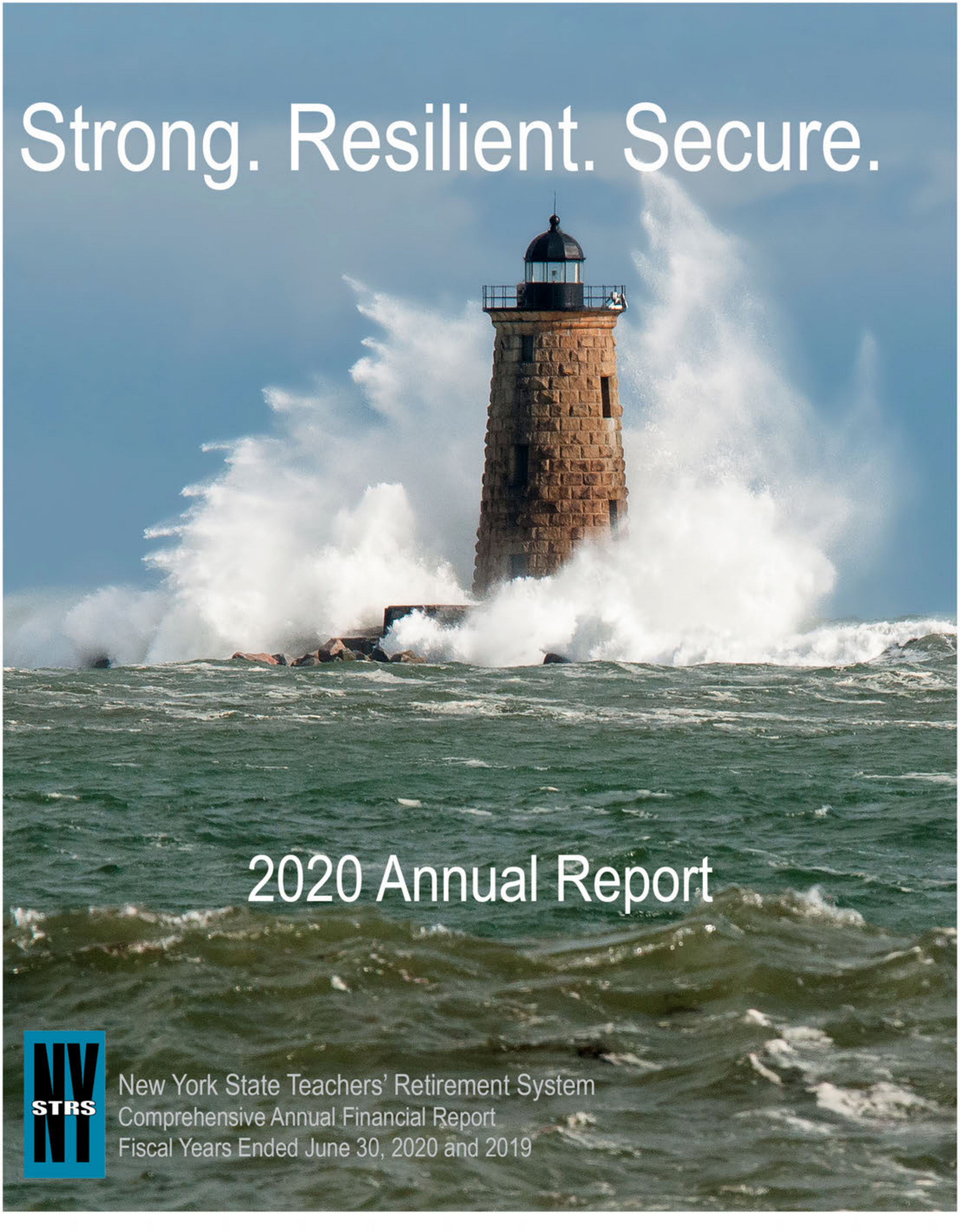

Strong. Resilient. Secure.

2020 Annual Report

New York State Teachers' Retirement System
Comprehensive Annual Financial Report
Fiscal Years Ended June 30, 2020 and 2019

New York State Teachers' Retirement System

10 Corporate Woods Drive | Albany, NY 12211-2395
(800) 348-7298 | NYSTRS.org

Strong. Resilient. Secure.

Comprehensive Annual Financial Report

Fiscal Years Ended June 30, 2020 and 2019

Our Mission: To provide our members with a secure pension.

Our Vision: To be the model for pension fund excellence and exceptional customer service.

Our Values: Integrity | Excellence | Respect | Resourcefulness | Diversity | Diligence | Balance

Committed to the Highest Ethical Standards of Conduct

NYSTRS strives to model strong ethical values within the pension industry. Our Board and staff take their fiduciary responsibilities seriously and are committed to operating in an environment of transparency.

System staff adhere to the following guiding principles of ethics and conduct.

Ensure compliance with all applicable laws, ethical and professional standards, and NYSTRS' policies and procedures.

Protect the interest of stakeholders, including members, employers and the public.

Act with integrity at all times to prevent a violation of public trust.

Guard the privacy of stakeholder information.

Adhere to NYSTRS' Internal Asset Management Code of Professional Conduct in managing NYSTRS funds.

Acknowledgment

The following departments have assisted with the preparation of this report:
Actuary | Finance | Fixed Income | Internal Audit | Investment Operations
Member Relations | Private Equity | Public Equities | Public Information Office | Real Estate

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Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

New York 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

Public Pension Standards Award
For Funding and Administration
2019

Presented to

New York State Teachers' Retirement System

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

Presented by the Public Pension Coordinating Council, a confederation of

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

Alan H. Winkle
Program Administrator

Introduction

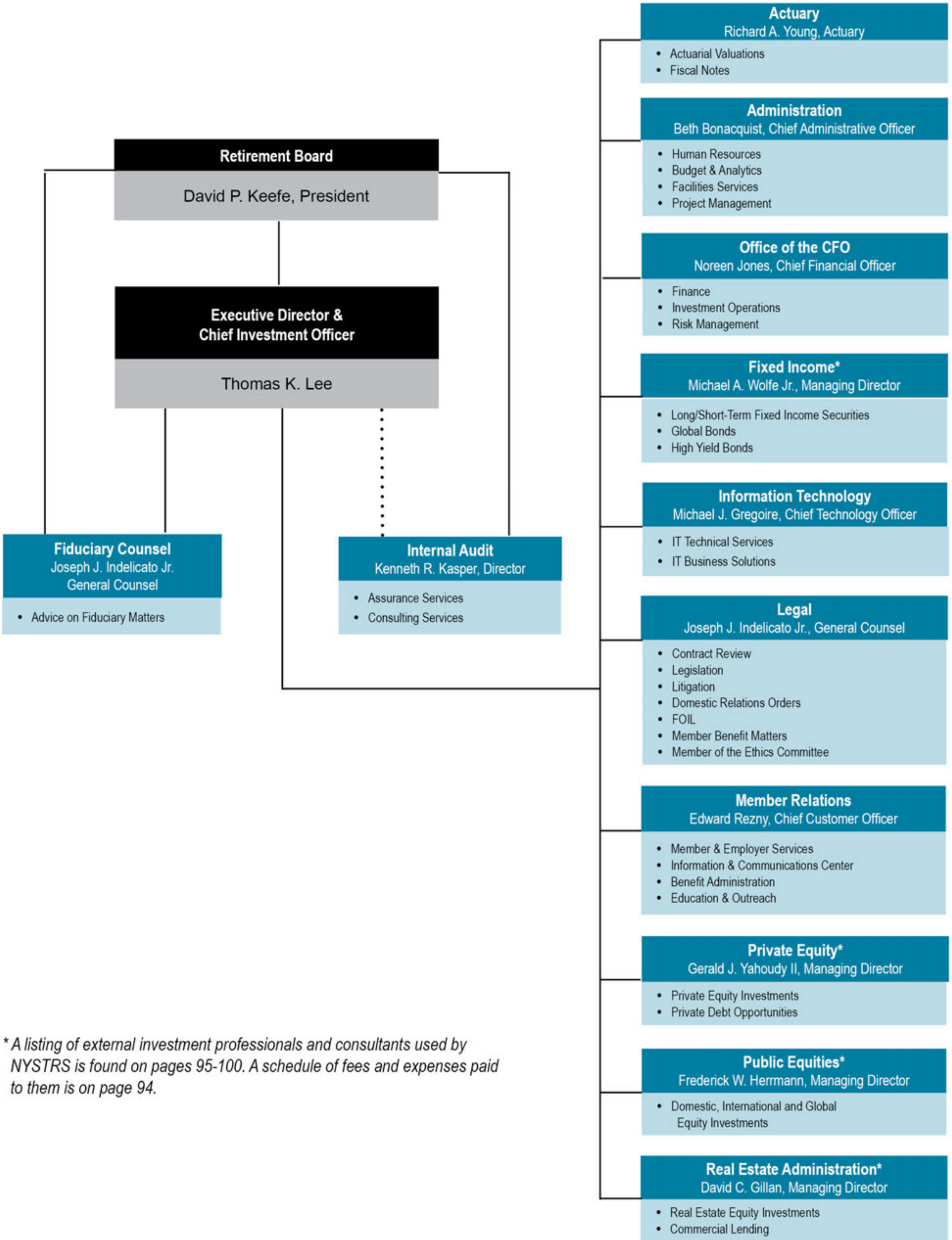
GOVERNANCE STRUCTURE

Maintaining a strong governance structure is how we ensure NYSTRS operates effectively, efficiently and ethically.
It requires that we be fiscally responsible and transparent, and that we manage risk. The checks and balances built into the structure places a premium on compliance with all applicable laws and regulations.

Introduction

BOARD OF TRUSTEES

ORGANIZATIONAL STRUCTURE — as of June 30, 2020



** A listing of external investment professionals and consultants used by NYSTRS is found on pages 95-100. A schedule of fees and expenses paid to them is on page 94.*

EXECUTIVE STAFF — as of June 30, 2020

Thomas K. Lee
Executive Director & Chief Investment Officer

Beth Bonacquist
Chief Administrative Officer

David C. Gillan
Managing Director of Real Estate

Michael Gregoire
Chief Technology Officer

Frederick W. Herrmann
Managing Director of Public Equities

Joseph J. Indelicato Jr.
General Counsel

Noreen Jones
Chief Financial Officer

Kenneth R. Kasper
Director of Internal Audit

Edward Rezny
Chief Customer Officer

Michael A. Wolfe Jr.
Managing Director of Fixed Income

Gerald J. Yahoudy II
Managing Director of Private Equity

Richard A. Young
Actuary

LETTER OF TRANSMITTAL

New York State Teachers' Retirement System
10 Corporate Woods Drive
Albany, NY 12211-2395
(800) 348-7298 or (518) 447-2900
NYSTRS.org

Thomas K. Lee, Executive Director & CIO

October 29, 2020

Trustees of the Retirement System Board:

On behalf of System staff, I present you with the Comprehensive Annual Financial Report (CAFR) of the New York State Teachers' Retirement System (NYSTRS or the System) for the fiscal years ended June 30, 2020 and 2019. This report complies with all requirements governing the preparation and contents of annual reports.

History and Overview

Created in 1921 by an act of the state Legislature, NYSTRS administers the fund from which most New York State public school teachers and administrators receive retirement and ancillary benefits. Retirement benefits are provided in accordance with New York State law and may not under the New York Constitution be diminished or impaired. A summary of NYSTRS benefits is provided on pages 16-17 of this report.

The System is governed by a 10-member Board of Trustees, which sets policy and oversees operations consistent with its fiduciary obligations under applicable law. A staff of approximately 380 is responsible for the day-to-day administration. NYSTRS serves 822 employers – including public school districts, BOCES, institutions of higher education and charter schools that elect to participate. NYSTRS has 433,801 active and retired members, including beneficiaries *(see chart below)*.

Membership Figures — as of June 30, 2020

Active Members:	261,232
Retired Members:	166,008
Beneficiaries:	6,561
Total Membership:	433,801

See page 113 for additional membership information.

The retirement fund is one of the 10 largest public funds in the U.S. based on portfolio size. NYSTRS is also consistently among the top-performing and best-funded public pension plans. Consistent receipt of required employee and employer contributions; a disciplined, risk-controlled investment policy; and partnerships with top-performing fund managers are major contributing factors to this stability. As a long-term investor with liabilities often not payable for three decades or more, Board and staff take a prudent approach to asset management.

LETTER OF TRANSMITTAL *(continued)*

Awards

Recognition from various industry organizations further demonstrates the System's commitment to excellence. Honors received within the most recently completed fiscal year include:

Certificate of Achievement for Excellence in Financial Reporting, awarded by the Government Finance Officers Association (GFOA) of the United States and Canada. Given in recognition of the System's 2019 Comprehensive Annual Financial Report (CAFR), the award certifies the report was prepared in conformity with the highest standards in government accounting and financial reporting.

Award for Outstanding Achievement in Popular Annual Financial Reporting, also awarded by GFOA. The System's 2019 Popular Annual Financial Report was recognized for its high quality and for successfully presenting data from the 2019 CAFR in a manner easily understandable to the general public.

Distinguished Budget Presentation Award for the fiscal year July 1, 2019 through June 30, 2020, also awarded by GFOA. To be eligible for this recognition, the budget document must meet established criteria as a policy document, operations guide, financial plan and communications device.

Public Pension Principles Achievement Award, presented by the Public Pension Coordinating Council. The criteria to qualify for this award include compliance with specific principles in the areas of benefits, actuarial valuation, financial reporting, investment and disclosure.

Legislation

Chapter 117 of the Laws of 2019 amended the General Business Law and State Technology Law to enact the "Stop Hacks and Improve Electronic Data Security" Act (the "SHIELD" Act) to expand the scope of information covered and update notification requirements upon a breach of data.

Chapter 252 of the Laws of 2019 amended the Retirement and Social Security Law to enable Tier 3 and 4 active public employees of the New York State and Local Employees' Retirement System and the New York State Teachers' Retirement System to receive a performance of duty disability retirement benefit equal to 75% of final average salary (instead of an accidental disability retirement benefit) if such member participated in the World Trade Center rescue, recovery or cleanup and the condition was incurred in the performance of duty.

Chapter 589 of the Laws of 2019 amended the Retirement and Social Security Law to increase to $35,000 the annual amount of money a retiree of a public retirement system who is under age 65 may earn in a New York State public service position.

COVID-19 Legislation

Chapter 23 of the Laws of 2020 amended the Executive Law to permit the Governor to issue an executive order for any directive necessary to respond to a state disaster emergency and make appropriations for responding to COVID-19 from the state purposes account of the general fund.

Executive Orders of interest include:
EO #202: Declared a state disaster emergency.
EO #202.7: Authorized e-notarizations through audio-video technology.
EO #202.11: Suspended Retirement and Social Security Law Sect. 212 for the purpose of disregarding any income earned during the period of the emergency from the earnings limitation calculated under such statute for public retirees.

Chapter 89 of the Laws of 2020 amended the Retirement and Social Security Law to establish a COVID-19 accidental death benefit for New York State public employees who reported to a place of employment as directed on or after March 1, 2020, contracted COVID-19 within 45 days, and die on or before Dec. 31, 2020 with COVID-19 causing or contributing to their death.

LETTER OF TRANSMITTAL *(continued)*

Noteworthy Actions

Adapting Operations During the Pandemic

Due to COVID-19, we quickly transitioned to 95% of staff working remotely, adapting our work processes so we could continue to provide the services that members need and expect. Our investment in technology, business continuity planning, and staff training contributed to ensuring staff safety and meeting business operations. We will continue to explore the efficacy of allowing employees to work remotely based on our positive experience during the COVID-19 crisis.

Enhancing Workplace Diversity and Inclusion

We believe a diverse, inclusive and culturally competent workforce contributes greatly to engagement, productivity and, ultimately, organizational success. Our commitment to diversity and inclusion (D&I) includes seeking to attract and retain diverse candidates who can add to our culture, advance our mission and support our goals. We currently participate in college-level internship programs focused on providing opportunity to women and minorities and are working to expand these opportunities to our local urban high school communities. Our newly hired Diversity and Inclusion Associate will lead NYSTRS in the creation and implementation of a comprehensive D&I strategy.

Routine, periodic diversity training for all staff has been a long-standing NYSTRS practice, and this year we added small-group discussions to promote respect and leverage the cultural experiences and diversity of employees. We also hold our stakeholders to high standards, requiring managers and consultants to provide diversity and inclusion information about their firms or general partners as part of the system's due diligence review process. NYSTRS also holds an annual Minority-and Women-Owned Business Enterprises (MWBE) conference to provide qualified emerging businesses and managers the opportunity to partner with us.

Investment Infrastructure Modernization

NYSTRS is undergoing an investment infrastructure modernization project that will support expanding internal management of publicly traded investments internationally. Meanwhile, the Real Estate unit is evaluating mortgage servicing systems and continues to focus on direct and separate account investments where NYSTRS retains discretion, while employing closed-end fund investments for certain opportunistic and global strategies.

Governance and Staffing Changes

We added a Risk Committee to our Board Governance structure, Private Equity added a position to meet its long-term staffing plan and replaced a consultant as part of an RFP process done every five years, and the System now uses Callan Associates as a general investment consultant (effective May 1, 2020).

Significant Litigation

On Dec. 9, 2019, NYSTRS filed a motion for appointment as lead plaintiff in the federal securities class action in re The Chemours Company Securities Litigation. The complaint was filed on Oct. 8, 2019 on behalf of purchasers of common stock of the Chemours Company ("Chemours") between Feb. 16, 2017 and Aug. 1, 2019. Chemours was formed in July 2015 as a spin-off from E.I. du Pont de Nemours and Company ("DuPont"). Under the spin-off, DuPont divested to Chemours the assets and liabilities associated with its Performance Chemicals division, as well as numerous liabilities associated with other DuPont divisions. This securities class action is based on securities fraud claims and focuses on Chemours' alleged misrepresentations and understatements to investors about the extent of Chemours' environmental liabilities, including legacy DuPont liabilities.

Financial Information

Members of the NYSTRS Board, who serve without pay, have a fiduciary responsibility to safeguard the fund used to pay guaranteed retirement and ancillary benefits to the System's members and beneficiaries. The System's long-term pension obligations for this population are well funded. Strict governmental requirements for transparency and public accountability as established by the Governmental Accounting Standards Board (GASB), as well as state and federal laws, are rigorously followed. Consistently favorable audits of System finances from a variety of independent sources affirm this.

LETTER OF TRANSMITTAL *(continued)*

The design, implementation and administration of appropriate internal controls protecting the security of assets are the responsibility of System management. The internal control framework has been designed to provide reasonable rather than absolute assurance that the financial statements will be free from material misstatement. The concept of reasonable assurance recognizes that the cost of a control should not exceed the benefits likely to be derived, and that the valuation of costs and benefits requires estimates and judgments by management. To ensure the validity of these controls, a system of both external and internal checks and balances exists. Financial information and internal controls are subject to audit by the New York State Department of Financial Services and the Retirement System's Internal Audit Department. In addition, KPMG LLP, an independent certified public accountant, whose unmodified opinion appears on page 21 of this report, audits the financial statements. An audit of our actuarial valuation, methods and assumptions was completed in 2019 by Cheiron, which concluded the actuarial valuation of the System fairly represented the actuarial position and funding requirements of the System. These oversight mechanisms provide scrupulous and transparent adherence to applicable regulations.

Major System expenses result from retirement benefit payments, death benefits and refunds of contributions to certain eligible members and beneficiaries. The increase in retirement benefit payments from 2019 to 2020 is attributable to a net increase of 3,366 retirees and beneficiaries (details are found on page 32 in the *Notes to Financial Statements-Plan Description*). Also see the *Benefits and Return of Contributions by Type* chart on pages 128-129 for more information.

For an overview of NYSTRS' financial activities for the fiscal year ended June 30, 2020, see *Management's Discussion and Analysis* beginning on page 23. This section provides explanations and further details of the information provided in the financial statements, its notes and required supplementary information.

Responsibility for both the accuracy of the data and the completeness and fairness of the presentation, including all disclosures, rests with the management of the System. To the best of our knowledge and belief, the enclosed data is accurate in all material respects and is reported in a manner designed to present fairly the financial position and results of operations of the System.

