liability for the MPP Program was determined by applying update procedures to the financial reporting actuarial valuation as of June 30, 2019, and rolling forward the total OPEB liability to June 30, 2020. As of June 30, 2020, the NOL for the MPP Program was $423.8 million.

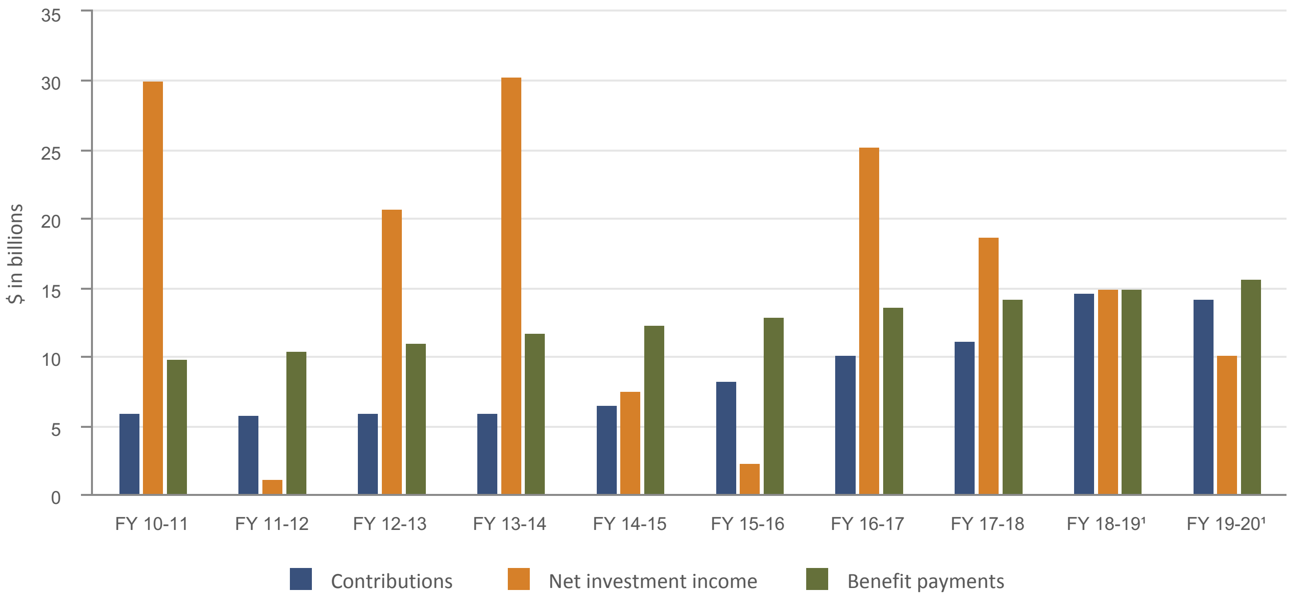
For financial reporting purposes, the plan is essentially unfunded as the fiduciary net position of the plan will not be sufficient to make the projected future benefit payments. Therefore, in accordance with GASB Statement No. 74, in instances such as this, the rate used to discount the total OPEB liability 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, 2020, for the MPP Program OPEB liability is 2.21% as measured by the Bond Buyer's 20-Bond GO Index as of June 30, 2020.

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

The MPP Program funding actuarial valuation as of June 30, 2019, found that the MPP Program assets, along with MPP Program allocated funding from future employer contributions, are sufficient to finance the future MPP Program obligations of $288.2 million for both Part A premiums and Parts A and B surcharges. The valuation considered the most recent actuarial experience study and assumed that, on average, Medicare Part A and B premiums and surcharges will continue to annually increase at a rate of 4.5% and 5.4%, respectively.

STRP Investment Income, benefit payments and contributions

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



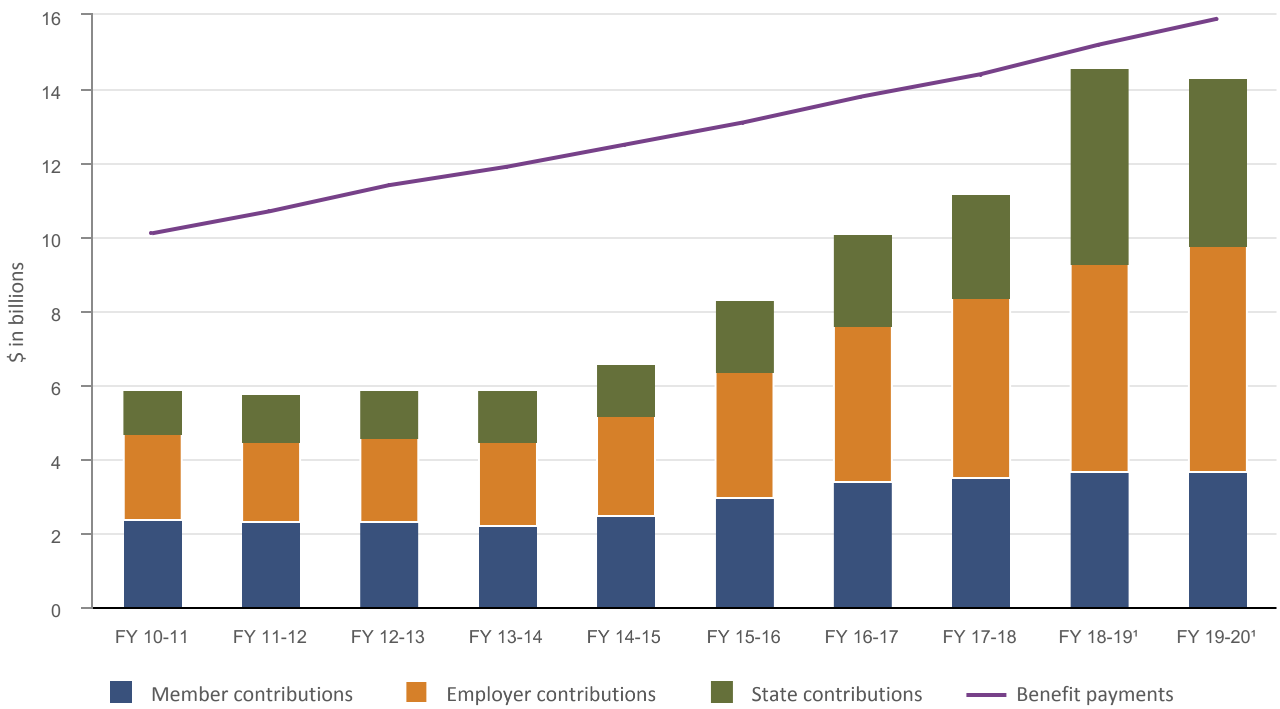
[1] Approximately $2.2 billion and $1.1 billion are included in the fiscal years 2018–19 and 2019–20 contributions total, respectively, in the chart above, which relate to the one-time, supplemental contributions resulting from SB 90.

STRP contributions and benefit payments

The chart below compares STRP contributions to benefit payments for the last decade. As shown below, prior to the enactment of the CalSTRS Funding Plan in June 2014, there had been a growing gap between contributions and benefit payments. The gap decreased as contribution rates for members, employers and the state increased as per the CalSTRS Funding Plan. For the last two fiscal years, the gap was further decreased as a result of supplemental contributions made to CalSTRS by the state — approximately $2.2 billion recognized in fiscal year 2018–19 and $1.1 billion recognized in fiscal year 2019–20.

For fiscal years 2020–21 and 2021–22, contributions are expected to be less than previously projected due to temporary reductions in the amount paid directly by employers and supplanted by previous state contributions pursuant to AB 84. Since contribution rates for members, employers and the state have either reached the levels set in statute or will soon reach their intended long-term levels, the gap between contributions and benefit payments is expected to increase in perpetuity.

As a pension plan matures, having negative cash flows is expected, but is not an indication that a system is not fully funded. When pre-funding a pension plan, the objective is to accumulate assets to pay benefits or, ultimately, to create negative cash flows.



[1] Approximately $2.2 billion and $1.1 billion are included in the fiscal years 2018–19 and 2019–20 state contributions totals, respectively, in the chart above, which relate to the one-time, supplemental contributions resulting from SB 90.

Closing remarks

Net position for CalSTRS as of June 30, 2020, was $248.3 billion, which is an increase of approximately $8.3 billion, or 3.5%, since the previous fiscal year. This growth in net assets was notable in the context of historic market conditions during the fiscal year, which included unprecedented stock market losses in the third quarter resulting from the onset of the global COVID-19 pandemic. Despite this, the CalSTRS' Investment Portfolio ended the fiscal year with a positive 4.2% money-weighted return. The full impact of the pandemic on U.S. and global economies continues to evolve; however, during such difficult times, it's important to remember CalSTRS is a long-term investor that is broadly diversified in order to respond to periods of market volatility and uncertainty. Overall diversification minimizes the risk of loss and maximizes the rate of return. Our investment and enterprise risk management programs and strategic and funding plans all position CalSTRS to remain in a sound financial position to meet our obligations to our members and their beneficiaries. We remain committed to securing the financial future and sustaining the trust of California's educators.

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

Julie Underwood

Chief Financial Officer

Basic financial statements

Statement of fiduciary net position

As of June 30, 2020

(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	$53,201,570	$583,690	$25,592	$323	$1,988	$53,813,163
Equity securities	113,421,440	643,821	38,586	–	–	114,103,847
Alternative investments	82,865,417	–	–	–	–	82,865,417
Derivative instruments	223,030	–	–	–	–	223,030
Securities lending collateral	24,026,405	–	–	–	–	24,026,405
Bond proceeds investment	292,618	–	–	–	–	292,618
Total investment assets	**274,030,480**	**1,227,511**	**64,178**	**323**	**1,988**	**275,324,480**
Cash	**151,903**	**–**	**–**	**–**	**–**	**151,903**
Receivables						
Investments sold	2,822,524	–	–	–	–	2,822,524
Interest and dividends	479,840	–	–	4	7	479,851
Member, employer and state	800,184	18,531	690	–	–	819,405
Loans receivable	2,493,274	5,483	188	–	–	2,498,945
Other	295,756	–	–	1	103	295,860
Total receivables	**6,891,578**	**24,014**	**878**	**5**	**110**	**6,916,585**
Other assets						
Capital assets, net of accumulated depreciation	385,329	–	–	–	–	385,329
Other	356	–	–	–	–	356
Total other assets	**385,685**	**–**	**–**	**–**	**–**	**385,685**
Total assets	**281,459,646**	**1,251,525**	**65,056**	**328**	**2,098**	**282,778,653**
Deferred outflows of resources	**77,097**	**–**	**–**	**102**	**297**	**77,496**
Total assets and deferred outflows of resources	**281,536,743**	**1,251,525**	**65,056**	**430**	**2,395**	**282,856,149**
Liabilities						
Investments						
Derivative instruments	235,813	–	–	–	–	235,813
Total investment liabilities	**235,813**	**–**	**–**	**–**	**–**	**235,813**
Investments purchased payable	4,236,611	–	–	–	–	4,236,611
Loans and bonds payable	2,836,805	–	–	–	–	2,836,805
Benefits in process of payment	1,615,087	–	–	–	–	1,615,087
Net pension and OPEB liabilities	849,609	–	–	2,869	4,737	857,215
Securities lending obligation	24,057,981	–	–	–	–	24,057,981
Securities sold short	208,581	–	–	–	–	208,581
Other	395,718	2,087	607	80	781	399,273
Total liabilities	**34,436,205**	**2,087**	**607**	**2,949**	**5,518**	**34,447,366**
Deferred inflows of resources	**116,794**	**–**	**–**	**484**	**1,125**	**118,403**
Total liabilities and deferred inflows of resources	**34,552,999**	**2,087**	**607**	**3,433**	**6,643**	**34,565,769**
NET POSITION RESTRICTED FOR PENSIONS/OPEB	**$246,983,744**	**$1,249,438**	**$64,449**	**($3,003)**	**($4,248)**	**$248,290,380**

The accompanying notes are an integral part of these statements.

Statement of changes in fiduciary net position

For the fiscal year ended June 30, 2020

(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	$3,735,042	$198,217	$13,302	$–	$–	$3,946,561
Employer	6,080,060	590	126	27,685	–	6,108,461
State of California	4,446,836	–	–	–	–	4,446,836
Total contributions	**14,261,938**	**198,807**	**13,428**	**27,685**	**–**	**14,501,858**
Investment income						
Net appreciation/(depreciation) in fair value of investments	5,165,995	13,365	190	1	7	5,179,558
Interest, dividends and other	5,206,087	22,538	1,153	24	33	5,229,835
Securities lending income	401,359	–	–	–	–	401,359
Investment expenses						
Cost of lending securities	(325,614)	–	–	–	–	(325,614)
Other investment expenses	(344,749)	–	–	–	–	(344,749)
Net investment income	**10,103,078**	**35,903**	**1,343**	**25**	**40**	**10,140,389**
Other income	**101,423**	**306**	**11**	**–**	**1,893**	**103,633**
Total additions	**24,466,439**	**235,016**	**14,782**	**27,710**	**1,933**	**24,745,880**
Deductions						
Retirement, disability, death and survivor benefits	15,706,940	–	–	–	–	15,706,940
Premiums paid	–	–	–	27,217	–	27,217
Distributions and withdrawals	–	63,994	2,358	–	–	66,352
Purchasing power benefits	215,026	–	–	–	–	215,026
Refunds of member contributions	102,711	6,068	54	–	–	108,833
Administrative expenses	218,868	3,179	152	510	1,502	224,211
Borrowing costs	94,689	–	–	–	–	94,689
Other expenses	6,349	–	–	2	4	6,355
Total deductions	**16,344,583**	**73,241**	**2,564**	**27,729**	**1,506**	**16,449,623**
Increase (decrease) in net position	**8,121,856**	**161,775**	**12,218**	**(19)**	**427**	**8,296,257**
Net position restricted for pensions/OPEB						
Beginning of the year	238,861,888	1,087,663	52,231	(2,984)	(4,675)	239,994,123
END OF THE YEAR	**$246,983,744**	**$1,249,438**	**$64,449**	**($3,003)**	**($4,248)**	**$248,290,380**

The accompanying notes are an integral part of these statements.

1. Significant provisions of CalSTRS plans and programs

The California State Teachers' Retirement System (CalSTRS, our or we) 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 the deferred compensation plans and programs:

- State Teachers' Retirement Plan (STRP)
- CalSTRS Pension2 403(b) Plan
- CalSTRS Pension2 457(b) Plan
- 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 (Education Code section 22000 et seq.), as enacted and amended by the California Legislature and the 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 programs as fiduciary funds in its financial statements.

Under California Constitution, Article 16, Section 17, the Teachers' Retirement Board (the board) has plenary authority and fiduciary responsibility for investment of moneys and administration of the system. The board is composed of 12 members:

- Five members appointed by the Governor and confirmed by the Senate for a term of four years: one school board representative, one retired CalSTRS member and three public representatives.
- Four ex-officio members who serve for the duration of their term in office: the California Director of Finance (who is appointed by the Governor and confirmed by the Senate), the California State Controller, the California State Treasurer and the State Superintendent of Public Instruction.
- Three member-elected positions representing current educators who serve for a term of four years.

Section 22209 of the Education Code gives the board authority to appoint a Chief Executive Officer (CEO), while Section 20520 of the Education Code gives authority to delegate any acts within the board's power to the CEO. Pursuant to Section 22301 of the Education Code, the CEO may delegate any act or duty to subordinates unless required by the board to act personally.

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. A Supplemental Benefit Maintenance Account (SBMA) exists within the DB Program and provides purchasing power protection for retired members. The STRP holds assets for the exclusive purpose of providing benefits to members of these programs and their beneficiaries. 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, 2020, there were 1,788 contributing employers (school districts, community college districts, county offices of education, charter schools, state agencies 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, 2020, membership consisted of:

Active members	
Vested	320,208
Nonvested	128,305
Total active members	**448,513**
Inactive members	
Vested	42,879
Nonvested	170,248
Total inactive members	**213,127**
Retirees and beneficiaries	**314,405**
TOTAL MEMBERS, RETIREES AND BENEFICIARIES	**976,045**

The DB Program has two benefit structures:

- 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 structures, which are noted below.

CalSTRS 2% at 60

- 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 a factor of 2.0% 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% at age 63 or older. Members who have 30 years or more of credited service receive an additional increase of up to 0.2% to the age factor, up to the 2.4% 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 is 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 2019–20, the limit on compensation that can be counted toward a member's benefit is $280,000, if hired on or after July 1, 1996, pursuant to 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. Compensation paid a limited number of times 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.

CalSTRS 2% at 62

- 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% 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% 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 2019–20, the limit was $148,423.
- 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, compensation paid a limited number of times 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 CalSTRS 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% of final compensation plus 10% of final compensation for each eligible child, up to a maximum addition of 40%. Final compensation for these disability benefits are based on the creditable compensation that the member actually earned. 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 annualized 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 for each fiscal year. For the fiscal year ended June 30, 2020, the rate of interest credited to members' accounts was 2.6%.
- There is a postretirement annual benefit increase of 2% per year on a simple (rather than compound) basis. This benefit is vested for members who retired in 2014 or pay the higher contribution rates resulting from the CalSTRS Funding Plan, which was enacted in June 2014 with the passage of California Assembly Bill (AB) 1469.
- 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 certain actions specified in Education Code section 24214.5 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 $46,451 in fiscal year 2019-20.
- Any benefit enhancements to the 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 their official duties, including specifically, a felony involving a child with whom the member had contact as part of the member's official duties, forfeits their right to any benefits accrued commencing with the commission of the felony.

Purchasing power protection

Purchasing power protection is provided to retired and disabled members of the DB Program and their beneficiaries through annual distributions (in quarterly payments) to restore purchasing power up to 85% of the initial monthly benefit. Payments are made only to the extent funds are available in the SBMA and are not a vested benefit.

The SBMA is funded through a continuous appropriation from the state's General Fund in an amount equal to 2.5% of the total creditable compensation of the fiscal year ended in the immediately preceding calendar year, reduced by $72.0 million, pursuant to Education Code section 22954. In addition, the SBMA is funded by school lands (land granted to California by the federal government to support schools and in lieu lands, which are properties purchased with the proceeds from the sale of school lands). California Public Resources Code section 6217.5 allocates school lands revenue to the system for purchasing power protection.

For the fiscal year ended June 30, 2020, the amount contributed to the SBMA from the General Fund and school lands revenues credited to the SBMA were $749.8 million and $6.6 million, respectively.

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 7.00%). As of June 30, 2020, the outstanding balance of receivables for benefit enhancements was $13.2 million.

Contributions

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

In June 2019, California Senate Bill 90, Chapter 33, Statutes of 2019, (SB 90) was signed into law and appropriated approximately $2.2 billion in fiscal year 2018-19 from the state's General Fund as contributions to CalSTRS on behalf of employers. The bill required portions of the contribution to supplant the amounts submitted by employers such that the amounts remitted would be 1.03% and 0.70% less than the statutorily required amounts due for fiscal years 2019–20 and 2020–21, respectively. The remaining portion of the contribution, approximately $1.6 billion, was allocated to reduce the employers' share of the unfunded actuarial obligation of the DB Program.

Also, SB 90 appropriated future supplemental state contributions to reduce the state's portion of the unfunded actuarial obligation of the DB Program in fiscal years 2019–20 through 2022–23. These contributions are funded from future excess General Fund revenues, pursuant to the requirements of California Proposition 2, Rainy-Day Budget Stabilization Fund Act which passed in 2014. Accordingly, the contribution amounts are subject to change each year. For fiscal year 2019-20, CalSTRS received $1.1 billion of supplemental state contributions pursuant to SB 90.

California Assembly Bill 84, Chapter 16, Statutes of 2020, (AB 84) was signed into law in June 2020 and revised certain provisions of Teachers' Retirement Law enacted by SB 90. Specifically, AB 84 repurposed the aforementioned $1.6 billion contribution originally intended to reduce employers' long-term liabilities, to further supplant employer contributions through fiscal year 2021–22. Pursuant to AB 84, employers will remit contributions to CalSTRS based on a rate that is 2.95% less than the statutory rate for fiscal year 2020–21 and 2.18% less than the rate set by the board for fiscal year 2021–22. Any remaining amounts must be allocated to reduce the employers' share of the unfunded actuarial obligation of the DB Program. The rate reduction for fiscal year 2019-20 under SB 90 was not changed by AB 84. The employer contribution rates set in statute and the board's authority to adjust those rates starting in fiscal year 2021–22 under the CalSTRS Funding Plan were not changed by the passage of SB 90 or AB 84.

In addition, the board's rate-setting authority for the state contribution rate will be suspended for fiscal year 2020–21 by AB 84. Although the board exercised its authority in May 2020 to increase the state contribution rate by 0.5% effective July 1, 2020, the rate increase will not go into effect. Instead, the state rate will remain at the 2019–20 level of 7.828% (which excludes the portion related to SBMA funding).

A summary of statutory contribution rates and other sources of contributions to the DB Program pursuant to the CalSTRS Funding Plan, SB 90 and AB 84 are included in the tables that follow.

Members

Member contribution rates effective for fiscal years 2019–20 and 2020–21 are summarized in the table below:

Effective date	2% at 60 members[1]	2% at 62 members
July 1, 2019	10.250%	10.205%
July 1, 2020	10.250%	10.205%[2]

1 The contribution rate for 2% at 60 members is set in statute at 10.250%.

2 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% since the last time the member contribution rate was set. Based on the June 30, 2019, valuation adopted by the board in May 2020, the increase in normal cost was less than 1%. Therefore, the contribution rate for CalSTRS 2% at 62 members will not change effective July 1, 2020.

Employers

Employer contribution rates effective for fiscal year 2019–20 and beyond are summarized in the table below:

Effective date	Pre-AB 1469 rate	Increase per funding plan	SB 90 and AB 84 impact[1]	Total
July 1, 2019	8.250%	9.880%	(1.030%)	17.100%
July 1, 2020	8.250%	10.850%	(2.950%)	16.150%
July 1, 2021	8.250%	[2]	(2.180%)	[2]
July 1, 2022 – June 30, 2046	8.250%	[2]	N/A	[2]
July 1, 2046	8.250%	Increase from AB 1469 rate ends in 2046–47		

1 Pursuant to SB 90 and AB 84, the fiscal year 2018–19 state contribution of approximately $2.2 billion made in advance on behalf of employers will be used to pay the contributions required by employers for the 2019–20, 2020–21 and 2021–22 fiscal years, such that employers will remit 1.030%, 2.950% and 2.180% less, respectively, than is required by the CalSTRS Funding Plan.

2 The CalSTRS Funding Plan authorizes the board to adjust the employer contribution rate up or down by up to 1% each year, but no higher than 20.250% total and no lower than 8.250%.

State

The state's contribution to the DB Program is calculated based on creditable compensation from two fiscal years prior. As a result of the CalSTRS Funding Plan, the state is required to make additional contributions to pay down the unfunded liabilities associated with the benefit structure that was in place in 1990 prior to certain enhancements in benefits and reductions in contributions. The appropriation for these additional contributions is specified in subdivision (b) of Education Code section 22955.1. The increased contributions end as of fiscal year 2045–46. Pursuant to AB 84, the state contribution rate will remain at 5.811% on July 1, 2020.

The state contribution rates effective for fiscal year 2019–20 and beyond are summarized in the table below.

Effective date	Base rate	AB 1469 increase for 1990 benefit structure	SBMA funding[1]	Total
July 1, 2019	2.017%	5.811%	2.500%	10.328%[2]
July 1, 2020	2.017%	5.811%[3]	2.500%	10.328%[2]
July 1, 2021 – June 30, 2046	2.017%	[4]	2.500%	[4]
July 1, 2046	2.017%	[5]	2.500%	[5]

1 The SBMA contribution rate excludes the $72 million that is reduced from the required contribution in accordance with Education Code section 22954. Refer to Note 1, Purchasing Power Protection section, for further discussion.

2 This rate does not include the impacts of supplemental state contributions pursuant to SB 90.

3 In May 2020, the board exercised its limited authority to increase the state contribution rate by 0.5% of the creditable compensation effective July 1, 2020. However, pursuant to AB 84, the state suspended the board's rate-setting authority for state contributions for fiscal year 2020–21, thereby negating the board's rate increase of 0.5%.

4 The board has limited authority to adjust the state contribution rate 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 0.5% 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%.

5 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.

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 3.12% for the fiscal year ended June 30, 2020. 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 2020, the board elected to not award additional earnings credits to members of the DBS Program.

Contributions

For creditable service performed by DB members in excess of one year of service credit within one fiscal year, member contributions of either 8% (CalSTRS 2% at 60 members) or 9% (CalSTRS 2% at 62 members) and employer contributions of 8% are credited to the members' nominal DBS Program account (up to any applicable compensation cap). For CalSTRS 2% at 60 members only, member contributions of 8% and employer contributions of 8% for compensation as a result of retirement incentives, limited-term payments or compensation determined to have been paid to enhance their DB Program benefits are also credited to DBS Program accounts.

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% 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 in a community college district.

Participation in the CBB Program is optional; a school district, community college district, county office of education, charter school 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, 2020, there were 29 contributing employers and 41,115 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 3.12% for the fiscal year ended June 30, 2020. The board may credit additional earnings to members' nominal accounts if actual investment earnings exceed the minimum guaranteed annual rate and meet criteria pursuant to the board policy.

In May 2020, the board elected to not award additional earnings credits to members of the CBB Program.

Contributions

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

Participants – 4.0% of applicable participant salaries

Employers – 4.0% of applicable participant salaries

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

STRP Replacement Benefits Program

The 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 was created pursuant to Education Code section 24255 and 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 2019, the federal dollar limit applicable to a CalSTRS member retiring at exactly age 65 and receiving only a single-life benefit from the DB Program is $195,545. The federal dollar limit for other ages at retirement and other benefit types will differ.

Employer 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, 2020, there were 343 retirees, beneficiaries and nonmember spouses receiving benefits from the RB Program.

CalSTRS Pension2 Program

Pursuant to Chapter 291, Statutes of 1994 (AB 3064), the CalSTRS Pension2 Program (Pension2) was established to include two tax-deferred defined contribution plans pursuant to 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 determines the investment options that are offered to plan participants.

The 403(b) plan and the 457(b) plan had 19,404 and 1,196 plan participants and 1,020 and 115 participating employers, respectively, with account balances as of June 30, 2020. Pension2 is only 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 limit.

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. 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. Members who retire on or after July 1, 2012, are not eligible for coverage under the MPP Program.

As of June 30, 2020, 5,443 retirees participated in the MPP Program; however, the number of retired members who will participate in the program in the future is unknown as 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 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 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, employer and state contributions in the period in which the contributions are required by statute. Also, CalSTRS recognizes benefits when due and payable in accordance with our retirement and benefits plans and 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

CalSTRS' financial statements are prepared in conformity with accounting principles generally accepted in the U.S. as promulgated by the Governmental Accounting Standards Board (GASB). Management makes estimates and assumptions that affect certain amounts and disclosures in the accompanying financial statements, the most significant of which include estimates related to contribution revenues, total pension liability, total OPEB liability and the fair value of certain alternative investments.

The ongoing COVID-19 pandemic has caused significant disruptions in U.S. and global economies. As of June 30, 2020, there remains uncertainty regarding the ultimate adverse impact of the pandemic on financial market and economic conditions. The estimates and assumptions underlying these financial statements are based on the information available as of June 30, 2020, including judgments about the financial market and economic conditions which may change over time. Actual results could differ from those estimates.

New accounting standards

CalSTRS reviews the requirements of all new GASB pronouncements and their impact on our financial statements. For the fiscal year ended June 30, 2020, there was no material impact to CalSTRS' financial statements resulting from the implementation of GASB standards.

Cash

Cash held by CalSTRS includes foreign currency, deposits with the California State Treasurer, master custodian and cash held at commercial banks for operational purposes. CalSTRS maintains a targeted balance within the Pooled Money Investment Account (PMIA) held with the California State Treasurer to meet daily obligations. Cash balances in excess of needs are swept nightly into PMIA and invested in short-term assets by the State Treasurer's Office (STO). In addition to the PMIA account, CalSTRS also operates checking accounts and zero balance accounts with various banking institutions authorized to provide services to state agencies. While zero balance accounts do not require collateralization, other non-zero balance accounts have a collateralization requirement set forth by the California Government Code section 16521 and are monitored by the STO.

Investments

Under the California Constitution, the board has the sole and exclusive fiduciary responsibility over the assets of the system and requires the diversification of investments to minimize the risk of loss and maximize the rate of return, unless, under the circumstances, it is clearly not prudent to do so.

As an administrator of public pension funds, 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.

To manage growth of assets in a prudent manner, the CalSTRS Investment Policy and Management Plan is established to provide a framework for the operation of the investment portfolio 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 for disclosures on deposits and 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 affecting 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.

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 in the other supplementary information section of this report provides a listing of investment expenses by type. Certain costs such as carried interest, private asset manager fees and broker commissions for securities trades are capitalized with the cost basis of the investment, with the exception of certain equity and derivative securities for which they are expensed.

Investment risk management

To protect the value of non U.S. investments against foreign currency fluctuation, CalSTRS enters into currency forwards and option contracts. 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 through 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 $1.0 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 to 40 years for buildings. As of June 30, 2020, accumulated depreciation/amortization was $95.3 million, and depreciation/amortization expense was $5.3 million for the fiscal year ended June 30, 2020.

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, 2020, there has been no impairment of capital assets.

Interest cost incurred before the end of the construction period of an asset will be recognized as an expense in the period in which the cost is incurred.

Bonds payable

Bonds payable are carried at their outstanding principal balances plus unamortized bond premiums. The bond premium received in the issuance of the bonds is amortized as a reduction to interest expense over the term of the bonds using the straight-line method.

Administrative expenses

The cost of administering CalSTRS is financed through contributions and investment earnings. The schedule of administrative expenses in the other supplementary information section of this report provides a listing of administrative expenses by type.

Income taxes

The STRP and MPP Program are organized as tax-exempt retirement plans under the Internal Revenue Code (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 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.

Securities sold short

Securities sold short represent obligations to deliver borrowed securities from the lenders of equity securities. These obligations are valued at the last quoted price or official closing prices taken from the primary markets and exchanges in which each security trades. The gains and losses from the changes in fair valuation are reported within net appreciation (depreciation) on the statement of changes in fiduciary net position.

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/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 Reserves

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 Reserves

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 certificated 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. 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) provide additions to the CBB Annuitant Reserve for monthly annuity payments.

Supplemental Benefit Maintenance Account Reserve

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% 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 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, 2020, are summarized in the table below:

Reserve type	Reserve balance (dollars in thousands)
Defined Benefit Supplement Contribution Reserve	$6,923,012
Defined Benefit Supplement Accumulated Interest Reserve	2,728,769
Defined Benefit Supplement Annuitant Reserve	693,957
Defined Benefit Supplement Gain and (Loss) Reserve	3,837,517
Cash Balance Benefit Active Contribution Reserve	227,969
Cash Balance Benefit Accumulated Interest Reserve	73,797
Cash Balance Benefit Annuitant Reserve	7,764
Cash Balance Benefit Gain and (Loss) Reserve	64,551
Supplemental Benefit Maintenance Account Reserve	19,124,585
Other reserves not legally required for disclosure	214,608,459
TOTAL	**$248,290,380**

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, 2020, are as follows:

Components of the NPL — STRP

(dollars in millions)

Total pension liability	$343,893
Less: STRP fiduciary net position	246,984
NPL of employers and the State of California	**$96,909**
STRP fiduciary net position as a % of the total pension liability	71.8%

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, 2019, and rolling forward the total pension liability to June 30, 2020. Significant actuarial methods and assumptions used in the financial reporting actuarial valuation to determine the total pension liability as of June 30, 2020, include:

Valuation date	June 30, 2019
Experience study	July 1, 2015 – June 30, 2018
Actuarial cost method	Entry age normal
Investment rate of return[1]	7.10%
Consumer price inflation	2.75%
Wage growth	3.50%
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.

The sections that follow provide additional discussion on key assumptions and methods for the valuation of the STRP.

Discount rate

The discount rate used to measure the total pension liability was 7.10%, which was unchanged from prior fiscal year. 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 of 7.10% and assume 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.

The long-term investment rate of return assumption 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 investment staff and investment consultants as inputs to the process.

The actuarial investment rate of return assumption was adopted by the board in January 2020 in conjunction with the most recent experience study. For each current and future valuation, CalSTRS' independent 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, 2020, are summarized in the following table:

Asset class	Assumed asset allocation	Long-term expected real rate of return[1]
Public Equity	42.0%	4.8%
Real Estate	15.0%	3.6%
Private Equity	13.0%	6.3%
Fixed Income	12.0%	1.3%
Risk Mitigating Strategies	10.0%	1.8%
Inflation Sensitive	6.0%	3.3%
Cash/Liquidity	2.0%	(0.4%)

1 20-year average.

Sensitivity of NPL to changes in the discount rate

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

Discount rate	NPL of employers and nonemployer contributing entity (dollars in millions)
3% Decrease (4.10%)	$281,407
2% Decrease (5.10%)	206,946
1% Decrease (6.10%)	146,416
Current rate (7.10%)	96,909
1% Increase (8.10%)	56,034
2% Increase (9.10%)	21,986
3% Increase (10.10%)	(6,516)

Mortality

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% of the ultimate improvement factor from the Mortality Improvement Scale (MP–2019) table issued by the Society of Actuaries.

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, 2020, are as follows:

Components of the net OPEB liability — MPP Program

(dollars in thousands)

Total OPEB liability	$420,782
Less: MPP Program fiduciary net position	(3,003)
Net OPEB liability of employers	**$423,785**
MPP Program fiduciary net position as a % of the total OPEB liability	(0.71%)

Actuarial methods and assumptions

The total OPEB liability for the MPP Program as of June 30, 2020, was determined by applying update procedures to the financial reporting actuarial valuation as of June 30, 2019, and rolling forward the total OPEB liability to June 30, 2020. Significant actuarial methods and assumptions used in the financial reporting actuarial valuation to determine the total OPEB liability as of June 30, 2020 include:

Valuation date	June 30, 2019
Experience study	June 30, 2014 – June 30, 2018
Actuarial cost method	Entry age normal
Investment rate of return	2.21%
Medicare Part A premium costs trend rate[1]	4.5%
Medicare Part B premium costs trend rate[1]	5.4%

[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 4.5% and 5.4% increase each year for Medicare Part A and Part B, respectively.

The sections that follow provide additional discussion on specific assumptions and methods for the valuation of the MPP Program.

Discount rate

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, 2020, were to manage differences between estimated and actual amounts to be paid and were invested in the Surplus Money Investment Fund (SMIF), which is a pooled investment program administered by the California State Treasurer.

As the MPP Program is funded on a pay-as-you-go basis, the OPEB plan's fiduciary net position was not projected to be sufficient to make projected future benefit payments. Therefore, the MPP Program used the Bond Buyer's 20-Bond GO Index from Bondbuyer.com as of June 30, 2020, as the discount rate, which was applied to all periods of projected benefit payments to measure the total OPEB liability. The discount rate as of June 30, 2020, was 2.21%, which is a decrease of 1.29% from 3.50% as of June 30, 2019.

Sensitivity of the net OPEB liability to changes in the discount rate

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% lower or 1% higher than the current rate:

Discount rate	Net OPEB liability of employers (dollars in thousands)
1% Decrease (1.21%)	$468,612
Current discount rate (2.21%)	423,785
1% Increase (3.21%)	385,640

Future enrollment

Assumptions were made about future participation (enrollment) into the MPP Program as 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' ages increase. This estimated enrollment rate was then applied to the population of members who may meet criteria necessary for eligibility but are not currently enrolled in the MPP Program. Based on this, the estimated number of future enrollments used in the financial reporting valuation was 294 or an average of 0.18% of the potentially eligible population of 159,339.

Mortality

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% of the ultimate improvement factor from the Mortality Improvement Scale (MP– 2019) table issued by the Society of Actuaries.

Medicare costs trend rate

The June 30, 2019, valuation uses the 2020 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
2019–2028	4.3%	5.5%
2029–2038	5.0%	5.1%
2039–2048	4.9%	4.5%
2049 & Later	4.3%	4.4%

[1] Trend rates indicate medical inflation in the specific year and, therefore, affect the premiums for the following years. For example, the projected 2020 premium is the 2019 premium increased by the assumed 2019 trend rate.

The Part A trend is approximately equivalent to assuming a fixed 4.5% increase each year. The Part B trend is approximately equivalent to assuming a fixed 5.4% 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% lower and 1% higher than the current rate:

Medicare costs trend rate	Net OPEB liability of employers (dollars in thousands)
1% Decrease (3.5% Part A and 4.4% Part B)	$384,260
Current rates (4.5% Part A and 5.4% Part B)	423,785
1% Increase (5.5% Part A and 6.4% Part B)	469,285

Use of assumptions and methods

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 fiscal year ended June 30, 2020, the money-weighted rate of return on STRP investments, net of pension plan investment expenses, was 4.2%. 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 1.9%. The money-weighted rate of return expresses investment performance, taking into account the impact of cash infusion into and disbursements from the pension or OPEB plan.

Schedule of investments

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

The table that follows represents the investments by type as presented in the statement of fiduciary net position, including detailed investments within debt securities, equity securities, alternative investments and derivative instruments.

Schedule of investments

As of June 30, 2020

(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						
Debt securities						
Asset-backed securities	$506,624	$–	$–	$–	$–	$506,624
Corporate bonds	12,036,942	–	–	–	–	12,036,942
Foreign government issues	581,788	–	–	–	–	581,788
Mortgage-backed securities	8,565,734	–	–	–	–	8,565,734
Municipal securities	227,241	–	–	–	–	227,241
U.S. government and agency obligations	19,502,492	–	–	–	–	19,502,492
Short-term securities	11,780,749	17,974	2,136	323	1,988	11,803,170
Mutual funds-bond funds	–	99,993	5,497	–	–	105,490
Guaranteed annuity contracts	–	465,723	17,959	–	–	483,682
Total debt securities	**53,201,570**	**583,690**	**25,592**	**323**	**1,988**	**53,813,163**
Equity securities						
Common stocks	107,233,837	–	–	–	–	107,233,837
Depository receipts	2,761,140	–	–	–	–	2,761,140
Mutual funds-stock funds	8,105	643,821	38,586	–	–	690,512
Preferred stocks	413,390	–	–	–	–	413,390
Real estate investment trusts	3,004,968	–	–	–	–	3,004,968
Total equity securities	**113,421,440**	**643,821**	**38,586**	**–**	**–**	**114,103,847**
Alternative investments						
Debt-privately held	2,266,387	–	–	–	–	2,266,387
Equity-privately held	45,771,645	–	–	–	–	45,771,645
Real estate-directly held	24,922,113	–	–	–	–	24,922,113
Real estate-non-directly held	9,905,272	–	–	–	–	9,905,272
Total alternative investments	**82,865,417**	**–**	**–**	**–**	**–**	**82,865,417**
Derivative instruments						
Forwards	116,307	–	–	–	–	116,307
Futures	46,239	–	–	–	–	46,239
Options	3,049	–	–	–	–	3,049
Rights and warrants	26,887	–	–	–	–	26,887
Swaps	30,548	–	–	–	–	30,548
Total derivative instruments	**223,030**	**–**	**–**	**–**	**–**	**223,030**
Securities lending collateral	**24,026,405**	**–**	**–**	**–**	**–**	**24,026,405**
Bond proceeds investment	**292,618**	**–**	**–**	**–**	**–**	**292,618**
Total investment assets	**274,030,480**	**1,227,511**	**64,178**	**323**	**1,988**	**275,324,480**
Liabilities						
Derivative instruments						
Forwards	107,091	–	–	–	–	107,091
Futures	94,405	–	–	–	–	94,405
Options	1,922	–	–	–	–	1,922
Swaps	32,395	–	–	–	–	32,395
Total derivative instruments	**235,813**	**–**	**–**	**–**	**–**	**235,813**
Total investment liabilities	**235,813**	**–**	**–**	**–**	**–**	**235,813**
TOTAL NET INVESTMENTS	**$273,794,667**	**$1,227,511**	**$64,178**	**$323**	**$1,988**	**$275,088,667**

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. The annuity contracts offer a guaranteed minimum interest rate for the life of the contract.

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 California State Treasurer, represent various investments with approximately 191 average days to maturity. The California State Treasurer 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 the Short-Term Investment Fund, administered by State Street Bank and Trust Company (State Street Bank), represent various investments with approximately 54 average days to maturity.

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 or privately held equity, including venture capital, leveraged buyouts and co-investments, as well as investments in real estate, infrastructure, agriculture and timberland. They include investments held within Private Equity, Real Estate, Public Equity, Risk Mitigating Strategies, Inflation Sensitive and Innovative 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 multifamily properties. Certain real estate investments are leveraged through partnerships using a combination of equity contributions from CalSTRS and other investors and through the use 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. Real estate non-directly held investments primarily include commingled limited partnership investments in which CalSTRS does not have a controlling interest.

While Sustainable Investment and Stewardship Strategies (SISS) funds are included in the Public 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.

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.

Notes to the basic financial statements

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, but not the obligation, to buy an underlying equity 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 master custodian (State Street Bank), third-party securities lending agents and their respective custodians to lend 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% and 105% 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% 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, 2020, the weighted duration difference between the investments and these loans was 38 days.

As of June 30, 2020, the fair value of the securities on loan was $26.9 billion. The securities lending obligations were $24.1 billion. The fair value of the reinvested cash collateral was $24.0 billion, the non-cash collateral was $3.5 billion, and the calculated mark (collateral adjustment requested for the next business day) was $19.9 million. The invested collateral and corresponding obligation are reflected in the statement of fiduciary net position as assets and liabilities, respectively. The reinvested 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 for Securities Lending Transactions*, the non-cash collateral of $3.5 billion is not reported in the statement of fiduciary net position as 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.

Bond proceeds investment

Bond proceeds investment represents the investment of the proceeds of the CalSTRS Series 2019 Bonds issued in December 2019 through the California Infrastructure and Economic Development Bank for the construction of CalSTRS' headquarters expansion, issuance costs and payment of interest during the construction period. Until the bond proceeds are needed, they are invested at the direction of CalSTRS. The investment of the proceeds is restricted to certain types of investment securities by the terms of the governing bond trust agreement.

The primary objectives of bond proceeds investment are the preservation of capital, liquidity and return on investment. Investment decisions are undertaken in a manner to preserve capital by mitigating credit and interest rate risk. Additionally, the bond proceeds investment portfolio is structured to have security maturities align with scheduled construction and interest payments.

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.

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% of the fair 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 Standard & Poor's (S&P) Global Inc. Obligations issued or guaranteed by the U.S. 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% of the fair 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% per issuer, at the time of purchase, of the fair value of any individual portfolio.

CalSTRS' investment policies and guidelines also include an allocation for opportunistic strategies, which allows for the purchase of bonds rated below investment grade. The amount of these investments that each investment manager may hold is 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 N/R represents those securities that are not rated, and N/A 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, 2020, the credit ratings of all debt securities 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	$282,581	$318,782	$56,876	$142,137	$26,250	$–	$–	$–	$–	$826,626
AA	10,795	832,715	83,256	53,617	86,856	1,244,777	–	54,254	–	2,366,270
A	3,996	3,783,833	96,023	15,832	98,006	–	–	–	–	3,997,690
BBB	180	4,970,072	275,487	7,246	–	–	–	–	–	5,252,985
BB	3,328	831,339	33,342	3,777	–	–	–	–	–	871,786
B	1,179	640,014	5,673	445	–	–	–	–	–	647,311
CCC	4,881	178,400	–	4,223	–	–	–	–	–	187,504
CC	–	478	3,315	–	–	–	–	–	–	3,793
C	–	505	–	–	–	–	–	–	–	505
D	889	2,679	1,386	–	–	–	–	–	–	4,954
N/R	198,795	478,125	26,430	6,627,860	16,129	367,067	–	–	483,682	8,198,088
N/A	–	–	–	1,710,597	–	17,890,648	–	51,236	–	19,652,481
Short-term ratings										
A-1	–	–	–	–	–	–	73,063	–	–	73,063
A-2	–	–	–	–	–	–	39,967	–	–	39,967
N/R	–	–	–	–	–	–	5,907,208	–	–	5,907,208
N/A	–	–	–	–	–	–	5,782,932	–	–	5,782,932
TOTAL	**$506,624**	**$12,036,942**	**$581,788**	**$8,565,734**	**$227,241**	**$19,502,492**	**$11,803,170**	**$105,490**	**$483,682**	**$53,813,163**

As of June 30, 2020, the credit ratings of all securities lending collateral are as follows:

Securities lending collateral

(dollars in thousands)

Ratings	Asset-backed securities	Corporate bonds	Mortgage-backed securities	U.S. government and agency obligations	Short-term securities	Total
Long-term ratings						
AAA	$1,229,552	$12,712	$22,898	$–	$–	$1,265,162
AA	–	858,692	–	145,033	–	1,003,725
A	–	2,873,156	1,518	–	–	2,874,674
CC	148	–	–	–	–	148
N/R	649,790	630,386	18,655	235,115	–	1,533,946
Short-term ratings						
A-1	–	–	–	–	304,970	304,970
N/A	–	–	–	–	85,930	85,930
N/R	–	–	–	–	16,957,849	16,957,849
Total	**$1,879,490**	**$4,374,946**	**$43,071**	**$380,148**	**$17,348,749**	**$24,026,404**[1]

[1] Cash total of $1 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.

CalSTRS' investment policies and guidelines allow the core long-term investment grade portfolios the discretion to deviate the average duration of the portfolio within a range of +/– 20% (80% to 120%) of the weighted average effective duration of the performance benchmark.

As of June 30, 2020, the overall weighted effective duration and benchmark of the long-term Fixed Income portfolios were 5.86 years and 5.81 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	$567,036	5.25	5.21	0.04
Credit obligations	8,696,141	7.96	8.00	(0.04)
Mortgage-backed securities	6,974,191	2.45	2.30	0.15
U.S. government and agency obligations	9,664,876	6.81	6.75	0.06
Debt opportunistic				
Corporate high yield	1,054,190	4.05	4.13	(0.08)
Debt core plus	3,300,008	6.26	5.75	0.51
Leveraged loans	477,440	0.37	0.25	0.12
Special situations	–	0.20	5.81	(5.61)
TOTAL	**$30,733,882**			

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 duration or weighted average to maturity for these investments are as follows:

- The U.S. TIPS had a net asset value of $1.0 billion with an effective duration and benchmark duration of 7.68 years.
- CalSTRS Home Loan Program had a net asset value of $38.1 million with a weighted average to maturity of 19.14 years.
- The long-duration U.S. Treasury securities had a net asset value of $7.8 billion with an effective duration and benchmark duration of 19.04 years.
- Other debt securities in non-Fixed Income portfolios had a fair value of $243.4 million with a weighted average to maturity of 17.88 years.
- Cash and accruals totaling ($585.2) million and swaps and other collateral totaling $21.6 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, 2020, the segmented time distribution for the short-term securities based upon the expected maturity or first reset dates is 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	$374,297	$–	$–	$–	$–	$–	$374,297
Corporate bonds	607,619	279,925	–	–	–	49,648	937,192
Money-market securities	1,725,512	1,840,580	294,832	573,945	49,909	–	4,484,778
Pooled money investment account	44,783	–	–	–	–	–	44,783
Short-term investment fund	1,378,021	–	–	–	–	–	1,378,021
U.S. government and agency obligations	1,433,514	1,924,768	1,083,206	1,283,417	508,699	482,821	6,716,425
TOTAL	**$5,563,746**	**$4,045,273**	**$1,378,038**	**$1,857,362**	**$558,608**	**$532,469**	**$13,935,496**
WEIGHTINGS	**39.92%**	**29.03%**	**9.89%**	**13.33%**	**4.01%**	**3.82%**	**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 above table includes $2.2 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, 2020, the segmented time distribution based upon the expected maturity or first reset date for the invested securities lending collateral is 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	$–	$–	$1,684,119	$10,578	$32,319	$152,474	$1,879,490
Corporate bonds	726,526	10,006	1,562,078	1,062,455	609,951	403,930	4,374,946
Mortgage-backed securities	–	–	18,655	–	24,416	–	43,071
U.S. government and agency obligations	50,029	24,997	–	–	–	305,122	380,148
Short-term securities	5,753,465	1,021,063	3,796,229	2,345,899	897,501	3,534,592	17,348,749
TOTAL	**$6,530,020**	**$1,056,066**	**$7,061,081**	**$3,418,932**	**$1,564,187**	**$4,396,118**	**$24,026,404**[1]
WEIGHTINGS	**27.18%**	**4.40%**	**29.39%**	**14.23%**	**6.51%**	**18.29%**	**100.00%**

1 Total of $1 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% 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, 2020, the weighted average maturity of investments with underlying debt holdings 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	45 days	$19
Federated U.S. treasury cash reserves	39 days	20,091
Vanguard inflation-protected securities fund	8.5 years	51,236
Vanguard short-term bond index fund	2.9 years	19,762
Vanguard total bond market index fund	8.4 years	34,492
TOTAL		**$125,600**

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, 2020, CalSTRS has no single issuer that exceeds 5% of total investments or fiduciary net position. 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% of the total fund shall be invested in 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, 2020, 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 or by collateral held by the California 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, 2020, CalSTRS' investment exposure in foreign currency risk is as follows:

Foreign currency risk

(dollars in thousands; in U.S. dollar equivalents)

Currency name	Debt securities	Alternative investments	Equity securities	Derivative instruments	Cash[1]	Total exposure
Argentine peso	$805	$–	$–	$–	$–	$805
Australian dollar	–	–	2,068,301	4,712	4,440	2,077,453
Brazilian real	17,349	–	578,493	(1,591)	264	594,515
Canadian dollar	–	144,741	3,282,693	(4,413)	8,312	3,431,333
Chilean peso	–	–	24,733	2,599	1,521	28,853
Colombian peso	–	–	2,080	1,951	93	4,124
Czech koruna	–	–	8,111	(3,945)	1	4,167
Danish krone	–	–	772,054	358	480	772,892
Egyptian pound	–	–	3,539	179	10	3,728
Euro	50,282	4,124,815	10,127,767	(1,105)	11,398	14,313,157
Hong Kong dollar	–	–	4,068,870	(137)	10,175	4,078,908
Hungarian forint	–	–	81,270	(285)	152	81,137
Indian rupee	–	–	939,015	1,213	1,520	941,748
Indonesian rupiah	–	–	189,004	(580)	512	188,936
Israeli new shekel	–	–	137,851	(877)	1,122	138,096
Japanese yen	–	–	8,345,956	989	44,048	8,390,993
Kenyan shilling	–	–	4,446	–	–	4,446
Malaysian ringgit	–	–	116,947	165	1,122	118,234
Mexican peso	43,214	–	224,135	5,221	4,249	276,819
New Taiwan dollar	–	–	1,474,919	729	8,542	1,484,190
New Zealand dollar	7,849	–	106,269	(4,752)	2,497	111,863
Norwegian krone	–	–	328,711	(3,646)	551	325,616
Pakistan rupee	–	–	8,076	–	506	8,582
Peruvian sol	–	–	–	356	5	361
Philippine peso	–	–	47,688	2,903	441	51,032
Polish zloty	–	–	75,014	(136)	685	75,563
Pound sterling	10,453	1,244,145	4,712,553	15,428	15,658	5,998,237
Qatari riyal	–	–	15,229	(79)	387	15,537
Russian ruble	26,637	–	–	(309)	358	26,686
Saudi riyal	–	–	14,046	(11)	19	14,054
Singapore dollar	–	–	518,772	1,320	4,864	524,956
South African rand	–	–	362,441	5,737	(167)	368,011
South Korean won	–	–	1,698,815	(1,464)	1,970	1,699,321
Sri Lanka rupee	–	–	1,809	–	–	1,809
Swedish krona	–	–	983,273	187	1,351	984,811
Swiss franc	–	–	2,743,901	(1,156)	2,297	2,745,042
Thailand baht	–	–	167,270	(3,482)	1,559	165,347
Turkish lira	–	–	90,029	(704)	474	89,799
UAE dirham	–	–	42,753	2	286	43,041
Yuan renminbi	4,619	–	468,082	(1,203)	3,464	474,962
TOTAL	**$161,208**	**$5,513,701**	**$44,834,915**	**$14,174**	**$135,166**	**$50,659,164**

[1] Spot contracts of ($92) are included in the cash total above.

CalSTRS' investments denominated in foreign currencies are reported within assets and liabilities 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-U.S. dollar public and private equity assets (i.e. private equity investments and real estate). Considering this commitment to non-U.S. 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-U.S. 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, 2020, the Pension2 403(b) and 457(b) plans do not expose CalSTRS to foreign currency risk.

Bond proceeds investment risk schedules

Bond proceeds were invested primarily in U.S. government and agency obligations and money market funds. As of June 30, 2020, the bond proceeds investment does not expose CalSTRS to foreign currency and concentration of credit risk. Additionally, as of June 30, 2020, all of CalSTRS' non-cash bond proceeds investment is not exposed to custodial risk as they are held in CalSTRS' name.

As of June 30, 2020, the segmented time distribution for the bond proceeds investment based upon the expected maturity or first reset dates is as follows:

Bond proceeds investment 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
Short-term securities	$67,030	$–	$–	$–	$–	$–	$67,030
U.S. government and agency obligations	–	15,815	4,280	9,248	70,732	125,513	225,588
TOTAL	**$67,030**	**$15,815**	**$4,280**	**$9,248**	**$70,732**	**$125,513**	**$292,618**
WEIGHTINGS	**22.91%**	**5.40%**	**1.46%**	**3.16%**	**24.17%**	**42.90%**	**100.00%**

As of June 30, 2020, the credit ratings of all bond proceeds investment are as follows:

Bond proceeds investment credit risk

(dollars in thousands)

Ratings	U.S. government and agency obligations	Short-term securities	Total
Long-term ratings			
AA	$13,398	$—	$13,398
N/A	212,190	—	212,190
Short-term ratings			
N/A	—	67,030	67,030
TOTAL	**$225,588**	**$67,030**	**$292,618**

Derivative instruments

As of June 30, 2020, 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. Investments in derivative instruments are disclosed separately to provide a comprehensive view of this activity and its impact on the overall investment portfolio.

Derivative instrument fair values are reported as investments in the statement of fiduciary net position with changes in fair values reported as investment income (loss) in the statement of changes in fiduciary net position.

The table below presents the related net change in fair value, fair value and notional amount of derivative instruments outstanding as of June 30, 2020.

Investment derivatives disclosure

(dollars in thousands)

Derivative instruments	Net change in fair value for the year ended June 30, 2020	Fair value	Notional amount[1]
Forwards			
Foreign currency forward contracts	$59,849	$9,216	11,025,667
Total forwards	**59,849**	**9,216**	
Futures			
Commodity futures long	(55,219)	1,518	30,166
Commodity futures short	39,386	(8,430)	(36,241)
Fixed income futures long	137,749	7,006	829,524
Fixed income futures short	(61,909)	(5,077)	(1,109,236)
Index futures long	994,065	(49,208)	212,735
Index futures short	(54,407)	6,025	(591)
Total futures	**999,665**	**(48,166)**	
Options			
Commodity Futures Options Bought	(1,187)	20	159
Commodity Futures Options Written	1,806	(1,208)	(1,040)
Credit Default Swap Options Bought	(488)	66	15,711
Credit Default Swap Options Written	1,215	–	(79,111)
Fixed Income Futures Options Bought	(7,910)	1,169	2,347
Fixed Income Futures Options Written	10,411	(462)	(1,599)
Foreign Currency Options Bought	(34,405)	1,793	618,569
Foreign Currency Options Written	5,418	(251)	(55,058)
Total options	**(25,140)**	**1,127**	
Rights and warrants			
Rights	(2,501)	3,003	8,939 Units
Warrants	(5,602)	23,884	7,228 Units
Total rights and warrants	**(8,103)**	**26,887**	
Swaps			
Commodity forward swaps	(1,543)	(1,528)	4,707 Units
Credit default swaps bought	(393)	10	155
Credit default swaps written	(5,649)	2,085	259,025
Pay-fixed interest rate swaps	(47,077)	(26,028)	374,664
Receive-fixed interest rate swaps	8,269	6,465	475,558
Total return swaps	(179,007)	17,135	1,380,322
Variance swaps	50	14	968
Total swaps	**(225,350)**	**(1,847)**	
TOTAL DERIVATIVE INSTRUMENTS	**$800,921**	**($12,783)**	

[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, 2020.