Funding

Funds used to pay promised benefits come from employer contributions, member contributions and investment income. Assets are professionally managed and invested on a long-term basis using sound investment policies. See *Statements of Changes in Fiduciary Net Position* on page 31 for more information.

The employer contribution rate (ECR) — expressed as a uniform percentage of member payroll — is set annually at the level necessary to properly fund benefits. The rate is established in accordance with an actuarial valuation of System assets and liabilities. The most recently adopted ECR of 9.53% will apply to 2020-2021 school year salaries. The payments associated with this rate will be collected in the fall of 2021. These contributions have been collected without fail throughout the System's history, keeping NYSTRS among the most secure plans in the country.

The System's year-end net assets totaled $120.5 billion. During the same period, benefits paid to retirees and beneficiaries were approximately $7.5 billion.

The plan's funded ratio as of June 30, 2019, the date of the most-recent annual actuarial valuation and calculated using the Actuarial Value of Assets, was 99.6%. Details of our funding progress may be obtained by turning to page 107.

Investments

The System's assets are invested in the most prudent manner possible in order to achieve optimum long-term total returns with an appropriate level of risk. The System is committed to a disciplined, risk-controlled investment approach that focuses on thoughtful and prudent diversification of assets across a broad spectrum of capital market segments. The allocation of assets within the portfolio, as well as the fund's overall structure, are continuously reviewed and adjusted as appropriate to achieve these goals.

The System's total portfolio returned 3.5%, net of fees, for the fiscal year ended June 30, 2020. Our 30-year rate of return is 8.6%, net of fees.

LETTER OF TRANSMITTAL *(continued)*

Refer to pages 69-100 for further information on NYSTRS' investments. A listing of our equity and fixed income holdings can be viewed on our website at NYSTRS.org.

Acknowledgments

This Comprehensive Annual Financial Report is prepared by NYSTRS staff and reviewed by external auditors prior to publication. The intent of the publication is to provide complete and reliable information for making management decisions, determining compliance with legal provisions and determining responsible stewardship of System assets.

The full report is available on the System's website at NYSTRS.org. Printed copies are available upon request. A Popular Annual Financial Report that presents information from this report in a format more easily understandable to those without a background in public finance will also be prepared.

On behalf of all of us at NYSTRS, I want to offer assurance that our members' retirement benefits continue to be safe and secure. Despite the economic turbulence caused by the pandemic during the final quarter of the fiscal year, the System ended the year with a positive investment return and remains among the best-funded public pension systems in the country.

We also pride ourselves on being the model for exceptional customer service. We have remained dedicated to meeting the needs of our members, both active and retired, even as the pandemic forced us to adopt new ways of operating. Our mission, as always, is to provide our members with a secure pension for life.

Respectfully submitted,

Thomas K. Lee
Executive Director & Chief Investment Officer

PRESIDENT'S MESSAGE

David P. Keefe

Dear NYSTRS Members, Administrators and Teachers,

As a retired social studies teacher, I am keenly aware of the need to look back at historical events and apply what we learn to current experiences. Since 1921, through all the ups and downs of the financial markets, NYSTRS has remained a stable, secure and well-funded retirement plan.

The System was still new when the stock market crash of 1929 hit and set off the Great Depression, but our Retirement System rode out those turbulent years and survived. More recently, the System successfully bounced back from the dotcom crisis of 2000-2002 and the Great Recession of 2007-2009.

The volatility created by the coronavirus pandemic will be no different. NYSTRS will continue as strong as ever after this crisis as well, thanks to the prudent stewardship of our 10-member Board of Trustees and the expertise of our knowledgeable staff.

Despite continued economic uncertainty, NYSTRS remains exceptionally well-funded. As of our last actuarial valuation, NYSTRS was 101.2% funded based on a market value of assets and 99.6% funded based on an actuarial value of assets. Our 10-year and 30-year rates of return are 9.6% and 8.6%, respectively.

Investing for retirement is a long-range endeavor focused not on the next fiscal quarter, but on accumulating assets for the teacher planning to retire in 10, 20 or 30 or more years. NYSTRS' investment approach, which pools employee and employer contributions, reflects that long-range focus with a disciplined, risk-controlled and diversified strategy ensuring our Retirement System is built to last.

Credit for our System's success also belongs to the outstanding staff who provide our members with excellent customer service. When the pandemic forced most staff to begin working remotely, the staff didn't miss a beat in keeping the System running effectively and in finding new ways to meet members' needs.

I am proud to be a retired member of NYSTRS and grateful to be able to serve my fellow teachers as Board president. Our members can rest assured, as I do, that our NYSTRS pensions are secure.

David P. Keefe
President

SUMMARY OF BENEFITS

Types of Benefits

NYSTRS provides pension benefits for service, vested and disability retirement, as well as death benefits. Following is a general summary of benefits. Members are advised to refer to the *Active Members' Handbook* at NYSTRS.org for complete information on benefit calculation.

Membership Tiers

System members are organized using a tier structure based on date of membership. There are six tiers, each with different benefit structures and eligibility rules.

Tier 1:	Membership prior to 7/1/73
Tier 2:	Membership 7/1/73 — 7/26/76
Tier 3:	Membership 7/27/76 — 8/31/83
Tier 4:	Membership 9/1/83 — 12/31/09
Tier 5:	Membership 1/1/10 — 3/31/12
Tier 6:	Membership on or after 4/1/12

Service Retirement Benefit

A Tier 1 member is eligible to retire at age 55 under the Career Plan without a reduction in benefits if credited with at least 20 years of state service. The pension for 20 years of New York State service rendered after July 1, 1959, is 40% of final average salary. With few exceptions, the maximum pension under the Career Plan is 79% of final average salary. This includes the two years of service added under the Article 19 Benefit Enhancement legislation.

A Tier 2 member may retire at age 55 without a reduction in benefits if credited with at least 30 years of service. The pension for 30 years of service is 60% of final average salary. The maximum pension payable under Tier 2 is also 79% of final average salary, including two years of service added under the Article 19 Benefit Enhancement legislation.

A Tier 4 member, and a Tier 3 member retiring under Tier 4, may retire at age 55 without a reduction in benefits if credited with at least 30 years of service. The pension for 30 years of service is 60% of final average salary. Each year beyond 30 years increases the pension 1½% of final average salary.

A Tier 5 member may retire at age 57 without a reduction in benefits if credited with at least 30 years of service. The pension for 30 years of service is 60% of final average salary. Each year beyond 30 years increases the pension 1½% of final average salary.

A Tier 6 member may retire at age 63 without a reduction in benefits. The pension for 20 years of service is 35% of final average salary. Each year beyond 20 years increases the pension 2% of final average salary.

Vested Retirement Benefit

NYSTRS members in Tiers 1-4 who cease employment with five or more years of credited service are eligible for a vested retirement. Ten years are required for Tier 5 and 6 members. The vested benefit is payable at age 55 and is calculated using the same factors as a service retirement benefit.

Death Benefits

NYSTRS offers several types of death benefits: In-Service (which includes post-retirement coverage for Tiers 2-6); Accidental; Vested; and Accelerated. Eligibility depends on an individual's membership status and, in certain cases, the cause or timing of death.

SUMMARY OF BENEFITS *(continued)*

Disability Retirement Benefit

Generally, members credited with at least 10 years of New York State service who become disabled, as defined by applicable statute and approved by the Medical Board, are entitled to a disability retirement benefit from the System. In most cases, the minimum disability benefit is one-third of final average salary. For Tier 3-6 members who become disabled as the result of an accident sustained in the performance of their teaching duties, the 10-year eligibility requirement is waived.

The members of the Medical Board are:

STEVEN D. KRONICK, M.D.

Board Certified Psychiatrist; Additional Qualifications in Geriatric Psychiatry

Psychiatrist
Pine Bush Mental Health, LLP

Psychiatric Consultant
Albany County Community Mental Health Center

Clinical Assistant Professor of Psychiatry
Albany Medical College

Diplomate of the National Board of Medical Examiners

Member of the American Board of Psychiatry and Neurology

Member of the American Psychiatric Association

RICHARD T. MACDOWELL, M.D.

Attending Surgeon at Albany Medical College

Member of the American College of Surgeons

Member of the American Board of Surgery

LAURA E. PICA, M.D.

Diplomate of the National Board of Medical Examiners

Diplomate of the American Board of Internal Medicine

Member of the American College of Physicians

Member of the American Society of Internal Medicine

St. Peter's Health Partners Medical Association - Primary Care Physician - Internal Medicine

Member Contributions

Tier 3 and 4 members are mandated to contribute 3% of their salary to the Retirement System until they have been a member for 10 years or have 10 years of service credit, whichever occurs first. Tier 5 members are required to contribute 3.5% of their salary throughout their active membership. Tier 6 members are required to contribute at a variable rate based on earnings throughout their active membership.

Transfer and Prior Service

Under certain circumstances, members are eligible to transfer membership to or from another New York State public retirement system, or request reinstatement of a former membership in a NYS public retirement system. Credit for NYS public employment prior to joining NYSTRS and active duty military service are also creditable in certain situations.

Retirement Options

At the time of retirement, a member may elect the Maximum retirement benefit with no protection for a beneficiary, or one of many actuarially equivalent options (i.e., lump sum, survivor, guarantee or alternative) providing protection for a beneficiary or beneficiaries.

Cost-of-Living Adjustment (COLA)

All eligible current and future retired members will receive an automatic COLA based on 50% of the Consumer Price Index increase from one March to the next. It will be a minimum of 1% and a maximum of 3% of the first $18,000 of the retiree's Maximum retirement benefit and is effective each September. Most service retirees must be age 62 and retired five years to be eligible.

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Financial

QUALITY WORKFORCE

Organizational success requires a high-performing, dedicated team that puts service to our customers first. We recruit and retain only the best of the best, and we provide staff with ample professional development opportunities. We encourage diversity of people and ideas, and require team members to live the System's values.

Financial

Page

INDEPENDENT AUDITORS' REPORT

KPMG LLP
515 Broadway
Albany, NY 12207-2974

The Retirement Board
New York State Teachers' Retirement System

We have audited the accompanying financial statements of the New York State Teachers' Retirement System (the System), as of and for the years ended June 30, 2020 and 2019, and the related notes to the financial statements, which collectively comprise the System's basic financial statements for the years then ended 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 U.S. generally accepted accounting principles; 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.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. 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 auditors' 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 entity'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 entity'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 the New York State Teachers' Retirement System as of June 30, 2020 and 2019, and the changes in its fiduciary net position for the years then ended in accordance with U.S. generally accepted accounting principles.

INDEPENDENT AUDITORS' REPORT *(continued)*

Other Matters

Required Supplementary Information

U.S. generally accepted accounting principles require that management's discussion and analysis and the schedules and related notes included under Required Supplementary Information in the accompanying table of contents be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the 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 and Other Information

Our audits were conducted for the purpose of forming an opinion on the financial statements that collectively comprise the System's basic financial statements. The schedules of administrative expenses, schedules of investment expenses, and schedule of consulting fees as listed in the accompanying table of contents, and the introduction, investments, actuarial, and statistical sections of this report are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The schedules of administrative expenses, schedules of investment expenses, and schedule of consulting fees 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 schedules of administrative expenses, schedules of investment expenses, and schedule of consulting fees are fairly stated, in all material respects, in relation to the basic financial statements as a whole.

The introduction, investments, actuarial and statistical sections 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.

KPMG LLP

Albany, New York
October 29, 2020

MANAGEMENT'S DISCUSSION AND ANALYSIS
June 30, 2020 and 2019
(Unaudited)

The following discussion and analysis of the financial performance of the New York State Teachers' Retirement System (NYSTRS or the System) provides an overview of its activities for the years ended June 30, 2020, 2019, and 2018. Its purpose is to provide explanations and insights into the information presented in the financial statements, notes to the financial statements, and required supplementary information.

Financial Highlights

- The System's investments experienced appreciation of $1.6 billion in 2020 and $5.6 billion and $7.7 billion in 2019 and 2018, respectively.
- The net position of the System represents funds available to pay current and future benefits. Net position was $120.5 billion at June 30, 2020, and $122.5 billion and $119.9 billion at June 30, 2019 and 2018, respectively.
- The 2020 net position decreased from 2019 by $2.0 billion or 1.6%, and 2019 net position increased from 2018 by $2.6 billion, or 2.2%.
- Contributions from employers were $1.5 billion in 2020, $1.8 billion in 2019, and $1.6 billion in 2018, consistent with the change in the employer contribution rate.
- The size of the System's active membership has declined over the past three years. However, the number of retired members and beneficiaries receiving benefits has increased, leading to an increase in the retirement benefits paid. Retirement benefits paid in 2020, 2019, and 2018 were $7.5 billion, $7.3 billion, and $7.1 billion, respectively.
- The System's funded ratio, a comparison of the actuarial value of assets to the accrued pension benefit liability, was 99.6% as of the June 30, 2019 valuation. Valuations in 2018 and 2017 resulted in the System's funded ratio of 99.2% and 97.7%, respectively.

Overview of Financial Statements

The following discussion and analysis are intended to assist the reader in better understanding the purpose and meaning of each of the key components of NYSTRS' financial statements, which comprise the following:

1. The Statements of Fiduciary Net Position present NYSTRS' assets and deferred outflows of resources and liabilities and deferred inflows of resources by major categories and may serve over time as a useful indicator of the System's financial position. The difference between assets and deferred outflows of resources and liabilities and deferred inflows of resources represents the net position restricted for pensions. The statements also compare assets and deferred outflows of resources and liabilities and deferred inflows of resources by class to the previous year, which offers the reader the opportunity to note changes in each class from year to year.
2. The Statements of Changes in Fiduciary Net Position provide information on the change in the System's net position during the current year. The majority of additions are normally derived from net investment income, primarily in the form of changes in the fair value of assets from the prior year. Deductions include retirement benefit payments, beneficiary payments, return of contributions, and administrative expenses. For comparison purposes, information pertaining to the previous year's Statement of Changes in Fiduciary Net Position is also provided.
3. The Notes to the Basic Financial Statements are an essential part of the basic financial statements. They provide important background and detailed information about NYSTRS, the plan and the basic financial statements themselves.
4. The Required Supplementary Information (RSI) consists of information pertaining to NYSTRS' actuarial methods and assumptions and provides data on changes in the school districts' net pension liability, the composition of the school districts' net pension liability, the school districts' contributions, and NYSTRS' investment returns. Other

MANAGEMENT'S DISCUSSION AND ANALYSIS *(continued)*
June 30, 2020 and 2019
(Unaudited)

supplemental information is also presented and includes the schedules of administrative expenses, investment expenses, and schedule of consulting fees.

Financial Analysis

Tables 1 and 2 summarize and compare the System's financial results for the years 2020, 2019 and 2018. It is important to note that the change from year to year in a particular investment category is attributable not only to the change in fair value but also to purchases and sales or maturities of that investment.

TABLE 1 - SUMMARY OF FIDUCIARY NET POSITION
(dollars in thousands)

	June 30 2020	2019	2018	Amount increase (decrease) 2019 to 2020	Percentage change of total 2019 to 2020
Investments at fair value:					
Cash equivalents	$ 2,733,626	$ 2,714,874	$ 2,669,572	$ 18,752	0.0 %
Domestic fixed income	20,816,810	20,143,856	19,804,701	672,954	0.5
Global bonds	2,861,293	3,002,833	2,667,873	(141,540)	(0.1)
Domestic equity	41,432,220	42,397,951	43,891,046	(965,731)	(0.8)
International equity	19,367,874	20,635,621	22,202,302	(1,267,747)	(1.0)
Global equity	3,595,252	2,578,365	1,003,867	1,016,887	0.8
Mortgages	4,072,590	4,487,273	3,764,533	(414,683)	(0.3)
Real estate	7,947,494	8,928,350	8,343,360	(980,856)	(0.8)
Real estate investment trusts	2,816,740	2,853,691	2,486,569	(36,951)	0.0
Alternative investments*	12,960,022	12,472,102	11,007,906	487,920	0.4
Total investments	118,603,921	120,214,916	117,841,729	(1,610,995)	(1.3)
Net other assets, liabilities, and deferrals	1,875,584	2,262,565	2,073,789	(386,981)	(0.3)
Net position restricted for pensions	**$120,479,505**	**$122,477,481**	**$119,915,518**	**$ (1,997,976)**	**(1.6) %**

**Alternative investments include real estate alternative investments, private equity and private debt.*

TABLE 2 - SUMMARY OF CHANGES IN FIDUCIARY NET POSITION
(dollars in thousands)

	Years ended June 30 2020	2019	2018	Amount increase (decrease) 2019 to 2020	Percentage change of total 2019 to 2020
Net appreciation in fair value of investments	$ 1,643,319	$ 5,631,436	$ 7,683,568	$(3,988,117)	(155.7)%
Other investment income	2,280,314	2,391,744	2,244,443	(111,430)	(4.3)
Contributions	1,653,677	1,920,343	1,738,012	(266,666)	(10.4)
Retirement benefits	(7,484,462)	(7,285,362)	(7,088,949)	(199,100)	(7.8)
Other deductions	(90,824)	(96,198)	(80,660)	5,374	0.2
Net increase in net position	**$(1,997,976)**	**$2,561,963**	**$4,496,414**	**$(4,559,939)**	**(178.0)%**

MANAGEMENT'S DISCUSSION AND ANALYSIS *(continued)*
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(Unaudited)

Fiscal Year 2020

In 2020, the internally managed domestic fixed income portfolio was little changed in dollar terms on a year over year basis. During the year, bond purchases of approximately $2.6 billion were exceeded by the sum of bond maturities, sales, tenders, calls, and agency mortgage principal prepayments by approximately $855 million.

U.S. Treasury yields were pretty much unchanged all across the yield curve for the first half of the fiscal year, only for the curve to move meaningfully lower and steeper from the front end to the back end, starting the move in March and running through the fiscal year-end. The catalyst behind the lower yields was the Federal Reserve, as it employed immense monetary policy, which included reducing rates as well as purchasing massive amounts of bonds, helping the economy to manage the significant economic headwinds posed by the COVID-19 pandemic. Yields were lower from the very front part of the yield curve to the very back and everywhere in between. For instance, the two-year point on the curve declined by approximately 1.60% while the 10-year and 30-year points on the curve declined by 1.34% and 1.11% respectively. The overall decline in interest rates produced asset capital appreciation that, combined with the addition of interest income, resulted in a robust return for the fiscal year.

The weighted average coupon of the domestic fixed income portfolio was virtually unchanged during the fiscal year, increasing by only 0.03%, as bonds that matured were generally replaced with bonds having similar sized coupons. Within the domestic fixed income portfolio, the System continued to add to the high-yield bonds asset class, increasing the pace of allocation during the higher volatility months of the second half of the fiscal year, resulting in a more than doubling of the overall amount invested in the asset class. At year-end the System's high-yield bond exposure was approximately 0.5%.

Exposure to global bonds was relatively unchanged at the end of the 2020 fiscal year compared to 2019, due to strong returns in corporate credit and continued reinvestment of coupon in each of the global bond portfolios, offset by some asset re-allocation out of global bonds near the end of the fiscal year. These factors resulted in a fiscal year-end total of approximately $2.8 billion invested in the separately managed accounts.

Domestic equities appreciated over the fiscal year with the S&P 1500 index rising 6.1%. In contrast, the international equity portfolio depreciated as international markets, measured by the MSCI ACWI Ex-U.S. index, fell 4.8% over the period.

During the year, rebalancing activities raised $2.9 billion from the domestic equity portfolio, while $325 million was raised from the international equity portfolio. In addition, a combined total of $900 million was transferred from the domestic and international equity portfolios to further build out the System's allocation to global equities. The combination of investment performance, rebalancing activities and funding for the global equity asset class resulted in a decrease in fair value for domestic equities of $966 million, and a decrease of $1.3 billion for the international equity portfolio.

The fair value of the global equity portfolio at the end of the period was $3.6 billion, an increase of $1.0 billion from the prior fiscal year.

Real estate investments consist of a globally diversified portfolio of public and private commercial real estate assets. Net new investments offset by negative investment returns resulted in depreciation of $309.3 million for the equity real estate portfolio while net new investments coupled with positive investment returns resulted in appreciation of $55.3 million for the debt real estate portfolio. Commercial real estate values, as measured by the National Council of Real Estate Investment Fiduciaries (NCREIF), continued to grow modestly for the first two quarters of the fiscal year. The portfolio's value depreciated in the first quarter of 2020 due to the outbreak of COVID-19, the first decrease in market value since the low in the first quarter of 2010 during the global financial crisis. The depreciation continued in the second quarter of 2020 as valuations reflected lower rental growth, higher vacancy and credit losses. Total unlevered appreciation for the fiscal year was a negative 1.65%.

The System's real estate investment trusts (REITs) consist of domestic and global REITs.

MANAGEMENT'S DISCUSSION AND ANALYSIS *(continued)*
June 30, 2020 and 2019
(Unaudited)

The blended domestic REIT benchmark index generated a return of negative 12.3% for the fiscal year. The domestic REITs portfolio outperformed the index, returning negative 8.5% for the fiscal year. The domestic REITs had a volatile year reacting more swiftly with sharper declines in response to the COVID-19 pandemic. Additional investments of $225 million plus reinvested dividend income of $78.8 million was offset by market declines resulting in an overall increase of $87.2 million in net position, resulting in a year-end market value of $2.0 billion for the domestic REIT portfolio.

The global REIT benchmark index generated a return of negative 15.5% for the fiscal year. The global REIT portfolio outperformed the index returning negative 13.8% for the fiscal year. Reinvested dividend income of approximately $32.8 million was offset by market declines resulting in an overall decrease of $124.2 million in net position, resulting in a year-end market value of $825.0 million for the global REIT portfolio.

Alternative investments presented in tables 1 and 3 include real estate alternative investments, private equity and private debt.

Net appreciation in the private equity portfolio continued to remain positive as distributions from existing investments increased from the prior year. The System made $1.9 billion in capital contributions to new and existing private equity funds and received $2.2 billion from existing private equity investments. Twenty private equity commitments were made during the year.

Effective July 1, 2017, NYSTRS added private debt to its asset allocation. During the year, the System made $283.8 million in contributions to new and existing private debt funds and received distributions of $147.2 million. Three private debt commitments were made during the year.

Securities lending earnings took another leg lower in the 2020 fiscal year. While market volatility returned in the second half of the fiscal year due to COVID-19, lower loan balances resulted from reduced directional demand, lower dividend trade opportunities in the international equity space, and a continued shift in collateral preferences of borrowers towards non-cash collateral. The System’s permitted collateral schedule of U.S. dollar cash, U.S. Treasuries, U.S. Agencies, and U.S. Agency MBS also reduced loan opportunities and earnings as borrowers continued to optimize their balance sheets by preferring to pledge non-cash equity and sovereign debt collateral rather than U.S. Government debt when borrowing securities.

Investment expenses are primarily composed of investment management fees that are based on the market value of assets managed and, in some cases, the returns achieved. The investment expense increase in 2020 from 2019 is primarily the result of activity within the System’s alternative investments.

The change in employer contributions was a function of a decrease in the employer contribution rate from 10.62% in 2019 to 8.86% in 2020.

MANAGEMENT'S DISCUSSION AND ANALYSIS *(continued)*
June 30, 2020 and 2019
(Unaudited)

Fiscal Year 2019

In 2019, the internally managed domestic fixed income portfolio was little changed in dollar terms on a year over year basis. During the year, bond purchases of approximately $2.2 billion were exceeded by the sum of bond maturities, sales, tenders, calls, and agency mortgage principal prepayments by approximately $610.5 million.

The intermediate portion of the Treasury yield curve flattened during the fiscal year as the two-year point on the curve declined by approximately 0.77%. While further out, the interest rate curve at the seven-year and 10-year points declined by 0.95% and 0.86% respectively. However, beyond the intermediate portion of the interest rate curve the 30-year Treasury yield decline of 0.46% was lower than the 10-year point's interest rate decline of 0.86%, resulting in a steeper interest rate curve beyond 10 years year over year. The overall decline in interest rates produced asset capital appreciation that, combined with the addition of interest income, resulted in a solid positive return for the fiscal year.

The weighted average coupon of the domestic fixed income portfolio was marginally higher during the fiscal year, increasing by 0.1%, as lower coupon bonds with shorter original tenors continued to mature while bonds with higher coupons were added, resulting in a small increase in interest income from the prior fiscal year.

The System continued to add to the high-yield bond asset class during the fiscal year, within the domestic fixed income portfolio. The System funded one new high-yield bond money manager and allocated additional moneys across managers into the asset class. At year-end, the System's high-yield bond exposure was approximately 0.2%.

Exposure to global bonds continued to increase during the 2019 fiscal year due to positive returns and continued reinvestment of coupon in all three global bond portfolios. These factors resulted in a fiscal year-end total of approximately $3.0 billion invested in the separately managed accounts.

Net appreciation of $2.8 billion for domestic equities was driven by strong equity market returns, with the S&P 1500 index rising 9.2% for the fiscal year. During the period, $4.4 billion was raised from the domestic equity portfolio, while a further $750.0 million was transferred to fund an allocation to global equities. The combination of investment performance, rebalancing activities and funding for the global equity asset class resulted in a decrease in net position for domestic equities of $1.5 billion.

Despite the MSCI All Country World index rising 1.3% over the fiscal year, the international equity portfolio experienced a net depreciation of $137.5 million. During the fiscal year, $1.0 billion was raised from the international portfolio, while a further $750.0 million was transferred to fund the System's allocation to global equities, contributing to an overall decrease in net position for international equities of $1.6 billion.

The global equity portfolio net position at the end of the fiscal period was $2.6 billion, an increase of $1.6 billion from the prior year, which included $1.5 billion transferred from domestic and international equities as noted above.

Real estate investments consist of a globally diversified portfolio of public and private commercial real estate assets. Net new investments coupled with positive investment returns resulted in net appreciation of $291.7 million for the equity real estate portfolio and appreciation of $166.8 million for the debt real estate portfolio. The debt real estate investments remain on the low end of the allowable range due to historically low yields available in the market. Commercial real estate values, as measured by the National Council of Real Estate Investment Fiduciaries (NCREIF), continued to grow modestly each quarter during the year. Total unlevered appreciation for the fiscal year was 1.9%, slightly less than the prior year.

The System's real estate investment trusts (REITs) consist of domestic and global REITs.

The blended domestic REITs benchmark index generated a return of 10.5% for the fiscal year. The domestic REITs portfolio outperformed the index, returning 13.0% for the fiscal year. In March 2018, the System consolidated three separate domestic strategies managed by one investment manager into a single multi-strategy portfolio that outperformed the related benchmark since inception, returning 17.4%. Market gains along with reinvested dividend income of $82.6

MANAGEMENT'S DISCUSSION AND ANALYSIS *(continued)*
June 30, 2020 and 2019
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million contributed to an overall increase of $285.2 million in net position, resulting in a year-end market value of $1.9 billion for the domestic REIT portfolio.

The global REIT benchmark index generated a return of 8.6% for the fiscal year. The global REIT portfolio slightly outperformed the index returning 9.0% for the fiscal year. Market gains along with reinvested dividend income of approximately $39.1 million contributed to an overall increase of $82.7 million in net position, resulting in a year-end market value of $956.4 million for the global REIT portfolio.

Alternative investments presented in tables 1 and 3 include real estate alternative investments, private equity and private debt.

Net appreciation in the private equity portfolio continued to remain positive as distributions from existing investments increased from the prior year. The System made $2.0 billion in capital contributions to new and existing private equity funds and took $2.1 billion in distributions from existing private equity investments. Twenty-four new private equity commitments were made during the year.

Effective July 1, 2017, NYSTRS added private debt to its asset allocation. During the year, the System made $202.7 million in contributions to new private debt funds and took $160.0 million in distributions. Two new commitments were made during the year.

Securities lending industry trends put downward pressure on the System's earnings during the 2019 fiscal year with the double setbacks of lower aggregate on-loan balances and tighter spreads. Industry lendable assets hit an all-time high while broad directional demand to borrow securities continued to subside given the run-up in global equity markets. The System's collateral schedule of U.S. dollar cash, U.S. Treasuries, U.S. Agencies, and U.S. Agency MBS also reduced loan opportunities and earnings as borrowers continued to optimize their balance sheets by preferring to pledge non-cash collateral such as equities and sovereign debt rather than U.S. Treasuries when borrowing securities.

Investment expenses are primarily composed of investment management fees that are based on the market value of assets managed and, in some cases, the returns achieved. The investment expense increase in 2019 from 2018 is primarily the result of activity within the System's alternative investments.

The change in employer contributions was a function of an increase in the employer contribution rate from 9.80% in 2018 to 10.62% in 2019.

MANAGEMENT'S DISCUSSION AND ANALYSIS *(continued)*
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Net Appreciation (Depreciation)

For the year ended June 30, 2020, NYSTRS reported net investment income of $3.9 billion compared to $8.0 billion in 2019 and $9.9 billion in 2018. The most significant change was in appreciation (depreciation) on investments as follows:

TABLE 3 - NET APPRECIATION (DEPRECIATION) ON INVESTMENTS
(dollars in thousands)

	Years ended June 30			Amount increase (decrease)
	2020	2019	2018	2019 to 2020
Cash equivalents	$ 56,538	$ 53,595	$ 47,087	$ 2,943
Domestic fixed income	824,587	807,979	(559,127)	16,608
Global bonds	135,675	153,543	(18,413)	(17,868)
Domestic equity	1,751,965	2,759,314	4,909,624	(1,007,349)
International equity	(1,016,484)	(138,261)	1,441,942	(878,223)
Global equity	46,357	41,498	(14,494)	4,859
Mortgages	55,265	166,843	(108,279)	(111,578)
Real estate	(309,308)	291,673	296,957	(600,981)
Real estate investment trusts	(386,304)	239,869	65,879	(626,173)
Alternative investments*	484,798	1,254,979	1,623,497	(770,181)
Other	230	404	(1,105)	(174)
Totals	**$1,643,319**	**$5,631,436**	**$7,683,568**	**$(3,988,117)**

**Alternative investments include real estate alternative investments, private equity and private debt.*

Economic Factors

The economic factor that is of primary significance to NYSTRS is the investment rate of return earned in the capital markets. Legislative, demographic, and actuarial assumption changes can also have a significant impact on the net pension liability and funded status of the plan. All of these factors are incorporated into the annual actuarial valuation, which determines the rate at which participating employers must contribute in order to appropriately fund member benefits.The pandemic of COVID-19 may have an impact on both investment returns and demographics which is unknown at this time. The actuarially determined contribution rates are determined two years prior to the end of the fiscal year in which contributions are receivable and therefore COVID related impacts, if any, will first impact the employer contribution rates receivable in 2022 and 2023. In terms of demographics, the System will likely continue to experience a shift toward a greater proportion of retirees relative to active members. Investment returns are smoothed (averaged) by NYSTRS over a five-year period for purposes of computing the actuarial value of assets used to determine the employer contribution rate. Favorable investment returns in the fiscal year ending June 30, 2018 contributed to a decrease in the employer contribution rate, from 10.62% on 2018-19 member salaries to 8.86% on 2019-20 member salaries.

Requests for Information

This financial report is designed to provide active members, retirees, employers, and anyone else who is interested, with a general overview of the financial activities of NYSTRS. Questions about this report or requests for additional financial information should be addressed to the Public Information Office, New York State Teachers' Retirement System, 10 Corporate Woods Drive, Albany, NY 12211, or by email at communit@nystrs.org.

STATEMENTS OF FIDUCIARY NET POSITION
June 30, 2020 and 2019

(dollars in thousands)

Assets:	2020	2019
Investments — at fair value (notes 4, 5 and 6):		
Cash equivalents	$ **2,733,626**	$ 2,714,874
Domestic fixed income	**20,816,810**	20,143,856
Global bonds	**2,861,293**	3,002,833
Domestic equity	**41,432,220**	42,397,951
International equity	**19,367,874**	20,635,621
Global equity	**3,595,252**	2,578,365
Mortgages	**4,072,590**	4,487,273
Real estate	**7,947,494**	8,928,350
Real estate investment trusts	**2,816,740**	2,853,691
Alternative investments	**12,960,022**	12,472,102
Total investments	**118,603,921**	120,214,916
Receivables:		
Employer	**1,473,169**	1,750,533
Member contributions	**118,437**	109,435
Investment income	**252,414**	272,140
Investment sales	**226,029**	413,676
Total receivables	**2,070,049**	2,545,784
Other assets:		
Securities lending collateral — invested (note 5)	**486,845**	881,304
Member loans	**256,935**	264,721
Capital assets, net of depreciation	**26,300**	27,038
Miscellaneous assets	**33,840**	18,953
Total other assets	**803,920**	1,192,016
Total assets	**121,477,890**	123,952,716
Deferred outflows of resources:		
Changes in net OPEB liability (note 10)	**7,518**	5,500
Changes in net pension liability (note 9)	**17,743**	3,717
Total deferred outflows of resources	**25,261**	9,217
Liabilities:		
Securities lending collateral — due to borrowers (note 5)	**484,150**	877,766
Investment purchases payable	**314,679**	406,053
Mortgage escrows and deposits — net of investments	**2,558**	527
Net OPEB liability (note 10)	**51,933**	49,677
Other liabilities (notes 5 and 9)	**162,869**	139,129
Total liabilities	**1,016,189**	1,473,152
Deferred inflows of resources:		
Changes in net OPEB liability (note 10)	**6,811**	8,637
Changes in net pension liability (note 9)	**646**	2,663
Total deferred inflows of resources	**7,457**	11,300
Net position restricted for pensions (note 3)	$ **120,479,505**	$ 122,477,481

See accompanying notes to financial statements.

STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION
Fiscal Year Ended June 30, 2020 and 2019

(dollars in thousands)

Additions:	**2020**	**2019**
Investment income:		
Net appreciation in fair value of investments	$ 1,643,319	$ 5,631,436
Interest income	819,183	829,852
Dividend income	1,320,921	1,406,530
Real estate — net operating income	447,481	433,087
Securities lending — gross earnings	15,082	32,667
Other — net	15,788	5,423
	4,261,774	8,338,995
Less:		
Investment expenses	330,012	294,160
Securities lending:		
Broker rebates	6,083	19,951
Management fees	1,203	1,852
Depreciation (appreciation) of collateral	843	(148)
Net investment income	3,923,633	8,023,180
Contributions:		
Employer (note 1)	1,504,688	1,774,646
Member contributions	145,034	136,610
Transfers	3,955	9,087
Total contributions	1,653,677	1,920,343
Net additions	5,577,310	9,943,523
Deductions:		
Retirement benefit payments — periodic	7,420,488	7,223,248
Beneficiary payments	63,974	62,114
Return of contributions	19,439	21,956
Administrative expenses	71,385	74,242
Total deductions	7,575,286	7,381,560
Net (decrease) increase in net position	(1,997,976)	2,561,963
Net position restricted for pensions, beginning of year	122,477,481	119,915,518
Net position restricted for pensions, end of year	$ 120,479,505	$ 122,477,481

See accompanying notes to financial statements.

NOTES TO FINANCIAL STATEMENTS
June 30, 2020 and 2019
(dollars in thousands)

(1) Plan Description

The New York State Teachers' Retirement System (NYSTRS or the System) was created and exists, pursuant to Article 11 of the New York State Education Law. The System is the administrator of a cost-sharing, multiple-employer, defined benefit public employee retirement system (PERS), administered by a 10-member Board to provide pension benefits for teachers employed by participating employers in the State of New York, excluding New York City. The System's Board is composed of:

- Three teacher members elected from the active membership.
- One retired member elected by a mail vote of all retired members.
- Two school administrators appointed by the Commissioner of Education.
- Two present or former school board members, experienced in the fields of finance and investment, elected by the Board of Regents. At least one of these individuals must have experience as an executive of an insurance company.
- One present or former bank executive elected by the Board of Regents.
- The State Comptroller or his/her designee.

Funding of the System is accomplished through member and employer contributions and investment earnings, according to New York State Education Law.

As of June 30, the number of participating employers was:

	2020	2019
Public school districts	679	680
B.O.C.E.S.	37	37
S.U.N.Y.	31	31
Community colleges	30	30
Charter schools	26	26
Special act districts	10	10
Other	9	9
Total	822	823

As of June 30, the System's membership consisted of:

	2020	2019
Retired members and beneficiaries currently receiving benefits	172,569	169,203
Members:		
Active members	252,091	254,740
Terminated members entitled to but not yet receiving benefits	9,141	8,777
Subtotal	261,232	263,517
Total	433,801	432,720

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2020 and 2019
(dollars in thousands)

(a) Benefits

The benefits provided to members of the System are established by New York State law and may be amended only by the Legislature with the Governor's approval. Benefit provisions vary depending on date of membership and are subdivided into the following six classes:

Tier 1
Members who last joined prior to July 1, 1973 are covered by the provisions of Article 11 of the Education Law.

Tier 2
Members who last joined on or after July 1, 1973 and prior to July 27, 1976 are covered by the provisions of Article 11 of the Education Law and Article 11 of the Retirement and Social Security Law (RSSL).

Tier 3
Members who last joined on or after July 27, 1976 and prior to September 1, 1983 are covered by the provisions of Article 14 and Article 15 of the RSSL.

Tier 4
Members who last joined on or after September 1, 1983 and prior to January 1, 2010 are covered by the provisions of Article 15 of the RSSL.

Tier 5
Members who joined on or after January 1, 2010 and prior to April 1, 2012 are covered by the provisions of Article 15 of the RSSL.

Tier 6
Members who joined on or after April 1, 2012 are covered by the provisions of Article 15 of the RSSL.

(b) Service Retirements

Tier 1 and 2 members are generally eligible for a service retirement benefit of 2.0% per year of credited service times final average salary (FAS). A 5% reduction generally applies for each full year of state service under 20 years (prorated for partial years with a maximum reduction of 50%). Tier 1 and 2 members may retire as early as age 55 with five or more years of state service credit. Retirement may also occur for Tier 1 members at age 55 with less than five years of service if two years are credited since July 1, 1967, after the current membership date, and since the member turned age 53.

Generally, the maximum pension payable to Tier 1 and 2 members (with two years of credit under the Article 19 Benefit Enhancement law) is 79% of FAS. An age factor applies to Tier 2 members who retire before age 62 with less than 30 years of service. There is no age factor for Tier 1 members.

Tier 3 and 4 members are generally eligible for a service retirement benefit of 1.67% per year of credited service times FAS for less than 20 years of service, 2.0% per year for 20 to 30 years of service, and 60% of FAS plus 1.5% per year for service beyond 30 years. Tier 3 and 4 members may retire as early as age 55 with five years of state service credit. An age factor applies for Tier 3 and 4 members who retire before age 62 with less than 30 years of service.

Tier 5 members are generally eligible for a service retirement benefit of 1.67% per year of credited service times FAS for less than 25 years of service, 2.0% per year for 25 to 30 years of service, and 60% of FAS plus 1.5% per year for service beyond 30 years. Tier 5 members may retire as early as age 55 with 10 years of state service credit. An age factor applies to Tier 5 members who retire before age 57 or retire between age 57 and 62 with less than 30 years of service.

Tier 6 members are generally eligible for a service retirement benefit of 1.67% per year of credited service times FAS for less than 20 years of service, 1.75% per year for 20 years of service, and 35% of FAS plus 2% per year for service

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2020 and 2019
(dollars in thousands)

beyond 20 years. Tier 6 members may retire as early as age 55 with 10 years of state service credit. An age factor applies for Tier 6 members who retire before age 63.

(c) Vested Benefits

Retirement benefits for Tiers 1-4 are vested after five years of credited service while benefits for Tiers 5-6 are vested after 10 years of credited service. Benefits are payable at age 55 or greater with the limitations noted for service retirements above.

(d) Disability Retirement

Members are eligible for disability retirement benefits after 10 years of credited New York State service, except for Tier 3 where disability retirement is permissible after five years of credited New York State service pursuant to the provisions of Article 14 of the RSSL. The Tier 3 benefit is integrated with Social Security.

(e) Death Benefits

Death benefits are paid to the beneficiary of active members who die in service and certain retirees. For active members, the benefit is based on final salary, age and the number of years of credited service. For retired members, it is also based on the number of years in retirement.