Counterparty credit rating

(dollars in thousands)

S&P rating	Commodity forward swaps	Credit default swaps bought	Credit default swaps options bought	Foreign currency forwards	Receive-fixed interest rate swaps	Total return swaps	Variance swaps	Total
AA	$–	$–	$–	$16,830	$–	$1,574	$–	$18,404
A	863	15	25	91,323	101	14,837	14	107,178
BBB	108	–	41	7,799	417	4,023	–	12,388
TOTAL INVESTMENTS IN ASSETS	**$971**	**$15**	**$66**	**$115,952**	**$518**	**$20,434**	**$14**	**$137,970**

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, 2020, was $138.0 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, 2020, there were assets of $182.6 million, including collateral held by CalSTRS, and liabilities of $112.6 million from non-exchange traded derivatives subject to master netting agreements. As of June 30, 2020, 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, 2020, 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.

Interest rate risk

As of June 30, 2020, 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**
Fixed income futures long	$7,006	$7,006	$–	$–	$–
Fixed income futures short	(5,077)	(3,411)	(1,666)	–	–
Fixed income futures options bought	1,169	1,169	–	–	–
Fixed income futures options written	(462)	(462)	–	–	–
Pay-fixed interest rate swaps	(26,028)	–	–	(16,554)	(9,474)
Receive-fixed interest rate swaps	6,465	–	2,303	3,955	207
Total return swaps	17,135	17,135	–	–	–
TOTAL	**$208**	**$21,437**	**$637**	**($12,599)**	**($9,267)**

Notes to the basic financial statements

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 as of June 30, 2020:

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 0.10%, Pay Variable U.S. FEDL	$94	$45,479
Interest rate swap	Receive Fixed 0.38%, Pay Variable 3-month London Interbank Offered Rate	820	180,248
Interest rate swap	Receive Fixed 0.412%, Pay Variable 3-month London Interbank Offered Rate	72	24,000
Interest rate swap	Receive Fixed 0.4845%, Pay Variable 3-month London Interbank Offered Rate	90	20,000
Interest rate swap	Receive Fixed 0.491%, Pay Variable 3-month London Interbank Offered Rate	89	20,000
Interest rate swap	Receive Fixed 0.60%, Pay Variable 3-month London Interbank Offered Rate	425	65,767
Interest rate swap	Receive Fixed 0.70%, Pay Variable 3-month London Interbank Offered Rate	714	38,310
Interest rate swap	Receive Fixed 0.77%, Pay Variable 3-month London Interbank Offered Rate	1,098	49,610
Interest rate swap	Receive Fixed 3.47%, Pay Variable 0-month United Kingdom Retail Price Index	207	3,460
Interest rate swap	Receive Fixed 7.024%, Pay Variable Brazil CDI Rate	417	9,798
Interest rate swap	Receive Fixed 7.044%, Pay Variable Brazil CDI Rate	101	2,331
Interest rate swap	Receive Fixed 7.44%, Pay Variable 1-month Mexico Interbank Equilibrium Interest Rate	1,189	8,443
Interest rate swap	Receive Fixed 7.45%, Pay Variable 1-month Mexico Interbank Equilibrium Interest Rate	1,149	8,112
Interest rate swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 0.75%	(900)	42,914
Interest rate swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 0.7918%	100	2,867
Interest rate swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 0.818%	80	2,891
Interest rate swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 0.90%	30	5,664
Interest rate swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 0.939%	(10)	2,000
Interest rate swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 1.52%	(3,593)	52,963
Interest rate swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 1.55%	(8,211)	118,320
Interest rate swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 1.60%	(1,467)	19,524
Interest rate swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 1.625%	(420)	2,200
Interest rate swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 1.65%	(590)	7,532
Interest rate swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 1.75%	(736)	17,000
Interest rate swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 1.85%	(9,047)	42,252
Interest rate swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 1.875%	(207)	800
Interest rate swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 2.25%	(794)	5,800
Interest rate swap	Receive Variable 3-month London Interbank Offered Rate, Pay Fixed 2.50%	(149)	1,000
Interest rate swap	Receive Variable U.S. FEDL, Pay Fixed 0.26%	(114)	50,937
Interest rate swaps total		**($19,563)**	**$850,222**
Total return swap	Receive BCOMF1TC Index, Pay 3-month U.S. Treasury Bill plus 0.14%	$2,110	$96,969
Total return swap	Receive BCOMTR Index, Pay 3-month U.S. Treasury Bill plus 0.11%	285	13,579
Total return swap	Receive BCOMTR Index, Pay 3-month U.S. Treasury Bill plus 0.12%	942	44,916
Total return swap	Receive BCOMTR Index, Pay 3-month U.S. Treasury Bill plus 0.13%	3,951	188,405
Total return swap	Receive BCOMTR1 Index, Pay 3-month U.S. Treasury Bill plus 0.12%	3,654	174,299
Total return swap	Receive BCOMTR2 Index, Pay 3-month U.S. Treasury Bill plus 0.14%	2,328	110,236
Total return swap	Receive 1-month Brazil Interbank Deposit Rate minus 0.45%, Pay MSCI Brazil Net Return Index	(2)	(232)
Total return swap	Receive 1-month Johannesburg Interbank Agreed Rate plus 0.02%, Pay MSCI South Africa Net Return Index	(223)	(32,470)
Total return swap	Receive 1-month London Interbank Offered Rate plus 0.15%, Pay MSCI Thailand Net Return Index	675	(10,808)
Total return swap	Receive MSCI China Net Return Index, Pay 1-month Hong Kong Interbank Offered Rate minus 0.30%	1,088	43,265
Total return swap	Receive MSCI Korea Net Return Index, Pay 1-month London Interbank Offered Rate minus 0.05%	(212)	7,153
Total return swap	Receive MSCI Mexico Net Return Index, Pay 1-month Mexico Interbank Equilibrium Interest Rate plus 0.15%	(30)	3,628
Total return swap	Receive MSCI Taiwan Net Return Index, Pay 1-month London Interbank Offered Rate minus 0.50%	39	1,342
Total return swap	Receive RBCAECTO Index, Pay 3-month U.S. Treasury Bill plus 0.10%	1,574	75,177
Total return swap	Receive 1-month Singapore Interbank Offered Rate plus 0.20%, Pay MSCI Singapore Net Return Index	1,122	(20,317)
Total return swap	Receive 1-month Warsaw Interbank Offered Rate plus 0.18%, Pay MSCI Poland Net Return Index	164	(3,224)
Total return swaps total		**$17,465**	**$691,918**

Investment allocation policy

In accordance with GASB Statement No. 67, *Financial Reporting for Pension Plans—an Amendment of GASB Statement No. 25*, and GASB Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other Than Pension 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 four 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. The board adopted the current long-term asset allocation targets in November 2019. The long-term allocation plan is implemented in stages and includes a current target allocation for each asset class with ranges to keep the actual allocation close to the target while minimizing the transaction costs that result from rebalancing.

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, 2020.

Asset class/strategy	Previous target allocation as of June 30, 2019	Current target allocation as of June 30, 2020	Policy range	Actual allocation as of June 30, 2020
Public Equity	51.0%	51.0%	+/- 6.0%	47.7%
Fixed Income	13.0%	13.0%	+/- 3.0%	12.5%
Real Estate	13.0%	13.0%	+/- 3.0%	14.2%
Private Equity	9.0%	9.0%	+/- 3.0%	9.6%
Risk Mitigating Strategies	9.0%	9.0%	+/- 3.0%	8.4%
Inflation Sensitive	3.0%	3.0%	+/- 3.0%	3.3%
Cash/Liquidity	2.0%	2.0%	+/- 3.0%	3.7%
Innovative Strategies	0.0%	0.0%	+/- 2.5%	0.3%
Strategic Overlay	0.0%	0.0%		0.3%
TOTAL ASSET ALLOCATION	**100.0%**	**100.0%**		**100.0%**

Bond proceeds investment are excluded from the asset allocation table and asset allocation process that is approved by the board. All excess monies from the MPP Program and TDCF are invested into the SMIF.

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) as promulgated by GASB establish 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, 2020	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	$506,624	$–	$504,828	$1,796
Corporate bonds	12,036,942	–	12,035,815	1,127
Foreign government issues	581,788	–	581,788	–
Mortgage-backed securities	8,565,734	–	8,530,259	35,475
Municipal securities	227,241	–	227,241	–
U.S. government and agency obligations	19,502,492	–	19,502,492	–
Short-term securities	8,545,724	1,398,130	7,147,594	–
Mutual funds-bond funds	105,490	105,490	–	–
Guaranteed annuity contracts	483,682	–	–	483,682
Total debt securities	**50,555,717**	**1,503,620**	**48,530,017**	**522,080**
Equity securities				
Common stocks	107,233,837	107,191,954	24,971	16,912
Depository receipts	2,761,140	2,760,930	152	58
Mutual funds-stock funds	690,512	690,512	–	–
Preferred stocks	413,390	411,473	717	1,200
Real estate investment trusts	3,004,968	3,004,333	570	65
Total equity securities	**114,103,847**	**114,059,202**	**26,410**	**18,235**
Alternative investments				
Debt-privately held	352	–	–	352
Equity-privately held	305	–	–	305
Real estate-directly held	24,922,113	–	–	24,922,113
Total alternative investments	**24,922,770**	**–**	**–**	**24,922,770**
Derivative instruments				
Forwards	116,307	–	116,307	–
Futures	46,239	46,239	–	–
Options	3,049	–	3,049	–
Rights and warrants	26,887	26,883	–	4
Swaps	30,548	–	30,548	–
Total derivative instruments	**223,030**	**73,122**	**149,904**	**4**
Securities lending collateral	**19,167,818**	**2,117,734**	**17,050,084**	**–**
Bond proceeds investment	**292,618**	**67,030**	**225,588**	**–**
Total investment assets recorded at fair value	**209,265,800**	**117,820,708**	**65,982,003**	**25,463,089**
Investments measured at cost				
Short-term securities	3,257,446			
Securities lending collateral	4,858,587			
Total investments measured at cost	**8,116,033**			
Investments measured at NAV				
Debt-privately held	2,266,035			
Equity-privately held	45,771,340			
Real estate—non-directly held	9,905,272			
Total investments measured at NAV	**57,942,647**			
Total investment assets	**$275,324,480**			
Liabilities				
Investments by fair value level				
Derivative instruments				
Forwards	$107,091	$–	$107,091	$–
Futures	94,405	94,405	–	–
Options	1,922	–	1,922	–
Swaps	32,395	–	32,395	–
Total derivative instruments	**235,813**	**94,405**	**141,408**	**–**
Total investment liabilities recorded at fair value	**$235,813**	**$94,405**	**$141,408**	**$–**
TOTAL NET INVESTMENTS	**$275,088,667**			

The $208.6 million in securities sold short are not represented in the fair value leveling hierarchy table because they represent obligations to deliver borrowed securities to a lender. The obligations were valued using Level 1 measurements in the fair value hierarchy as of June 30, 2020.

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. Additionally, debt associated with real estate properties is valued using income approach methods such as cash equivalency (gross method) or leveraged equity (net method).

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, 2020	Total unfunded commitments	Redemption frequency if currently eligible	Redemption notice period
Debt–privately held[1]	$2,266,035	$2,541,933	N/A	N/A
Equity–privately held				
Private Equity funds[2]	29,285,933	15,640,143	N/A	N/A
Risk Mitigating Strategies funds[3]	12,825,440	—	Monthly	2-60 days
Sustainable Investment and Stewardship Strategies funds[4]	2,465,694	8,707	N/A, Monthly, Annually	45-120 days
Other[5]	1,194,273	73,914	Daily, Quarterly	3-90 days
Real Estate–non-directly held				
Real Estate funds[6]	6,694,839	5,254,077	N/A	N/A
Other[7]	3,210,433	265,062	Quarterly	30-90 days
TOTAL INVESTMENTS MEASURED AT NAV	**$57,942,647**	**$23,783,836**		

1 This category includes private equity funds that invest in privately held 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 10 years as of June 30, 2020.

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 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 10 years as of June 30, 2020.

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 11.0%, 28.3% and 33.0% of the value of the investments in this category can be redeemed monthly, annually and at the end of a three-year or rolling three-year period, respectively. The remaining 27.7% 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 42.8% and 46.5% in this category can be redeemed daily and quarterly, respectively, upon written notice. The remaining 10.7% of the value of the investments in this category is subject to a lockup period before a one-time full redemption is permissible.

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 five years as of June 30, 2020.

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.

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 preestablished means are used to determine a price. Short sales of common stocks are valued at the last quoted sales price or exchange-traded official closing 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 valuation policy as of the measurement date and are audited annually. The most significant input into the NAV of such an entity is the fair value of its investment holdings, which is typically valued on a quarterly or semiannual 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.

SISS 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 directly held real estate 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.

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' 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 the reporting period.

7. Loans and bonds payable

As of June 30, 2020, CalSTRS' outstanding debt obligations consist of amounts under the Master Credit Facility Portfolio and the Series 2019 Bonds.

Master Credit Facility Portfolio

CalSTRS' Master Credit Facility Portfolio consists of three separate unsecured credit facilities and one unsecured 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, 2020, the total lender commitments available under the credit facilities was $3.5 billion. The principal amount of draws and repayments in fiscal year 2019–20 were $1.9 billion and $2.2 billion, respectively. At June 30, 2020, there was approximately $2.5 billion of principal outstanding under the credit facilities, while approximately $1.0 billion remained available. These credit facilities will mature between October 2020 and April 2021.

Pursuant to the terms and conditions of the loan agreements, upon an event of default, all outstanding amounts shall become immediately due, and any commitments of the lenders to fund additional borrowings shall automatically terminate if CalSTRS is unable to make the required payments. The loan agreements may also contain a subjective acceleration clause that allows the lender to accelerate payment of the principal amount to become immediately due if the lender determines, with reasonable judgment, that a material, adverse change occurs.

Bonds payable

On December 5, 2019, CalSTRS issued $340.6 million ($272.6 million par and $68.0 million original issue premium) in tax-exempt lease-revenue green bonds (Series 2019 Bonds). The Series 2019 Bonds, officially titled "California Infrastructure and Economic Development Bank Lease Revenue Bonds (California State Teachers' Retirement System Headquarter Expansion), Series 2019 (Green Bonds – Climate Bond Certified)," were issued through a conduit issuer, the California Infrastructure and Economic Development Bank (IBank), a public instrumentality of the State of California, which provides financing for business development and public improvements.

The proceeds from the Series 2019 Bonds are being used to construct, furnish and equip the expansion to CalSTRS existing headquarters and pay capitalized interest with respect to the Series 2019 Bonds during the period of construction of the headquarters expansion. The proceeds from the bonds were also used to pay costs of issuance.

The financing transaction is structured as a lease-leaseback transaction, whereby CalSTRS leased the project site to the IBank pursuant to a Site Lease, dated as of December 1, 2019, and contemporaneously leased back the project site and the newly constructed building from the IBank pursuant to a facility lease dated December 1, 2019, in exchange for annual base rental payments.

The annual base rental payments are in an amount sufficient to pay, when due, the annual principal and interest payments of the Series 2019 Bonds. The obligation of CalSTRS to make base rental payments does not commence until the date construction of the expansion to CalSTRS existing headquarters is substantially complete.

As of June 30, 2020, the Series 2019 Bonds consist of serial bonds amounting to $129.0 million with interest rates ranging from 4.00% to 5.00%, with various maturity dates from 2023 to 2039, and two term bonds amounting to $63.1 million and $80.5 million at 5.00% and maturing in 2044 and 2049, respectively. The effective interest rates for all issued bonds range from 1.02% to 2.21%.

Generally, CalSTRS is considered to be in default if it fails to pay the principal of and interest on the outstanding Series 2019 Bonds when due and payable. If an event of default has occurred and is continuing, the principal of the Series 2019 Bonds, together with the accrued interest, may be declared due and payable immediately.

Bond activity for Series 2019 Bonds for the fiscal year ended June 30, 2020, is summarized as follows (dollars in thousands):

	Balance at June 30, 2019	Increases	Decreases	Balance at June 30, 2020	Due within one year
Series 2019 Lease Revenue Bonds	$–	$272,605	$–	$272,605	$–
Original issue premium	–	67,983	(1,230)	66,753	2,295
Bonds payable, net	**$–**	**$340,588**	**($1,230)**	**$339,358**	**$2,295**

Future debt service payments for the Series 2019 Bonds for each of the five fiscal years subsequent to June 30, 2020, and thereafter are presented below (dollars in thousands):

Fiscal year ending June 30	Principal	Interest	Total debt service
2021	$–	$13,470	$13,470
2022	–	13,470	13,470
2023	–	13,470	13,470
2024	5,125	13,368	18,493
2025	5,330	13,159	18,489
2026–2030	30,395	61,853	92,248
2031–2035	38,730	53,286	92,016
2036–2040	49,430	42,319	91,749
2041–2045	63,080	28,321	91,401
2046–2050	80,515	10,457	90,972
Total	**$272,605**	**$263,173**	**$535,778**

8. 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' basic financial statements.

9. Commitments

In connection with the purchase of partnership interests under various investment portfolios, CalSTRS has remaining unfunded commitments of approximately $30.4 billion as of June 30, 2020.

The following table depicts the unfunded commitments by asset strategy:

Asset class/strategy	Unfunded commitments (dollars in thousands)
Public Equity (Sustainable Investment and Stewardship Strategies funds)	$8,707
Inflation Sensitive	1,867,900
Innovative Strategies	478,553
Private Equity	21,630,338
Real Estate	6,394,139
TOTAL	**$30,379,637**

These unfunded commitments include agreements for acquisitions not yet initiated, which are not included in the NAV practical expedient table in Note 6.

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, 2019, 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, 2019, the future employer contributions committed to funding the MPP Program totaled $288.0 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, 2020, of $423.8 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.

Schedule of changes in net pension liability of employers and nonemployer contributing entity

Schedule I[1]

(dollars in millions)

State Teachers' Retirement Plan

Year ended June 30[2]	2020	2019	2018	2017	2016	2015	2014
Total pension liability							
Service cost	$7,340	$7,055	$7,142	$6,064	$5,874	$5,556	$5,338
Interest	23,334	22,458	21,496	20,227	19,332	18,556	17,822
Changes in benefit terms	–	32	–	–	–	–	–
Differences between expected and actual experience	(963)	(1,847)	(94)	399	(1,209)	(1,312)	–
Changes of assumptions[3]	1,029	–	–	19,988	–	–	–
Benefit payments, including refunds of member contributions	(16,025)	(15,296)	(14,537)	(13,903)	(13,149)	(12,565)	(12,035)
Net change in total pension liability	**14,715**	**12,402**	**14,007**	**32,775**	**10,848**	**10,235**	**11,125**
Beginning total pension liability	**329,178**	**316,776**	**302,769**	**269,994**	**259,146**	**248,911**	**237,786**
Ending total pension liability (a)	**343,893**	**329,178**	**316,776**	**302,769**	**269,994**	**259,146**	**248,911**
Plan fiduciary net position							
Member contributions	3,735	3,648	3,496	3,441	2,957	2,510	2,264
Employer contributions	6,080	5,644	4,867	4,173	3,391	2,678	2,272
State of California contributions	4,447	5,335	2,797	2,478	1,940	1,426	1,383
Net investment income	10,103	14,898	18,674	25,165	2,305	7,612	30,402
Other income	101	127	106	72	42	4	2
Benefit payments, including refunds of member contributions	(16,025)	(15,296)	(14,537)	(13,903)	(13,149)	(12,565)	(12,035)
Administrative expenses	(219)	(254)	(216)	(182)	(180)	(145)	(154)
Borrowing costs[4]	(95)	(105)	(94)	(58)	–	–	–
Other expenses	(5)	(4)	(2)	(10)	(15)	(10)	(9)
Net change in plan fiduciary net position	**8,122**	**13,993**	**15,091**	**21,176**	**(2,709)**	**1,510**	**24,125**
Beginning plan fiduciary net position-as previously reported	**238,862**	**224,869**	**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	**238,862**	**224,869**	**209,778**	**189,113**	**191,822**	**190,312**	**166,349**
Ending plan fiduciary net position (b)	**246,984**	**238,862**	**224,869**	**210,289**	**189,113**	**191,822**	**190,474**
ENDING NET PENSION LIABILITY OF EMPLOYERS AND THE STATE[6] (a) – (b)	**$96,909**	**$90,316**	**$91,907**	**$92,480**	**$80,881**	**$67,324**	**$58,437**

1 Some numbers in this schedule are rounded for presentation purposes and may differ slightly from those presented in the statement of 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 Assumptions used in determining the total pension liability (TPL) of the State Teachers' Retirement Plan (STRP) changed due to actuarial experience studies. Changes in assumptions effective in fiscal year 2019–20 were to termination rates and service retirement rates based on the experience study for the period July 1, 2015, through June 30, 2018. Changes in assumptions effective in fiscal year 2016–17 were to price inflation, wage growth, discount rate and mortality tables based on the experience study for the period July 1, 2010, through June 30, 2015.

4 Borrowing costs of $95 million, $105 million, $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, 2020, 2019, 2018 and 2017, respectively.

5 Adjustments were made to the STRP's beginning net position in fiscal years 2017–18 and 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 and 2013–14 exclude the $511 million and $162 million reduction to net position as a result of CalSTRS implementation of GASB Statement No. 75 and GASB Statement No. 68, respectively.

Schedule of net pension liability of employers and nonemployer contributing entity

Schedule II[1]

(dollars in millions)

State Teachers' Retirement Plan

Year ended June 30[2]	(a) Total pension liability	(b) Plan fiduciary net position	(a – b) NPL of employers and the state	(b / a) Plan fiduciary net position as a % of total pension liability	(c) Covered payroll	(a – b) / c NPL of employers and the state as a % of covered payroll
2020	$343,893[3]	$246,984	$96,909	71.8%	$36,668	264.3%
2019	329,178	238,862	90,316	72.6%	35,805	252.2%
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[4]	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 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 Assumptions used in determining the total pension liability (TPL) of the State Teachers' Retirement Plan (STRP) changed due to actuarial experience studies. Changes in assumptions effective in fiscal year 2019–20 were to termination rates and service retirement rates based on the experience study for the period July 1, 2015, through June 30, 2018. Changes in assumptions effective in fiscal year 2016–17 were to price inflation, wage growth, discount rate and mortality tables based on the experience study for the period July 1, 2010, through June 30, 2015.

4 The NPL for fiscal year 2016–17 and 2013–14 exclude the $511 million and $162 million reduction to net position as a result of CalSTRS implementation of GASB Statement No. 75 and GASB Statement No. 68, respectively.

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.

Schedule of pension contributions from employers and nonemployer contributing entity

Schedule III

(dollars in millions)

State Teachers' Retirement Plan

Year ended June 30[1]	(a) Actuarially determined contributions	Legally required contributions for employers and the state	(b) Employer contributions[2,3]	(c) State contributions[4]	(b + c) Total contributions	a – (b + c) Contribution deficiency (excess)	(d) Covered payroll	(b + c) / d Contributions as a % of covered payroll
2020	$10,849	$10,512	$6,065	$4,447	$10,512	$337	$36,668	28.7%
2019	10,790	10,968	5,633	5,335	10,968	(178)	35,805	30.6%
2018	9,577	7,654	4,857	2,797	7,654	1,923	34,753	22.0%
2017	7,959	6,638	4,160	2,478	6,638	1,321	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 $14.7 million, $10.7 million, $10.3 million, $13.3 million, $13.5 million, $11.2 million and $14.5 million for fiscal years 2019–20, 2018–19, 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, 22950.5, 22951, 24260, 26503 and 26504.

4 Includes state contributions under Education Code sections 22954, 22955 and 22955.1, as well as Public Resources Code section 6217. State contributions for fiscal years 2018–19 and 2019–20 include supplemental contributions of $2.2 billion on behalf of employers and $1.1 billion for the state, respectively, pursuant to SB 90.

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 2020 presented in this Schedule of Pension Contributions from Employers and Nonemployer Contributing Entity was determined based on the assumptions used in the June 30, 2018, 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	7.00%[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 ended June 30, 2020, is the statutory contribution rate as of the June 30, 2018, actuarial valuation applied to actual DB Program payroll for the fiscal year ended June 30, 2020. 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, 2020.

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 ADC for the fiscal year ended June 30, 2020, was calculated based on the economic and demographic assumptions in place for the funding actuarial valuation as of June 30, 2018. This valuation was performed using a 7.00% 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 2019, which included an assumed rate of return of 7.10%, net of investment expenses but gross of administrative expenses.

Schedule of money–weighted rate of return 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
2020	4.2%
2019	6.6%
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 Program[1]

Year ended June 30[2]	Money–weighted rate of return, net of investment expenses
2020	1.9%
2019	2.2%
2018	1.3%
2017	0.9%

1 Any funds within the Medicare Premium Payment (MPP) Program as of June 30, 2020, 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 California 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

Schedule V

(dollars in thousands)

Medicare Premium Payment Program

Year ended June 30[1]	2020	2019	2018	2017
Total OPEB liability				
Interest	$12,457	$14,225	$14,567	$12,928
Differences between expected and actual experience	(4,288)	(10,605)	(15,759)	(41)
Changes of assumptions[2]	70,417	12,111	(10,293)	(31,240)
Premiums paid	(27,217)	(27,546)	(28,036)	(28,929)
Net change in total OPEB liability	**51,369**	**(11,815)**	**(39,521)**	**(47,282)**
Beginning total OPEB liability	**369,413**	**381,228**	**420,749**	**468,031**
Ending total OPEB liability (a)	**420,782**	**369,413**	**381,228**	**420,749**
Program fiduciary net position				
Employer contributions	27,685	27,977	28,218	29,117
Net investment income	25	29	18	11
Premiums paid	(27,217)	(27,546)	(28,036)	(28,929)
Administrative expenses	(510)	(1,901)	(578)	(168)
Other expenses	(2)	(1)	–	–
Net change in program fiduciary net position	**(19)**	**(1,442)**	**(378)**	**31**
Beginning program fiduciary net position-as previously reported	**(2,984)**	**(1,542)**	**41**	**10**
Adjustment for application of new GASB statements[3]	–	–	(1,205)	–
Beginning program fiduciary net position-as adjusted	**(2,984)**	**(1,542)**	**(1,164)**	**10**
Ending program fiduciary net position (b)	**(3,003)**	**(2,984)**	**(1,542)**	**41**
ENDING NET OPEB LIABILITY OF EMPLOYERS[4] (a) – (b)	**$423,785**	**$372,397**	**$382,770**	**$420,708**

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 Changes of assumptions include changes to the discount rate, Medicare costs trend rate, mortality and future enrollment to the MPP Program.

3 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.

4 The net OPEB liability for fiscal year 2016–17 excludes 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

Schedule VI

(dollars in thousands)

Medicare Premium Payment Program

Year ended June 30[1]	(a) Total OPEB liability	(b) Program fiduciary net position	(a – b) Net OPEB liability of employers	(b / a) Program fiduciary net position as a % of total OPEB liability
2020	$420,782	($3,003)	$423,785	(0.71%)
2019	369,413	(2,984)	372,397	(0.81%)
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.