(f) Prior and Military Service

After two years of membership, members of all tiers may claim and receive credit for prior New York State public or teaching service. Only Tier 1 and 2 members may, under certain conditions, claim out-of-state service. Certain members may also claim military service credit prior to or interrupting membership.

(g) Tier Reinstatement

In accordance with Chapter 640 of the Laws of 1998, any active member who had a prior membership may elect to be reinstated to their original date and tier of membership.

(h) Employer Contributions

Pursuant to Article 11 of the New York State Education Law, employers are required to contribute at an actuarially determined rate adopted annually by the Retirement Board. The actuarially determined employer contribution rate applied to 2019-20 and 2018-19 member salaries is 8.86% and 10.62%, respectively. A reconciliation of total required employer contributions presented in the Schedule of the School Districts' Contributions and additions from employer contributions per the System's Statements of Changes in Fiduciary Net Position for fiscal years 2020 and 2019 is as follows:

	June 30	
	2020	2019
Total required employer contributions	$ 1,503,823	$ 1,772,651
Miscellaneous billing adjustments	865	1,995
Additions from employer contributions	$ 1,504,688	$ 1,774,646

In April 2013, the System's Retirement Board adopted a Stable Contribution Option (SCO) provided for under Chapter 57 of the Laws of 2013. Under the law, BOCES and public school districts participating in NYSTRS were offered the choice of either paying the actuarially determined contribution (ADC) or electing to participate in the SCO program, thereby paying a stable contribution rate for up to seven years beginning with the rate applied to the 2013-14 salaries and concluding with the rate applied to the 2019-20 salaries; deferring payment of the difference between the ADC and the contribution determined applying the SCO rate. Interest on deferred contribution

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amounts were based on the monthly average yield on 10-year U.S. Treasury securities for the 12-month period that precedes August 1 of the applicable deferred year, plus 1.0%. As of June 30, 2017, all districts that participated in the SCO have opted out and have either paid their outstanding deferral in full or have opted to repay the System over five years. The SCO receivable balances at June 30, 2020 and 2019 were $8,112 and $15,692 respectively.

(i) Member Contributions

Tier 3 and Tier 4 members were required by law to contribute 3% of salary to the System. Effective October 2000, contributions were eliminated for Tier 3 and 4 members with 10 or more years of service or membership. Effective January 1, 2010, Tier 5 members are required by law to contribute 3.5% of salary throughout their active membership. Effective April 1, 2012, Tier 6 members are required by law to contribute between 3.0% and 6.0% of salary throughout their active membership in accordance with a schedule based upon salary earned. Pursuant to Article 14 and Article 15 of the RSSL, those member contributions are used to help fund the benefits provided by the System. However, if a member dies or leaves covered employment with less than five years of credited service for Tiers 3 and 4, or 10 years of credited service for Tiers 5 and 6, the member contributions with interest calculated at 5.0% per annum are refunded to the employee or designated beneficiary. Eligible Tier 1 and Tier 2 members may make member contributions under certain conditions pursuant to the provisions of Article 11 of the Education Law and Article 11 of the RSSL. Upon termination of membership, such accumulated member contributions are refunded. At retirement, such accumulated member contributions can be withdrawn or are paid as a life annuity.

(j) Permanent Cost-of-Living Adjustment (COLA)

Section 532-a of the Education Law provides a permanent cost-of-living benefit to both current and future retired members. This benefit will be paid commencing September of each year to retired members who have attained age 62 and have been retired for five years or attained age 55 and have been retired for 10 years. Disability retirees must have been retired for five years, regardless of age, to be eligible. The annual COLA percentage is equal to 50.0% of the increase in the Consumer Price Index (CPI), not to exceed 3.0% nor be lower than 1.0%. It is applied to the first $18,000 dollars of the maximum annual benefit. The applicable percentage payable beginning September 2020 and 2019 is 1.0% for both years.

Members who retired prior to July 1, 1970 are eligible for a minimum benefit of $17,500 dollars for 35 years of credited full-time New York State service. Certain members who retire pursuant to the provisions of Article 14 of the RSSL are eligible for automatic cost-of-living supplementation based on the increase in the CPI with a maximum per annum increase of 3.0%.

(2) Summary of Significant Accounting Policies

(a) Basis of Accounting

The System's financial statements are prepared using the accrual basis of accounting. Plan member contributions are recognized in the period in which the contributions are due. Employer contributions are recognized when due and the employer has a legal requirement to provide the contributions. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan. Investment purchases and sales are recorded on a trade-date basis.

(b) Investments

Plan investments are reported at fair value. Fair value is the price 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. Where plan investments do not have a readily determinable fair market value, fair value of the plan investments has been

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established using the net asset value per share (or its equivalent) of the investment to establish fair value. Refer to note 6 for more detail regarding the methods used to measure the fair value of investments.

(c) System Employees' Pension Plan and Other Postemployment Benefits

For purposes of measuring the net pension liability, deferred outflows of resources and deferred inflows of resources related to pensions and pension expense, information about the fiduciary net position of the Employees Retirement System (ERS) and additions to/deductions from ERS's fiduciary net position have been determined on the same basis as they are reported for ERS by the New York State and Local Retirement System (NYSLRS).

For purposes of measuring the net other postemployment benefits (OPEB) liability, deferred outflows of resources and deferred inflows of resources related to OPEB and OPEB expense, information about the fiduciary net position of the New York State Teachers' Retirement System Retired Employee Health Benefits Trust (the Trust) and additions to/deductions from the Trust's fiduciary net position have been determined on the same basis as they are reported for by the Trust.

For these purposes, benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms, and investments are reported at fair value for both plans.

(d) Capital Assets

Capital assets of one hundred thousand dollars or more are recorded at historical cost and capitalized over their useful life. Depreciation has been provided over the estimated useful lives using the straight-line method. The estimated useful lives are as follows:

	Years
Building	39
Building improvements	15
Roads and shrubbery	10
Office furniture and equipment	7
Computer equipment and software	3 - 5
Automobiles	5

(e) Federal Tax Status

The System is exempt from federal income taxes under Section 501(a) of the IRC.

(f) Use of Estimates

Management of the System has made a number of estimates and assumptions relating to the reporting of assets and liabilities and in the disclosure of contingencies to prepare these financial statements in conformity with U.S. generally accepted accounting principles. The System's most significant estimates relate to assumptions made about future events as part of the annual actuarial valuation process and the valuation of alternative investments. Due to the inherent nature of these estimates, actual results could differ from those estimates.

(g) Accounting Pronouncements Applicable to the System, Issued but Not Yet Effective

Governmental Accounting Standards Board (GASB) Statement No. 84, *Fiduciary Activities* (GASB 84): GASB 84 provides guidance on the identification of fiduciary activities for accounting and financial reporting purposes, including clarification of fiduciary activities and how these activities should be reported. In light of the COVID-19 pandemic, GASB Statement No. 95, *Postponement of the Effective Date of Certain Authoritative Guidance*, which in addition to other pronouncements, amended GASB 84 to change the effective date of the standard to be effective for fiscal years beginning after December 15, 2019. The System is evaluating the impact of this statement.

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(3) Funds

The following funds were established pursuant to the laws of the State of New York. All of the funds, with the exception of the Administrative Fund, are available for the payment of benefits to members or beneficiaries.

(a) Annuity Savings Fund

The fund in which contributions of Tier 1 and 2 members covered by the provisions of Article 11 of the Education Law and Article 11 of the RSSL are accumulated. For reporting purposes below, this fund is combined with the Annuity Reserve Fund.

(b) Annuity Reserve Fund

The fund from which the accumulated contributions of members covered by the provisions of Article 11 of the Education Law and Article 11 of the RSSL are paid as a life annuity. For reporting purposes below, this fund is combined with the Annuity Savings Fund.

(c) Pension Accumulation Fund

The fund in which all reserves for the payment of all benefits are accumulated with the exception of the annuity provided by the accumulated contributions of Tier 1 and 2 members, supplemental retirement allowances, and group term life insurance.

(d) Pension Reserve Fund

The fund that pays pensions with the reserves from the Pension Accumulation Fund.

(e) Group Life Insurance Fund

Pursuant to Article 4-B of the RSSL, the Retirement Board established a Group Life Insurance Fund. The Group Life Insurance Fund provides a group term death benefit not to exceed fifty thousand dollars, payable upon the death of eligible members. Group term death benefits paid for the years ended June 30, 2020 and 2019 were $20,280 and $18,623, respectively. For reporting purposes below, this fund is combined with the Pension Accumulation Fund.

(f) CO-ESC Member Contributions Fund

Members covered by the provisions of Article 14 and Article 15 of the RSSL contributed a range of 3% to 6% of salary depending on their tier to the System's CO-ESC Member Contribution Fund. Contributions to this fund were $118,495 and $115,553 for the years ended June 30, 2020 and 2019, respectively. For reporting purposes below, this fund is combined with the Pension Accumulation Fund.

(g) Administrative Fund

All operating expenses of the System are paid through this fund. The fund receives an allocation from employer contributions, which are designated by law to cover all non-investment-related operating expenses.

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(h) Summary of Fund Balances

Net position restricted for pensions at June 30, 2020 and 2019 consist of the following:

	2020	2019
Administrative fund	$ 62,360	$ 62,431
Annuity savings and reserve funds	79,456	89,079
Pension accumulation, group life insurance and CO-ESC funds	50,188,993	55,353,250
Pension reserve fund	70,148,696	66,972,721
Total	$120,479,505	$122,477,481

(4) Pension Plan Investments

(a) Investment Policy

The System has been authorized by the New York State Legislature pursuant to the Banking Law, Section 235; the Education Law, Article 11, Section 508; and the RSSL, Article 4-A, Sections 176 and 177, to invest in stocks, bonds, mortgages, real estate, and other investments. A specific investment within these broad asset classes may be subject to particular restrictions or limitations contained in the applicable statutory provision. The “Leeway Clause” of Section 177 provides that, subject to guidelines adopted by the Retirement Board, up to 25.0% of assets may be invested in types of assets not otherwise specifically authorized, provided the Retirement Board is satisfied such investments were made with the care, skill, prudence and diligence of a prudent person acting in a like capacity and familiar with such matters. Pursuant to regulations promulgated by the New York State Department of Financial Services, investments must be made in a manner consistent with those of a reasonably prudent person exercising care, skill and caution. In addition to applicable legal constraints, the Retirement Board has adopted policies governing the investments made by the System.

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(b) Asset Allocation

The System's asset allocation policy as of June 30, 2020 and 2019, as adopted by the Retirement Board is as follows:

Asset Class	Target	Range
Domestic equity	33%	29-37%
International equity	16	12-20
Global equity	4	0-8
Real estate	11	6-16
Private equity	8	3-13
Total equity	72	
Domestic fixed income	16	12-20
Global bonds	2	0-3
High-yield bonds	1	0-3
Private debt	1	0-5
Real estate debt	7	3-11
Cash equivalents	1	0-4
Total fixed income	28	
Total	100%	

(c) Rate of Return

For the years ended June 30, 2020 and 2019, the annual money-weighted rate of return on System investments, net of pension plan investment expense, was 3.32% and 6.93%, respectively. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

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(5) Deposit and Investment Risk Disclosure

(a) Credit Risk

The quality ratings of investments in fixed income securities as described by nationally recognized statistical rating organizations at June 30, 2020 and 2019 are as follows:

Quality rating	2020 Fair value	2020 Percentage of portfolio	2019 Fair value	2019 Percentage of portfolio
Short-term:				
P-1	$ 1,534,561	5.8 %	$ 2,422,946	9.4 %
Long-term:				
Aaa	5,858,083	22.3	6,183,844	24.0
Aa	1,671,541	6.4	1,597,774	6.2
A	4,029,648	15.4	3,548,156	13.7
Baa	3,173,438	12.1	2,881,773	11.2
Ba	565,192	2.2	216,900	0.8
B	369,937	1.4	147,870	0.6
Other	36,723	0.1	36,471	0.1
Total credit risk debt securities	17,239,123	65.7	17,035,734	66.0
U.S. government fixed income securities*	9,003,883	34.3	8,762,456	34.0
Total fixed income securities**	$ 26,243,006	100.0 %	$ 25,798,190	100.0 %

** Obligations of the U.S. government or obligations explicitly guaranteed by the U.S. government are not considered to have credit risk and do not have purchase limitations.*

*** Cash equivalents, domestic fixed income and global fixed income on the Statements of Fiduciary Net Position at June 30, 2020 and 2019 include $168,723 and $63,373, respectively, in cash and commingled commercial mortgage backed securities.*

Additionally, as of June 30, 2020 and 2019, the System held mortgages, secured by a lien of the properties, valued at $4.1 billion and $4.5 billion, respectively, that are not publicly traded assets and are not rated by the rating agencies.

(b) Custodial Credit Risk

Custodial credit risk is the risk that, in the event of a failure of the counterparty, the System will not be able to recover the value of its deposit or investment, or collateral securities that are in the possession of an outside party. Deposits are exposed to custodial credit risk if they are uninsured and uncollateralized. Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the System, and are held by either the counterparty or the counterparty's trust department or agent but not in the System's name.

The head of the Division of the Treasury in the New York State Department of Taxation and Finance (the Treasurer) is the statutory custodian of the funds of the System and, in this capacity, has arranged to have bank accounts collateralized. Collateral is held in the name of the Treasurer, as custodian for the System, by a bank that does not act as an agent for the System. The System's bank accounts were fully collateralized during the year. At June 30, 2020 and 2019, the System's bank balance was a negative $2,434 and a negative $6,335, respectively, representing a managed overdraft. Consistent with the System's investment policy, all of the System's securities are held by the System's custodial bank in the System's name.

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(c) Concentration of Investment and Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of the System's investment in a single issuer.

As of June 30, 2020 and 2019, the System did not hold investments in any one issuer that would represent 5.0% or more of fiduciary net position. Obligations issued or explicitly guaranteed by the U.S. government and pooled investments are not considered subject to concentration of credit risk.

Issuer limits for investments held by the System are established for each investment area by the RSSL Article 4-A, Sections 176-179.

Short-term fixed income investments are generally limited to the following investment types maturing in one year or less:

- Obligations issued by any Federal Home Loan Bank or obligations fully guaranteed as to principal and interest by Fannie Mae or Freddie Mac.
- Commercial paper that has the highest rating by two nationally recognized rating services.

Fixed income securities are generally limited to the following investment types with maturities longer than one year:

- Obligations payable in U.S. dollars issued by any department, agency or political subdivision of the U.S. government or issued by any corporation, company or other issuer of any kind or description created or existing under the laws of the U.S.; any state of the U.S., District of Columbia or Commonwealth of Puerto Rico; and obligations of Canada or any province or city of Canada, provided each obligation shall be rated investment grade by two nationally recognized rating services. The aggregate investment by the System in the obligations of any one issuer shall not exceed 2.0% of the assets of the System or 5.0% of the direct liabilities of the issuer.
- Notwithstanding the 2.0% limitation stated above, the System may invest not more than 2.5% of its assets in the obligations of any one railroad or industrial corporation, or any one corporation engaged directly and primarily in the production, transportation, distribution or sale of electricity or gas or the operations of telephone and telegraph systems or waterworks or in some combination thereof.
- In no event may more than 30.0% of the System's assets be invested in bonds of electric and gas corporations. Equipment trust certificates, subject to the provisions of the law, are not to exceed 5.0% of the assets of the System.
- Obligations issued or guaranteed by the Inter-American Development Bank, Asian Development Bank, the African Development Bank or the Youth Facilities Project Guarantee Fund and participations therein.
- Obligations of the Dominion of Canada, of any province of the Dominion of Canada, and of any city of the Dominion of Canada, payable in U.S. funds, provided that the aggregate unpaid principal amount of all such obligations at any time held by the System shall not exceed 5.0% of the System's assets.
- Bonds of the Savings and Loan Bank of the State of New York, Federal Land Bank, Federal Intermediate Credit Banks, and Banks for Cooperatives.
- Bonds of Freddie Mac, Federal Home Loan Banks, Tennessee Valley Authority, Fannie Mae, and the United States Postal Service.
- Obligations issued or guaranteed by the International Bank for Reconstruction and Development, provided the aggregate unpaid principal amount of such obligations at any time held by the System shall not exceed 5.0% of the System's assets.

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- Bonds and notes of any bank, trust company, savings bank, or savings and loan association organized under the laws of New York State having a net worth of at least $10 million, which meet all applicable statutes, provided the aggregate unpaid principal amount of bonds and notes secured by conventional mortgages shall not exceed 5.0% of the assets of the System.
- Mortgage pass-through certificates, provided the certificates evidence ownership of undivided interests in pools or mortgage loans secured by first mortgages on real property located in New York state improved by one-to-four family residential dwellings, which meet all applicable statutes. The aggregate unpaid principal on conventional mortgages securing mortgage pass-through certificates cannot exceed 10.0% of the assets of the System nor can the total unpaid principal on any single pool of conventional mortgages securing mortgage pass-through certificates exceed 1.0% of the assets of the System.
- Collateralized Mortgage Obligations, which meet the requirements of applicable statutes.
- Private placements, where the purchase of unrated obligations is authorized by the Banking Law or the RSSL, governing fixed income obligations; if not so provided, private placements as well as other domestic fixed income not otherwise provided for may be purchased under the Leeway Clause.

The System may invest in domestic equity securities and interest-bearing obligations payable in U.S. funds, which are convertible into equity securities of any corporation created or existing under the laws of the U.S., any state of the U.S., District of Columbia, and the Commonwealth of Puerto Rico, or any investment company, as defined by, and which is registered under, an act of Congress of the United States, entitled to the Investment Company Act of 1940, as amended, subject to certain limitations.

The System's international equity investments may not exceed 10.0% of the System's assets including emerging market equity securities. To the extent the 10.0% limitation is exceeded, the System's international equity securities may be invested in Leeway investments (which amount shall not exceed 25.0% of System assets).

The maximum amount invested within the System's equities, including domestic and international, may not exceed, in any one year, 15.0% of System assets or 70.0% of the total System assets in aggregate. The System may not own more than 5.0% of the total issued and outstanding equity securities of any one corporation.

The System's real estate investments will be diversified across geographic regions to allow for competitive portfolio performance in the event of a temporary weakness in any one region and to allow for differing urban and suburban market trends within any region. The System may invest in certain conventional mortgages constituting a first lien upon real property located in the U.S. pursuant to statute subject to certain provisions. The value of all real property held by the System shall not exceed ten percent (10.0%) of System assets and the cost of each parcel of real property shall not exceed two percent (2.0%) of the System's assets.

Alternative investments are made pursuant to the Leeway Clause of the RSSL.

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(d) Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of the investment. The System is exposed to interest rate risk at June 30, 2020 and 2019 as follows:

	2020		2019	
Investment type	Fair value	Duration (in years)	Fair value	Duration (in years)
Mortgages	$ 4,072,590	3.617	$ 4,487,273	3.875
Cash equivalents*	2,733,626	0.101	2,714,874	0.065
Domestic fixed income	20,816,810	4.011	20,143,856	4.047
Global bonds	2,861,293	7.570	3,002,833	6.840
Total fair value	$ 26,411,729		$ 25,861,563	
Cash equivalents and fixed income portfolio modified duration		3.990		3.954

*Commercial paper, certificates of deposit and US Treasury, agency, supranational and floating debt issues.

Duration is a measure of a debt investment's exposure to fair value changes arising from changing interest rates. The greater the duration, the greater its price volatility will be in response to a change in interest rates and vice versa.

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(e) 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. The System has exposure through global and international holdings in commingled investment trust funds and separate accounts, global and international real estate investment trusts (REITs), global bonds, and alternatives. The “alternatives” represent private equity and real estate investments denominated in foreign currency. With respect to global bond investments, the majority of currency risk inherent in non-U.S. dollar denominated bonds owned by the System in a separate account is hedged away by the managers through currency forwards. The System has an exposure to foreign currency fluctuation at June 30, 2020 and 2019 as follows (holdings valued in U.S. dollars):

	2020		2019	
	Equity Securities and REITs	Alternatives, Cash, and Global Fixed Income	Equity Securities and REITs	Alternatives, Cash, and Global Fixed Income
Currency:				
Euro	$ 4,395,677	$ 1,917,287	$ 4,871,370	$ 2,067,149
Japanese Yen	3,557,065	261,367	3,484,697	274,630
British Pound Sterling	1,966,318	477,975	2,525,781	514,081
Swiss Franc	1,339,577	7,679	1,279,994	6,651
Hong Kong Dollar	1,234,100	—	1,282,807	—
Canadian Dollar	1,143,918	81,575	1,407,957	77,797
China Renminbi	1,006,986	—	819,340	2
Australian Dollar	868,160	70,125	1,016,219	76,834
South Korean Won	713,429	26,274	656,785	27,547
New Taiwan Dollar	665,921	15	533,299	7
Swedish Krona	439,225	9,380	411,345	8,030
Danish Krone	381,168	13,121	300,231	13,627
Indian Rupee	370,836	(33)	422,442	30
Brazilian Real	317,747	4,719	396,039	98
South African Rand	219,042	15,100	315,081	8,707
Other	1,332,538	82,321	1,463,467	80,374
Totals	$ 19,951,707	$ 2,966,905	$ 21,186,854	$ 3,155,564

(f) Securities Lending Transactions

The Retirement and Social Security Law authorizes the System to enter into agreements to loan securities. Agreements to lend a security must be with a broker dealer or with New York State or nationally chartered banks and must not exceed a period of one year. The market value of securities loaned may not exceed 20% of the market value of the System’s invested assets. Domestic and international bonds, and domestic and international equities are loaned. Initial collateral of at least 102% of the market value of loaned securities is received from the borrower for domestic securities and 105% for international securities. Securities on loan are marked to market daily and collateral for the loan is required not to fall below 100%. The fair value of invested cash collateral is reported as an asset, and cash collateral due to borrowers is reported as a liability on the Statement of Fiduciary Net Position. The fair value of the cash collateral invested exceeded the amount the System owed borrowers by approximately $2.7 million as of June 30, 2020 and $3.5 million as of June 30, 2019. For each year-end, the System had limited credit risk exposure to borrowers because the amounts the System owes the borrowers (the collateral) exceeds the amounts the borrowers owe the System (the loaned securities).

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As of June 30, 2020 and 2019, JP Morgan Securities Lending (JP Morgan) acted as agent for the domestic equity and fixed income securities lending program, and State Street Bank and Trust Co. (State Street) acted as agent for the international equity, global bonds and global equity securities lending program. Under the terms of the contracts with the lending agents, the System is fully indemnified against failure of the borrowers to return the loaned securities (to the extent the collateral is inadequate to replace the loaned securities) or failure to pay the System for income distributions by the securities' issuers while the securities are on loan. There were no significant violations of legal or contractual provisions, no borrower or lending agent defaults, and no material recoveries of prior period losses during the year. The majority of securities on loan can be recalled by the System on demand or returned by the borrower at any time. Cash collateral is invested by the System's lending agents in short-term investment funds managed by the agent lenders pursuant to System approved investment guidelines. There is no direct match of the maturities of the collateral investments with the maturities of the securities loans. Investments are restricted to issuers with a short-term credit rating issued by Standard & Poor's and Moody's Investors Service, not lower than A-1/P -1 or long-term ratings not lower than A/A2, respectively, or the equivalent thereof. Non-cash collateral received is limited to high quality U.S. Treasuries, agency securities and agency mortgage backed securities. At June 30, 2020 and 2019, the average effective duration of the funds managed by JP Morgan was 19 and 18 days respectively and of those managed by State Street was one day for both years. Securities loans and related collateral investments are monitored on a daily basis to ensure compliance with collateral requirements, limitations and cash collateral investment guidelines.

Securities Lending Program	2020	2019
Fair value of securities on loan — cash collateral	$ 472,652	$ 855,208
Fair value of securities on loan — non-cash collateral	640,457	909,291
Total fair value of securities on loan	$ 1,113,109	$ 1,764,499
Fair value of liabilities to borrowers — cash collateral	$ 484,150	$ 877,766
Fair value of liabilities to borrowers — non-cash collateral	661,675	938,724
Total collateral due to borrowers	$ 1,145,825	$ 1,816,490
Fair value of cash collateral invested by System	$ 486,845	$ 881,304
Fair value of non-cash collateral held by System	661,675	938,724
Total collateral invested and held by the System	$ 1,148,520	$ 1,820,028

(6) Fair Value Measurement

NYSTRS' investments measured and reported at fair value are classified according to the following hierarchy in which the levels are based on the nature of inputs used to measure the fair value of the investment:

Level 1 – Investments' fair values based on prices quoted in active markets for identical assets.

Level 2 – Investments' fair values based on observable inputs for the assets either directly or indirectly, other than those considered Level 1 inputs, which may include quoted prices for identical assets in markets that are not considered to be active, and quoted prices of similar assets in active or inactive markets.

Level 3 – Investments' fair values based upon unobservable inputs.

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The categorization of investments within the hierarchy above is based solely upon the objectivity of the inputs used in the measurement of fair value of the investments and does not reflect the level of risk associated with the investments.

Investments classified in Level 1 of the fair value hierarchy are valued from predetermined external pricing vendors or primary dealers who source quoted prices in active markets which are readily attainable exit values of these securities. Investments classified in Level 2 are subject to alternative pricing sources, including a combination of price sources, descriptive data and pricing models based on attributes such as spread data, sector, quality, duration, and prepayment characteristics. Investments classified as Level 3 are valued using best available sources such as property appraisals, discounted cash flow models and public market comparables of similar assets where applicable. The values are supplied by advisors or general partners who hold those or similar assets in investments vehicles they oversee. These pricing sources may or may not be indicative of realizable exit value attainable for the assets.

NYSTRS' investments and securities lending collateral reinvested have the following fair value measurements or net asset values (NAV) as of June 30, 2020 and 2019, respectively:

		Fair Value Measurements Using		
Investments by Fair Value Level	June 30, 2020	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Fixed income securities:				
Short-term instruments	$ 3,219,773	$ —	$ 3,217,739	$ 2,034
Domestic fixed income	19,429,851	14	19,429,772	65
Domestic commercial mortgage backed securities	1,387,443	10,820	1,345,159	31,464
Global bonds	2,833,173	10,576	2,822,597	—
Total fixed income securities	$ 26,870,240	$ 21,410	$ 26,815,267	$ 33,563
Equity securities:				
Domestic equity	$ 41,432,247	$ 41,408,143	$ 23,999	$ 105
International equity	18,301,498	18,200,998	100,367	133
Global equity	3,585,730	3,541,834	43,896	—
Total equity securities	$ 63,319,475	$ 63,150,975	$ 168,262	$ 238
Real estate investment trusts:				
Domestic REIT	$ 1,991,571	$ 1,852,831	$ 138,740	$ —
Global REIT	824,032	814,531	9,501	—
Total real estate investment trusts	$ 2,815,603	$ 2,667,362	$ 148,241	$ —
Mortgages:	$ 4,072,590	$ —	$ —	$ 4,072,590
Real estate:				
Direct equity real estate investments	$ 2,922,218	$ —	$ —	$ 2,922,218
Real estate alternative investments	801,460	—	—	801,460
Total real estate	$ 3,723,678	$ —	$ —	$ 3,723,678
Total investments by fair value level	$100,801,586	$ 65,839,747	$ 27,131,770	$ 7,830,069

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2020 and 2019
(dollars in thousands)

Investments Measured at the NAV	June 30, 2020	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Commingled international equity funds (1)	984,917	—	Daily or Monthly	5-30 days
Privately held real estate investment trusts (2)	1,738,973	135,000	NA	NA
Real estate commingled funds (3)				
Closed-end funds	2,500,679	1,923,342	NA	NA
Open-end funds	785,625	—	Quarterly	30-120 days
Alternative investments (4)			NA	NA
Closed-end funds	12,052,828	10,107,024	NA	NA
Open-end funds	105,734	—	Quarterly	90 days
Total investments measured at the NAV	$ 18,168,756	$ 12,165,366		
Investment related cash, receivables and payables not included in above	120,428			
Total investments and securities lending collateral reinvested	$ 119,090,766			

Investments by Fair Value Level	June 30, 2019	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)
Fixed income securities:				
Short-term instruments	$ 3,595,569	$ —	$ 3,593,756	$ 1,813
Domestic fixed income	18,994,086	—	18,993,976	110
Domestic commercial mortgage backed securities	1,149,556	7,327	1,142,229	—
Global bonds	2,996,734	—	2,996,734	—
Total fixed income securities	$ 26,735,945	$ 7,327	$ 26,726,695	$ 1,923
Equity securities:				
Domestic equity	$ 42,397,971	$ 42,332,135	$ 65,809	$ 27
International equity	19,600,095	19,454,103	144,975	1,017
Global equity	2,568,772	2,522,203	46,569	—
Total equity securities	$ 64,566,838	$ 64,308,441	$ 257,353	$ 1,044

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2020 and 2019
(dollars in thousands)

Investments by Fair Value Level	June 30, 2019	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)
Real estate investment trusts:				
Domestic REIT	$ 1,904,374	$ 1,798,434	$ 105,940	$ —
Global REIT	947,639	935,812	11,816	11
Total real estate investment trusts	$ 2,852,013	$ 2,734,246	$ 117,756	$ 11
Mortgages:	$ 4,487,273	$ —	$ —	$ 4,487,273
Real estate:				
Direct equity real estate investments	$ 3,614,183	$ —	$ —	$ 3,614,183
Real estate alternative investments	662,154	—	—	662,154
Total real estate	$ 4,276,337	$ —	$ —	$ 4,276,337
Total investments by fair value level	$102,918,406	$ 67,050,014	$ 27,101,804	$ 8,766,588

Investments Measured at the NAV	June 30, 2019	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Commingled international equity funds (1)	951,141	—	Daily or Monthly	5-30 days
Privately held real estate investment trusts (2)	1,942,289	153,500	NA	NA
Real estate commingled funds (3)				
Closed-end funds	2,266,647	—	NA	NA
Open-end funds	1,105,232	1,928,529	Quarterly	30-120 days
Alternative investments (4)			NA	NA
Closed-end funds	11,748,907	9,223,279	NA	NA
Open-end funds	61,041	40,339	Quarterly	90 days
Total investments measured at the NAV	$ 18,075,257	$ 11,345,647		
Investment related cash, receivables and payables not included in above	102,557			
Total investments and securities lending collateral reinvested	$ 121,096,220			

(1) Commingled international equity funds consist of three commingled investment vehicles which invest primarily in publicly traded global equity securities. The funds are valued at the net asset value of units held at the end of the period based upon the fair value of the underlying investments.

(2) Privately held real estate investment trusts consist of two trusts which primarily invest in U.S. commercial real estate. The fair values of the investments in this group have been determined using the net asset value of units held at the end of the period based upon the property appraisals of the underlying assets. The trusts are perpetual in

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2020 and 2019
(dollars in thousands)

nature, making periodic operating distributions to shareholders. Capital calls and redemptions are determined by a unanimous vote of the trust board members.

(3) Real estate commingled funds include equity real estate funds that invest primarily in U.S. commercial real estate. The investment structures are either open-end funds or closed-end funds. In these structures, NYSTRS commits funds along with other investors to create a pool of capital that the fund manager then invests according to an agreed upon strategy such as core, value add or opportunistic. The fair values of the investments in this group have been determined using the NAV per share (or its equivalent) of the Plan's ownership interest in partners' capital. Open-end funds may be redeemed on a quarterly basis with notice. Closed-end funds are not redeemable; however, distributions will be received as the underlying investments of the funds are liquidated, which on average can occur over the span of eight to 10 years after final closing.

(4) Alternative investments include private equity, private debt, real estate debt funds, and real estate equity funds assessed through a variety of vehicles including but not limited to: commingled funds, fund of funds, secondary funds and separately managed accounts. Private equity (78% at 6/30/20, 79% at 6/30/19) consists of buyout, growth equity, venture capital, co-investment, turnaround/restructuring strategies and real estate funds. Private debt (6% at 6/30/20, 5% at 6/30/19) consists of direct lending mezzanine, special situation and distressed debt investments. The real estate debt funds (10% at 6/30/20, 9% at 6/30/19) consist of funds investing primarily in transitional first mortgage, mezzanine and subordinate debt positions. The real estate equity funds (6% at 6/30/20, 7% at 6/30/19) consist of global commercial real estate funds. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of the Plan's ownership interest in partners' capital. These funds are not eligible for redemption. Distribution is received as underlying investments within the funds are liquidated, which on average can occur over the span of five to 10 years.

(7) Net Pension Liability (Asset) of NYSTRS Participating School Districts

The components of the net pension liability (asset) of the NYSTRS participating school districts at June 30, 2020 and 2019 were as follows:

	2020	2019
Total pension liability	$ 123,242,776	$ 119,879,474
Plan fiduciary net position	120,479,505	122,477,481
School districts' net pension liability (asset)	$ 2,763,271	$ (2,598,007)
Plan fiduciary net position as a percentage of total pension liability	97.8%	102.2%

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2020 and 2019
(dollars in thousands)

(a) Actuarial Methods and Assumptions

The total pension liability at June 30, 2020 was determined using an actuarial valuation as of June 30, 2019, with update procedures used to roll forward the total pension liability to June 30, 2020. The total pension liability at June 30, 2019 was determined using an actuarial valuation as of June 30, 2018, with update procedures used to roll forward the total pension liability to June 30, 2019. These actuarial valuations applied the following actuarial methods and assumptions:

Actuarial cost method	Entry age normal
Inflation	2.20% for June 30, 2020 and June 30, 2019
Projected salary increases	Rates of increase differ based on service They have been calculated based upon recent NYSTRS member experience.

Service	Rate
5	4.72%
15	3.46
25	2.37
35	1.90

Projected COLAs	1.3% for June 30, 2020 and June 30, 2019
Investment rate of return	7.10% for June 30, 2020 and June 30, 2019 measurement of total pension liability. The rates are compounded annually, net of pension plan investment expense, including inflation.
Mortality	Annuitant mortality rates are based on plan member experience, with adjustments for mortality improvements based on Society of Actuaries Scale MP2019 for June 30, 2020 and Scale MP2018 for June 30, 2019, applied on a generational basis. Active member mortality rates are based on plan member experience.
Experience Period	Most of the demographic actuarial assumptions and the salary scale are based on the results of an actuarial experience study for the period July 1, 2009 to June 30, 2014. NYSTRS runs one-year and five-year experience studies annually in order to gauge the appropriateness of the assumptions and has updated the investment rate of return, inflation, projected COLA, and mortality improvement actuarial assumptions as of June 30, 2019 and updated the mortality improvement assumption as of June 30, 2020.

The long-term expected rate of return on pension plan investments was determined in accordance with Actuarial Standard of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations*. ASOP No. 27 provides guidance on the selection of an appropriate assumed investment rate of return. Consideration was given to expected future real rates of return (expected returns, net of pension plan investment expense and inflation) for each major asset class as well as historical investment data and plan performance.

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2020 and 2019
(dollars in thousands)

The Long-Term Expected Real Rates of Return are presented by asset allocation classification, which differs from the financial statement presentation. Best estimates of arithmetic real rates of return for each major asset class included in the System's target asset allocation as of the measurement date of June 30, 2020 and June 30, 2019 (see the discussion of the pension plan's investment policy) are summarized in the following table:

Long-Term Expected Real Rate of Return*		
Asset Class	2020	2019
Domestic equity	7.1%	6.3%
International equity	7.7	7.8
Global equity	7.4	7.2
Real estate equity	6.8	4.6
Private equity	10.4	9.9
Domestic fixed income	1.8	1.3
Global bonds	1.0	0.9
Private debt	5.2	6.5
Real estate debt	3.6	2.9
High-yield bonds	3.9	3.6
Cash equivalents	0.7	0.3

**Real rates of return are net of the long-term inflation assumption of 2.2% for 2020 and 2019.*

(b) Discount Rate

The discount rate used to measure the total pension liability was 7.10% as of June 30, 2020 and 2019. The projection of cash flows used to determine the discount rate assumed that contributions from plan members will be made at the current member contribution rates and that contributions from school districts will be made at statutorily required rates, actuarially determined. Based on those assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

(c) Sensitivity of the Net Pension Liability (Asset) to Changes in the Discount Rate

The following presents the net pension liability (asset) of the NYSTRS participating school districts calculated using the discount rate of 7.10% for June 30, 2020 and 2019, as well as what the school districts' net pension liability (asset) would be if it were calculated using a discount rate that is one percentage point lower or one percentage point higher than the current rate:

System's Net Pension Liability (Asset)			
	1% Decrease (6.10%)	Current Discount Rate (7.10%)	1% Increase (8.10%)
June 30, 2020	$17,454,630	$2,763,271	$(9,566,502)
June 30, 2019	$11,727,131	$(2,598,007)	$(14,615,181)

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2020 and 2019
(dollars in thousands)

(8) Commitments and Contingencies

The System, in the normal course of business, enters into commitments with off-balance-sheet risk. The System adheres to the same credit policies, financial and administrative controls, and risk limiting and monitoring procedures for commitments as for on-balance-sheet investments.

The commitments for loans on real estate or purchases of real estate are subject to satisfactory appraisals prior to closing. Once investments are made, the System's exposure to potential loss is determined by the value of the underlying collateral.

The future financial commitments outstanding at June 30, 2020 and 2019, respectively, were: real estate and real estate alternative investments of $3.0 billion and $3.4 billion; mortgages and real estate debt funds of $1.3 billion and $1.2 billion; CMBS $0.0 million and $2.2 million; private equity $7.2 billion and $6.5 billion; and private debt investments of $948.6 million and $687.3 million.

(9) System Employees' Pension Plan

(a) Plan Description

As an employer, the System participates in ERS, a cost-sharing, multiple-employer defined benefit pension plan which falls under NYSLRS and is administered by the Comptroller of the State of New York. ERS provides retirement, disability, withdrawal, and death benefits to plan members and beneficiaries as authorized by the RSSL of the State of New York. Benefits are guaranteed by the State Constitution and cannot be diminished or impaired. Benefits can be reduced for future members only by an act of the State Legislature. The NYSLRS issues a publicly available financial report that contains financial statements and required supplementary information for ERS. The report may be obtained on the Comptroller's website at www.osc.state.ny.us/pension.

(b) Benefits

The classes of employees covered under ERS range from Tiers 1 – 6. In order to be eligible for retirement, all members must be at least age 55 and have a minimum between five and 10 years of service. There is no minimum service requirement for Tier 1 members. Generally, all members are eligible for early retirement at age 55 with a benefit calculation of 1.67% of final average salary. Benefit calculations for Tier 1 – 5 members with greater than 20 years of service credit are 2.0% of final average salary. Tier 3 – 5 members are eligible for an additional 1.5% of final average salary applied to each year of service over 30 years. Generally, Tier 6 member retirement benefits are 1.8% of final average salary with 20 years of service, with an additional 2.0% of final average salary for each year of service over 20 years.

For Tiers 1 – 5, final average salary is the average of the wages earned in the three highest consecutive years of employment. Tier 6 final average salary is the average of the wages earned in the five highest consecutive years of employment.

Other benefits provided under ERS include ordinary disability, accidental disability and post-retirement benefit increases.

(c) Funding Policy

Funding of ERS is accomplished through member and employer contributions and investment earnings, according to the New York State RSSL.

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2020 and 2019
(dollars in thousands)

Plan members are required to contribute between 0% and 6% throughout active service. Employers are required to contribute at an actuarially determined rate. An average employer contribution rate for the tiers of 14.4% and 14.6% was applicable to the annual covered payroll for the years ended March 31, 2020 and March 31, 2019, respectively. The contributions paid to ERS during the System's years ended June 30, 2020 and 2019 were $4.4 million and $4.3 million, respectively, and were 100% of the contributions required.

(d) Pension Liabilities, Pension Expense, Deferred Outflows of Resources, and Deferred Inflows of Resources Related to Pensions

At June 30, 2020 and 2019, the System reported a liability of $29.7 million and $7.8 million, respectively, for its proportionate share of the ERS net pension liability measured as of March 31, 2020 and 2019, respectively.

NYSTRS' proportion of the ERS net pension liability was based on the projection of the long-term share of contributions to ERS relative to the projected contributions of all participating employers, actuarially determined. At March 31, 2020, the System's proportion was 0.1120455% and was 0.1095732% at March 31, 2019.

For the years ended June 30, 2020 and 2019, the System recognized pension expense of $10.2 million and $5.2 million, respectively.