Schedule of administrative expenses

Schedule VII

(dollars in thousands)

	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	$78,134	$–	$–	$214	$412	$78,760
Staff benefits	16,459	–	–	81	150	16,690
Accrued pension and OPEB expense	46,430	–	–	69	87	46,586
Total personnel services	**141,023**	**–**	**–**	**364**	**649**	**142,036**
Operating expenses and equipment						
General	1,048	–	–	97	81	1,226
Depreciation/amortization	5,346	–	–	–	–	5,346
Printing	617	–	–	–	10	627
Communications	1,111	–	–	–	–	1,111
Postage	963	–	–	–	–	963
Insurance	371	–	–	–	–	371
Travel	578	–	–	–	19	597
Training	731	–	–	–	–	731
Facilities operations	9,666	–	–	–	–	9,666
Consultants and professional services	32,520	3,179	152	–	575	36,426
Information technology	11,848	–	–	–	–	11,848
Indirect state central services	9,359	–	–	49	168	9,576
Equipment	3,638	–	–	–	–	3,638
Other	49	–	–	–	–	49
Total operating expenses and equipment	**77,845**	**3,179**	**152**	**146**	**853**	**82,175**
TOTAL ADMINISTRATIVE EXPENSES	**$218,868**	**$3,179**	**$152**	**$510**	**$1,502**	**$224,211**

Other supplementary information

Schedule of investment expenses

Schedule VIII

(dollars in thousands)

	Contract start date	Amount
Investment management fees		
Aberdeen Standard Investments, Inc.	12/15/06	$1,468
Acadian Asset Management, LLC	2/1/18	939
AGF Investments America, Inc.	3/19/07	1,247
AQR Capital Management Holdings, LLC	12/1/14	17,037
Arrowstreet Capital, Ltd.	8/1/15	8,336
Baillie Gifford Overseas, Ltd.	1/15/06	7,838
Bivium Capital Partners, LLC	2/15/08	2,156
BlackRock Financial Management, Inc.	3/12/07	3,378
BlackRock Institutional Trust, N.A.	10/27/98	1,619
CIBC Asset Management, Inc.	11/21/19	225
Credit Suisse Asset Management, LLC	9/1/11	1,212
Fidelity Institutional Asset Management Co.	2/1/00	2,893
FIS Group, Inc.	2/27/04	3,514
Generation Investment Management	3/19/07	9,537
Hermes Investment Managers, Ltd.	2/1/19	1,952
Hotchkis and Wiley Capital Management, LLC	10/1/18	645
Impax Asset Management Limited	2/1/19	1,155
Jacobs Levy Equity Management, Inc.	3/1/19	1,934
JP Morgan Investment Management, Inc.	1/1/14	9,490
Lazard Asset Management, LLC	5/18/99	12,862
Leading Edge Investment Advisors, LLC	2/15/08	2,774
Lee Overlay Partners, Ltd.	10/15/09	2,522
LM Capital Group, LLC	10/30/06	757
Lyxor Asset Management, Inc.	8/1/16	5,928
Macquarie Investment Management	11/1/98	585
Millennium Global Investments, Ltd.	7/1/10	1,140
Mondrian Investment Partners, Ltd.	5/13/99	16,405
PanAgora Asset Management, Inc.	11/1/18	1,683
PIMCO	2/28/17	2,458
Principal Global Investors, LLC	11/1/17	2,783
Principal Real Estate Investors, LLC	1/1/14	478
Pyrford International Limited	8/15/18	2,402
Pzena Investment Management, LLC	7/1/15	3,379
Robeco Institutional Asset Management	2/1/18	558
Schroder Investment Management	9/1/14	8,597
Silvercrest Asset Management	7/1/11	1,523
State Street Global Advisors Trust Company	12/1/00	7,247
Sterling Capital Management, LLC	3/11/04	531
T. Rowe Price Associates, Inc.	1/15/06	7,242
Templeton Asset Management, Ltd.	5/18/99	3,163
Western Asset Management Co.	10/30/06	4,535
Total investment management fees		**166,127**

Schedule of investment expenses (continued)

Schedule VIII

(dollars in thousands)

	Contract start date	Amount
Advisors and consultants		
Albourne America, LLC	11/1/19	$333
Altus Group U.S., Inc.	7/1/15	812
Bard Consulting, LLC	9/20/07	875
Bickmore Risk Services and Consulting	12/1/16	90
Callan Associates	9/20/07	71
Cambridge Associates, LLC	5/31/19	2,087
Colmore, Inc	4/1/19	179
Crosswater Realty Advisors, LLC	6/1/16	10
Ernst & Young U.S. LLP	1/1/16	210
Meketa Investment Group, Inc.	1/1/12	2,502
Mercer Investments, LLC	3/1/18	360
Principal Real Estate Investors, LLC	1/1/14	1,421
RCLCO Fund Advisors, LLC	1/15/18	380
RERC, LLC	9/20/07	3,373
StepStone Group Real Estate, LP	9/20/07	50
Stout Risius Ross, LLC	3/1/18	50
Stradegi Solutions, Inc.	3/14/19	50
Valuation Research Corporation	8/1/01	340
Total advisors and consultants		**13,193**
External services-legal and attorney fees		
Berman DeValerio	4/19/11	11
BLA Schwartz, PC	11/1/13	599
Cox, Castle & Nicholson, LLP	11/30/09	4,133
DLA Piper, LLP (US)	3/1/18	606
Hirschler Fleischer	1/1/19	29
Morgan, Lewis & Bockius, LLP	12/9/10	866
Proskauer, LLP	3/9/11	897
Reed Smith, LLP	7/1/15	98
Steptoe & Johnson, LLP	3/1/17	75
Miscellaneous	N/A	1
Total external services-legal and attorney fees		**7,315**
Master custodian		
State Street Bank & Trust Co.	7/1/01	4,453
Total master custodian		**4,453**
Research and rating services		
Abel Noser Holdings, LLC	10/1/18	46
AcadiaSoft, Inc.	9/3/19	12
Accounting Research & Analytics, LLC	1/1/20	25

Schedule of investment expenses (continued)

Schedule VIII

(dollars in thousands)

	Contract start date	Amount
Activist Insight, Ltd.	9/1/19	$20
AlternativeSoft AG	10/1/18	51
CEM Benchmarking, Inc.	12/31/18	75
Cornerstone Macro, LP	1/1/20	70
CPR & CDR Alpha, LLC	3/1/20	60
Creditsights, Inc.	12/30/19	100
Equilar, Inc.	7/1/19	45
eVestment Alliance, LLC	8/1/19	45
FactSet Research System, Inc.	7/1/19	852
Glass Lewis & Co., LLC	6/1/19	276
Global Financial Data, Inc.	5/9/20	28
ICE Benchmark Administration	7/1/19	16
Institutional Shareholder Services	7/1/19	87
KDP Investment Advisors, Inc.	10/1/19	37
London Stock Exchange PLC	1/20/20	35
Management CV, Inc.	2/1/20	16
Mergermarket Limited US	1/28/20	15
Moody's Investors Service	1/1/20	407
MSCI ESG Research, Inc.	1/1/20	142
MSCI, Inc.	1/1/19	1,514
Nomura Research Institute	1/1/20	18
PEI Media, Ltd	3/29/19	56
Preqin Limited	5/31/19	29
Refinitiv US, LLC	7/1/18	144
Russell Investment Group	7/1/18	300
Standard & Poor's	1/1/19	463
StarCompliance Operating, LLC	3/28/20	32
Strategas Securities, LLC	1/1/19	70
Sustainalytics U.S., Inc.	1/1/20	11
Technical Analysis Group, LLC	2/3/20	35
Miscellaneous	N/A	43
Total research and rating services		**5,175**
Risk management systems		
BlackRock Financial Management, Inc.	7/1/06	6,551
MSCI, Inc. dba Barra, LLC	4/1/20	147
Total risk management systems		**6,698**
Trading systems		
Bloomberg, LP	7/1/18	1,191
Fixed Income Clearing Corp	7/1/18	11
Intex Solutions, Inc.	9/1/19	168
Market Axess Corporation	10/1/18	22
Markit N. America, Inc. / Markit Group	10/14/19	36
Omgeo, LLC	7/1/18	56
TSX, Inc.	1/1/19	11
Miscellaneous	N/A	5
Total trading systems		**1,500**

Other supplementary information

Schedule of investment expenses (continued)

Schedule VIII

(dollars in thousands)

	Amount
Operating expenses	
Administrative costs	$55,523
Aon Risk Insurance	2,055
Council of Institutional Investors	31
Total operating expenses	**57,609**
Subtotal	**262,070**
Other investment expenses	
Foreign tax withheld	51,705
Real estate	47
Broker commissions	19,366
Miscellaneous	11,561
Total other investment expenses	**82,679**
TOTAL INVESTMENT EXPENSES	**$344,749**

Schedule of consultant and professional services expenses

Schedule IX

(dollars in thousands)

Individual or firm	Commission/Fee
State Teachers' Retirement Plan	
Actuarial services	
Milliman, Inc.	$628
Total actuarial services	**628**
Auditing services	
Clifton Larson Allen, LLP	83
Crowe LLP	2,780
Grant Thornton, LLP	204
KPMG, LLP	246
Macias, Gini & O'Connell, LLP	183
State Personnel Board	(20)[1]
Total auditing services	**3,476**
Consultant and other professional services	
22nd Century Technologies, Inc.	129
Abacus Data Systems, Inc.	28
Accuity, Inc.	94
Acuity Technical Solutions	474
Agile Global Solution, Inc.	204
AgreeYa Solutions, Inc.	40
Allied Network Solutions, Inc.	590
Antha A. Ward	13
Avante Solutions, Inc.	96
Business Advantage Consulting, Inc.	630
Capio Group	423
Carahsoft Technology Corp.	86
CEB, Inc.	84
Celer Systems, Inc.	93
CGI Technologies and Solutions, Inc.	22,512
Cheiron, Inc.	100
Deloitte Consulting, LLP	7,095
Department of Forestry and Fire Protection	60
Department of General Services	148
Department of Human Resources	91
Digital Deployment, Inc.	65
DirectApps, Inc.	44
EFL Associates	45
Employment Development Department	20
Entisys 360, Inc.	164
Estrada Consulting, Inc.	388
Eventus Solutions Group, LLC	130
ExamWorks, LLC	20
Forrester Research, Inc.	191
Fortuna Business Management Consultants	63
Gartner, Inc.	435

Schedule of consultant and professional services expenses (continued)

Schedule IX

(dollars in thousands)

Individual or firm	Commission/Fee
Global Governance Advisors, LLC	$226
GoldLink Pacific, Inc.	1,081
Government Operations Agency	226
Grant Thornton, LLP	405
Hogan Lovells US, LLP	240
Infinite Solutions, Inc.	138
Integrated Consulting and Management	145
IntelliSurvey	22
International Network Consulting	603
Jayson Carpenter Photography	12
Kanini Infotech Consultants	218
Legato Solutions	120
Linea Solutions, Inc.	774
Lucas Public Affairs	184
MaritzCX Research, LLC	26
Matthew Bender & Company, Inc.	17
Maximus Human Services, Inc.	1,060
Meridian Wealth Management	13
Metro Mailing Service, Inc.	25
MG Systems and Software, LLC	349
Microsoft Corporation	91
Montague DeRose and Associates, LLC	(53)[1]
Montridge Consulting	87
Mosaic Governance Advisors, LLC	116
MUFG Bank, Ltd.	58
Natl Disability Evaluations, Inc.	44
O.C. Tanner Recognition Company	42
Oak Technical Services, LLC	209
OnCore Consulting, LLC	529
Pacific Storage Company	17
People Development Systems	26
Pension Benefit Information, LLC	136
Pinnacle Consulting	216
Providence Technology Group	716
QualApps, Inc.	162
R Systems, Inc.	220
Radian Solutions, LLC	88
Resiliensoft	234
RELX, Inc.	18
Ridge Capital, Inc.	39,345
Robert J. Yetman	100
ScreeningOne, Inc.	11
SCT Owner, LLC	30
Sierra Metrics, Inc.	162
Signal Perfection, Ltd.	122
State Controller's Office	2,476
SupportFocus, Inc.	676

Schedule of consultant and professional services expenses (continued)

Schedule IX

(dollars in thousands)

Individual or firm	Commission/Fee
Taborda Solutions, Inc.	$383
Teah M. Bennett	12
Technology Management Solutions	212
TEKsystems, Inc.	114
Textio, Inc.	18
The Highlands Consulting Group, LLC	162
Thomas V. Ennis Consulting	132
Thomas/Ferrous, Inc.	83
University Enterprises, Inc.	637
Vector Consulting, Inc.	137
Visionary Integration Professionals	1,393
West Advanced Technologies, Inc.	12
Wolters Kluwer Financial Services	63
Total consultant and other professional services	**89,675**
Legal services	
California Department of Justice	24
Department of General Services	47
Gordon Rees Scully Manuskhani, LLP	20
Klinedinst, PC	220
Nossaman, LLP	60
Olson Hagel Fishburn, LLP	37
Pillsbury Winthrop Shaw Pittman, LLP	628
Reed Smith, LLP	129
Shaw Law Group, PC	99
Sheppard Mullin Richter & Hampton	665
State Personnel Board	72
Steptoe & Johnson, LLP	50
Total legal services	**2,051**
Regional counseling services	
Humboldt County Office of Education	62
Kern County Office of Education	44
Santa Barbara County Office of Education	180
Santa Cruz County Office of Education	88
Total regional counseling services	**374**
Various services under $10K	
Others	97
Total various services under $10K	**97**
Gross consultant and professional services	**96,301**
Less: amounts capitalized[2]	63,781
Total State Teachers' Retirement Plan — consultant and professional services net of amounts capitalized	**$32,520**

Schedule of consultant and professional services expenses (continued)

Schedule IX

(dollars in thousands)

Individual or firm	Commission/Fee
Pension2 – IRC 403(b) Plan	
Administrative services	
TIAA	$8
Voya Institutional Plan	3,171
Total administrative services	**3,179**
Total Pension2–IRC 403(b) Plan — consultant and professional services	**$3,179**
Pension2 – IRC 457(b) Plan	
Administrative services	
Voya Institutional Plan	$152
Total administrative services	**152**
Total Pension2–IRC 457(b) Plan — consultant and professional services	**$152**
Teachers' Deferred Compensation Fund	
Consultant services	
JNT Resource Partners, LP	$462
Meridian Wealth Management	26
Morningstar, Inc.	87
Total consultant services	**575**
Total Teachers' Deferred Compensation Fund — consultant and professional services	**$575**
TOTAL CONSULTANT AND PROFESSIONAL SERVICES	**$36,426**

1 Negative amounts are due to reversal of expenses accrued in the prior fiscal year.

2 Vendor costs that meet the CalSTRS capitalization criteria are deducted from gross consultant and professional services expenses and reported as capital assets on the Statement of Fiduciary Net Position. Refer to Note 2 for discussion of CalSTRS' treatment of capital assets.

Investments section

The CalSTRS Investment Portfolio generated 3.88% absolute return net of fees on its investments for the fiscal year ended June 30, 2020.

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November 13, 2020

The CalSTRS Investment Portfolio produced a 3.9% net-of-fees return over the latest fiscal year, ahead of its benchmark return and the median fund return in the State Street Master Trust Universe. The portfolio increased by $9.1 billion over the past 12 months, ending with a value of $246.0 billion on June 30, 2020, despite significant net cash outflows during the year. As highlighted below, the portfolio continues to be broadly diversified, holding investments ranging from publicly traded short-term bonds to privately held partnerships.

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 2019-20 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, 2020, the Real Estate asset class was slightly overweight on its 13% target, at 14% of assets, while the Public Equity asset class was underweight, with 48% of assets, relative to a target of 51%. Cash was at nearly 4% at June 30, in excess of its 2% target. All of these asset classes were, however, within policy ranges. Moreover, the remaining asset classes were in line with policy.

Asset allocation as of June 30, 2020[1]

	Cash (%)	Public Equity (%)	Private Equity (%)	Real Estate (%)	Fixed Income (%)	Inflation Sensitive (%)	Risk Mitigating Strategies (%)
CalSTRS policy	2.0	51.0	9.0	13.0	13.0	3.0	9.0
CalSTRS actual[2]	3.7	47.7	9.6	14.2	12.5	3.3	8.4

Fiscal year in review

The past year has seen remarkable shifts in economic and financial market performance. We entered fiscal year 2019-20 facing considerable uncertainty regarding the path of fiscal and monetary policies, elevated valuations, declining growth in China, a general slowdown in global growth, the potential for additional trade issues, and political uncertainty in Europe (Italy, Greece, Brexit). All of these concerns weighed heavily on most investors' minds. Fast forward to where we sit today at the close of the 2019-20 fiscal year and much has changed in the world.

The start of the fiscal year was characterized by widespread concerns regarding slowing global growth. This backdrop of uncertainty prompted major central banks to continue their pivot toward more accommodative policies. In the U.S., ongoing concerns regarding a decline in growth and the trade standoff between the U.S. and China played a key role in the U.S. Federal Reserve's decision to cut rates several times and eventually settle at a range of 1.50-1.75% by December 2019. Considering that the Federal Reserve had previously embarked on what was characterized as a fairly aggressive rate-hiking cycle until late 2018 given improvements

[1] Allocations may not sum to 100% due to rounding.
[2] Additional assets (<1%) held in the Innovative Strategies and Strategic Overlay classes.

BOSTON CHICAGO LONDON MIAMI NEW YORK PORTLAND SAN DIEGO in the economy, this represented a stark reversal of course. Federal Reserve Chairman Jerome Powell indicated that these so called "insurance cuts" were to combat recent weakness in the economy and were not necessarily a part of a longer cycle of interest rate cuts.

Outside of the U.S., major central banks, notably the European Central Bank (ECB) and the Bank of Japan, affirmed similar accommodative policy stances. ECB President Mario Draghi reinitiated the ECB's quantitative easing program prior to being succeeded by Christine Lagarde in November 2019. Continued monetary accommodation, and increasing whispers of more formal fiscal support, set the stage for strong performance in global equities and other risk assets at the end of 2019.

In the third calendar quarter of 2019, markets experienced mixed results with U.S. stocks and bonds posting gains, while international assets, smaller company stocks and commodities declined. The calendar year finished strong, though, as a result of broadly accommodative policy stances, coupled with optimism about the pass-through of easier monetary policy to better economic prospects.

U.S. equities led the way in the second half of calendar year 2019, with the Russell 3000 posting a return of 10.4%, followed by emerging market equities (MSCI Emerging Markets Index) producing a return of 7.1%, and developed international markets (MSCI EAFE) generating a return of 7.0%. With interest rates declining toward multi decade lows, spread sectors within bond markets enjoyed strong performance as well. Local currency emerging markets debt, U.S. investment grade corporate debt, and U.S. high yield debt led the way: the JP Morgan GBI-EM Global Diversified, Bloomberg Barclays U.S. Corporate Investment Grade, and Bloomberg Barclays U.S. Corporate High Yield indices generated total returns of 4.4%, 4.3% and 4.0%, respectively, in the second half of 2019. Gold ended 2019 with a reasonably strong gain, trading at $1,519.50 at the end of 2019, up from $1,278.30 at the end of 2018. WTI Crude ended 2019 at $61.10, an increase from its year-end 2018 level of $45.15.

In January 2020, the first COVID-19 case was acknowledged by Chinese authorities, reportedly originating in Wuhan, China. The actual timeline of the spread of the virus and its origination continue to be the subject of much speculation. With limited historical precedent, market participants leaned on China's relative success in containing SARS as indicative of the path of COVID-19. By March, as the virus began to spread globally, particularly in Europe, with Italy and Spain reporting massive spikes in infections and sadly, mortality rates, markets changed course. Clearly, where SARS was quickly contained, COVID-19's infection rate had exploded globally. By virtue of greater freedom of travel and 21st century globalization, the virus spread far more quickly than was initially expected based on previous viral outbreaks. In March, in an effort to contain the spread, countries responded by enacting stringent lockdowns, or "stay at home orders" leading to an abrupt halt in production and consumption. Layoffs expanded dramatically and swiftly, as businesses were forced to close down in an effort to stop the disease from spreading.

The impact on financial markets was extreme. Global equity markets rapidly entered bear market territory, and continued their path downward throughout the month of March, as market participants attempted to price in the impact of a cessation of a large portion of global economic activity. With limited data on COVID-19, the pendulum clearly swung toward pessimism regarding the virus' impact and the likely path of activity going forward.

M

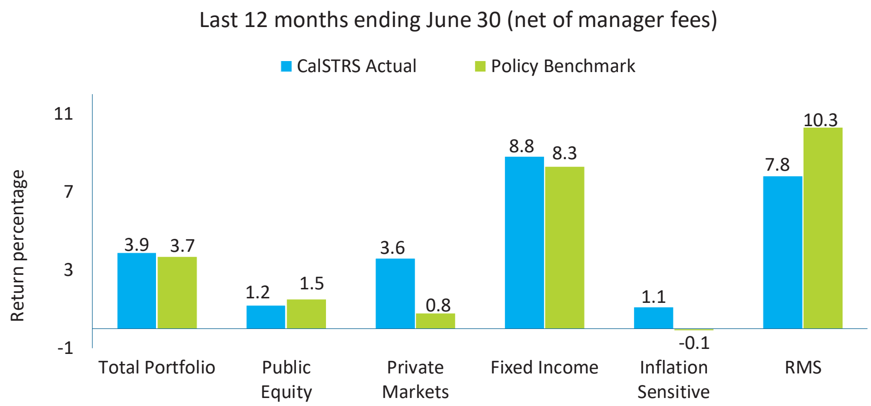
After ending calendar year 2019 below 14, the VIX spiked above its prior peak during the Global Financial Crisis, briefly breaching 80 in early March. In the U.S., circuit breakers were triggered at the New York Stock Exchange, with markets' opening limit down, on March 9 and March 16. At the depth of the drawdown from January 1, 2020, to March 23, 2020, the Russell 3000 was down -31.6%, the MSCI EAFE Index (developed market equities) was down -33.2%, and the MSCI Emerging Markets Index (emerging market equities) was down -31.8%. The perception of acute stress in credit markets, both in the U.S. and abroad, led to solvency fears: the Barclays High Yield index fell -19.8%. Investors universally fled risk assets, in all forms, during the selloff in favor of perceived safer assets like U.S. Treasuries.

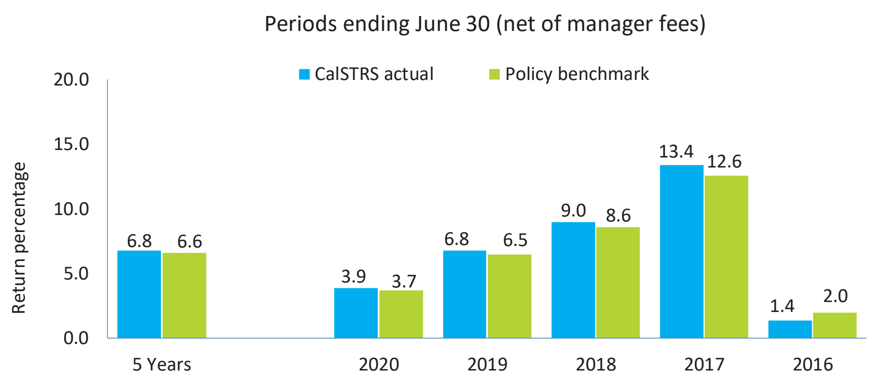
The rapid unwind of risk in early 2020, one of the fastest market selloffs in modern financial history, reinforced the importance of diversification. While equity and credit markets fell precipitously, bonds provided an offset for investors. The Bloomberg Barclays U.S. Aggregate generated a return of 1.0% over the course of the drawdown noted above, and long-term treasuries, measured by the Bloomberg Barclays Long U.S. Government index, generated a return of 20.2%.

The volatility of the pandemic was exacerbated by volatility in oil prices, which experienced a rapid collapse early in 2020. The COVID-19 related restrictions weighed heavily on demand, with Saudi Arabia's untimely decision to flood the market with oil to gain market share, which created further stress on prices. Oil futures briefly traded at negative price levels during the depths of the crisis, as demand collapsed and storage capacity dwindled. The May WTI futures contract briefly exchanged hands at nearly -$40 per barrel. Commodity and natural resource asset classes both participated in the broader market selloff; the Bloomberg Commodity Index and the S&P Global Natural Resources Index were down -23.4% and -44.6% at the trough, respectively. While the futures curve has since normalized, the oil supply and demand dynamic remains in flux. OPEC+ (inclusive of additional key producers such as Russia) reached a supply cut agreement in April that supported prices and stabilized the market.

Robust stimulus across global developed and emerging economies, coupled with incremental positive news regarding the spread of COVID-19, and economies slowly reopening, set the stage for a relatively rapid rebound in risk assets in the second calendar quarter. While the pace of the deceleration in economic activity was rapid, and data for the second quarter has been relatively dire in absolute terms, market participants are largely taking a longer-term view with expectations for a recovery in economic activity later this year and into 2021.

In the second calendar quarter of 2020, the Russell 3000 (previously defined), the MSCI EAFE, (previously defined), and the MSCI Emerging Markets (previously defined) generated total returns of 22.0%, 14.9% and 18.1%, respectively. Given support from the Federal Reserve and an increased risk appetite, credit recovered rapidly as well, with the Bloomberg Barclays U.S. High Yield index generating a return of 10.2%. The broader fixed income market, as measured by the Bloomberg Barclays U.S. Aggregate, benefited from monetary stimulus, producing a 2.9% total return. While the VIX remained elevated relative to its precrisis levels at 30.4 as of June 2020, it had fallen significantly since the peak of the crisis in the first calendar quarter. Equally, bond market volatility as measured by the MOVE Index fell to nearly a record low.





The Charts above show performance by asset class as well as for the full portfolio, for various time periods.

Investment results (net of manager fees)

Over the last year, the CalSTRS Investment Portfolio produced an absolute return of 3.9% (net of manager fees)—well ahead of the median return of its large public pension fund peers, which returned 2.1% according to the State Street Master Trust Universe of Funds over $10 billion. During this period, the portfolio outperformed the policy benchmark[3] return by 20 basis points (see the top chart on the previous page). Relative outperformance was assisted by asset classes outperforming their benchmarks in many areas, primarily driven by the Private Markets, Fixed Income and Inflation Sensitive asset classes.

During the last three years, CalSTRS generated a 6.5% annualized investment return net of manager fees, ahead of its benchmark by 20 basis points, and 60 basis points ahead of the median return of its peer group. Three-year returns were dominated by private market performance (+8.1%) and the returns of Public Equity and Fixed Income produced comparable returns (+6.0% and +5.6%, respectively). Longer-term performance has also been strong, with CalSTRS posting a 6.8% return over the last five years, and 9.3% over the last ten years. Five-year performance of 6.8% was ahead of the policy benchmark by 20 basis points, and closely aligned with the long-term actuarial assumption for the portfolio.[4]

Sincerely,

Stephen P. McCourt, CFA
Managing Principal

[3] 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: deviations from policy, and active decisions on the part of CalSTRS and our investment managers.

[4] 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.

Investment objectives

CalSTRS' main goal is to maintain a financially sound retirement system. The following general investment objectives, adopted as part of the Investment Policy and Management Plan, establish a framework for the operation of the CalSTRS Investment Portfolio.

1. **Provide for Present and Future Benefit Payments**—The CalSTRS Investment Program shall: provide liquidity to pay benefits to its participants and their beneficiaries in the amounts and at the times called for through the investment of contributions and other fund assets, strive to meet the assumptions built into the actuarial model and strive to maintain a fully funded pension system.

2. **Diversify the Assets**—Seek to diversify the assets to achieve the desired rate of return at a prudent level of risk. The asset structure must provide for diversification of risk between asset classes in order to manage the risk/return relationship through strategic asset allocation.

3. **The Reduction of CalSTRS' Funding Costs**— Within prudent levels of risk, the reduction of CalSTRS' funding costs shall be a consideration in the organization and structure of the investment portfolio.

4. **Maintain the Trust of the Participants and Public**—Manage the investment program in such a manner that will enhance the member and public's confidence in the CalSTRS Investment Program.

5. **Establish Policy and Objective Review Process**—A formal review of the CalSTRS Investment Policy and Management Plan will be conducted annually, with an updated financial projection developed every two years.

6. **Create Reasonable Pension Investments Relative to Other Pension Funds**—The selection of investment vehicles and policies will be judged against other private and public pension funds. Investment performance, asset management costs, staffing and overall expenses will be compared to other public and corporate pension plans, with special emphasis on comparisons with other large public funds.

7. **Minimize Costs**—Management fees, trading costs and other expenses will be aggressively monitored and controlled.

8. **Compliance with State and Federal Laws**—The investment program must operate in compliance with all applicable state and federal laws and regulations concerning the investment of pension assets.

Basis of presentation

Investment values and related returns for the CalSTRS Investment Portfolio (Total Fund) are presented differently within the Investment and Financial sections of this publication for various reasons. Therefore, it is important to understand the methodology presented in each section. In the Investments section, our news releases and online, investment values and related returns are presented using common investment industry practices that reflect the way we manage our portfolio. This method of presentation provides timely information that is easily compared to benchmarks and peer results.