Deferred outflows of resources were $17.7 million and $3.7 million at June 30, 2020 and 2019, respectively. Deferred inflows of resources were $0.6 million at June 30, 2020 and $2.7 million at June 30, 2019.

(10) System Employees' Other Post-Employment Benefits

(a) Plan Description

The System's Board established the Trust in 2008 to provide post-employment health insurance benefits. Contributions from the System to the Trust are irrevocable.

The Trust is a defined-benefit, single-employer other post-employment benefit (OPEB) plan that accumulates resources to pay current and future health insurance premiums for retired System employees and beneficiaries. The Trust is administered by a 10-member Board whose members are the same as the System Board. The Trust is a legally separate entity with standalone financial statements and required supplementary information, which can be found on the System's website at www.nystrs.org. The fiduciary net position of the OPEB and changes in fiduciary net position of the OPEB have been determined on the same basis as they are reported in the financial statements of the Trust.

(b) Benefits

Pursuant to contractual agreement and policy, the System provides post-employment healthcare benefits to eligible System employees who retire from the System and reimburses Medicare eligible retirees for their Medicare Part B premiums. The System is a voluntary participating employer in the New York State Health Insurance Program (NYSHIP), administered by the State of New York. Article XI of the New York State Civil Service Law assigns the authority to NYSHIP to establish and amend the benefit provisions of the plan and to establish maximum obligations of the plan members to contribute to the plan. The System's Board is authorized to establish the contribution rates of System employees and retirees up to those set by Civil Service Law, and they are set as part of the collective bargaining process.

In order to be eligible, employees must have worked for at least 10 years for the System, retire directly from System employment, and commence receipt of their pension from ERS. Dependents may also be covered.

System retirees are required to contribute toward the cost of their coverage. Employees who retire on or after July 1, 1985 contribute an amount equal to 14.0% of the premium up to the premium of the Empire Plan option. If more

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2020 and 2019
(dollars in thousands)

expensive coverage is elected, the retiree pays 14.0% of the Empire Plan option and 100% of the difference between the two.

Employees who retire on or after April 1, 1991, are eligible to have accumulated unused sick leave converted into a credit to offset their contribution requirement.

As of June 30, 2020, 650 participants including 351 current employees and 299 retired and/or spouses of retired employees participated in the healthcare plan. As of June 30, 2019, 645 participants including 359 current employees and 286 retired and/or spouses of retired employees participated in the healthcare plan.

(c) Employer Contribution

The employer contribution, or funding, of the System's OPEB obligation is at the discretion of the System's management and Board. The System's current policy is to prefund benefits by contributing an amount that is, at a minimum, equal to the ADC. At June 30, 2020 and 2019, the Trust recognized contributions of $6.0 million and $5.5 million, respectively, which were approximately 100.8% and 102.8% of the ADC or 19.3% and 17.9% of covered payroll, respectively.

(d) OPEB Liabilities, OPEB Expense, Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB

At June 30, 2020 and 2019, the System reported a net OPEB liability of $51.9 million and $49.7 million, respectively. The June 30, 2020 OPEB liability was determined using an actuarial valuation as of July 1, 2018, with update procedures used to roll forward the total OPEB liability to the measurement date of June 30, 2019. The total OPEB liability at June 30, 2019 was determined using an actuarial valuation as of July 1, 2017, with update procedures used to roll forward the total OPEB liability to June 30, 2018.

For the years ended June 30, 2020 and 2019, the System recognized OPEB expense of $4.4 million and $9.9 million, respectively.

Deferred outflows of resources were $7.5 million for June 30, 2020 and $5.5 million for June 30, 2019. Deferred inflows of resources were $6.8 million at June 30, 2020 and $8.6 million at June 30, 2019.

(11) Risk Management

The System is exposed to various risks of loss related to torts; theft of, damage to, and destruction of assets; errors and omissions; job-related illnesses or injuries to employees; and certain natural disasters for which the System carries commercial insurance. There were no settlements in the past three years that exceeded coverage. Management of the System believes there would be no material adverse effect on the financial statements as a result of the outcome of these matters if they occur.

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REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULE OF CHANGES IN THE SCHOOL DISTRICTS' NET PENSION LIABILITY (ASSET) (UNAUDITED)

(Last Eight Fiscal Years)
(dollars in thousands)

	2020	2019	2018	2017
Total pension liability				
Service cost	$ 1,563,222	$ 1,528,402	$ 1,319,513	$ 1,292,143
Interest	8,418,885	8,189,405	8,224,221	7,988,167
Changes of benefit terms	678	815	—	—
Differences between expected and actual experience	1,169,842	753,802	964,258	727,895
Changes of assumptions	(285,424)	(1,392,886)	—	3,045,909
Benefit payments, including refunds of member contributions	(7,503,901)	(7,307,318)	(7,108,999)	(6,923,037)
Net change in total pension liability	3,363,302	1,772,220	3,398,993	6,131,077
Total pension liability — beginning	119,879,474	118,107,254	114,708,261	108,577,184
Total pension liability — ending (a)	$ 123,242,776	$ 119,879,474	$ 118,107,254	$ 114,708,261
Plan fiduciary net position				
Contributions — employer	$ 1,504,688	$ 1,774,646	$ 1,597,139	$ 1,857,359
Contributions — member	145,034	136,610	131,595	129,770
Net investment income	3,923,633	8,023,180	9,928,011	12,951,892
Benefit payments, including refunds of member contributions	(7,503,901)	(7,307,318)	(7,108,999)	(6,923,037)
Administrative expenses	(71,385)	(74,242)	(60,610)	(61,611)
Other	3,955	9,087	9,278	7,845
Net change in plan fiduciary net position	(1,997,976)	2,561,963	4,496,414	7,962,218
Plan fiduciary net position — beginning	122,477,481	119,915,518	115,468,360	107,506,142
Cumulative effect of change in accounting principle	—	—	(49,256)	—
Beginning balance as restated	122,477,481	119,915,518	115,419,104	107,506,142
Plan fiduciary net position — ending (b)	$ 120,479,505	$ 122,477,481	$ 119,915,518	$ 115,468,360
School districts' net pension liability (asset) — ending (a) — (b)	$ 2,763,271	$ (2,598,007)	$ (1,808,264)	$ (760,099)

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditors' report.

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

SCHEDULE OF CHANGES IN THE SCHOOL DISTRICTS' NET PENSION LIABILITY (ASSET) (UNAUDITED) *(continued)*

(Last Eight Fiscal Years)

(dollars in thousands)

2016	2015	2014	2013
$ 1,181,609	$ 1,396,824	$ 1,397,547	$ 1,406,084
7,809,566	7,611,757	7,434,764	7,252,357
—	—	—	—
(111,652)	(161,043)	(181,834)	(128,194)
7,085,423	—	—	—
(6,719,866)	(6,531,140)	(6,343,538)	(6,139,718)
9,245,080	2,316,398	2,306,939	2,390,529
99,332,104	97,015,706	94,708,767	92,318,238
$ 108,577,184	$ 99,332,104	$ 97,015,706	$ 94,708,767
$ 2,046,562	$ 2,633,682	$ 2,400,386	$ 1,734,908
124,587	119,411	120,762	128,903
2,392,354	5,400,265	16,664,703	11,636,480
(6,719,866)	(6,531,140)	(6,343,538)	(6,139,718)
(60,426)	(56,948)	(55,616)	(54,338)
4,014	3,213	1,365	4,522
(2,212,775)	1,568,483	12,788,062	7,310,757
109,718,917	108,155,083	95,367,021	88,056,264
—	(4,649)	—	—
109,718,917	108,150,434	95,367,021	88,056,264
$ 107,506,142	$ 109,718,917	$ 108,155,083	$ 95,367,021
$ 1,071,042	$ (10,386,813)	$ (11,139,377)	$ (658,254)

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditors' report.

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

SCHEDULE OF THE SCHOOL DISTRICTS' NET PENSION LIABILITY (ASSET) (UNAUDITED)

(Last Eight Fiscal Years)

(dollars in thousands)

	2020	2019	2018	2017	2016
Total pension liability	$ 123,242,776	$ 119,879,474	$ 118,107,254	$ 114,708,261	$ 108,577,184
Plan fiduciary net position	120,479,505	122,477,481	119,915,518	115,468,360	107,506,142
School districts' net pension liability (asset)	$ 2,763,271	$ (2,598,007)	$ (1,808,264)	$ (760,099)	$ 1,071,042
Plan fiduciary net position as a percentage of the total pension liability	97.8%	102.2%	101.5%	100.7%	99.0%
Covered payroll	$ 16,973,171	$ 16,691,626	$16,288,884	$ 15,846,705	$ 15,431,009
School districts' net pension liability (asset) as a percentage of covered payroll	16.3%	(15.6)%	(11.1)%	(4.8)%	6.9%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

SCHEDULE OF THE SCHOOL DISTRICTS' CONTRIBUTIONS (UNAUDITED)

(Last Ten Fiscal Years)

(dollars in thousands)

	2020	2019	2018	2017
Actuarially determined contribution	$ 1,503,823	$ 1,772,651	$ 1,596,311	$ 1,857,234
Contributions in relation to the actuarially determined contribution	1,503,823	1,772,651	1,596,311	1,857,234
Contribution deficiency	$ —	$ —	$ —	$ —
Covered payroll	$ 16,973,171	$ 16,691,626	$ 16,288,884	$ 15,846,705
Contributions as a percentage of covered payroll	8.86%	10.62%	9.80%	11.72%

See accompanying independent auditors' report.

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

SCHEDULE OF THE SCHOOL DISTRICTS' NET PENSION LIABILITY (ASSET) (UNAUDITED) *(continued)*

(Last Eight Fiscal Years)

(dollars in thousands)

2015	2014	2013
$ 99,332,104	$ 97,015,706	$ 94,708,767
109,718,917	108,155,083	95,367,021
$ (10,386,813)	$ (11,139,377)	$ (658,254)
110.5%	111.5%	100.7%
$ 15,021,357	$ 14,771,301	$ 14,647,830
(69.1)%	(75.4)%	(4.5)%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

SCHEDULE OF THE SCHOOL DISTRICTS' CONTRIBUTIONS (UNAUDITED) *(continued)*

(Last Ten Fiscal Years)

(dollars in thousands)

2016	2015	2014	2013	2012	2011
$ 2,046,152	$ 2,633,244	$ 2,400,378	$ 1,734,303	$ 1,626,589	$ 1,269,976
2,046,152	2,608,266	2,383,145	1,734,303	1,626,589	1,269,976
$ —	$ 24,978	$ 17,233	$ —	$ —	$ —
$ 15,431,009	$ 15,021,357	$ 14,771,301	$ 14,647,830	$ 14,640,764	$ 14,732,895
13.26%	17.36%	16.13%	11.84%	11.11%	8.62%

See accompanying independent auditors' report.

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

SCHEDULE OF INVESTMENT RETURNS (UNAUDITED)
(Last Eight Fiscal Years)

	2020	2019	2018	2017	2016	2015	2014	2013
Annual money-weighted rate of return, net of investment expense	3.32%	6.93%	8.95%	13.05%	2.28%	5.18%	18.16%	13.73%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditors' report.

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

NOTES TO REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)
(Last Eight Fiscal Years)

Method and assumptions used in calculations of school districts' Total Pension Liability (TPL)

Changes of benefit terms. Effective with the 2019 actuarial valuation, a phased-in increase in the NYS Governor's salary limit from $179,000 to $250,000 per annum was enacted, impacting Tier 6 members. The Governor's salary limit was $200,000 in 2019, $225,000 in 2020 and $250,000 thereafter.

Changes of assumptions. Actuarial assumptions are revised periodically to more closely reflect actual, as well as anticipated future experience. The actuarial assumptions were revised and adopted by the Retirement Board on October 29, 2015 and first used in the 2016 determination of the Total Pension Liability.

The System's long-term rate of return assumption for purposes of the NPL is 7.10%, effective with the 2019 actuarial valuation. For the 2018 and 2017 actuarial valuations, the System's long-term rate of return assumption was 7.25%. For the 2016 actuarial valuation, the System's long-term rate of return assumption was 7.5%. Prior to the 2016 actuarial valuation, the System's long-term rate of return was 8.0%.

The System's assumed annual inflation rate is 2.2%, effective with the 2019 actuarial valuation. For the 2018 and 2017 actuarial valuations, the System's annual inflation assumption was 2.25%. For the 2016 actuarial valuation, the System's annual inflation assumption was 2.5%. Prior to the 2016 actuarial valuation, the System's annual inflation assumption was 3.0%.

Effective with the 2019 actuarial valuation, COLAs are projected to increase at a rate of 1.30% annually. Effective with the 2015 actuarial valuation, COLAs were projected to increase at a rate of 1.50% annually. Prior to the 2015 actuarial valuation, COLAs were projected to increase at a rate of 1.625% annually.

Effective with the 2020 actuarial valuation, the assumed scale for mortality improvement was changed from MP2018 to MP2019. Effective with the 2019 actuarial valuation, the assumed scale for mortality improvement was changed from MP2014 to MP2018.

Effective with the 2019 actuarial valuation, there is a change in the actuarial valuation software that resulted in a slight change in the determination of Entry Age Normal Total Pension Liability and Service Cost.

See accompanying independent auditors' report.

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

NOTES TO REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED) *(continued)*
(Last Ten Fiscal Years)

Method and assumptions used in calculations of school districts' Actuarially Determined Contributions. The actuarially determined contribution rates in the schedule of school districts' contributions are calculated as of June 30, two years prior to the end of the fiscal year in which contributions are reported. The following actuarial methods and assumptions were used to determine school districts' contributions in 2020. For assumptions and plan provisions used in contributions reported for years prior to 2020, refer to the Annual Actuarial Report for two years prior to the end of the fiscal year in which contributions are reported.

Valuation Date	June 30, 2018
Actuarial cost method	Aggregate (level percent of payroll)*
Amortization method	n/a*
Remaining amortization period	n/a*
Asset valuation method	Five-year phased-in deferred recognition of each year's net investment income/loss in excess of (or less than) the assumed valuation rate of interest at a rate of 20.0% per year, until fully recognized after 5 years.
Inflation	2.25%
Projected salary increases	Rates of increase differ based on service. They have been calculated based upon recent NYSTRS member experience.

Service	Rate
5	4.72%
15	3.46
25	2.37
35	1.90

Projected COLAs	1.5% compounded annually
Valuation rate of interest	7.25% compounded annually, net of pension plan investment expense.

** The System is funded in accordance with the Aggregate Cost Method, which does not identify or separately amortize unfunded actuarial liabilities. Costs are determined by amortizing the unfunded present value of benefits over the average future working lifetime of active plan members, which currently for NYSTRS is approximately 13 years.*

See accompanying independent auditors' report.

OTHER SUPPLEMENTAL SCHEDULES
SCHEDULES OF ADMINISTRATIVE EXPENSES
Years ended June 30, 2020 and 2019
(dollars in thousands)

	2020	2019
Salaries and benefits:		
Salaries	$ 34,144	$ 31,605
Civil service	48	48
Employees retirement	4,517	9,908
Health and dental insurance	11,888	12,019
Overtime salaries	37	49
Social Security	2,385	2,214
Total salaries and benefits	53,019	55,843
Building occupancy expenses:		
Building, grounds and equipment	$ 2,434	$ 1,667
Depreciation - building and improvements	1,896	1,821
Depreciation - Equipment	288	401
Office supplies and expenses	186	180
Utilities and municipal assessments	920	891
Total building occupancy expenses	5,724	4,960
Computer expenses:		
Amortization/depreciation - computer micro	$ 633	$ 756
Computer hardware and software	3,938	3,409
Computer maintenance and supplies	68	65
Total computer expenses	4,639	4,230
Personnel and meeting expenses:		
Board - meetings, travel and education	$ 93	$ 78
Delegates meeting	46	63
Preretirement seminars	134	154
Professional development	773	786
Travel and automobile expense	132	221
Other personnel expenses	84	62
Total personnel and meeting expenses	1,262	1,364
Professional and governmental services:		
Auditors - financial	$ 416	$ 377
Auditors - Department of Financial Services	151	158
Disability medical examinations	68	80
Postage and cartage	770	701
Professional fees and services	816	872
Publications	114	173
Statutory custodian charges	131	125
Total professional and governmental services	2,466	2,486
Total administrative fund expenses	67,110	68,883
Reconciliation of contribution expense to pension and OPEB expense	4,275	5,359
Total Administrative Expenses	$ 71,385	$ 74,242

See accompanying independent auditors' report.

OTHER SUPPLEMENTAL SCHEDULES *(continued)*

SCHEDULES OF INVESTMENT EXPENSES

Years ended June 30, 2020 and 2019

(dollars in thousands)

	2020		2019	
Investment Category	Fair Value of Assets Serviced or Under Management	Expenses	Fair Value of Assets Serviced or Under Management	Expenses
Externally managed/serviced assets:				
International equity	$ 19,316,770	$ 26,311	$ 20,579,929	$ 26,970
Real estate equity	11,846,790	98,942	12,874,261	86,826
Private equity	9,461,825	137,539	9,341,489	123,982
Real estate debt	4,550,445	13,942	4,230,636	12,419
Global equity	3,595,252	11,574	2,578,188	6,254
Global bonds	2,861,293	5,655	3,002,833	4,622
Domestic equity	1,602,775	9,926	2,914,712	12,578
Private debt	702,239	13,711	586,303	9,683
High-yield bonds	653,947	1,474	240,429	721
Sub-total	54,591,336	319,074	56,348,780	284,055
General expenses	—	10,938	—	10,105
Totals	**$ 54,591,336**	**$ 330,012**	**$ 56,348,780**	**$ 294,160**

See accompanying independent auditors' report.

OTHER SUPPLEMENTAL SCHEDULES *(continued)*

SCHEDULE OF CONSULTING FEES
Year ended June 30, 2020

Fees in excess of $50,000 paid to outside professionals other than investment advisors.

Name	Amount	Nature
Stepstone Group LP	$ 825,000	Investment Consulting
TorreyCove Capital Partners LLC	548,705	Investment Consulting
Aon Investments USA Inc.	537,888	Investment Consulting
Callan LLC	472,424	Investment Consulting
KPMG LLP	409,938	Accounting Services
Seward & Kissel LLP	318,886	Legal Services
Sheppard Mullin Richter & Hampton LLP	289,935	Legal Services
Dynamic Systems, Inc.	208,034	IT Professional Services
Stroock & Stroock & Lavan LLP	205,536	Legal Services
Turner Construction Company	158,545	Construction Management
Hirschler Fleischer	147,940	Legal Services
Sidley Austin LLP	143,553	Legal Services
Katten Muchin Rosenman LLP	139,702	Legal Services
K&L Gates LLP	123,138	Legal Services
CherryRoad Technologies Inc.	119,700	IT Professional Services
World Wide Technology, LLC	104,324	IT Professional Services
WCGS Architects, P.C.	97,078	Architectural & Engineering Services
DLA Piper LLP (US)	93,822	Legal Services
Teigland-Hunt LLP	82,156	Legal Services
Cheiron, Inc.	82,042	Actuarial Consulting
Janus Software, Inc.	80,450	IT Professional Services
Meridian IT Inc.	74,400	IT Professional Services
Nossaman LLP	69,478	Legal Services
Reinhart Boerner Van Deuren s.c.	67,561	Legal Services
Nixon Peabody LLP	65,067	Legal Services
Morgan, Lewis & Bockius	61,130	Legal Services
Glass Lewis & Co LLC	59,000	Investment Consulting
Greenberg Traurig, P.A.	55,617	Legal Services

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Investments

SAFEGUARD SYSTEM FUNDS

We invest funds prudently to achieve optimal long-term returns within an appropriate level of risk. As disciplined long-term investors, we do not overreact to short-term market volatility. Instead we maintain a well-diversified portfolio with established risk tolerances.

Investments

Disclaimers

REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING June 30, 2020

Overall Objectives and Performance

NYSTRS is committed to a disciplined, risk-controlled investment approach that focuses on thoughtful and prudent diversification of assets across a broad spectrum of capital market segments. Our long-term investment philosophy has enabled the System to provide retirement security to our members since 1921.

Our net position at fiscal year-end was $120.5 billion, and our funded ratio was 99.6% based on the last actuarial value of assets.