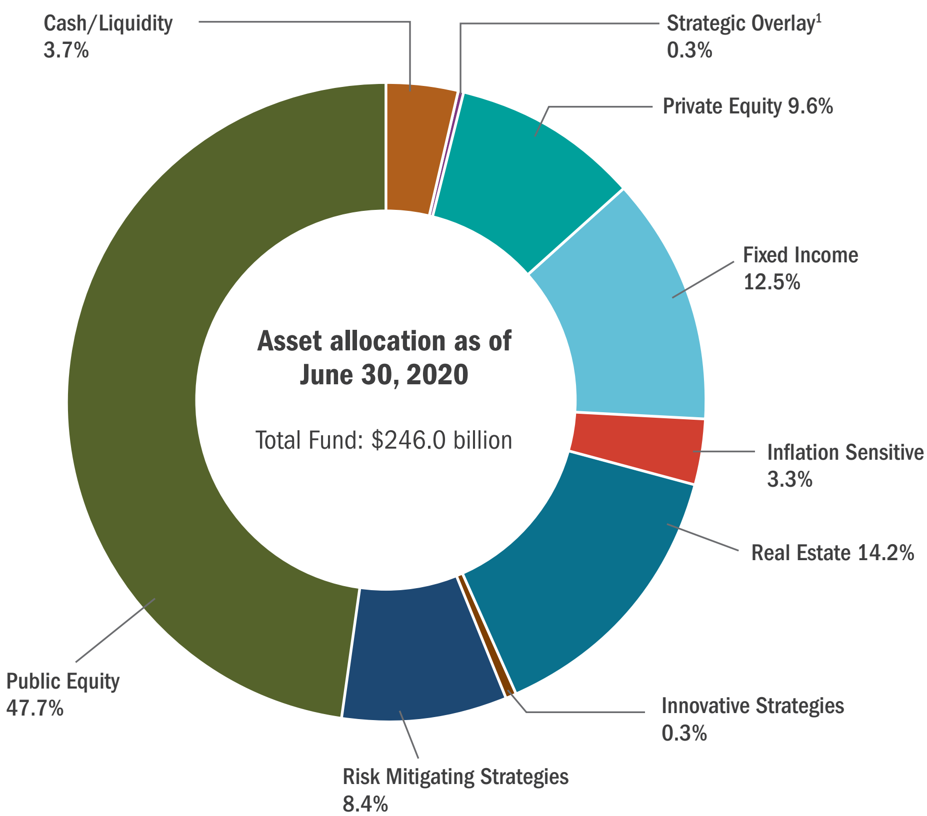
In the Financial section, the same information is reported in accordance with U.S. Generally Accepted Accounting Principles. The primary difference between the presentations is the categorization of the investments. In this section, amortization from securities lending is included in earned net income. In the Financial section, amortization from securities lending is reported within net appreciation/(depreciation) in fair value of 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.

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

Investment overview and results

The CalSTRS Investment Portfolio's assets under management ended fiscal year 2019–20 at $246.0 billion. The Total Fund generated a one-year 3.88% return net of fees, below the 7.00% actuarial rate of return for funding purposes, yet above the policy benchmark of 3.73%. CalSTRS' one-year return ranked in the top half of all public pension plans in the U.S.; however, one year is a short time period when you have a 30-year investment horizon. As a long-term investor, it is more meaningful to review the CalSTRS investment performance over longer time periods. At June 30, 2020, the Total Fund generated 6.54% return net of fees over the past three years, 6.82% over the last five years and 7.49% over the past 25 years. Compared to other U.S. public pension plans, CalSTRS investment returns ranked in the top quartile over three and five years ended June 30, 2020.

While this annual report provides a significant amount of information regarding the CalSTRS Investment Portfolio, only one point in time is represented: June 30, 2020. It is difficult to compare this time measurement to the movement and complexity of the portfolio in this highly dynamic global financial market. For more current investment information, including additional information about specific asset classes and strategies, as well as videos detailing key aspects of the CalSTRS Investment Portfolio, visit **CalSTRS.com.**



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

Investments

Table 1

Market value of investments

(fiscal years ended June 30)

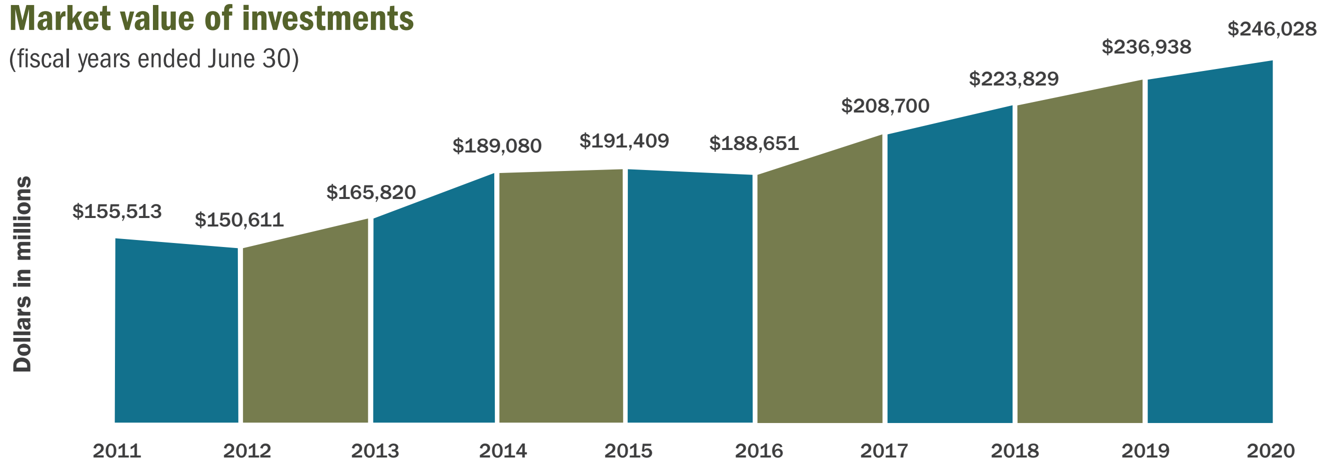


Table 2

10 years of time-weighted annual returns

(fiscal years ended June 30)

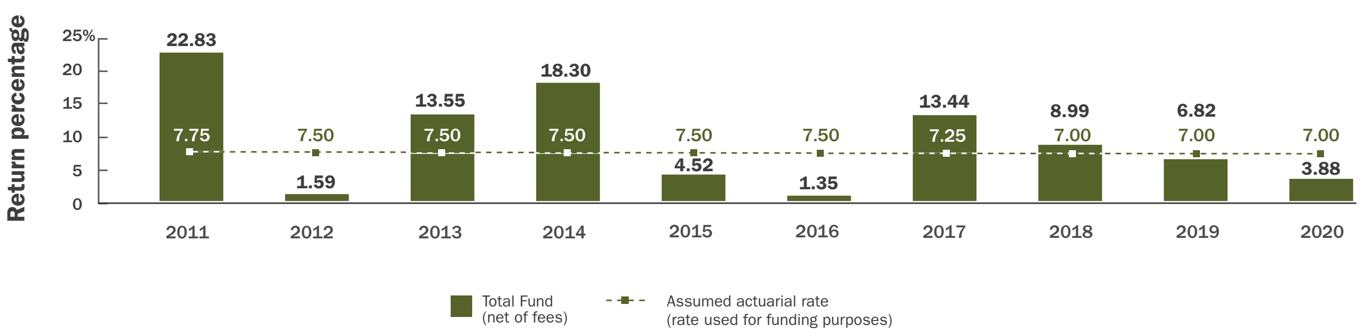


Table 3

Time-weighted returns

(as of June 30, 2020)

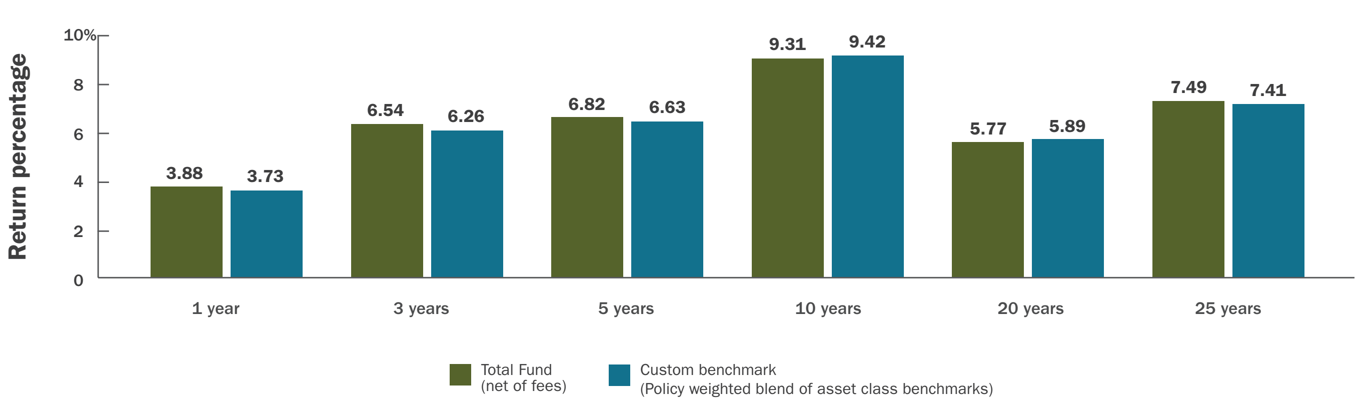


Table 4

Time-weighted returns net of fees by portfolio type

(as of June 30, 2020)

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, thermal coal, Iran, Sudan, Saudi Arabia, U.S. private prisons and geopolitical companies.

Portfolio type / Associated index[1]	1 year	3 years	5 years	10 years
Public Equity	**1.22%**	**5.99%**	**6.81%**	**10.47%**
Public Equity Custom Index[2]	1.55%	6.11%	6.83%	10.45%
Fixed Income	**8.76%**	**5.63%**	**4.74%**	**4.49%**
U.S. Debt Custom Index[3]	8.32%	5.24%	4.34%	3.97%
Real Estate	**6.38%**	**8.34%**	**8.85%**	**10.49%**
Real Estate Custom Index[4]	3.93%	5.85%	7.48%	10.21%
Private Equity	**(0.14%)**	**7.91%**	**8.66%**	**11.32%**
Private Equity Custom Index[5]	(4.02%)	6.36%	7.20%	11.70%
Risk Mitigating Strategies[6]	**7.75%**	**5.91%**	**1.32%**	—
Risk Mitigating Strategies Custom Index[7]	10.35%	6.33%	1.81%	—
Inflation Sensitive	**1.14%**	**5.18%**	**5.75%**	**5.42%**
Inflation Sensitive Custom Index[8]	(0.10%)	2.23%	3.13%	4.78%
Innovative Strategies[9]	**(2.72%)**	**5.79%**	**4.68%**	**2.42%**
Innovative Strategies Custom Index[10]	(1.20%)	3.41%	4.52%	—
Cash/Liquidity	**1.75%**	**2.00%**	**1.63%**	**2.72%**
Bloomberg Barclays Capital 3-Month Treasury Bill	1.65%	1.78%	1.21%	0.65%

1 Index benchmarks are as of June 30, 2020, and are subject to updates based on changes within the portfolio policies. For additional information on benchmarks, refer to the respective investment policies on CalSTRS' website.

2 Weighted blend of the Russell 3000 Custom Index + MSCI All Country World Index (ACWI) ex-U.S. Custom Investable Market Index (IMI), MSCI World ex-U.S. Custom Min Vol (USD) index (added January 2018), Custom MSCI ACWI IMI and MSCI World Custom Low Carbon Target Net Index (added July 2017), and Zero return index (added June 2018). From July 2016 to August 2019, included weighted blend of CBOE S&P 500 Buywrite + CBOE S&P 500 2% OTM Buywrite. From July 2017 to May 2018, included Custom Russell 2000 Growth and Custom MSCI World (net). From July 2016 to August 2019, included Custom Russell 1000 HEDI Mod. From July 2015 to June 2020, included Custom MSCI ACWI ex-U.S. (Free).

3 Ninety-five percent Bloomberg Barclays U.S. Aggregate Custom Index + 5% Bloomberg Barclays U.S. High Yield 2% Issuer Capped custom index.

4 NCREIF ODCE Value Weighted Index net of fees (quarter lagged). Previously NCREIF Property Index (quarter lagged) through June 2013.

5 Weighted blend of the CalSTRS Custom Private Equity Index and Custom Tactical Index (both quarter lagged). Previously, Russell 3000 Custom Index quarter lag + 3% from July 2008 through June 2014.

6 Board approved asset class in 2015, which was established in July 2016. Prior to July 2016, the assets in this program were part of Absolute Return.

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

8 Weighted blend of the Bloomberg Barclays U.S. Treasury Inflation Linked-Bond Index (Series L) (added July 2017), NCREIF Timberland Fund Index (added October 2017), Bloomberg Commodity Index (added March 2017), Alerian MLP Daily index (added May 2016), CPI+3% quarter lagged (added August 2017), CPI+4% quarter lagged (added July 2014), and Zero return index (added July 2017). From July 2012 to June 2014, included CPI+5% quarter lag. From February 2010 to March 2020, included Bloomberg Barclays Global Inflation Linked Index.

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

10 Weighted blend of 60% MSCI EAFE + Canada/40% BarCap U.S. blended, Bloomberg Barclays Capital 3-Month Treasury Bill, and Zero Return index (added April 2018). From July 2016 to July 2018, included Custom Tactical index. Prior to July 2016, this investment strategy was part of Absolute Return composite, which included a benchmark January 2012.

Public Equity

For the fiscal year ended June 30, 2020, the Public Equity Portfolio had total assets of $117.3 billion, representing 47.7% of the Total Fund. As shown in Table 4, the Public Equity Portfolio generated a 1.22% one-year return net of fees. The Public Equity Portfolio consists of two main strategies, Global Equity and the Sustainable Investment and Stewardship Strategies (SISS), which are discussed in the next two sections.

Table 5 lists the largest public equity holdings as of June 30, 2020, which represents 13.3% of the Public Equity Portfolio.

Global Equity

For the fiscal year ended June 30, 2020, the $109.9 billion Global Equity Portfolio represented 44.7% of the Total Fund. Approximately 69% of the portfolio's assets are internally managed in passively implemented index strategies in the U.S. and the developed market. The remaining assets are managed by external investment managers in active strategies. As of June 30, 2020, this portfolio had 57% of its assets in U.S. equity and 43% in non-U.S. equity.

The Global Equity Portfolio generated a 1.18% one-year return net of fees, underperforming its policy benchmark by 35 basis points. The relative performance was primarily attributable to the portfolio's active U.S. managers who in aggregate underperformed their benchmark by 211 basis points due to the highly unusual and volatile first half of 2020.

Sustainable Investment and Stewardship Strategies

The Sustainable Investment and Stewardship Strategies (SISS) unit leads CalSTRS' activities to transform the financial markets to focus on long-term value creation that fully integrates sustainability—or environmental, social and governance (ESG)—considerations. The SISS unit has three core pillars of activity: the SISS Investment Portfolio, stewardship and strategic relations.

Within the SISS Investment Portfolio, the team currently oversees approximately $7.4 billion of assets under management in three public equity strategies: activist managers, sustainability-focused funds and a low-carbon index. The goal of the activist funds is to enhance long-term shareholder value by engaging management to transform strategy and operations. The sustainability-focused funds integrate ESG factors into their long-term investment strategy to deliver market outperformance. The internally managed low-carbon index closely mirrors the characteristics of the broad market but has significantly lower exposure to carbon emissions.

For the fiscal year ended June 30, 2020, the overall SISS Investment Portfolio generated a 1.94% one-year return net of fees, outperforming its benchmark by one basis point.

Table 5

Largest Public Equity holdings (as of June 30, 2020) (CalSTRS maintains a complete list of portfolio holdings.)

Security name	Shares	Market value
Microsoft Corp	16,039,028	$3,264,102,588
Apple Inc	8,501,361	3,101,296,493
Amazon.com Inc	906,467	2,500,779,289
Alphabet Inc	1,299,074	1,839,245,000
Facebook Inc	4,911,992	1,115,366,023
Alibaba Group Holding	12,721,968	826,459,201
Johnson & Johnson	5,754,746	809,289,930
Tencent Holdings Ltd	11,520,681	756,100,339
Taiwan Semiconductor	55,845,915	727,437,176
Samsung Electronics	15,696,590	715,051,768

Going forward, the SISS team, in collaboration with other asset classes, is developing a new private assets portfolio, which will seek investments that are additive to the Total Fund but intentionally accelerate the transition to more sustainable global economy.

The team's stewardship efforts seek to influence and promote sustainable business practices and public policy. These efforts are guided by our Stewardship Priorities: Corporate and Market Accountability, Board Effectiveness, Low-Carbon Transition, and Responsible Firearms. Proxy voting is an important component of the SISS unit's stewardship activities. We believe our proxy votes can affect necessary changes designed to enhance a company's long-term value. Over the last fiscal year, CalSTRS voted over 91,000 proxies at over 9,000 companies. Each year, our voting activities cover a variety of proposals critical to the management of companies including the election of board directors, executive compensation and other ESG-related proposals.

The Strategic Relations group focuses on providing expert and consistent messaging that advances Investments Branch initiatives. Additionally, the group builds relationships with both internal and external stakeholders, the media and other financial market participants with the intent of preserving CalSTRS' reputation as a respected leader in the investment management industry.

Fixed Income

For the fiscal year ended June 30, 2020, the Fixed Income Portfolio had total assets of $30.8 billion, representing 12.5% 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. Internal staff manages 86% of the portfolio's assets using enhanced indexing for core and high yield strategies with a moderate level of risk. The remaining 14% is managed by external managers using broader opportunistic strategies that assume a higher level of risk and, therefore, a higher level of expected return.

As shown in Table 4, the Fixed Income Portfolio generated an 8.76% one-year return net of fees, outperforming its benchmark by 44 basis points. The three-, five- and 10-year net returns were positive and have outperformed the benchmark by 39, 40 and 52 basis points, respectively. The portfolio's overweight to credit, investment grade and high yield, accounted for much of the outperformance.

Table 6 lists the largest fixed income holdings as of June 30, 2020, which represent 9.4% of the Fixed Income Portfolio.

Table 6

Largest Fixed Income holdings (as of June 30, 2020) (CalSTRS maintains a complete list of portfolio holdings.)

Security name	Maturity date	Interest rate	Par value	Market value
U.S. Treasury N/B	5/15/2044	3.375%	$245,000,000	$346,521,875
U.S. Treasury N/B	5/15/2046	2.500%	255,000,000	316,279,688
U.S. Treasury N/B	1/15/2022	2.500%	300,000,000	310,746,093
U.S. Treasury N/B	2/15/2050	2.000%	269,075,900	308,175,992
U.S. Treasury N/B	11/15/2021	2.875%	280,000,000	290,357,813
U.S. Treasury N/B	12/31/2023	2.250%	270,000,000	289,258,595
U.S. Treasury N/B	5/31/2027	0.500%	270,907,800	271,161,776
U.S. Treasury N/B	5/15/2043	2.875%	200,000,000	261,187,500
U.S. Treasury N/B	5/15/2023	0.125%	260,000,000	259,634,375
U.S. Treasury N/B	2/29/2024	2.125%	235,000,000	251,431,642

The Fixed Income unit manages two additional programs: Securities Lending and Currency Management, discussed in the following sections.

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, 2020, the Securities Lending Program earned approximately $102.2 million in additional net income for the fund, which was an increase of $0.5 million compared to the previous year. The increase in earnings is attributed to several factors: increased balances from generally improved asset prices and greater return spreads from investing end of day cash.

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 its benchmark by 4 basis points for the year ended June 30, 2020, while the opportunistic external strategy underperformed its benchmark by 79 basis points for the same period. For the internally managed portion, a large increase in market volatility with little net movement in currency prices over the period led to difficult trading conditions and a negative return.

For the externally managed program, some of the deteriorating performance can be attributed to an overall underperformance of high-yielding 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 42 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 Teachers' Retirement Board on October 1, 2011. Staff continues to manage the existing assets of $38.1 million for the fiscal year ended June 30, 2020.

Real Estate

The Real Estate Portfolio ended fiscal year 2019–20 with a market value of approximately $35.0 billion, or 14.2%, of the Total Fund. Over the last several years, staff has embraced a collaborative model approach with an increase in strategies that provide CalSTRS more discretion with the direction and management of investments. This model allows for an increase in control and provides a better alignment of interests between CalSTRS and our partners. As of June 30, 2020, the implementation of the CalSTRS Collaborative Model has increased CalSTRS direct control to approximately 75% of the Real Estate Portfolio.

Real estate is a long-term asset with performance results influenced by various factors. As shown in Table 4, the Real Estate Portfolio generated a 6.38% one-year return net of fees, outperforming its policy benchmark by 245 basis points. The 10-year return is now outperforming the policy benchmark by 28 basis points for the first time since the financial crisis in 2008 as it continues to liquidate pre-crisis, higher risk strategies from the portfolio. Staff is focused on using the CalSTRS Collaborative Model by investing in direct, discretionary investments that provide us control and align our interests with our partners. Additionally, staff continues to increase 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.

Private Equity

The Private Equity Portfolio ended fiscal year 2019–20 with a market value of $23.5 billion, or 9.6% of the Total Fund. The portfolio consists primarily of investments in limited partnerships, which account for 86% of the allocation, with the remaining assets consisting of co-investments.

As shown in Table 4, the Private Equity Portfolio generated a -0.14% one-year return net of fees, a 7.91% three-year return net of fees and a 8.66% five-year return net of fees, outperforming its policy benchmark by 388, 155 and 146 basis points, respectively. The portfolio has underperformed its benchmark for the 10-year period, 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 three years, and therefore, J-curve effects are influencing performance.

Risk Mitigating Strategies

For the fiscal year ended June 30, 2020, the Risk Mitigating Strategies Portfolio had total assets of $20.6 billion, representing 8.4% of the Total Fund. The RMS Portfolio was established on July 1, 2016, with a long-term target allocation of 9.0% of the Total Fund. In November 2019, the Teachers' Retirement Board Investment Committee approved an increase to the long-term strategic allocation to RMS from 9% to 10%. 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, 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 equity downturns or volatile periods.

The RMS Portfolio generated a 7.75% one-year return net of fees for the fiscal year ended June 30, 2020, underperforming its policy benchmark by 260 basis points. The underperformance was driven by negative relative performance from the trend following, global macro and systematic risk premia strategies. This was partially offset by positive relative performance from the long-duration U.S. Treasuries component. The long-term returns for the RMS Portfolio are expected to be positive and exhibit low correlation to equity markets.

Inflation Sensitive

For the fiscal year ended June 30, 2020, the $8.1 billion Inflation Sensitive Portfolio represented 3.3% of the Total Fund. The Inflation Sensitive Portfolio invests in strategies that include infrastructure, commodities, U.S. Treasury inflation protected securities, timberland and agriculture.

For the fiscal year ended June 30, 2020, the Inflation Sensitive Portfolio generated a 1.14% one-year return net of fees, outperforming its policy benchmark return of -0.10% by 124 basis points. The outperformance can be attributed to the continued execution of the infrastructure strategy, which includes investments across a variety of risk characteristics that provide essential services in businesses with high barriers to entry.

The infrastructure strategy returned a net 5.42%, beating its benchmark by 119 basis points. The commodities strategy returned a net -15.36%, beating its benchmark by 306 basis points. The U.S. Treasury inflation protected securities strategy had a net return of 8.41%, besting its benchmark by 13 basis points. The timberland and agriculture strategies had less than three years of performance since inception and are in their development stage.

Over the previous three years, the Inflation Sensitive Portfolio outperformed its benchmark by 295 basis points.

Innovative Strategies

For the fiscal year ended June 30, 2020, the $715.8 million Innovative Strategies Portfolio represented 0.3% of the Total Fund. The objective of the portfolio is to provide a structure for incubating new ideas and investing in strategies seeking to improve the diversification of the Total Fund, enhance its risk-adjusted total return, capture capital appreciation, provide new sources of current income and explore innovative investment structures with better alignment of economic interests. Over the long term, the portfolio seeks to produce a positive real return greater than the CalSTRS assumed actuarial rate of return while testing out new investment strategies and groups of assets for potential growth within the Total Fund.

As shown in Table 4, for the fiscal year ending June 30, 2020, the Innovative Strategies Portfolio generated a one-year return net of fees of -2.72%, underperforming its policy benchmark of -1.20%. With the graduation of RMS into its own asset class in July 2016, returns longer than four years reflect the historical Absolute Return Portfolio performance.

Cash/Liquidity

For the fiscal year ended June 30, 2020, the $9.1 billion Cash/Liquidity Portfolio represented 3.7% of the Total Fund. The portfolio invests in short-term highly liquid securities used to manage cash available for benefit payments and cash flows for the asset class. As shown in Table 4, for the fiscal year ended June 30, 2020, the Cash/Liquidity Portfolio generated a 1.75% one-year return net of fees, outperforming its policy benchmark of 1.65%.

Other investment tables

The following tables summarize investment activity. Table 7 represents the investment summary by portfolio type compared to the prior fiscal year. Table 8 reflects the investment expenses by portfolio type as of June 30, 2020. Investment expenses reflected in Table 8 generally represent direct costs associated with investing. Certain expenses, such as carried interest and management fees related to private assets, are not included; however, these expenses may be reflected within the net asset value. The total investment expenses shown also excludes certain items such as foreign tax withheld and broker commissions. Table 9 displays the broker commissions for the fiscal year ended June 30, 2020.

Table 7

Investment summary for the current and previous fiscal year

(dollars in millions)

	June 30, 2019		June 30, 2020			
Portfolio type	**Book value**	**Net asset value**	**Book value**	**Net asset value**	**% of net asset value**	**Net value change**
Public Equity	$92,918	$119,727	$94,349	$117,353	47.7%	($2,374)
Fixed Income	28,372	29,185	30,113	30,772	12.5%	1,587
Real Estate	31,757	32,479	33,568	34,991	14.2%	2,512
Private Equity	24,754	21,669	28,679	23,538	9.6%	1,869
Risk Mitigating Strategies	21,063	22,212	19,129	20,637	8.4%	(1,575)
Inflation Sensitive	5,739	5,871	7,720	8,118	3.3%	2,247
Innovative Strategies	609	785	696	716	0.3%	(69)
Cash/Liquidity	5,008	5,017	9,142	9,146	3.7%	4,129
Strategic Overlay	(3)	(7)	811	757	0.3%	764
PORTFOLIO TOTAL	**$210,217**	**$236,938**	**$224,207**	**$246,028**	**100.0%**	**$9,090**
Adjustments:						
Securities lending collateral		22,795		24,026		
Bond proceeds investment		—		293		
Accruals		1,735		3,600		
Cash and cash equivalent		(321)		(152)		
STRP ASSETS - INVESTMENTS		**$261,147**		**$273,795**		

Table 8

Schedule of investment expenses

July 1, 2019, through June 30, 2020 (dollars in thousands)

Portfolio type	Net asset value	Investment expenses	Basis points
Public Equity	$117,352,813	$182,905	15.6
Fixed Income	30,772,022	21,103	6.9
Real Estate	34,991,634	23,217	6.6
Private Equity	23,538,036	10,124	4.3
Risk Mitigating Strategies	20,636,896	12,553	6.1
Inflation Sensitive	8,117,761	5,087	6.3
Innovative Strategies	715,763	298	4.2
Cash/Liquidity	9,146,268	2,882	3.2
Strategic Overlay	757,203	3,901	*
TOTAL INVESTMENT ASSETS AND EXPENSES	**$246,028,396**	**$262,070**	**10.7**

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

Table 9

Broker commissions

July 1, 2019, through June 30, 2020

Broker name	Commission	Shares	Average commission per share
JP Morgan	$2,249,646	601,957,009	$0.004
Goldman Sachs	1,880,515	988,457,419	0.002
Credit Suisse First Boston	1,796,794	1,517,902,656	0.001
Merrill Lynch	1,619,889	1,253,039,645	0.001
UBS	1,343,829	519,805,158	0.003
Morgan Stanley	1,332,292	599,363,326	0.002
Citigroup	1,119,817	316,312,592	0.004
Instinet	848,991	258,519,491	0.003
Investment Technology Group Inc.	643,764	184,736,740	0.003
Barclays Capital	518,002	160,450,027	0.003
All other brokers	6,012,244	1,782,362,623	0.003
TOTAL COMMISSIONS	**$19,365,783**	**8,182,906,686**	**$0.002**

Actuarial section

The actuarial valuation report for the Defined Benefit Program as of June 30, 2019, reported a funded ratio of 66%.