The System's total fund return, net of fees, for the fiscal year ended June 30, 2020 was 3.5%, compared to the assumed rate of return of 7.1%. Our 10-year and 30-year annualized net rates of return were 9.6% and 8.6%, respectively.

Fiscal Year in Review

The 2020 fiscal year was the most tumultuous period for global capital markets since the financial crisis of 2008. A strong start to the year was abruptly ended in February as the COVID-19 pandemic reached the U.S. The global economic outlook deteriorated at an alarmingly rapid rate, as numerous authorities implemented travel restrictions and mandatory business closures to limit the spread of the virus.

In the U.S., the unemployment rate quickly increased to 14.7% in April, and tens of millions of individuals applied for unemployment benefits. The sudden economic contraction also resulted in a historic collapse in oil prices exacerbated by a poorly timed dispute between two major producers, Saudi Arabia and Russia.

Market-based measures of inflation expectations, as reflected by Treasury Inflation-Protected Securities' (TIPS) breakevens, plunged to near 0.2% and 0.6% on average for the next five and 10 years, respectively.

The policy response to the risk of a global economic depression was immediate. Facing a dire economic outlook, the Federal Reserve took swift and widespread action across multiple segments of the financial markets. The federal funds target rate was reduced to the zero percent lower bound, quantitative easing purchases of Treasury and Agency Mortgage Backed Securities resumed, various lending facilities enacted during the Great Recession of 2007-2009 were re-opened, and direct support was provided to credit-sensitive areas of the fixed income market that had never before received central bank assistance.

Fiscal stimulus also provided support in various forms including, but not limited to, supplemental unemployment insurance, forgivable loans to small enterprises, and stimulus checks sent directly to qualified individuals.

The unprecedented monetary and fiscal stimulus efforts in the U.S., as well as positive developments regarding potential treatments and vaccines, raised expectations of a recovery. Similar actions by governments in Europe and Asia and a coordinated response by the world's central banks helped restore confidence in the financial markets. Oil prices stabilized and markets generally rallied in the fourth fiscal quarter as countries tentatively re-opened their economies in response to falling infection rates.

In the U.S., the Federal Reserve vowed to maintain an accommodative monetary policy stance until the recovery is well-rooted, maximum employment is achieved, realized inflation averages 2.0% over time, and long-term inflation expectations are anchored at 2.0%. Unemployment has recovered off the highs in April and stood at 7.9% as of September 2020, but this is still significantly higher than the pre-COVID rate of approximately 3.5%.

However, the outlook for global growth and inflation remains unclear based on the degree of additional fiscal support, the degree of COVID containment, vaccine development and distribution, trade tensions, and geo-political events.

Basis of Presentation

Following is an overview of how each asset class performed during the past fiscal year. Performance calculations are prepared using time-weighted rates of return and are net of fees unless otherwise indicated. Returns for periods of longer than one year are annualized.

REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING June 30, 2020 *(continued)*

Public Equities

Global equity markets were significantly impacted by the pandemic. The System's policy benchmark for domestic equities, the S&P Composite 1500 index, fell by 20.6% during the third fiscal quarter as significant portions of the economy were effectively shut down in response to the public health crisis. Similarly, international markets as measured by the MSCI ACWI Ex-U.S. index declined by 23% as the virus spread around the globe.

However, improving investor sentiment in response to the fiscal and monetary stimulus enabled domestic equities to recover lost ground and finish the period in positive territory, with the S&P Composite 1500 index rising 6.1% for the fiscal year. Returns were primarily driven by large-cap technology stocks that outperformed more economically sensitive parts of the market, such as small-cap stocks, energy producers and financials. The recovery in international markets was uneven reflecting mixed progress at containing the virus. The MSCI ACWI Ex-U.S. index finished the fiscal year down 4.8% with emerging markets, led by China, narrowly outperforming developed markets.

The System's public equity investments are prudently managed and broadly diversified to mitigate the impact of volatile markets. A significant portion of the System's domestic and international investments are passively managed and, as expected, generated returns for the period that were in line with their policy benchmarks.

The System also invests in diversified active strategies. Several of these actively managed strategies, notably those that focus on growth stocks, generated returns significantly in excess of their benchmarks, creating additional value for the System. In recent years, markets have strongly rewarded companies expected to rapidly grow their earnings over those that trade at relatively inexpensive valuations compared to their peers. The System's quantitative active strategies, including those managed internally and that tend to emphasize value stocks among various selection criteria, mostly struggled as that investment style remained out of favor.

By the end of the fiscal period, the market's relative pricing of growth and value stocks was approaching extreme levels, creating conditions for a possible rotation of market leadership in the future. Staff expects that in the short term these investment styles will periodically be in or out of favor, but remains confident that the System's active strategies will collectively deliver excess returns over a full economic cycle.

During this volatile period, staff remained focused on rebalancing the public equity portfolio towards its long-term asset allocation targets, providing liquidity by opportunistically raising $2.9 billion from the domestic equity portfolio and $325 million from the international portfolio. Staff also continued to build out the program's global equity allocation and incepted an additional passive strategy for the international sleeve.

As a result of these efforts, the domestic equity portfolio, which represented 34.9% of System assets at the end of the fiscal year, generated a return of 6.0%, in line with its policy benchmark. The international equity portfolio, which represented 16.4% of System assets, declined by 3.7% but outperformed its policy benchmark by 1.1%. The global equity portfolio, which represented 3.0% of System assets and is exclusively actively managed, returned 3.1%, outperforming its MSCI ACWI policy benchmark by 1.0%.

Overall, the NYSTRS public equity portfolio returned 2.8% for the fiscal year. Over the past five years, the System's public equity investments have generated an average return of 7.5% per year.

Real Estate Equity

Commercial real estate markets were generally strong before the pandemic due to moderate pipelines of new supply coupled with investor demand for income-producing assets. Industrial, office and multifamily were favored property sectors while physical retail continued to face headwinds due to the continued shift to online shopping. Enclosed malls, in particular, performed weakly as department and apparel stores were plagued by slowing foot traffic and high occupancy costs.

REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING June 30, 2020 *(continued)*

The pandemic led to a volatile year for the markets and has undoubtedly changed the way real estate will be used in the future. The unique impact to each property type is uncertain, causing a slowdown in both capital market activity and tenant decision making, negatively impacting valuations and cash flows.

Industrial properties continue to benefit from demand as the pandemic amplified the shift to online shopping that was already occurring. Working remotely quickly became the norm causing companies to re-evaluate their office space needs. Long-term implications for the office sector remain uncertain as companies who previously favored dense, urban locations with access to public transportation may now be rethinking that model, considering social distancing and work from home options.

Multifamily assets continued to perform well, supported by government stimulus and the ability for certain tenants to maintain their jobs while working from home. The ability to work from home may offer new flexibility that could alter migration patterns as employees may focus on lower-cost locations. The bright spot in the retail landscape has been grocers, where sales have reached historic highs.

The NCREIF ODCE Index (private real estate) overall return for the year was 1.3%. Returns by property type within the unlevered NCREIF Property Index (NPI) varied widely with industrial assets returning 10.3% while retail assets generated a 5.6% loss for the year. The overall index saw the first decline in appreciation since the global financial crisis.

Public real estate markets had a volatile year, reacting abruptly to the effects of COVID but subsequently rebounding on news of the $3 trillion federal stimulus package. For the quarter ended March 31, 2020, the overall REIT market declined 26.5% while posting a positive gain of 10.5% for the quarter ended June 30, ending the fiscal year down 13.3%.

Although COVID-19 has brought short-term headwinds and uncertainty to the global real estate market, staff believes the long-term prospects for real estate continue to offer attractive risk-adjusted returns. The team will continue to monitor the unique impact of COVID on the property sectors and geographic regions and adjust our strategies and exposures as appropriate.

Private Equity

The target allocation for private equity is 8.0% with an allocation range of 3.0% to 13.0%. Partnership structures generally cover periods of 10 years or more with the goal to achieve higher long-term returns than available through marketable securities. The program seeks to outperform public equities by 500 basis points (S&P 500 plus 5.0%) over the long term. The Retirement System is focused on investing with disciplined top-performing managers that have demonstrated an ability to prudently invest across varying macroeconomic backdrops and cycles. Alignment of interest remains a paramount consideration.

The System's private equity portfolio is comprised of buyout, growth, venture capital, co-investment and turnaround/ restructuring strategies accessed through a variety of vehicles including, but not limited to, commingled funds, fund of funds, secondary funds and separately managed accounts.

The Retirement System has a mature, cash-flow positive private equity program diversified by both investment strategy and geographic focus. The program continues to focus on recommitting to its top-performing partnerships, while strategically adding new relationships that provide increased exposure to particular strategies and geographies. The System will opportunistically seek to rebalance the private equity portfolio through secondary markets should pricing become compelling.

By fiscal year-end, the System had active commitments of $22.6 billion across 83 fund sponsors. The private equity portfolio was valued at $9.5 billion, representing 8.0% of the System's total assets. Unfunded commitments totaled $7.2 billion. Over the last 10 years, the private equity program returned 13.7%, versus the stated benchmark of 19.0%. Over the last 20 years, the private equity program returned 10.3%, versus the stated benchmark of 10.9%.

REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING June 30, 2020 *(continued)*

Fixed Income

NYSTRS' focus remains on generating cash flow to help meet its $7.5 billion annual retirement benefit obligation and preserving capital. Both are accomplished within the context of receiving proportionate return for risk taken. To mitigate risk, the System's internally and externally managed fixed income portfolios are well diversified by sector, issuer and interest rate exposure. In addition, the System's internal and external portfolio managers actively monitor and manage risk while striving to generate returns in excess of what could be earned in risk-free fixed income investments. They also strive to take advantage of market opportunities as they arise.

The investment grade domestic fixed income market as measured by the Bloomberg Barclays U.S. Aggregate Float Adjusted Index generated returns of 8.9%. Bonds with maturities over 10 years outperformed with returns of 18.9% while one- to three-year securities returned 4.0%. A-rated securities were the best performers of the year, returning 10.3% while the lowest rated investment grade securities, Baa, returned 8.2%.

From a sector perspective, U.S. Treasuries and corporate bonds – the two sectors with the greatest interest rate sensitivity – returned 10.5% and 9.5%, respectively. Government-related returns were 6.6% and securitized returns were 5.7%.

In the global bond universe measured by the Bloomberg Barclays Global Aggregate Float Adjusted Ex-CNY in USD hedged to USD Bond Index, returns were 6.5% for the fiscal year ended June 30, 2020 with longer duration bonds providing the best performance. Bonds maturing beyond 10 years returned 11.2% while bonds with between one and three years to maturity returned 3.2%. Corporate issues performed the best of all sectors, returning 7.2% with Global Treasuries following at 6.8%. Aaa-rated issues were the best performers, returning 7.4%, followed by those rated Baa at 6.9%. The United States portion of the index returned 8.9%, which significantly outperformed the hedged returns of European and Asian regions of 4.9% and 2.0%, respectively.

In the high-yield space, returns as measured by the ICE BAML BB-B US High-Yield Constrained Index returned 0.5%. Utility and Financial were the best performing sectors at 4.1% and 2.6%, respectively. Higher credit quality and longer duration issues were the best performers as BB1 rated issues returned 5.8% and issues maturing beyond 10 years returned 12.8%.

As of June 30, 2020, approximately 15.9% of System investments were represented by the internally managed domestic fixed income portfolio. For the one- and three-year periods ended June 30, 2020, the System's long-term bond portfolio's annual return was 7.4% and 4.6%, respectively, versus the benchmark return of 8.9% and 5.4% for the comparable periods. The one-year underperformance is attributable to assuming less interest rate or duration risk for U.S. Treasuries as well as less spread duration risk as compared to the benchmark.

As of June 30, 2020, approximately 2.4% of System assets were invested in externally managed global bond portfolios significantly hedged to U.S. dollars. Net of fees, for the one- and three-year periods, global bonds returned 7.2% and 5.8%, respectively, compared to 6.5% and 5.4% for the respective benchmarks. An overweight to, and security selection within, the corporate sector were the primary factors for outperforming the benchmark over the past fiscal year. Long term, NYSTRS expects these managers will continue to add investment diversification and help generate greater risk-adjusted fixed income returns than the benchmark.

As of June 30, 2020, approximately 0.5% of System assets were invested in externally managed high-yield portfolios. Net of fees, high- yield returned a negative 0.6% for the one-year period versus 0.5% for the benchmark. Security selection and sector positioning were the primary factors for underperforming the benchmark over the past fiscal year.

REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING June 30, 2020 *(continued)*

Real Estate Debt

Along with the broader fixed income markets, yields and pricing for secured real estate debt experienced a volatile springtime as investor flight to liquidity triggered a sell-off of commercial mortgage-backed securities (CMBS) at the end of March as investors moved capital toward U.S. government bonds, dropping U.S. Treasury yields well below 1%. The liquidations in the CMBS space were short-lived as federal stimulus and subsequently a new Term Asset-Backed Loan Facility (TALF) from the federal government to purchase AAA CMBS was put in place in early May, bringing down yields across the investment grade landscape. At year-end, real estate debt yields were once again at historical lows driven by base lending rates in the U.S. and developed countries across the globe.

NYSTRS' commercial real estate debt portfolio consists primarily of conventional fixed-rate first mortgage loans on core high-quality assets in primary U.S. markets. At year-end, all-in market yields for high quality fixed rate mortgages were between 2.5% and 3%. The System's mortgage portfolio value reflected a premium at year-end due to its in-place weighted average coupon of 3.93% on a portfolio which had a weighted average term to maturity of 4.1 years.

The CMBS program provides the System with a consistent yield in investment-grade securities collateralized by commercial loans. CMBS yields were quite volatile over the past year due to the effects of COVID as investors, looking for cash liquidity to address leverage issues, began selling down their CMBS positions. NYSTRS was able to add to its CMBS allocation beginning in April at premium yields on lower loan-to-value tranches. Once the TALF program was in place however, pricing recovered and yields for quality tranches moved back down below 3%.

To supplement the first mortgage and CMBS program yields, the System continues to invest in senior mezzanine and bridge first mortgage loans on transitional assets with experienced, well-capitalized borrowers. Over the past fiscal year, NYSTRS increased its exposure to this strategy, investing nearly half a billion dollars, and at year-end had $1.3 billion in outstanding commitments to the space.

NYSTRS will continue to focus on senior mezzanine and bridge lending opportunities to augment yields available in the first mortgage and investment grade CMBS programs. The emphasis will continue to be on quality assets where the System can pick up three- to five-year yields at a 150-200 basis point premium to the first mortgage and CMBS markets.

Private Debt

Historically, NYSTRS selectively pursued private debt exposure by utilizing its private equity allocation and targeting specific mezzanine lending opportunities. In August 2017, NYSTRS formally committed to the asset class and established a 1.0% target, with an allocation range of 0.0% to 5.0% of total plan assets. Partnership structures typically cover periods of 10 years or more, with the objective of achieving higher long-term returns than available through marketable debt securities. The program seeks to outperform the S&P/LSTA U.S. Leveraged Loan Index plus 3.0% over the long term.

NYSTRS' strategic focus is on small- to middle-market lenders who seek outsized returns through highly negotiated situations and non-sponsor-led transactions. In addition, given the risk return characteristics available in the marketplace, NYSTRS will generally avoid non-U.S.-dollar denominated investment strategies to avoid taking currency risk.

The Retirement System's private debt portfolio is comprised of direct lending, mezzanine, special situation and distressed debt investments accessed through a variety of vehicles including, but not limited to, commingled funds, separately managed accounts, fund of funds and evergreen structures.

By fiscal year-end, the System had active commitments of $2.1 billion across 12 fund sponsors. The private debt portfolio was valued at $702 million, representing 0.6% of the System's total assets. Unfunded commitments totaled $949 million. Over the last fiscal year, the private debt program returned negative 3.9%, versus the stated benchmark of 1.0%. Over the last three years, the private debt program returned 6.4% versus the stated benchmark of 5.1%.

REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING June 30, 2020 *(continued)*

Cash Equivalents

The System's short-term fixed income portfolio consists of high-quality securities which can easily be converted into cash for the purposes of making monthly payment of pension benefits, facilitating asset allocation, or supporting the operating commitments of the System. Securities held in this portfolio generally mature in 12 months or less. Securities that have maturities greater than 13 months at the time of purchase have a floating-rate coupon that resets every three months or less.

The System's short-term portfolio has an asset allocation target of 1.0%. As of June 30, 2020, the portfolio represented 2.3% of total invested System assets, within the allowable range of 0.0% to 4.0%. In addition, as of that date, the portfolio's weighted average maturity and weighted average life were 37 and 38 days, respectively. For the 12 months ended June 30, 2020, the short-term portfolio returned 1.7%, versus the iMoneyNet Money Fund Averages/All-Taxable Index benchmark of 1.1%.

Other Programs

Securities Lending

The System's securities lending program generates incremental income by lending in-demand domestic and international equity, and fixed income securities. The System uses multiple agent lenders to manage the securities lending program. Each lending program is proactively monitored by NYSTRS staff to ensure it is managed in compliance with the System's contractual, statutory and risk guidelines.

The System earns a spread (the difference in income earned on reinvestment of cash collateral less the amount rebated to the borrower of the security) on loans collateralized by cash from demand and reinvestment components. The reinvestment portion of the spread is generated by investing the cash collateral received for securities loaned into high-quality, short-term fixed income securities. The demand piece of the spread is a function of borrower interest. The System also enters into non-cash loans collateralized by U.S. government and agency securities, whereby the System earns income via a fee paid by the borrower.

As of June 30, 2020, 1.4% of the System's assets available to lend were on loan, collateralized at 103.0%. The supply of securities to lend continued to exceed demand during the fiscal year, resulting in a decline in utilization from 2.2% on June 30, 2019 to 1.4% as of June 30, 2020. Though borrower demand weakened, it continued to generate the majority of securities lending income, which totaled $7.8 million for the fiscal year, compared to $10.9 million for the fiscal year ended June 30, 2019. The unrealized gain on investments in the System's cash collateral reinvestment portfolio declined during the 2020 fiscal year, settling at $2.7 million (including unpaid income) as of June 30, 2020.

For information describing the securities lending process, please see the Notes to Financial Statements under the heading "Securities Lending Transactions."

Prepared by the following NYSTRS Executive Staff members:

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ASSET ALLOCATION — as of June 30, 2020

The most significant contributor to a fund's long-term investment performance is the allocation decision among the various asset classes, including equities, fixed income and real estate. The allocation process helps control risk and sets the guidelines to diversify the System's portfolio. The asset allocation policy adopted by the Board allows ranges around an optimal target allocation. The Retirement Board, with the assistance of an external consultant, reviews the asset allocation policy on an annual basis to analyze recent and historical investment experience. Since this is a long-term plan, adjustments to the allocation are usually made on an annual basis when necessary. The current targets, ranges and actual allocations are detailed below:

	Target	Range	Actual
Equity			
Domestic Equity	33 %	29-37%	34.9 %
International Equity	16 %	12-20%	16.4 %
Global Equity	4 %	0-8%	3.0 %
Real Estate Equity	11 %	6-16%	10.0 %
Private Equity	8 %	3-13%	8.0 %
Total Equity	*72 %*		*72.3 %*
Debt			
Domestic Fixed Income	16 %	12-20%	15.9 %
High-Yield Bonds	1 %	0-3%	0.5 %
Global Bonds	2 %	0-3%	2.4 %
Real Estate Debt	7 %	3-11%	6.0 %
Private Debt	1 %	0-5%	0.6 %
Cash Equivalents	1 %	0-4%	2.3 %
Total Debt	*28 %*		*27.7 %*

CHANGES IN NET ASSET VALUE

The fair value of investments are presented below in the aggregate by asset allocation classification, which differs from the financial statement presentation.