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November 3, 2020

Teachers' Retirement Board
California State Teachers' Retirement System

Re: Valuation of the DB, DBS, CBB, and MPP Programs

Dear Members of the Board:

Annual valuations are performed for four benefit programs administered by the California State Teachers' Retirement System (CalSTRS).

Defined Benefit Program

The basic financial goal of the CalSTRS Defined Benefit Program 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 assets over the actuarial obligation. The funding status based on the past three actuarial valuations is shown below:

Valuation Date	Funded Ratio
June 30, 2017	63%
June 30, 2018	64%
June 30, 2019	66%

Based on the June 30, 2019 actuarial valuation, the scheduled income from member, employer, and state contributions is projected to finance the DB Program on an actuarially sound basis. The DB Program is projected to reach approximately a 100% Funded Ratio in 2046.

Defined Benefit Supplement and Cash Balance Benefit Program

The basic financial goal of the Defined Benefit Supplement (DBS) Program and the Cash Balance Benefit (CBB) Program 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 assets over the actuarial obligation. The funding status based on the past three actuarial valuations is shown below:

Valuation Date	DBS Funded Ratio	CBB Funded Ratio
June 30, 2017	118%	116%
June 30, 2018	120%	117%
June 30, 2019	125%	122%

For both programs, the actual return was greater than the interest credit granted for the fiscal year ended in 2019 which, combined with other factors, caused an increase in the Funded Ratios. As of June 30, 2019, the market value of assets for the DBS and CBB Programs exceeded the respective program's actuarial obligation. No additional interest credits were granted.

Medicare Premium Payment Program

The basic financial goal of the Medicare Premium Payment (MPP) Program 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, as well as test the adequacy of the contribution rates. The most recent valuation was as of June 30, 2019.

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, 2019, $288 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, 2019.

Data, Assumptions and Methods Applicable to All Programs

The June 30, 2019 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, 2019 actuarial valuation reports for funding and our 2020 GASB 67/68 and GASB 74/75 reports that communicated the actuarial results for financial reporting for June 30, 2020.

The actuarial computations presented in the valuation reports are for purposes of determining the recommended funding amounts for CalSTRS consistent with our understanding of their funding requirements and goals. For the DB and MPP Programs, the Actuarial Obligation is determined by using the entry age normal funding method; the traditional unit credit method is used for the DBS and CBB Programs. For the DB Program, 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. For the other programs the market value was used with no smoothing applied.

The valuations are based on our understanding of the current benefit provisions for the respective programs and the actuarial assumptions adopted by the Board. The assumptions are reviewed annually for reasonableness, with a detailed experience analysis completed every three to five years. The last detailed experience analysis was completed in January of 2020 when the Board adopted the current assumptions. The assumptions are scheduled to be reviewed in detail again for use in the June 30, 2023 funding valuation and the GASB valuations for reporting date June 30, 2024. The assumptions and methods used for financial reporting under GASB 67/68 and GASB 74/75 are the same as the funding valuation assumptions with the following exceptions:

1. The discount rate of 7.10% (gross of administrative expenses) is used for the DB, DBS & CBB Programs;
2. The discount rate of 2.21% is used for the MPP Program based on the rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher;
3. The market value of assets is used for the Fiduciary Net Position (i.e., there is no smoothing of the DB Program assets for GASB 67/68), and;
4. The individual entry age normal cost method, as specified by GASB, is used for all programs.

Milliman

Teachers' Retirement Board
November 3, 2020
Page 3

For financial reporting purposes, all programs within the State Teachers' Retirement Plan are reported in aggregate. This includes the obligation, and associated assets, for purchasing power benefits financed through the Supplemental Benefit Maintenance Account.

We believe the actuarial assumptions and methods are internally consistent, reasonable and meet the parameters of Governmental Accounting Standards Board Statement Numbers 67, 68, 74, 75 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 retirement and OPEB (Other Postemployment Benefit) 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, 2019 valuations were 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

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Principal and Consulting Actuary

Nick Collier

Nick J. Collier, ASA, EA, MAAA
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Julie D. Smith

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Daniel Wade

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Actuarial methods

CalSTRS administers the Defined Benefit (DB), Defined Benefit Supplement (DBS), Cash Balance Benefit (CBB) and Medicare Premium Payment (MPP) programs. The DB Program and the MPP Program are cost-sharing multiple employer programs. The MPP Program is a postemployment benefit plan established on January 1, 2001, administered through the Teachers' Health Benefit Fund, which pays Medicare Part A premiums and Medicare Parts A and B late enrollment surcharges for eligible members of the DB Program. The DBS Program and the CBB Program are cash balance plans, which were established on January 1, 2001, and July 1, 1996, respectively. CalSTRS has adopted actuarial methods with the objective of funding each program in a manner that 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 for each program.

Actuarial cost method

For funding purposes, the entry age normal cost method was selected, for both the DB and MPP programs. The entry age normal cost method was selected since it provides for a cost allocation that remains fairly level over time as a percentage of payroll, which can be beneficial for budget planning purposes. The traditional unit actuarial credit cost method was selected for the DBS and the CBB programs 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. Neither the DBS Program nor the CBB Program provide a cost-of-living adjustment for benefit recipients.

Asset valuation method

The DB Program uses an asset smoothing method, as adopted by the Teachers' Retirement Board (the board), which projects an Expected Actuarial Value of Assets using the assumed rate of investment return, then one-third of the difference between the Expected Value and the Fair Value is recognized in the Actuarial Value of Assets. The DBS Program and the CBB Program use the fair value of assets for actuarial valuation purposes, and asset smoothing is not used for these two programs. Because the MPP Program was created using surplus assets of the DB Program, the MPP Program is considered fully funded for funding purposes. Assets are equal to the actuarial obligation of the MPP Program, and asset smoothing is also not used for this program.

Funding method

Defined Benefit Program

The DB Program receives contributions from members, employers and the State of California (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 DB Program by 2046. Actuarial gains and losses and the unfunded actuarial obligation are amortized over a closed period ending June 30, 2046.

Member DB contributions: For members covered by the CalSTRS 2% at 60 benefit formula, the contribution rate is 10.250% of creditable compensation. For members covered by the CalSTRS 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 CalSTRS 2% at 62 members only changes when the normal cost rate changes by more than 1% of creditable compensation as compared to the normal cost rate at the time of the last adjustment. For the fiscal year ended June 30, 2020, the member contribution rate was equal to 10.205% of creditable compensation.

Employer DB contributions: Employers pay a base contribution rate of 8.25% 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 was set to increase to 19.100% of creditable compensation for the 2020–21 fiscal year. However, in July 2019, CalSTRS received additional supplemental contributions from the state to reduce the employers' contribution rate both short term and long term. In order to provide additional short-term rate relief to employers, the California Legislature and the Governor, through the adoption of the 2020 Budget Act, repurposed previous supplemental contributions intended to reduce the employers' unfunded actuarial obligation to provide additional short-term rate relief. The employers' contribution rate has been reduced by 1.03% for fiscal year 2019–20, by 2.95% for fiscal year 2020–21 and by 2.18% for fiscal year 2021–22. As a result, the total employer contribution rate was equal to 17.100% of creditable compensation for the 2019-20 fiscal year and is equal to 16.15% of creditable compensation for 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.

State DB contributions: The state's base and supplemental contribution to the DB Program is calculated based on creditable compensation from two fiscal years prior. The state contributes at a base contribution rate of 2.017% of creditable compensation. Additionally, the state contributes a supplemental contribution 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 the fiscal year ended June 30, 2020, the total state contribution rate was equal to 7.828% of creditable compensation. Note that the state contribution rate was scheduled to increase to 8.328% on July 1, 2020. However, in order to provide rate relief to the state, the California Legislature and the Governor, through the adoption of the 2020 Budget Act, froze the state contribution rate for 2020–21 at 7.828%, the rate in effect in fiscal year 2019–20. To offset the reduced rate, the State of California provided a lump-sum payment of $297 million on July 1, 2020, using Proposition 2 revenues. This amount was more than enough to cover the shortfall that resulted from freezing the contribution rate for 2020–21.

The state also contributes an additional 2.500% of members' creditable earnings to protect retirees' purchasing power.

Other programs

For the DBS Program, member and employer contributions are credited to the member's account for service credit that exceeds one year during a single school year. For CalSTRS 2% at 60 members, compensation for limited-term payments and retirement incentives are also credited to the member's account. CalSTRS 2% at 60 members and employers each contribute 8% for a total of 16% of salary for service creditable to DBS. For members under CalSTRS 2% at 62, members contribute 9% and employers contribute an additional 8% for a total of 17% of salary for service creditable to DBS. Generally for the CBB Program, participants and employers each contribute 4% of salary. Rules for contribution rates may differ for participants covered by a collective bargaining agreement, but the sum of participant and employer contributions must equal or exceed 8% of salary. The employer contribution rate cannot be less than 4% 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 cannot exceed 0.25% of salaries in any plan year.

For both the DBS and CBB programs, 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 currently 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.

The MPP Program is funded on a pay-as-you go basis from a portion of monthly employer contributions of the DB Program. In accordance with Education Code section 25930 and board policy, contributions of the DB Program 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. For funding purposes, the MPP Program is assumed to be 100% funded by including the value of future employer contributions that have been allocated to fully fund the MPP Program obligations. As a result, 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

Under Governmental Accounting Standards Board (GASB) Statement No. 67, *Financial Reporting for Pension Plans—an amendment of GASB Statement No. 25*, financial reporting for the State Teachers' Retirement Plan (STRP) includes the DB, DBS, CBB, Supplemental Benefit Maintenance Account and Replacement Benefits programs. For financial reporting, the aggregate assets of all programs in the STRP on a market basis are used in the determination of the net pension liability. GASB Statement No. 67 also specifies that, for financial reporting purposes, the entry age normal cost method should be used to calculate total pension liability.

For financial reporting purposes of the MPP Program, the actuarial cost method used is the entry age normal cost method as specified by GASB Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other than Pension Plans*. The asset valuation method is fair value of assets.

Actuarial assumptions

The actuarial valuation uses two 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. As the DB Program and the DBS Program share the same population, it is reasonable to use most of the same assumptions for both programs. The assumptions for the DBS Program and the CBB 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 DBS Program and the CBB Program, a member must have at least $3,500 in their account to elect to annuitize the account balance.

CalSTRS, through our consulting actuary, generally performs an experience study every four years to determine appropriate demographic and economic assumptions. These assumptions are then applied when the consulting actuary performs actuarial valuations to monitor the funding status of the DB, DBS, CBB and MPP programs.

The most recent experience study for demographic and economic assumptions examined data for the three-year period spanning July 1, 2015, through June 30, 2018, and the assumptions were adopted by the board in January 2020. Following is a summary of the different types of assumptions used.

Economic assumptions

The two major economic assumptions for the DB, DBS and CBB programs 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% for the DB and DBS programs and 6.50% for the CBB Program (net of investment and administrative expenses). The assumption for general wage increase is 3.50%, of which 2.75% is due to inflation and 0.75% is due to expected gain in productivity.

The economic assumptions used for the MPP Program evaluation are the investment return, medical inflation and rate of inflation. The investment return assumption for the MPP Program is 7.00% (net of investment and administrative expenses). The assumption for premium cost trend rates varies by years; however, the increases are approximately equivalent to a 4.5% and 5.4% increase each year for Medicare Part A and Part B, respectively. The assumption for price inflation is also 2.75%.

As required by GASB Statement No. 67 for financial reporting for the STRP, the discount rate of 7.10% is net of investment expenses but gross of administrative expenses. The MPP Program is funded on a pay-as-you-go basis, and the other postemployment benefit plan's fiduciary net position was not projected to be sufficient to make projected future benefit payments. As such, GASB Statement No. 74 requires the MPP Program's discount rate be based on 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher. The board has adopted *The Bond Buyer* 20-Bond GO Index for this purpose. The MPP Program's discount rate is 2.21%. Table 6 provides a summary of the economic actuarial assumptions for these programs as reflected in the most recent actuarial valuations.

Demographic assumptions

Demographic assumptions are based on the most recent CalSTRS experience study adopted by the board in January 2020 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 DB, DBS and CBB program benefits. Members whose retirement date is 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. The primary MPP Program demographic assumptions are postretirement mortality rates and program enrollment rates. Tables 1 through 5 and 7 through 9 provide a summary of the demographic assumption information for these programs as reflected in the most recent actuarial valuations.

Changes since prior valuation

Changes in actuarial methods

There were no changes in the actuarial methods for the DB, DBS, CBB and MPP programs.

Changes in actuarial assumptions

On January 31, 2020, the board adopted new actuarial assumptions for use in the funding actuarial valuations of the DB, DBS, CBB and MPP programs. These new assumptions were reflected in the 2019 actuarial valuation of each program. For full details on changes to the assumptions see the *CalSTRS 2020 Experience Analysis* report, available at **CalSTRS.com**.

Changes in plan provisions

There were no changes in plan provisions for the DB, DBS, CBB and MPP programs that were reflected in the June 30, 2019, actuarial valuations. No additional earnings credits were awarded for the fiscal year ended June 30, 2019, for the DBS and the CBB programs.

Valuation results

The most recent DB, DBS, CBB and MPP program actuarial valuations were completed as of June 30, 2019. The DB Program actuarial valuation was presented to the board on May 7, 2020, and the DBS, CBB and MPP program actuarial valuations were presented to the board on July 16, 2020.

The DB Program valuation determined the DB Program was 66% funded with an unfunded actuarial obligation of $105.7 billion as of June 30, 2019. The valuation projected the DB Program will reach approximately 100% funding by 2046 as contributions increase in accordance with the funding plan.

The DB Program actuarial valuation provides the best estimate of the program's long-term financing by using the actuarial methods and assumptions adopted by the board. Comparing the unfunded actuarial obligation as of two valuation dates does not provide enough information to determine if there were actuarial gains or losses. A better 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 DB Program's unfunded actuarial obligation as of the valuation date, and actuarial losses increase the DB Program's 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.

The DBS Program valuation determined there was an actuarial surplus of approximately $2.8 billion, and no additional earnings credit was granted.

The CBB valuation determined there was an actuarial surplus of approximately $63.4 million, and no additional earnings credit was granted.

The MPP Program valuation indicated that the current program assets, along with MPP Program-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 $288.0 million for both Medicare Part A premiums and Medicare Parts A and B penalties.

Tables 11 through 15 provide summaries of all the valuation results. The data displayed in Table 11 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 11 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 12 represent the status of the population as of June 30 of the indicated year. For the DB Program, information provided in the "Removed from rolls" and "Rolls end of year" columns include the application of the non-compounded 2% annual postretirement benefit adjustment.

The data provided for each year in Table 12 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 12 for these adjustments.

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 actuarial services are subject to a periodic independent review. The selection of the firm performing the independent review is done through the competitive bid process. In 2019, CalSTRS selected the actuarial firm Cheiron to perform the independent review of all actuarial work performed by Milliman.

In the spring of 2020, Cheiron completed its review of the 2020 actuarial experience study. Cheiron found the recommendations made by Milliman in the Actuarial Experience Study to be reasonable, and they agreed with the rationales and processes that led to Milliman's recommendations. In the fall of 2020, Cheiron completed its review of the June 30, 2019, actuarial valuations for all programs. Overall, Cheiron was able to replicate the results of all of the actuarial valuations with no material differences. Cheiron commented that the actuarial valuations were performed by qualified actuaries and in accordance with generally accepted actuarial principles. Both independent review reports are available on the CalSTRS website.

Summary of plan provisions — DB Program

The plan provisions of the DB Program are detailed in the Teachers' Retirement Law (TRL). The following is a summary of these provisions, which were used in the June 30, 2019, valuation of the DB Program.

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—Two 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 the CalSTRS Funding Plan 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 or more 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 of credited service. The annual compensation limit effective July 1, 2019, is $148,423 and is adjusted annually based on changes to the Consumer Price Index for All Urban Consumers. CalSTRS 2% at 62 members are not eligible for the one-year final compensation benefit enhancement.

Internal Revenue Code (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 or more years of credited service, the age factor is increased by 0.2%. However, the maximum age factor is 2.4%. The career factor does not apply to CalSTRS 2% at 62 members.

Longevity bonus—If a CalSTRS 2% at 60 member attains 30 years of service before 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

Annual Benefit Adjustment—2% 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 all CalSTRS members, benefits are subject to federal limits imposed under IRC section 415(b). When performing the actuarial valuation of the DB Program, the 415(b) limits are ignored in order to address the potential pay-as-you-go funding needs of the Teachers' Replacement Benefits Program Fund. Note that CalSTRS 2% at 62 members are not eligible to receive benefits from the Teachers' Replacement Benefits Program Fund and are not expected to ever receive benefits in excess of the federal limit as a result of limits on creditable compensation as per the Public Employees' Pension Reform Act of 2013.

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% 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% for each full month or partial month the member is younger than age 55.

CalSTRS 2% at 62 members: A 0.5% 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% age factor increases by 0.033% for each quarter year of age that the member is over age 60, up to a maximum of 2.4%.

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

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— Applicable only to members who became a member before October 16, 1992, who did not elect Coverage B. Member has five years of credited California service and has not attained age 60, or 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—50% of earned final compensation.

- or -

5% of final compensation for each year of service credit if over age 45 with fewer than 10 years of service credit.

Children's benefit—10% for each eligible dependent child, up to a maximum of 40% of earned 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 plans.

Disability Allowance—Coverage B

Eligibility requirement— Applicable to members who became members on or after October 16, 1992, and to certain other members who elected Coverage B. Member has five years of credited California service, or 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—50% of earned final compensation, regardless of age and service credit.

Children's benefit—10% for each eligible child up to four children, for a maximum of 40% of earned 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— Applicable only to members who became a member before October 16, 1992, who did not elect Coverage B. 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 $6,372 lump-sum payment.

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

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

When there are no eligible children, the spouse or registered domestic partner may elect to receive one-half of a 50% 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— Applicable to members who became members on or after October 16, 1992, and to certain other members who elected Coverage B. One or more years of service credit for active members.

Lump-sum payment—The one-time death benefit recipient receives a $25,488 lump-sum payment.

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

– or –

One-half of a 50% 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% of the member's earned final compensation, with a maximum benefit of 50%.

Death after retirement

Lump-sum payment—The one-time death benefit recipient receives a $6,372 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 option beneficiary's benefit would be reduced in accordance with the option elected.

If no option was 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.

Summary of plan provisions — DBS Program

The plan provisions of the DBS Program are detailed in the TRL. The following is a summary of these provisions, which were used in the June 30, 2019, valuation of the DBS 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.

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 credit in excess of 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 12 months ending in February preceding the beginning of the plan year, rounded to the next highest 0.01%. 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.

No additional earnings credit was awarded for the fiscal year ended June 30, 2019.

Normal retirement

Eligibility requirement—Receipt of a corresponding benefit under the DB Program.

Benefit—The account balance at the benefit effective date is subject to limits imposed under IRC section 415(b).

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 interest 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 is 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.

Summary of plan provisions — CBB Program

The plan provisions of the CBB Program are detailed in the TRL. The following is a summary of these provisions, which were used in the June 30, 2019, valuation of the CBB Program.

Membership

Eligibility requirement—Membership if employed at less than 50% of a full-time position for a California school district, community college district or county office of education that has elected to offer the CBB Program.

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 67% 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 or has not yet received their lump-sum benefit.

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, if applicable, additional earnings credits.

Contributions—Generally, participant contributions are 4% of salary, and employer contributions are 4% 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% of salary. The employer contribution rate cannot be less than 4% of salary, and the participant rate cannot be less than the employer's rate.

The board may adjust employer contributions for a fixed number of years, but the adjustment shall not exceed 0.25% 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 0.01%.

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.

No additional earnings credit was awarded for the fiscal year ended June 30, 2019.

Normal retirement

Eligibility requirement—Age 60, or age 62 for participants hired on or after January 1, 2013.

Benefit—The account balance at the retirement date subject to limits imposed under IRC section 415(b). For participants hired on or after January 1, 2013, salary credited to CalSTRS from all employers is capped at $148,423 for 2019–20 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.

Summary of plan provisions — MPP Program

The plan provisions of the MPP Program are detailed in the TRL. The following is a summary of these provisions which were used in the June 30, 2019, valuation of the MPP 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.

Members who retire on or after July 1, 2012, are not eligible for coverage under the MPP Program.

Eligibility requirement – Part A and B late enrollment 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 2019–20 are as follows:

Medicare Part A premium rate[1]

July 1, 2019, to December 31, 2019	$437
January 1, 2020, to June 30, 2020	$458

Part A and B late enrollment surcharges are generally 10% 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 2019–20, Part A late enrollment surcharges were $43.70 and $45.80 for the period of July 1, 2019, to December 31, 2019, and January 1, 2020, to June 30, 2020, respectively. Part B late enrollment surcharges were $13.55 and $14.46 for the period of July 1, 2019, to December 31, 2019, and January 1, 2020, to June 30, 2020, respectively.

1 Individuals with 30-39 quarters of Medicare covered employment pay a reduced monthly premium rate, which was $240 and $252 for the period of July 1, 2019, to December 31, 2019, and January 1, 2020, to June 30, 2020, respectively.

All demographic assumptions used in the actuarial valuations were adopted by the board when the experience study was adopted on January 31, 2020. The following are the assumptions adopted by the board for the DB, DBS, CBB and MPP programs unless stated otherwise. Where indicated, duration is based on elapsed service since membership date.

Table 1a

Preretirement mortality for sample ages—DB Program only

	Active members/participants[1]	
Age	Male	Female
25	0.012%	0.007%
30	0.017%	0.011%
35	0.023%	0.015%
40	0.032%	0.024%
45	0.052%	0.037%
50	0.085%	0.056%
55	0.132%	0.082%
60	0.203%	0.124%
65	0.335%	0.208%

Table 1b

Postretirement mortality for sample ages

	Retired members/participants and beneficiaries[1]		Disabled members/participants (after year 3)[1]	
Age	Male	Female	Male	Female
50	0.235%	0.131%	1.807%	1.021%
55	0.346%	0.206%	2.102%	1.277%
60	0.464%	0.274%	2.383%	1.507%
65	0.659%	0.413%	2.774%	1.800%
70	1.056%	0.681%	3.440%	2.337%
75	1.894%	1.252%	4.536%	3.326%
80	3.475%	2.401%	6.279%	4.926%
85	6.682%	4.788%	9.122%	7.319%
90	12.893%	9.746%	13.840%	10.820%
95	22.038%	18.269%	20.697%	16.019%

Select minimum rates for disability		
First year of disability	4.0%	3.0%
Second year of disability	3.5%	2.5%
Third year of disability	3.0%	2.0%

1 The mortality assumption uses a generational mortality approach with a base year of 2019 for the mortality rates. Projected improvement is based on 110% of the MP-2019 Ultimate Projection Scale. The rates shown reflect mortality improvement through June 30, 2019. The projection scale does not apply to the select minimum rates.

Table 2

Probabilities of service retirement for sample ages and years of service[1] — DB Program only

Male	Age	2% at 60: 20–24 years	2% at 60: 26–29 years	2% at 60: 30 years	2% at 60: 31 or more years	2% at 62: 20–24 years	2% at 62: 25–29 years	2% at 62: 30 or more years
	55	4.0%	5.0%	7.5%	5.5%	3.0%	4.0%	5.0%
	60	8.0%	9.5%	28.0%	20.5%	6.0%	7.5%	9.0%
	65	21.0%	27.0%	32.5%	32.5%	21.0%	28.0%	28.0%
	70	18.0%	23.0%	25.0%	25.0%	18.0%	24.0%	24.0%
	75+	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Female	Age	2% at 60: 20–24 years	2% at 60: 26–29 years	2% at 60: 30 years	2% at 60: 31 or more years	2% at 62: 20–24 years	2% at 62: 25–29 years	2% at 62: 30 or more years
	55	4.5%	5.0%	8.5%	6.5%	3.5%	4.0%	5.0%
	60	9.5%	12.5%	30.5%	23.0%	7.0%	10.0%	12.0%
	65	24.5%	31.0%	38.0%	38.0%	24.5%	32.5%	32.5%
	70	21.5%	28.5%	30.0%	30.0%	21.5%	30.0%	30.0%
	75+	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

1 The assumptions shown above are for retirement from active status. It is assumed that all vested terminated 2% at 60 members retire at age 60 and 2% at 62 members retire at age 62.

Table 3

Probabilities of withdrawal from active service for sample years of service — DB Program only

Year[1]	Male	Female
0	12.25%	11.25%
1	8.50%	7.00%
2	6.75%	5.50%
3	5.40%	4.25%
4	3.75%	3.25%
5	3.10%	2.70%
10	1.65%	1.50%
15	1.05%	1.05%
20	0.75%	0.75%
25	0.50%	0.50%
30	0.45%	0.40%

1 Based on elapsed service since membership date.

Table 4

Probabilities of refund for sample entry ages and years of service — DB Program only

	Entry age					
Year[1]	Under 25	25–29	30–34	35–39	40–44	45 and up
Under 5	100%	100%	100%	100%	100%	100%
5	60%	60%	60%	54%	50%	45%
10	38%	38%	38%	34%	25%	—
15	30%	30%	28%	17%	—	—
20	24%	22%	18%	—	—	—
25	14%	12%	—	—	—	—
30	5%	—	—	—	—	—

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

Table 5

Assumption for pay increase due to promotions and longevity for sample ages in years[1] — DB Program only

	Entry age					
Year[2]	Under 25	25–29	30–34	35–39	40–44	45 and up
0	6.4%	5.8%	5.3%	4.8%	4.5%	3.7%
1	6.4%	5.8%	5.3%	4.8%	4.5%	3.7%
2	6.0%	5.5%	5.0%	4.5%	4.3%	3.5%
3	5.6%	5.3%	4.8%	4.3%	4.1%	3.3%
4	5.4%	5.0%	4.5%	4.1%	3.9%	3.0%
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%
15	1.8%	1.7%	1.5%	1.2%	1.2%	0.9%
20	1.3%	1.2%	1.2%	0.8%	0.8%	0.6%
25	1.1%	1.0%	0.9%	0.6%	0.6%	—
30	0.9%	0.8%	0.7%	0.5%	—	—
35	0.8%	0.7%	0.6%	—	—	—
40	0.8%	0.7%	—	—	—	—
45	0.8%	—	—	—	—	—

1 The total expected increase in salary includes both merit (shown above) and the general wage increase assumption of 3.50% per annum. The total result is compounded rather than additive. For example, the total assumed increase for service less than one year (Year 0 above) is 10.124% (1.064 x 1.035) for member in the entry age under 25 group.

2 Based on elapsed service since membership date.

Table 6

Economic assumptions

	DB	DBS	CBB	MPP
Consumer price inflation	2.75%	2.75%	2.75%	2.75%
Investment yield (net of expenses)[1]	7.00%	7.00%	6.50%	7.00%
Wage inflation	3.50%	3.50%	3.50%	N/A
Interest on member accounts	3.00%	7.00%	6.50%	N/A
Standard deviation of portfolio	N/A	13.10%	11.00%	N/A
Medical inflation (varies by year—average percentage below)				
Part A premiums	N/A	N/A	N/A	4.50%
Part B premiums	N/A	N/A	N/A	5.40%

1 For financial reporting purposes, the investment rate of return for the STRP (which includes the DB, DBS and CBB programs) is 7.10% (net of investment expenses but gross of administrative expenses) in accordance with GASB Statement No. 67. The MPP Program uses an investment rate of return of 2.21%, which represents the yield or index rate for the 20-year tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher in accordance with GASB Statement No. 74.

Table 7

Probabilities of disability retirement for sample ages — DB Program only

Coverage A				Coverage B			
Male		Female		Male		Female	
Age	Rate	Age	Rate	Age	Rate	Age	Rate
25	0.015%	25	0.015%	25	0.010%	25	0.015%
30	0.025%	30	0.025%	30	0.015%	30	0.015%
35	0.040%	35	0.050%	35	0.025%	35	0.030%
40	0.065%	40	0.075%	40	0.050%	40	0.055%
45	0.090%	45	0.090%	45	0.085%	45	0.095%
50	0.130%	50	0.180%	50	0.125%	50	0.165%
55	0.170%	55	0.225%	55	0.235%	55	0.285%
				60	0.345%	60	0.360%
				65	0.380%	65	0.380%
				70	0.380%	70	0.380%

Table 8

Supplemental assumptions — DB Program only

PEPRA coverage	All members hired on or after the valuation date are assumed to be subject to the provisions of PEPRA.	
Unused sick leave	Credited service is increased by 1.7%.	
Optional forms	Active and inactive: Based on single-life annuity assumed. Retirees and beneficiaries: Based on option form in data.	
Probability of marriage	Male: 85% Female: 65% Male spouses are assumed to be three years older than female spouses.	
Number of children	Married members under age 60 are assumed to have the number of children shown in the following table. Children are assumed to receive benefits until the member would have turned age 60.	
	Member's gender	**Assumed number of children**
	Male	0.65
	Female	0.50
Assumed offsets	No offsets to disability and survivor benefits are assumed.	
Valuation of inactive members	Salary and benefit information is not available on the valuation data provided for inactive members. Therefore, we estimate the projected retirement benefits for inactive members as follows: 1. The inactive member's earnable salary information is retrieved from when they were active by matching with a database of active valuation data back to 2001 and taking the highest earnable salary for the member during the period. 2. For those members who cannot be located on the active database (because they terminated prior to 2001 or another reason), their earnable salary is estimated based on 120% of the average earnable salary for all active members in the year the member terminated. 3. The earnable salary amount from the prior steps is treated as the member's final compensation with two additional adjustments. a. An additional load of 5% for all inactive members is applied to their salary amount to account for potential post-termination increases in salary due to factors such as reciprocity. b. Final compensation is increased by an additional 4.3% if the member has 25 or more years of credited service. 4. Based on the salary data described above and the birth date and credited service from the current year's valuation data, the projected benefit amount is calculated and valued as a deferred service retirement. 5. Non-vested members who have been inactive for less than two years are assumed to take an immediate refund of their member contributions.	

Table 9

Schedule of Medicare Part A enrollment rates[1] — MPP Program only

Assumption		Best estimate	Higher cost
Percent of under age 65 retirees enrolling (retired on or after 2001)[2]		2.00%	2.50%
Percent of under age 65 retirees enrolling (retired before 2001)		2.00%	2.50%
Percent of over age 65 retirees enrolling (for those not currently enrolled) at age[3]	65	0.20%	0.40%
	66	0.02%	0.04%
	67	0.02%	0.04%
	68	0.02%	0.04%
	69	0.02%	0.04%
	70–84	0.02%	0.03%
	85 & above	0.00%	0.00%
Percent of over age 65 retirees enrolling (for those already enrolled)		100.00%	100.00%

1 Only current enrollees are assumed to receive Part B payments.
2 For under age 65 retirees, the enrollment percent applies upon reaching age 65. No enrollment is assumed after age 65 for retirees currently under age 65.
3 For over age 65 retirees, the enrollment percent applies in each future year.

Table 10

Schedule of active member valuation data

Valuation date (as of June 30)[1]	Number of participating employers[2]	Active number	Annual payroll	Annual average pay	Percent increase in average pay
DB Program					
2010	1,514	441,544	$26,274,889,981	$59,507	0.0%
2011	1,587	429,600	25,576,008,636	59,534	0.0%
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%
2018	1,752	449,595	31,884,303,004	70,918	1.6%
2019	1,776	451,429	32,896,686,907	72,872	2.8%
DBS Program					
2010	1,514	441,544	$26,274,889,981	$59,507	0.0%
2011	1,587	429,600	25,576,008,636	59,534	0.0%
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%
2018	1,752	449,595	31,884,303,004	70,918	1.6%
2019	1,776	451,429	32,896,686,907	72,872	2.8%
CBB Program					
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%
2018	29	10,469	231,621,196	22,124	5.0%
2019	29	10,029	228,618,038	22,796	3.0%
MPP Program[3]					
N/A	N/A	N/A	N/A	N/A	N/A

1 The data provided in this table is as of the most recent actuarial valuation (June 30, 2019) for each respective program. Actuarial valuation results as of June 30, 2020, are expected to be available by May 2021.

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 the employers in the Financial section is based on contributing employers as of the end of the respective fiscal year.

3 The MPP Program is a closed program for members whose retirement date is on or after July 1, 2012, and active members are not currently eligible for coverage.

Table 11

Schedule of retired members/participants and beneficiaries added to and removed from rolls[1]

Valuation date (as of June 30)[2]	Added to rolls		Removed from rolls		Rolls – End of year		Percent increase in annual allowances	Average annual allowances
	Number	Annual allowances	Number	Annual allowances	Number	Annual allowances		
DB Program								
2010	16,201	$777,293,000	6,499	$165,404,000	243,796	$9,171,309,000	10.0%	$37,619
2011	14,559	671,868,000	6,938	181,927,000	253,041	9,802,995,000	6.9%	38,741
2012	14,316	635,935,000	6,860	187,271,000	262,039	10,458,555,000	6.7%	39,912
2013	12,377	555,751,000	7,119	205,779,000	269,429	11,091,944,000	6.1%	41,168
2014	11,383	507,801,000	7,299	221,733,000	275,627	11,624,220,000	4.8%	42,174
2015	11,952	558,655,000	7,759	247,766,000	282,100	12,197,828,000	4.9%	43,239
2016	12,014	591,902,000	7,871	262,170,000	288,195	12,792,104,000	4.9%	44,387
2017	12,823	649,503,000	8,381	289,955,000	294,874	13,439,239,000	5.1%	45,576
2018	13,340	682,533,000	8,606	300,558,000	301,859	14,114,787,000	5.0%	46,760
2019	12,867	633,138,000	8,656	319,809,000	308,639	14,788,565,000	4.8%	47,915
DBS Program								
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
2019	7,275	40,953,264	4,019	21,433,419	71,408	252,321,939	8.8%	3,534
CBB Program								
2010	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	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[3]	85	475,148	25	159,001	370	1,539,585	25.8%	4,161
2019	69	272,865	30	198,936	410	1,633,925	6.1%	3,985
MPP Program								
2010	347	$1,215,000	220	$660,000	6,475	$34,015,000	(5.0%)	$5,253
2011	537	2,202,000	231	695,000	6,709	34,677,000	1.9%	5,169
2012	359	1,177,000	218	634,000	6,742	33,708,000	(2.8%)	5,000
2013[4]	305	1,009,000	212	641,000	6,770	33,663,000	(0.1%)	4,972
2014	235	751,000	259	703,000	6,684	32,047,000	(4.8%)	4,795
2015	178	443,000	254	772,000	6,474	29,729,000	(7.2%)	4,592
2016	166	404,000	264	768,000	6,324	28,345,000	(4.7%)	4,482
2017	102	211,000	273	766,000	6,124	27,632,000	(2.5%)	4,512
2018	119	451,000	281	751,000	5,917	26,947,000	(2.5%)	4,554
2019	43	153,000	245	623,000	5,686	26,626,000	(1.2%)	4,683

1 Each year's data population 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 The data provided in this table is as of the most recent actuarial valuation (June 30, 2019) for each respective program. Actuarial valuation results as of June 30, 2020, are expected to be available by May 2021.
3 Numbers revised in 2019.
4 Numbers revised in 2014.

Table 12

Solvency test

Valuation date (as of June 30)[1]	Aggregate accrued liabilities for (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	Funding of liabilities (1)	(2)	(3)
DB Program (dollars in millions)							
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%	0.0%
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%	0.0%
2017	31,523	154,618	100,809	179,689	100.0%	95.8%	0.0%
2018	33,012	161,219	103,372	190,451	100.0%	97.7%	0.0%
2019	34,903	167,716	108,100	205,016	100.0%	100.0%	2.2%
DBS Program (dollars in thousands)							
2010	$7,012,291	$444,151	$—	$6,412,180	91.4%	0.0%	0.0%
2011	7,196,652	577,115	—	8,054,962	100.0%	100.0%	0.0%
2012	7,280,977	710,586	—	8,042,090	100.0%	100.0%	0.0%
2013	7,641,488	850,275	—	8,983,919	100.0%	100.0%	0.0%
2014	8,077,762	942,945	—	10,493,062	100.0%	100.0%	0.0%
2015	8,532,216	1,021,092	—	10,940,917	100.0%	100.0%	0.0%
2016	8,604,042	1,200,485	—	10,943,296	100.0%	100.0%	0.0%
2017	9,020,170	1,381,932	—	12,269,382	100.0%	100.0%	0.0%
2018	9,426,949	1,541,170	—	13,173,522	100.0%	100.0%	0.0%
2019	9,433,196	1,692,848	—	13,904,497	100.0%	100.0%	0.0%
CBB Program (dollars in thousands)							
2010	$129,065	$509	$—	$114,418	88.7%	0.0%	0.0%
2011	143,695	767	—	151,248	100.0%	100.0%	0.0%
2012	156,600	1,386	—	158,020	100.0%	100.0%	0.0%
2013	174,171	1,952	—	188,551	100.0%	100.0%	0.0%
2014	194,792	3,061	—	231,671	100.0%	100.0%	0.0%
2015	215,851	3,843	—	248,699	100.0%	100.0%	0.0%
2016	230,864	4,974	—	256,675	100.0%	100.0%	0.0%
2017	253,572	7,411	—	302,448	100.0%	100.0%	0.0%
2018	270,269	9,433	—	328,022	100.0%	100.0%	0.0%
2019	283,382	10,449	—	357,273	100.0%	100.0%	0.0%
MPP Program[2,3] (dollars in millions)							
2006	$—	$528	$—	$528	0.0%	100.0%	0.0%
2008	—	630	—	630	0.0%	100.0%	0.0%
2010	—	602	—	602	0.0%	100.0%	0.0%
2012	—	424	—	424	0.0%	100.0%	0.0%
2014	—	342	—	342	0.0%	100.0%	0.0%
2016	—	315	—	315	0.0%	100.0%	0.0%
2017	—	302	—	302	0.0%	100.0%	0.0%
2018	—	286	—	286	0.0%	100.0%	0.0%
2019	—	288	—	288	0.0%	100.0%	0.0%

1 Actuarial valuation results as of June 30, 2020, are expected to be available by May 2021.
2 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.
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 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[1,2]	
	DB Program	
	2019	2018
Actuarial obligation at June 30	**$297,603**	**$286,950**
Normal cost	6,703	6,611
Benefit payments	(14,603)	(13,930)
Expected interest	20,560	19,835
Expected actuarial obligation at June 30	**310,263**	**299,466**
Less: expected actuarial value of assets at June 30	**200,268**	**188,319**
Expected UAO at June 30	**109,995**	**111,147**
Actuarial (gains) or losses		
Change in assumptions	814	—
Investment return assumptions	(1,492)	(2,101)
Demographic assumptions	(358)	(1,862)
Net change other sources	(2,451)	(31)
Change in actuarial asset method	(805)	—
Total actuarial (gains) or losses	**(4,292)**	**(3,994)**
Unfunded actuarial obligation at June 30	**$105,703**	**$107,153**
Funded ratio	**66.0%**	**64.0%**

	Actuarial valuation as of June 30[1,2]			
	DBS Program		CBB Program	
	2019	2018	2019	2018
Actuarial obligation at June 30	**$10,968**	**$10,402**	**$280**	**$261**
Expected changes:				
Contributions	285	282	18	19
Benefit paid	(475)	(419)	(12)	(14)
Expected earnings/credits	761	723	18	17
Expected actuarial obligation at June 30	**11,539**	**10,988**	**304**	**283**
Less: expected actuarial value of assets at June 30	**13,898**	**12,987**	**356**	**327**
Expected UAO at June 30	**(2,359)**	**(1,999)**	**(52)**	**(44)**
Actuarial (gains) or losses				
(Gain) on actuarial obligation	(413)	(414)	(11)	(14)
(Gain) or loss on assets	53	(187)	—	(1)
Assumption change (Treatment of GASB expenses)	(59)	—	(1)	—
Total actuarial (gains) or losses	**(419)**	**(601)**	**(12)**	**(15)**
Additional earnings credits	—	394	—	10
Unfunded actuarial obligation at June 30	**($2,778)**	**($2,206)**	**($64)**	**($49)**
Funded ratio	**125.0%**	**120.1%**	**121.6%**	**117.3%**

1 The data provided in this table is as of the most recent actuarial valuation (June 30, 2019) for each respective program. Actuarial valuation results as of June 30, 2020, are expected to be available by May 2021.

2 Numbers may not align with actuarial valuation report due to rounding.

Table 13

Analysis of financial experience (continued)

(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]	
	MPP Program	
	2019	2018
Actuarial obligation at June 30:	not calculated	not calculated
Expected changes:		
Eligibility extended	not calculated	not calculated
Benefit paid	($28)	($28)
Interest	not calculated	not calculated
Expected actuarial obligation at June 30	not calculated	not calculated
Less: expected actuarial value of assets at June 30	not calculated	not calculated
Expected UAO at June 30	not calculated	not calculated
Actuarial (gains) or losses		
(Gain) on medical trend assumption	not calculated	not calculated
(Gain) on premium/penalty	not calculated	not calculated
(Gain) on Part B premium for higher earners	not calculated	not calculated
(Gain) other sources	not calculated	not calculated
Total actuarial gains or losses	not calculated	not calculated
Unfunded actuarial obligation at June 30[2]	**$—**	**$—**
Funded ratio	**100.0%**	**100.0%**

1 The data provided in this table is as of the most recent actuarial valuation (June 30, 2019) for each respective program. Actuarial valuation results as of June 30, 2020, are expected to be available by May 2021.

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 14

Schedule of funding progress

(dollars in millions)

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)
DB Program						
2010	$140,291	$196,315	$56,024	71.5%	$26,275	213.2%
2011	143,930	208,405	64,475	69.1%	26,592	242.5%
2012	144,232	215,189	70,957	67.0%	26,404	268.7%
2013	148,614	222,281	73,667	66.9%	26,483	278.2%
2014	158,495	231,213	72,718	68.5%	26,398	275.5%
2015	165,553	241,753	76,200	68.5%	28,640	266.1%
2016	169,976	266,704	96,728	63.7%	30,324	319.0%
2017	179,689	286,950	107,261	62.6%	31,961	335.6%
2018	190,451	297,603	107,152	64.0%	32,613	328.6%
2019	205,016	310,719	105,703	66.0%	33,679	313.9%
DBS Program						
2010	$6,412	$7,456	$1,044	86.0%	$26,274	4.0%
2011	8,055	7,774	(281)	103.6%	25,536	(1.1%)
2012	8,042	7,992	(50)	100.6%	25,091	(0.2%)
2013	8,984	8,492	(492)	105.8%	24,994	(2.0%)
2014	10,493	9,021	(1,472)	116.3%	25,805	(5.7%)
2015	10,941	9,553	(1,388)	114.5%	27,143	(5.1%)
2016	10,943	9,805	(1,138)	111.6%	28,788	(4.0%)
2017	12,269	10,402	(1,867)	117.9%	29,971	(6.2%)
2018	13,173	10,968	(2,205)	120.1%	30,650	(7.2%)
2019	13,904	11,126	(2,778)	125.0%	31,501	(8.8%)
CBB Program						
2010	$114	$130	$16	87.7%	$163	9.8%
2011	151	144	(7)	104.9%	158	(4.4%)
2012	158	158	—	100.0%	151	0.0%
2013	189	176	(13)	107.4%	151	(8.6%)
2014	232	198	(34)	117.2%	174	(19.5%)
2015	249	220	(29)	113.2%	192	(15.1%)
2016	257	236	(21)	108.9%	209	(10.0%)
2017	302	261	(41)	115.7%	218	(18.8%)
2018	328	280	(48)	117.1%	232	(20.7%)
2019	357	294	(63)	121.4%	229	(27.5%)
MPP Program[2]						
2006	$528	$528	$—	100.0%	N/A	N/A
2008	630	630	—	100.0%	N/A	N/A
2010	602	602	—	100.0%	N/A	N/A
2012	424	424	—	100.0%	N/A	N/A
2014	342	342	—	100.0%	N/A	N/A
2016	315	315	—	100.0%	N/A	N/A
2017	302	302	—	100.0%	N/A	N/A
2018	286	286	—	100.0%	N/A	N/A
2019	288	288	—	100.0%	N/A	N/A

1 The data provided in this table is as of the most recent actuarial valuation (June 30, 2019) for each respective program. Actuarial valuation results as of June 30, 2020, are expected to be available by May 2021.

2 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.

Note: Information regarding actuarially determined and actual contributions for the Teachers' Retirement Plan is provided in the Financial section, Schedule III, "Contributions of employer and nonemployer contributing entity" table.

Statistical section

In fiscal year 2019–20, CalSTRS members, on average, retired at age 63 after about 24 years of service with a pension replacing approximately 55% of their highest salary.

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 Pension2, the Medicare Premium Payment (MPP) Program and the 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 employer statistics

The information in this section was derived from the Financial section and the CalSTRS pension administration system, START, except where noted. Due to the timing of when membership numbers were pulled, there will be a difference between the membership numbers reported in this section and the Financial section of this report.

Supplemental statistical tables are available on request.

Table 1

Changes in fiduciary net position for the State Teachers' Retirement Plan

(dollars in millions)

	Fiscal year ended June 30									
	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Additions										
Member contributions	$3,735	$3,648	$3,496	$3,441	$2,958	$2,510	$2,264	$2,337	$2,280	$2,356
Employer contributions	6,080	5,644	4,867	4,173	3,391	2,678	2,272	2,283	2,238	2,310
State of California contributions[1]	4,447	5,335	2,797	2,478	1,940	1,426	1,384	1,328	1,303	1,193
Net investment income	10,103	14,898	18,674	25,165	2,305	7,612	30,402	20,682	1,071	30,030
Other income	101	128	105	72	42	4	2	1	4	7
Total additions	**$24,466**	**$29,653**	**$29,939**	**$35,329**	**$10,636**	**$14,230**	**$36,324**	**$26,631**	**$6,896**	**$35,896**
Deductions										
Benefit payments[2]	$15,707	$15,002	$14,271	$13,626	$12,892	$12,284	$11,725	$11,133	$10,443	$9,855
Purchasing power benefits	215	194	162	161	172	193	202	222	235	238
Refunds of member contributions	103	100	104	116	84	88	108	105	108	116
Administrative expenses	219	254	216	182	180	145	154	137	138	110
Borrowing costs[3]	95	105	94	58	—	—	—	—	—	—
Other expenses	6	4	2	10	15	9	9	4	—	—
Total deductions	**$16,345**	**$15,659**	**$14,849**	**$14,153**	**$13,343**	**$12,719**	**$12,198**	**$11,601**	**$10,924**	**$10,319**
Change in fiduciary net position	**$8,121**	**$13,994**	**$15,090**	**$21,176**	**($2,707)**	**$1,511**	**$24,126**	**$15,030**	**($4,028)**	**$25,577**

Note: There may be immaterial rounding differences between the figures presented in this table and in the statement of changes in fiduciary net position presented in the Financial section.

1 Includes SBMA contributions and school lands revenue.

2 Includes member-elected administrative transfers to purchase service credit in the DB 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 changes in fiduciary net position by type

(dollars in millions)

	Fiscal year ended June 30									
Type of benefit	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**
Age & service benefits										
Retired members[1]	$14,430	$13,797	$13,121	$12,538	$11,869	$11,306	$10,821	$10,281	$9,704	$9,167
Survivors	820	768	732	686	634	591	547	528	503	465
Death	93	80	72	66	63	76	57	74	31	35
Purchasing power benefits	215	194	162	161	172	193	202	222	235	238
Disability benefits										
Retired members	364	357	346	336	326	311	300	251	205	187
Total benefits	**$15,922**	**$15,196**	**$14,433**	**$13,787**	**$13,064**	**$12,477**	**$11,927**	**$11,356**	**$10,678**	**$10,092**

Type of refund										
Separation	$103	$100	$104	$116	$84	$88	$108	$105	$108	$116
Total refunds	**$103**	**$100**	**$104**	**$116**	**$84**	**$88**	**$108**	**$105**	**$108**	**$116**

Note: There may be immaterial rounding differences between the figures presented in this table and in the statement of changes in fiduciary net position presented within the Financial section.

1 Includes member-elected administrative transfers to purchase service credit in the DB Program.

Table 1

Active member characteristics

Fiscal year ended June 30	Count	Average annualized pay rate[1]	Average age	Average service credit	Average service projected to age 60
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
2019	451,429	77,736	45.2	12.2	27.0
2020	448,419	80,182	45.3	12.4	27.1

1 Salary or wages that would be paid if members worked on a full-time basis.

Table 2

Members retired for service during fiscal year 2019–20, classified by Member-Only Benefit[1,2]

Monthly Member-Only Benefit	Count	Average age at retirement	Average service credit	Average final compensation[3]	Average allowance payable[4]
Less than $500	396	63.3	4.7	$4,124	$312
500–1000	709	63.6	8.7	4,512	746
1000–1500	531	63.3	11.8	5,497	1,239
1500–2000	467	62.4	15.0	6,098	1,758
2000–2500	588	62.5	17.0	6,734	2,262
2500–3000	681	62.4	19.0	7,213	2,751
3000–3500	756	63.1	20.4	7,652	3,253
3500–4000	829	63.3	22.4	7,816	3,750
4000–4500	865	63.5	24.2	8,100	4,247
4500–5000	787	63.6	25.8	8,336	4,746
5000–5500	818	63.0	28.1	8,506	5,252
5500–6000	779	63.4	29.7	8,604	5,757
6000 & Greater	3,500	63.6	33.9	9,739	7,691
Total	**11,706**	**63.3**	**24.3**	**$7,948**	**$4,614**

1 Does not include formerly disabled members.
2 Member-Only Benefit includes longevity bonus.
3 Excludes new retirees with no final compensation data.
4 Includes cumulative application of annual 2% benefit improvement factor.

Table 3

Members retired for service during fiscal year 2019–20, classified by age and joint & survivor option elected[1,2]

			Option types							
Age	Total	Member-Only	2	3	4	5	6	7	8	9
Under 55	19	9	—	—	—	—	5	3	1	1
55	435	287	—	—	—	—	84	35	6	23
56	294	166	—	—	—	—	63	35	7	23
57	359	231	—	—	—	—	58	41	5	24
58	485	279	—	—	—	—	73	81	6	46
59	574	340	—	—	—	—	81	80	11	62
60	975	531	—	—	—	—	181	152	12	99
61	1,259	646	—	—	—	—	241	191	27	154
62	1,385	736	—	—	—	—	259	195	36	159
63	1,390	774	—	—	—	—	259	190	35	132
64	873	503	—	—	—	—	172	108	14	76
65	804	457	—	—	—	—	147	107	14	79
66	584	337	—	—	—	—	109	74	9	55
67	503	315	—	—	—	—	86	48	7	47
68	398	241	—	—	—	—	76	41	7	33
69	291	182	1	—	—	—	57	26	11	14
70	315	206	1	—	—	—	54	22	9	23
71	190	120	2	—	—	—	32	18	6	12
72	151	94	1	—	1	—	21	17	6	11
73	125	72	—	—	—	—	23	17	2	11
74	64	42	—	—	—	—	10	5	1	6
75 & over	233	166	4	1	—	—	31	17	3	11
Total	**11,706**	**6,734**	**9**	**1**	**1**	**—**	**2,122**	**1,503**	**235**	**1,101**
% of total	**100.0%**	**57.5%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**18.1%**	**12.9%**	**2.0%**	**9.4%**

1 Does not include formerly disabled members.
2 Option elected:
Option 2 - Beneficiary receives 100% of member's modified allowance.
Option 3 - Beneficiary receives 50% of member's modified allowance.
Option 4 - Beneficiary receives two-thirds of member's modified allowance.
Option 5 - Survivors receive 50% of member's modified allowance, upon death of either member or beneficiary.
Option 6 - Beneficiary receives 100% of member's modified allowance. If beneficiary predeceases the member, the allowance increases to the Member-Only Benefit.
Option 7 - Beneficiary receives 50% of member's modified allowance. If beneficiary predeceases the member, the allowance increases to the Member-Only Benefit.
Option 8 - Compound option that allows the member to provide for more than one beneficiary.
Option 9 - Beneficiary receives 75% of member's modified allowance. If beneficiary pre-deceases the member, the allowance increases to the Member-Only Benefit.

Table 4

Characteristics of members going on disability during target fiscal year

Fiscal year ended June 30	Count	Average disability allowance payable	Average service credit	Average final compensation	Average age at disability
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
2019	373	3,150	16.4	6,631	54.5
2020	282	3,292	16.7	7,001	53.5

Table 5

Total number of benefit recipients by type of benefit

Fiscal year ended June 30	Service retirement	Disability benefits	Benefits for survivors	Total benefit recipients[1]
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
2019	270,835	10,152	27,652	308,639
2020	276,070	10,095	28,353	314,518

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 Member-Only Benefit	Average final compensation	Average age at retirement
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**
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**

1 Does not include formerly disabled members.
2 The average Member-Only Benefit 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 Member-Only Benefit	Average final compensation	Average age at retirement
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**
7/1/2014 thru 6/30/2015[2,3]					
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**

1 Does not include formerly disabled members.
2 The average Member-Only Benefit 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 Member-Only Benefit	Average final compensation	Average age at retirement
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**
7/1/2017 thru 6/30/2018[2,3]					
0–5	190	2.5	$335	$6,521	63.2
5–10	877	7.3	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**
7/1/2018 thru 6/30/2019[2,3]					
0–5	216	2.3	$320	$6,713	62.9
5–10	878	7.3	762	4,658	64.0
10–15	1,072	12.7	1,725	6,141	63.7
15–20	1,772	17.7	2,847	7,252	63.7
20–25	2,309	22.4	3,883	7,824	63.5
25–30	2,174	27.4	5,255	8,578	63.6
30–35	2,543	32.2	6,457	8,925	61.9
35–40	1,137	37.1	8,108	9,225	62.7
40 & over	230	42.8	10,496	9,978	67.8
Total	**12,331**	**24.1**	**$4,547**	**$7,880**	**63.3**

1 Does not include formerly disabled members.
2 The average Member-Only Benefit 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 Member-Only Benefit	Average final compensation	Average age at retirement
7/1/2019 thru 6/30/2020[2,3]					
0–5	209	2.4	$335	$6,817	63.4
5–10	922	7.4	817	5,027	63.9
10–15	939	12.6	1,689	6,048	63.8
15–20	1,562	17.6	2,801	7,195	63.8
20–25	2,157	22.4	3,953	7,938	63.7
25–30	1,919	27.2	5,248	8,692	63.4
30–35	2,536	32.2	6,525	8,980	62.1
35–40	1,223	36.9	7,894	9,152	62.5
40 & over	239	42.9	10,143	9,606	67.7
Total	**11,706**	**24.3**	**$4,614**	**$7,948**	**63.3**

1 Does not include formerly disabled members.
2 The average Member-Only Benefit 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 ended June 30	Average age at retirement	Average years of service credit	Average final compensation	Average monthly benefit[2]
2011	61.0	26.3	$5,138	$3,417
2012	61.1	26.2	5,271	3,517
2013	61.1	26.1	5,385	3,609
2014	61.2	26.0	5,487	3,694
2015	61.3	25.9	5,597	3,786
2016	61.3	25.8	5,716	3,884
2017	61.4	25.7	5,846	3,985
2018	61.5	25.6	5,981	4,086
2019	61.6	25.6	6,110	4,184
2020	61.7	25.5	6,229	4,321

1 Does not include formerly disabled members.
2 Prior to 2020, the monthly benefit does not include supplemental benefits from the SBMA.

Table 8

Benefit recipients by type of benefit and option elected

Monthly Member-Only Benefit[3]	Total	Type of benefit[1] 1[4]	2	3	Option elected[2] Member-Only	2	3	4	5	6	7	8	9
Less than $500	16,658	14,475	53	2,130	12,120	963	283	51	65	2,024	667	219	266
500–1000	24,317	21,355	420	2,542	16,538	1,336	599	86	81	3,370	1,530	156	621
1000–1500	24,226	20,399	776	3,051	14,439	1,713	876	150	125	3,700	2,263	152	808
1500–2000	26,530	21,749	1,410	3,371	14,872	1,773	749	346	142	4,048	3,321	193	1,086
2000–2500	28,324	22,598	2,085	3,641	14,861	1,787	724	309	170	4,794	4,126	261	1,292
2500–3000	26,830	21,548	2,114	3,168	13,759	1,483	520	238	112	4,944	4,145	269	1,360
3000–3500	24,411	20,083	1,889	2,439	12,471	1,135	342	213	59	4,581	3,820	300	1,490
3500–4000	20,455	17,909	851	1,695	10,190	819	260	146	52	3,988	3,396	264	1,340
4000–4500	18,942	17,290	312	1,340	9,227	741	221	90	39	3,663	3,380	288	1,293
4500–5000	18,207	16,916	98	1,193	8,383	695	200	63	28	3,861	3,320	321	1,336
5000–5500	17,964	16,911	47	1,006	8,141	666	171	65	19	3,879	3,278	301	1,444
5500–6000	16,218	15,431	16	771	7,253	567	145	58	16	3,591	2,861	312	1,415
6000 & Greater	51,436	49,406	24	2,006	20,269	2,097	332	143	43	12,855	8,671	1,543	5,483
Total	**314,518[5]**	**276,070**	**10,095**	**28,353**	**162,523**	**15,775**	**5,422**	**1,958**	**951**	**59,298**	**44,778**	**4,579**	**19,234**

1 Type of benefit: 1) Service retirement 2) Disability benefits 3) Survivor benefits.
2 Option elected:
- Option 2 - Beneficiary receives 100% of member's modified allowance.
- Option 3 - Beneficiary receives 50% of member's modified allowance.
- Option 4 - Beneficiary receives two-thirds of member's modified allowance.
- Option 5 - Survivors receive 50% of member's modified allowance, upon death of either member or beneficiary.
- Option 6 - Beneficiary receives 100% of member's modified allowance. If beneficiary pre-deceases the member, the allowance increases to the Member-Only Benefit.
- Option 7 - Beneficiary receives 50% of member's modified allowance. If beneficiary pre-deceases the member, the allowance increases to the Member-Only Benefit.
- Option 8 - Compound option that allows the member to provide for more than one beneficiary.
- Option 9 - Beneficiary receives 75% of member's modified allowance. If beneficiary pre-deceases the member, the allowance increases to the Member-Only Benefit.

3 Member-Only Benefit 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

Largest participating Defined Benefit and Defined Benefit Supplement employers for current year and nine years ago

Fiscal year 2019–20

Participating employers	Covered employees[1]	Percentage of total system
Los Angeles Unified School District	37,112	8.01%
San Diego Unified School District	7,066	1.52%
Fresno Unified School District	4,912	1.06%
Long Beach Unified School District	4,751	1.02%
San Francisco Unified School District	4,470	0.97%
Elk Grove Unified School District	3,806	0.82%
San Bernardino City Unified School District	3,115	0.67%
Corona-Norco Unified School District	2,831	0.61%
Sacramento City Unified School District	2,780	0.60%
Oakland Unified School District	2,774	0.60%
Top 10 total	**73,617**	**15.88%**
All other	389,990	84.12%
Total covered employees	**463,607**	**100.00%**

Fiscal year 2010–11

Participating employers	Covered employees[1]	Percentage of total system
Los Angeles Unified School District	43,790	8.95%
San Diego Unified School District	11,524	2.36%
Long Beach Unified School District	5,715	1.17%
Fresno Unified School District	5,316	1.09%
San Francisco Unified School District	4,639	0.95%
Elk Grove Unified School District	3,986	0.81%
San Bernardino City Unified School District	3,919	0.80%
Santa Ana Unified School District	3,495	0.71%
Corona-Norco Unified School District	3,429	0.70%
Oakland Unified School District	3,302	0.67%
Top 10 total	**89,115**	**18.21%**
All other	400,201	81.79%
Total covered employees	**489,316**	**100.00%**

1 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 11 of the Actuarial section.

Table 10

Restoration of purchasing power by year of retirement, fiscal year 2019–20[1]

		Member retired before September 1			Member retired on or after September 1[2]		
Calendar year of benefit effective date	CCPI increases since benefit effective date	Benefit increases since benefit effective date	Purchasing power percentage (prior to SBMA)	Purchasing power restored by SBMA	Benefit increases since benefit effective date	Purchasing power percentage (prior to SBMA)	Purchasing power restored by SBMA
1955	993.2%	128.0%	20.9%	64.1%	126.0%	20.7%	64.3%
1956	972.4%	126.0%	21.1%	63.9%	124.0%	20.9%	64.1%
1957	936.7%	124.0%	21.6%	63.4%	122.0%	21.4%	63.6%
1958	899.8%	122.0%	22.2%	62.8%	120.0%	22.0%	63.0%
1959	885.8%	120.0%	22.3%	62.7%	118.0%	22.1%	62.9%
1960	865.5%	118.0%	22.6%	62.4%	116.0%	22.4%	62.6%
1961	852.4%	116.0%	22.7%	62.3%	114.0%	22.5%	62.5%
1962	836.5%	114.0%	22.9%	62.1%	112.0%	22.6%	62.4%
1963	830.3%	112.0%	22.8%	62.2%	110.0%	22.6%	62.4%
1964	812.2%	110.0%	23.0%	62.0%	108.0%	22.8%	62.2%
1965	789.1%	108.0%	23.4%	61.6%	106.0%	23.2%	61.8%
1966	775.3%	106.0%	23.5%	61.5%	104.0%	23.3%	61.7%
1967	754.0%	104.0%	23.9%	61.1%	102.0%	23.7%	61.3%
1968	719.1%	102.0%	24.7%	60.3%	100.0%	24.4%	60.6%
1969	680.4%	100.0%	25.6%	59.4%	98.0%	25.4%	59.6%
1970	641.3%	98.0%	26.7%	58.3%	96.0%	26.4%	58.6%
1971	613.1%	96.0%	27.5%	57.5%	94.0%	27.2%	57.8%
1972	593.7%	94.0%	28.0%	57.0%	92.0%	27.7%	57.3%
1973	558.0%	92.0%	29.2%	55.8%	90.0%	28.9%	56.1%
1974	496.5%	90.0%	31.9%	53.1%	88.0%	31.5%	53.5%
1975	440.3%	88.0%	34.8%	50.2%	86.0%	34.4%	50.6%
1976	409.0%	86.0%	36.5%	48.5%	84.0%	36.2%	48.8%
1977	372.2%	84.0%	39.0%	46.0%	82.0%	38.5%	46.5%
1978	334.9%	82.0%	41.8%	43.2%	80.0%	41.4%	43.6%
1979	295.7%	80.0%	45.5%	39.5%	78.0%	45.0%	40.0%
1980	237.3%	78.0%	52.8%	32.2%	76.0%	52.2%	32.8%
1981	211.8%	76.0%	56.4%	28.6%	74.0%	55.8%	29.2%
1982	185.2%	74.0%	61.0%	24.0%	72.0%	60.3%	24.7%
1983	183.5%	72.0%	60.7%	24.3%	70.0%	60.0%	25.0%
1984	171.2%	70.0%	62.7%	22.3%	68.0%	61.9%	23.1%
1985	159.2%	68.0%	64.8%	20.2%	66.0%	64.0%	21.0%
1986	150.4%	66.0%	66.3%	18.7%	64.0%	65.5%	19.5%

1 The SBMA for fiscal year 2019–20 is based on June 2019 California Consumer Price Index (CCPI).
2 Members who retired on or after September 1 have to wait an extra year to be eligible for the 2% benefit adjustment.

Table 10

Restoration of purchasing power by year of retirement fiscal year 2019–20 (continued)[1]

		Member retired before September 1			Member retired on or after September 1[2]		
Calendar year of benefit effective date	CCPI increases since benefit effective date	Benefit increases since benefit effective date	Purchasing power percentage (prior to SBMA)	Purchasing power restored by SBMA	Benefit increases since benefit effective date	Purchasing power percentage (prior to SBMA)	Purchasing power restored by SBMA
1987	141.6%	64.0%	67.9%	17.1%	62.0%	67.1%	17.9%
1988	130.9%	62.0%	70.2%	14.8%	60.0%	69.3%	15.7%
1989	119.2%	60.0%	73.0%	12.0%	58.0%	72.1%	12.9%
1990	109.2%	58.0%	75.5%	9.5%	56.0%	74.6%	10.4%
1991	100.5%	56.0%	77.8%	7.2%	54.0%	76.8%	8.2%
1992	93.5%	54.0%	79.6%	5.4%	52.0%	78.6%	6.4%
1993	88.7%	52.0%	80.6%	4.4%	50.0%	79.5%	5.5%
1994	86.4%	50.0%	80.5%	4.5%	48.0%	79.4%	5.6%
1995	82.2%	48.0%	81.2%	3.8%	46.0%	80.1%	4.9%
1996	79.4%	46.0%	81.4%	3.6%	44.0%	80.3%	4.7%
1997	75.6%	44.0%	82.0%	3.0%	42.0%	80.9%	4.1%
1998	71.7%	42.0%	82.7%	2.3%	40.0%	81.5%	3.5%
1999	67.4%	40.0%	83.6%	1.4%	38.0%	82.4%	2.6%
2000	61.5%	38.0%	85.5%	0.0%	36.0%	84.2%	0.8%
2001	53.4%	36.0%	88.7%	0.0%	34.0%	87.4%	0.0%
2002	51.1%	34.0%	88.7%	0.0%	32.0%	87.3%	0.0%
2003	47.9%	32.0%	89.2%	0.0%	30.0%	87.9%	0.0%
2004	43.5%	30.0%	90.6%	0.0%	28.0%	89.2%	0.0%
2005	39.6%	28.0%	91.7%	0.0%	26.0%	90.3%	0.0%
2006	33.2%	26.0%	94.6%	0.0%	24.0%	93.1%	0.0%
2007	29.2%	24.0%	96.0%	0.0%	22.0%	94.4%	0.0%
2008	23.1%	22.0%	99.1%	0.0%	20.0%	97.5%	0.0%
2009	24.9%	20.0%	96.1%	0.0%	18.0%	94.5%	0.0%
2010	23.7%	18.0%	95.4%	0.0%	16.0%	93.8%	0.0%
2011	20.4%	16.0%	96.3%	0.0%	14.0%	94.7%	0.0%
2012	18.2%	14.0%	96.5%	0.0%	12.0%	94.8%	0.0%
2013	16.1%	12.0%	96.4%	0.0%	10.0%	94.7%	0.0%
2014	13.6%	10.0%	96.8%	0.0%	8.0%	95.0%	0.0%
2015	12.2%	8.0%	96.3%	0.0%	6.0%	94.5%	0.0%
2016	9.9%	6.0%	96.4%	0.0%	4.0%	94.6%	0.0%
2017	7.1%	4.0%	97.1%	0.0%	2.0%	95.2%	0.0%
2018	3.1%	2.0%	98.9%	0.0%	0.0%	97.0%	0.0%
2019	0.0%	0.0%	100.0%	0.0%	0.0%	98.0%	0.0%

1 The SBMA for fiscal year 2019–20 is based on June 2019 California Consumer Price Index (CCPI).
2 Members who retired on or after September 1 have to wait an extra year to be eligible for the 2% benefit adjustment.

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	80.0%[3]	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
18–19	85.0%	72,216	194,467,089	5,454,757	—	189,012,332
19–20	85.0%	70,862	215,025,823	6,169,540	—	208,856,283

1 The appropriation for fiscal year 1989–90 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% effective January 1, 1998, and payable April 1, 1998 (Chapter 939, Statutes of 1997).
3 Percentage changed to 80% effective January 1, 2002, and payable October 1, 2001 (Chapter 840, Statutes of 2001).
4 Percentage changed to 85% effective September 30, 2008, and payable October 1, 2008 (Chapter 751, Statutes of 2008).

Defined Benefit Supplement Program schedules

Table 1

Members retired for service during fiscal year 2019–20, classified by age and option elected[1]

		Regular annuity				Period-certain annuity							
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	13	4	2	—	1	1	—	1	—	1	1	1	1
55	285	86	43	7	6	67	3	1	8	3	28	11	22
56	169	48	18	3	11	45	3	6	4	3	10	3	15
57	234	55	21	6	16	56	5	7	8	2	22	7	29
58	282	74	29	7	14	76	8	—	10	13	28	6	17
59	384	85	47	15	14	99	11	4	12	10	51	10	26
60	563	120	53	13	35	159	6	5	21	16	86	17	32
61	805	192	93	24	49	211	30	14	16	18	82	35	41
62	778	188	91	21	49	185	11	15	32	15	76	23	72
63	625	162	82	14	41	142	11	4	26	11	58	18	56
64	446	116	45	7	34	94	8	7	11	15	47	9	53
65	416	104	62	14	22	93	8	6	11	7	46	8	35
66	291	80	41	8	19	51	2	4	8	7	37	10	24
67	235	74	25	10	13	43	2	5	7	3	33	4	16
68	199	58	23	5	12	50	3	2	4	2	22	6	12
69	174	59	18	3	9	40	5	2	2	4	17	5	10
70	153	43	15	6	8	36	1	2	4	3	16	4	15
71	96	32	18	1	5	17	—	2	—	3	10	3	5
72	81	24	11	3	7	12	1	2	—	3	10	2	6
73	62	13	5	1	3	17	2	—	2	2	7	4	6
74	33	10	4	1	1	8	—	—	1	—	1	2	5
75 & over	112	40	12	—	4	17	2	1	2	1	19	2	12
Total	**6,436**	**1,667**	**758**	**169**	**373**	**1,519**	**122**	**90**	**189**	**142**	**707**	**190**	**510**

1 Does not include formerly disabled members.

Table 2

Characteristics of all members retired for service and receiving an annuity

Fiscal year ended June 30	Count	Average monthly retirement annuity	Average accumulated credits[1]	Average age at retirement
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
2019	68,091	301	25,750	62.7
2020	70,780	309	26,555	62.7

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 ended June 30	Count	Average monthly retirement annuity	Average accumulated credits[1]	Average age at retirement
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
2019	1,495	243	20,441	55.2
2020	1,501	245	20,776	55.0

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.

Defined Benefit Supplement Program schedules

Table 4

Benefit recipients by type of benefit and option elected

(as of June 30, 2020)

	Monthly annuity amount					
Type of benefit	**Less than $250**	**$250–500**	**$500–750**	**$750–1,000**	**$1,000 & greater**	**Total**
Retirement	39,440	19,980	6,638	2,431	2,291	70,780
Disability	1,030	336	84	30	21	1,501
Survivors	1,381	392	139	60	59	2,031
Total	**41,851**	**20,708**	**6,861**	**2,521**	**2,371**	**74,312**

Type of payment						
Regular annuity						
Single life without cash	1,025	1	—	—	—	1,026
Single life with cash	21,086	4,665	567	191	103	26,612
100% joint & survivor	10,423	2,795	426	114	108	13,866
75% joint & survivor	1,589	565	95	19	21	2,289
50% joint & survivor	3,720	1,113	178	67	25	5,103
Period-certain annuity						
10 year	3,167	8,458	2,141	567	477	14,810
9 year	145	628	198	47	52	1,070
8 year	63	351	168	44	43	669
7 year	68	532	379	104	81	1,164
6 year	71	351	455	118	99	1,094
5 year	289	887	1,738	666	487	4,067
4 year	65	116	285	202	179	847
3 year	140	246	231	382	696	1,695
Total	**41,851**	**20,708**	**6,861**	**2,521**	**2,371**	**74,312**

Table 1

Participants retired for service during fiscal year 2019–20, classified by age and type of annuity elected

		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	—	—	—	—	—	—	—	—	—	—	—	—	—
55	—	—	—	—	—	—	—	—	—	—	—	—	—
56	—	—	—	—	—	—	—	—	—	—	—	—	—
57	—	—	—	—	—	—	—	—	—	—	—	—	—
58	—	—	—	—	—	—	—	—	—	—	—	—	—
59	—	—	—	—	—	—	—	—	—	—	—	—	—
60	2	1	—	—	—	1	—	—	—	—	—	—	—
61	4	1	—	—	1	—	—	—	—	—	—	—	2
62	4	2	—	—	1	—	—	—	—	—	1	—	—
63	8	4	—	—	—	—	—	—	—	—	2	—	2
64	3	2	—	—	1	—	—	—	—	—	—	—	—
65	3	—	1	—	—	—	—	—	—	—	2	—	—
66	3	1	—	—	—	—	—	—	—	—	—	—	2
67	6	4	—	—	—	—	—	—	—	—	1	1	—
68	3	1	—	—	—	2	—	—	—	—	—	—	—
69	1	—	—	—	—	—	—	—	—	—	—	—	1
70	11	6	1	—	—	1	—	—	—	—	1	1	1
71	1	—	—	—	—	1	—	—	—	—	—	—	—
72	—	—	—	—	—	—	—	—	—	—	—	—	—
73	1	—	—	—	—	—	—	—	—	—	1	—	—
74	2	1	—	1	—	—	—	—	—	—	—	—	—
75 & over	18	5	3	1	1	2	—	—	—	1	1	1	3
Total	**70**	**28**	**5**	**2**	**4**	**7**	—	—	—	**1**	**9**	**3**	**11**

1 Formerly known as the Single-Life Annuity with Cash Refund.
2 Formerly known as the 100% Joint and Survivor Annuity.
3 New option available for selection effective January 1, 2007.
4 Formerly known as the 50% Joint and Survivor Annuity.

Cash Balance Benefit Program schedules

Table 2

Characteristics of all members retired for service and receiving an annuity

Fiscal year ended June 30	Average age at retirement	Average annuitant reserve	Average monthly annuity
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[1]	68.3	27,869	335
2019	68.5	28,665	322
2020	68.7	29,791	338

1 Revised in 2019.

Table 3

All participants receiving an annuity by type of benefit and type of annuity elected

(as of June 30, 2020)

	Monthly annuity amount					
Type of benefit	**Less than $250**	**$250–500**	**$500–750**	**$750–1,000**	**$1,000 & greater**	**Total**
Retirement	246	101	55	18	23	443
Disability	—	—	—	—	1	1
Survivors	9	5	—	—	—	14
Total	**255**	**106**	**55**	**18**	**24**	**458**

Type of payment						
Regular annuity						
Single life with cash	1	—	—	—	—	1
Single life without cash	2	—	—	—	—	2
Participant only	124	51	16	4	1	196
100% Beneficiary Annuity	47	7	3	1	1	59
75% Beneficiary Annuity	5	2	2	—	—	9
50% Beneficiary Annuity	12	4	1	—	1	18
Period-certain annuity						
10 year	43	13	11	1	3	71
9 year	2	2	—	1	—	5
8 year	2	1	—	1	—	4
7 year	1	2	3	1	—	7
6 year	3	—	3	—	1	7
5 year	5	13	5	4	3	30
4 year	4	3	2	1	3	13
3 year	4	8	9	4	11	36
Total	**255**	**106**	**55**	**18**	**24**	**458**

Table 4

Largest participating employers for the Cash Balance Benefit Program, current year and nine years ago

Fiscal year 2019–20

Participating employers	Covered employees[1]	Percentage of total system
Los Angeles Community College District	6,362	14.88%
Contra Costa Community College District	2,785	6.51%
Peralta Community College District	2,615	6.12%
City College of San Francisco	2,085	4.88%
West Contra Costa Unified School District	2,081	4.87%
San Jose/Evergreen Community College District	2,005	4.69%
Foothill De Anza Community College District	1,862	4.36%
Glendale Community College District	1,777	4.16%
Chabot-Las Positas Community College District	1,765	4.13%
Santa Rosa Junior College	1,588	3.71%
Top 10 total	**24,925**	**58.31%**
All other	17,823	41.69%
Total covered employees	**42,748**	**100.00%**

Fiscal year 2010–11

Participating employers	Covered employees[1]	Percentage of total system
Los Angeles Community College District	4,091	12.43%
Contra Costa Community College District	2,231	6.78%
Peralta Community College District	2,140	6.50%
West Contra Costa Unified School District	2,125	6.46%
City College of San Francisco	1,856	5.64%
San Jose/Evergreen Community College District	1,677	5.10%
Chabot-Las Positas Community College District	1,620	4.92%
Santa Rosa Junior College	1,376	4.18%
Glendale Community College District	1,295	3.93%
Foothill De Anza Community College District	1,266	3.85%
Top 10 total	**19,677**	**59.79%**
All other	13,231	40.21%
Total covered employees	**32,908**	**100.00%**

1 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 11 of the Actuarial section under the CBB Program.

Programs administered or overseen by the retirement system (Pension2)

Table 1A

Changes in fiduciary net position for the Pension2 IRC 403(b) Plan[1]

(dollars in thousands)

	Fiscal year ended June 30									
	2020	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**
Additions										
Member contributions	$198,217	$174,230	$122,113	$121,945	$96,347	$72,042	$66,545	$57,273	$53,111	$47,181
Employer contributions	590	982	369	393	377	301	151	269	188	225
Net investment income	35,903	51,467	65,104	77,730	9,548	19,363	66,002	43,151	6,132	43,782
Other income	306	273	309	141	120	91	28	—	—	—
Total additions	**$235,016**	**$226,952**	**$187,895**	**$200,209**	**$106,392**	**$91,797**	**$132,726**	**$100,693**	**$59,431**	**$91,188**
Deductions										
Distributions and withdrawals[2]	$63,994	$67,772	$48,481	$36,322	$32,936	$32,648	$22,173	$25,727	$19,978	$16,690
Refunds of member contributions	6,068	5,754	5,614	4,657	4,965	7,753	2,523	—	—	—
Administrative expenses	3,179	2,739	2,406	1,975	1,583	1,405	1,146	754	606	538
Total deductions	**$73,241**	**$76,265**	**$56,501**	**$42,954**	**$39,484**	**$41,806**	**$25,842**	**$26,481**	**$20,584**	**$17,228**
Change in fiduciary net position	**$161,775**	**$150,687**	**$131,394**	**$157,255**	**$66,908**	**$49,991**	**$106,884**	**$74,212**	**$38,847**	**$73,960**

1 Certain changes have been made to the presentation of this table to conform with the presentation on the statement of changes in fiduciary net position in the Financial section.
2 Distributions and withdrawals reflect the benefit payments to members and refunds of member contributions combined for fiscal years 2010–11 through 2012–13.

Table 1B

Changes in fiduciary net position for the Pension2 IRC 457(b) Plan[1]

(dollars in thousands)

	Fiscal year ended June 30									
	2020	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**
Additions										
Member contributions	$13,302	$9,307	$7,038	$6,516	$4,898	$4,025	$3,230	$2,591	$6,877	$1,289
Employer contributions	126	110	85	44	77	71	51	37	37	42
Net investment income	1,343	2,432	2,555	3,338	426	547	1,934	1,081	219	155
Other income	11	10	11	8	4	2	—	—	—	—
Total additions	**$14,782**	**$11,859**	**$9,689**	**$9,906**	**$5,405**	**$4,645**	**$5,215**	**$3,709**	**$7,133**	**$1,486**
Deductions										
Distributions and withdrawals[2]	$2,358	$1,659	$1,411	$769	$905	$807	$358	$530	$19	$82
Refunds of member contributions	54	141	88	36	266	—	45	—	—	—
Administrative expenses	152	122	100	79	56	47	36	22	8	2
Total deductions	**$2,564**	**$1,922**	**$1,599**	**$884**	**$1,227**	**$854**	**$439**	**$552**	**$27**	**$84**
Change in fiduciary net position	**$12,218**	**$9,937**	**$8,090**	**$9,022**	**$4,178**	**$3,791**	**$4,776**	**$3,157**	**$7,106**	**$1,402**

1 Certain changes have been made to the presentation of this table to conform with the presentation on the statement of changes in fiduciary net position in the Financial section.
2 Distributions and withdrawals reflect the benefit payments to members and refunds of member contributions combined for fiscal years 2009–10 through 2012–13.

Programs administered or overseen by the retirement system (Pension2)

Table 2

Largest participating employers for CalSTRS Pension2, current year and nine years ago

Fiscal year 2019–20

Participating employers	Covered employees[1]	Percentage of total system
Los Angeles Unified School District	3,340	12.71%
San Diego Unified School District	555	2.11%
Los Angeles Community College District	428	1.63%
Elk Grove Unified School District	376	1.43%
San Francisco Unified School District	370	1.41%
Long Beach Unified School District	230	0.88%
Sacramento City Unified School District	230	0.88%
City College of San Francisco	222	0.84%
Oakland Unified School District	203	0.77%
San Juan Unified School District	201	0.77%
Top 10 total	**6,155**	**23.43%**
All other	20,118	76.57%
Total covered employees	**26,273**	**100.00%**

Fiscal year 2010–11

Participating employers	Covered employees[1]	Percentage of total system
Los Angeles Unified School District	1,365	20.39%
San Diego City Unified School District	164	2.45%
Los Angeles Community College District	105	1.57%
Long Beach Unified School District	95	1.42%
Sacramento City Unified School District	76	1.13%
San Juan Unified School District	76	1.13%
San Diego Community College	71	1.06%
San Francisco Unified School District	71	1.06%
City College of San Francisco	70	1.05%
Elk Grove Unified School District	56	0.84%
Top 10 total	**2,149**	**32.10%**
All other	4,546	67.90%
Total covered employees	**6,695**	**100.00%**

1 If employers offer a 403(b) or 457(b), they are counted twice; totals also include all accounts with or without balances.

Table 1

Changes in fiduciary net position for the Medicare Premium Payment Program

(dollars in thousands)

	Fiscal year ended June 30									
	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Additions										
Employer contributions	$27,685	$27,977	$28,218	$29,117	$29,982	$30,527	$33,395	$35,022	$34,614	$36,145
Net investment income	25	29	18	11	9	—	10	6	8	10
Total additions	**$27,710**	**$28,006**	**$28,236**	**$29,128**	**$29,991**	**$30,527**	**$33,405**	**$35,028**	**$34,622**	**$36,155**
Deductions										
Premiums paid	$27,217	$27,546	$28,036	$28,929	$29,661	$30,615	$32,632	$34,702	$34,412	$35,785
Administrative expenses	510	1,901	578	168	380	360	327	340	370	345
Other expenses	2	1	—	—	—	—	—	—	—	—
Total deductions	**$27,729**	**$29,448**	**$28,614**	**$29,097**	**$30,041**	**$30,975**	**$32,959**	**$35,042**	**$34,782**	**$36,130**
Change in fiduciary net position	**($19)**	**($1,442)**	**($378)**	**$31**	**($50)**	**($448)**	**$446**	**($14)**	**($160)**	**$25**

Table 2

Benefit and refund deductions from changes in fiduciary net position by type

(dollars in thousands)

	Fiscal year ended June 30									
	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Type of benefit										
Age & service benefits										
Retired members	$27,217	$27,546	$28,036	$28,929	$29,661	$30,615	$32,632	$34,702	$34,412	$35,785
Total benefits	**$27,217**	**$27,546**	**$28,036**	**$28,929**	**$29,661**	**$30,615**	**$32,632**	**$34,702**	**$34,412**	**$35,785**

Medicare Premium Payment Program

Table 3

Retired members enrolled in Medicare Premium Payment Program during fiscal year 2019–20, classified by age at retirement

Age	Count
<55	—
55–56	6
56–57	4
57–58	9
58–59	—
59–60	—
60–61	1
61–62	1
62–63	1
63–64	1
64–75	—
75 & over	—
Grand total	**23**

Table 4

Characteristics of all retired members enrolled in Medicare Premium Payment Program

Fiscal year ended June 30	Average age at retirement	Average monthly Medicare premium
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
2019	60.1	390
2020	60.1	405

Table 1

Changes in fiduciary net position for the Teachers' Deferred Compensation Fund[1]

(dollars in thousands)

	Fiscal year ended June 30									
	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Additions										
Net investment income	$40	$39	$17	$9	$6	$1	$4	$3	$3	$4
Other income	1,893	1,743	1,607	1,453	1,339	1,072	1,241	563	767	497
Total additions	**$1,933**	**$1,782**	**$1,624**	**$1,462**	**$1,345**	**$1,073**	**$1,245**	**$566**	**$770**	**$501**
Deductions										
Administrative expenses	$1,502	$1,622	$2,198	$1,542	$1,433	$996	$874	$600	$698	$569
Other expenses	4	3	—	22	14	14	15	30	—	—
Total deductions	**$1,506**	**$1,625**	**$2,198**	**$1,564**	**$1,447**	**$1,010**	**$889**	**$630**	**$698**	**$569**
Change in fiduciary net position	**$427**	**$157**	**($574)**	**($102)**	**($102)**	**$63**	**$356**	**($64)**	**$72**	**($68)**

1 Certain reclassifications have been made to the additions for fiscal years 2010–11 and 2011–12.

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