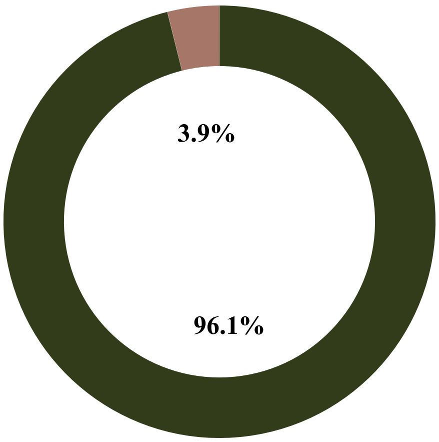
Asset Class	Net Asset Value 6/30/2019	Net Income	Net Appreciation (Depreciation)	Net Cash Inflows (Outflows)	Net Asset Value 6/30/2020
Equity					
Domestic Equity	$ 42,427,221,952	$ 831,929,778	$ 1,751,623,199	$ (3,545,265,078)	$ 41,465,509,851
International Equity	20,710,423,059	314,540,046	(1,017,976,783)	(576,011,558)	19,430,974,764
Global Equity	2,583,217,582	69,398,172	46,394,614	902,998,843	3,602,009,211
Real Estate Equity	12,895,557,294	417,621,675	(698,969,206)	(757,666,481)	11,856,543,282
Private Equity	9,341,489,211	(137,539,261)	533,871,747	(275,996,344)	9,461,825,353
Total Equity	**87,957,909,098**	**1,495,950,410**	**614,943,571**	**(4,251,940,618)**	**85,816,862,461**
Debt					
Domestic Fixed Income	19,037,982,056	504,467,060	858,028,650	(1,530,476,599)	18,870,001,167
High-Yield Bonds	241,257,951	20,456,000	(8,911,686)	400,000,000	652,802,265
Global Bonds	2,862,166,226	64,871,986	145,366,215	(250,000,000)	2,822,404,427
Real Estate Debt	7,081,070,253	222,016,560	(22,239,806)	(107,643,080)	7,173,203,927
Private Debt	586,303,133	(13,710,702)	(6,907,679)	136,554,123	702,238,875
Cash Equivalents	2,716,093,695	74,214,534	(76,541)	(71,545,466)	2,718,686,222
Total Debt	**32,524,873,314**	**872,315,438**	**965,259,153**	**(1,423,111,022)**	**32,939,336,883**
Total	**$ 120,482,782,412**	**$2,368,265,848**	**$ 1,580,202,724**	**$(5,675,051,640)**	**$ 118,756,199,344**

DIVERSIFICATION OF INVESTMENTS — June 30, 2020

Asset Class		Net Asset Value 6/30/2020	Percent	Net Asset Value 6/30/2019	Percent
Equity:					
Public Equity (Domestic Equity, International Equity and Global Equity)					
Communications Services		$5,637,048		$5,107,546	
Consumer Discretionary		7,475,471		7,145,804	
Consumer Staples		4,757,339		4,981,060	
Energy		2,104,372		3,519,332	
Financials		8,020,974		10,482,379	
Health Care		8,682,348		7,975,000	
Industrials		6,398,376		7,330,000	
Information Technology		14,469,228		11,606,932	
Materials		2,815,694		2,985,094	
Other		467,508		423,267	
Real Estate		1,790,773		2,045,043	
Utilities		1,879,363		2,119,406	
	Total Public Equity	64,498,494	54.3%	65,720,863	54.5%
Real Estate Equity					
Core Funds		1,364,101		1,621,357	
Direct Properties/Other Real Estate Owned		4,661,190		5,556,471	
Opportunistic Funds		1,754,570		1,746,736	
Real Estate Investment Trusts (REITs)		2,821,643		2,869,988	
Timber		321,104		298,132	
Value Added Funds		933,935		802,873	
	Total Real Estate Equity	11,856,543	10.0	12,895,557	10.7
Private Equity					
Co-Investments		805,237		988,381	
Fund of Funds		650,561		902,391	
LBO/MBO		6,303,161		5,914,042	
Other		—		171	
Secondary Funds		298,081		389,028	
Turnaround		507,872		344,596	
Venture Capital		896,913		802,880	
	Total Private Equity	9,461,825	8.0	9,341,489	7.8
	Total	**85,816,862**	72.3%	**87,957,909**	73.0%
Debt:					
Fixed Income (Domestic Fixed Income, High-Yield Bonds, Global Bonds)					
Corporate		8,014,717		6,836,017	
Global Treasuries		8,746,894		9,787,914	
Government Related		1,091,119		1,029,898	
Other		105,810		77,916	
Securitized		4,386,668		4,409,661	
	Total Fixed Income	22,345,208	18.8	22,141,406	18.4
Real Estate Debt					
Commercial Mortgage Backed (CMBS)		1,392,063		1,146,708	
Core Plus		1,348,847		1,127,774	
Direct Mortgages		4,072,589		4,487,273	
Opportunistic		359,705		319,316	
	Total Real Estate Debt	7,173,204	6.0	7,081,071	5.9
Private Debt					
Direct Lending		188,410		136,587	
Distressed		79,560		92,205	
Mezzanine		188,717		171,405	
Special Situation		245,552		186,106	
	Total Private Debt	702,239	0.6	586,303	0.5
Cash Equivalents					
Corporate		744,635		1,649,308	
Global Treasuries		735,882		145,736	
Government Related		748,670		318,933	
Other		15,693		609	
Securitized		473,806		601,507	
	Total Cash Equivalents	2,718,686	2.3	2,716,093	2.2
	Total Debt	**32,939,337**	**27.7%**	**32,524,873**	**27.0%**
	Total	**$ 118,756,199**	**100.0%**	**$ 120,482,782**	**100.0%**

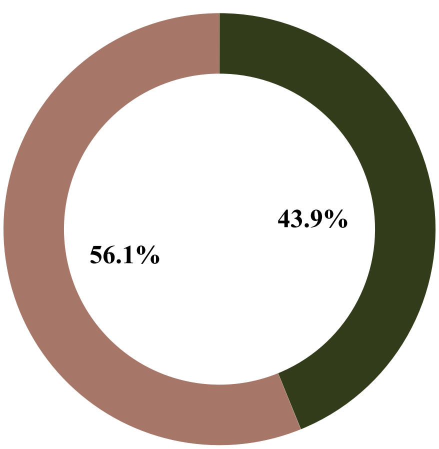
The above schedule is presented at net asset value based on asset allocation, which differs from the financial statement presentation.

DOMESTIC EQUITY DISTRIBUTION — as of June 30, 2020



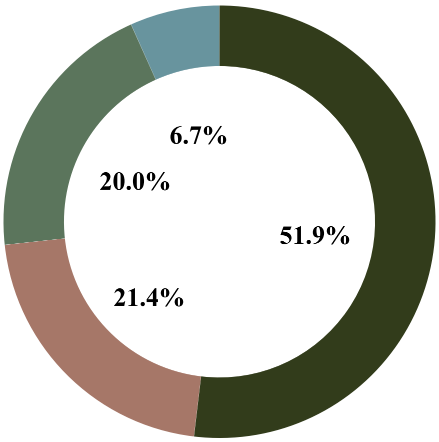
Internal	**96.1%**
S&P 1500 Index2	80.3%
S&P 100 Index	4.1%
S&P 1500 Value Tilt2	2.8%
S&P 1500 Growth Tilt2	2.9%
S&P 500 Index	3.8%
S&P 600 Index	0.6%
All Cap Disciplined Equity	1.6%
External	**3.9%**
Large Cap	2.2%
Mid Cap	1.7%

DOMESTIC EQUITY EXTERNALLY MANAGED STYLE DISTRIBUTION — as of June 30, 2020



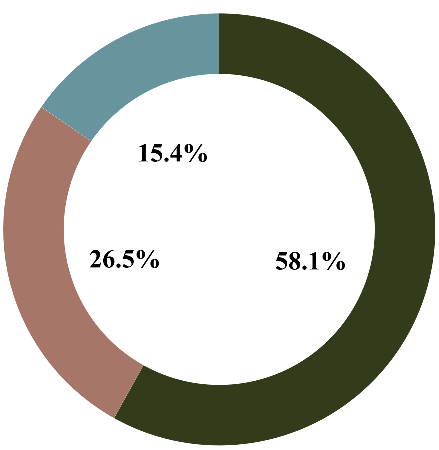
Mid Cap	**43.9%**
Large Cap Enhanced	**56.1%**

INTERNATIONAL EQUITY STYLE DISTRIBUTION — as of June 30, 2020



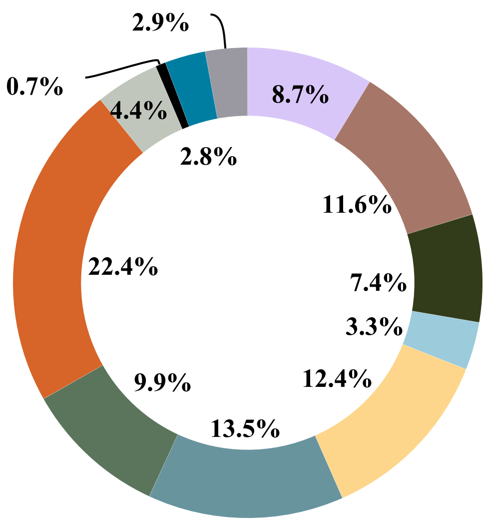
Developed Markets - Passive	**51.9%**
Developed Markets - Active	**21.4%**
Emerging Markets - Passive	**20.0%**
Emerging & Frontier Markets - Active	**6.7%**

GLOBAL EQUITY STYLE DISTRIBUTION — as of June 30, 2020



U.S. Markets - Active	**58.1%**
International Developed - Active	**26.5%**
International Emerging & Frontier - Active	**15.4%**

PUBLIC EQUITY HOLDINGS BY INDUSTRY DISTRIBUTION — as of June 30, 2020



Communications Services	8.7%
Consumer Discretionary	11.6%
Consumer Staples	7.4%
Energy	3.3%
Financials	12.4%
Health Care	13.5%
Industrials	9.9%
Information Technology	22.4%
Materials	4.4%
Other	0.7%
Real Estate	2.8%
Utilities	2.9%

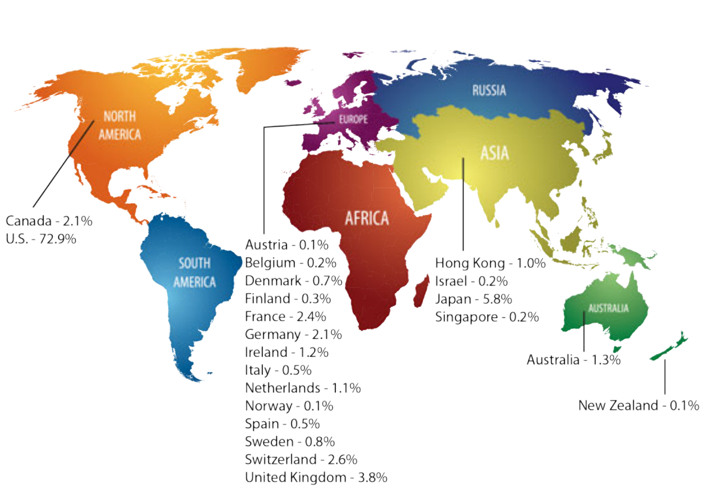
TEN LARGEST PUBLIC EQUITY HOLDINGS — as of June 30, 2020

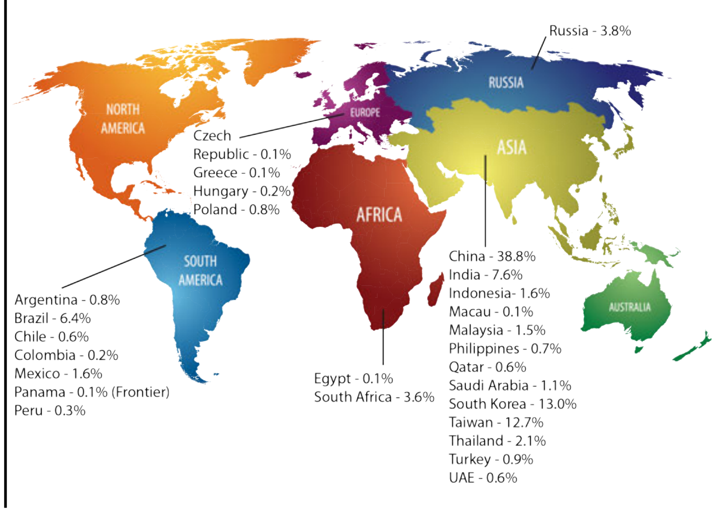
Rank	Company	Cost	Market Value	Percent of Equities
1	Microsoft Corp.	$ 307,993,466	$ 2,407,410,148	3.7 %
2	Apple Inc.	101,297,398	2,283,414,163	3.5
3	Amazon.com Inc.	150,946,186	1,795,271,768	2.8
4	Alphabet Inc.	286,266,532	1,324,305,137	2.1
5	Facebook Inc.	279,302,026	871,134,754	1.4
6	Johnson & Johnson	118,980,087	576,910,527	0.9
7	Berkshire Hathaway Inc.	260,354,455	524,815,651	0.8
8	Visa Inc.	77,865,108	507,766,276	0.8
9	Procter & Gamble Company	102,893,072	451,205,287	0.7
10	J.P. Morgan & Co.	105,932,886	436,722,649	0.7
Total		**$1,791,831,216**	**$11,178,956,360**	**17.4 %**

A complete list of the System's equity holdings is available on our website (see About Us > Investments) or through the Public Information Office.

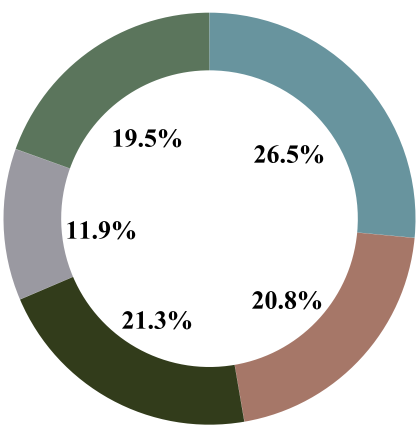
PUBLIC EQUITY COUNTRY EXPOSURE DISTRIBUTION — as of June 30, 2020

Percentage of Portfolio for Developed Countries	Percentage of Portfolio for Emerging & Frontier Markets
$58,755,433,112	$5,743,060,715



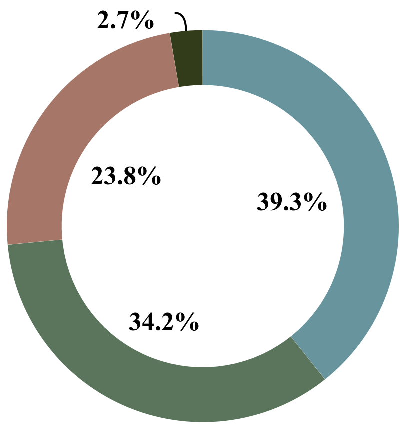


REAL ESTATE EQUITY BY PROPERTY TYPE — as of June 30, 2020



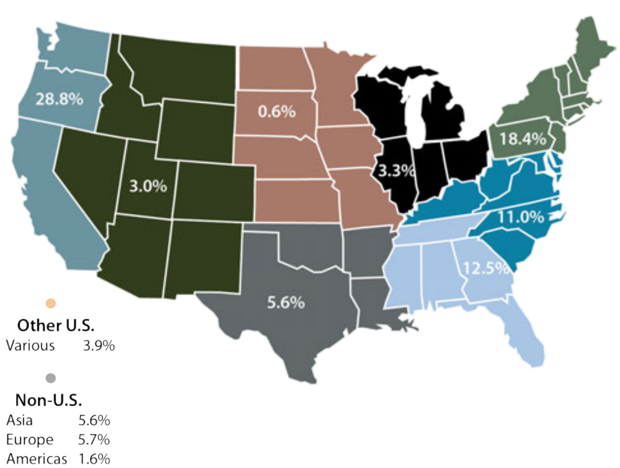
Office	**26.5%**
Residential	**20.8%**
Retail	**21.3%**
Hotel/Other	**11.9%**
Industrial/R&D	**19.5%**

BREAKDOWN OF REAL ESTATE EQUITY PORTFOLIO — as of June 30, 2020



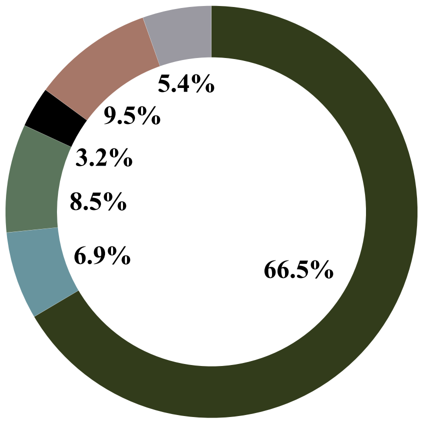
Direct Investments	**39.3%**
Private Securities	**34.2%**
Public Securities	**23.8%**
Timber Investments	**2.7%**

GEOGRAPHICAL DISTRIBUTION OF THE REAL ESTATE EQUITY PORTFOLIO — as of June 30, 2020



Pacific	**28.8%**
Mountain	**3.0%**
West North Central	**0.6%**
East North Central	**3.3%**
Northeast	**18.4%**
Mideast	**11.0%**
Southeast	**12.5%**
Southwest	**5.6%**
Non-U.S.	**12.9%**
Other U.S.	**3.9%**

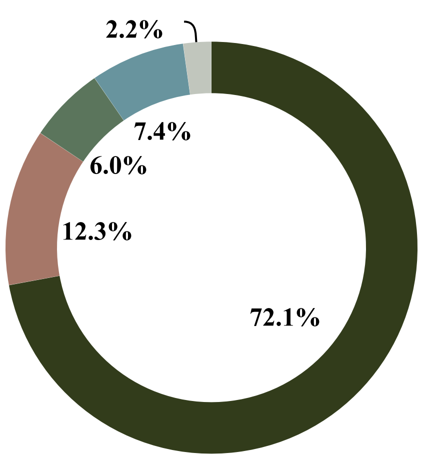
PRIVATE EQUITY NET ASSET VALUE BY INVESTMENT TYPE* — as of June 30, 2020



LBO/MBO	66.5%
Fund of Funds	6.9%
Co-Investments	8.5%
Secondary Funds	3.2%
Venture Capital	9.5%
Turnaround	5.4%
Other	<0.1%

**Percentages may not sum to 100% due to rounding.*

PRIVATE EQUITY NET ASSET VALUE BY GEOGRAPHY* — as of June 30, 2020

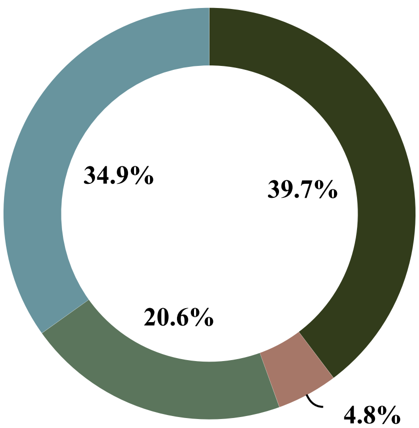


North America	72.1 %
Western Europe	12.3 %
United Kingdom	6.0 %
Asia	7.4 %
Rest of World	2.2 %

**Excluding fund of funds and secondary funds.*

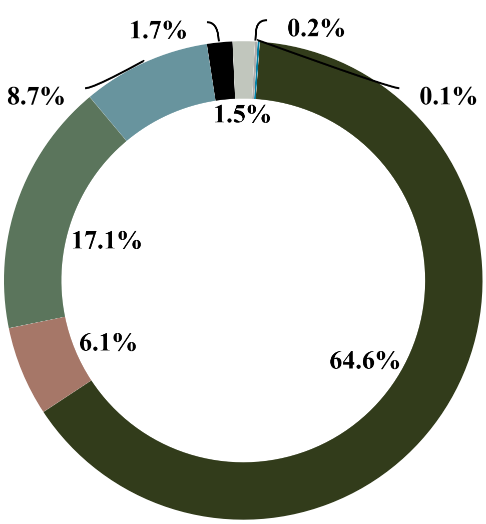
DOMESTIC FIXED INCOME AND HIGH-YIELD BONDS DISTRIBUTION — as of June 30, 2020

Yield to Maturity 1.0%



U.S. Treasury Yield to Maturity 0.28%	**39.7%**
Federal Agency, Notes/Debentures Yield to Maturity 0.47%	**4.8%**
Federal Agency, Mortgage Backed & Asset Backed Yield to Maturity 1.22%	**20.6%**
Corporate Yield to Maturity 1.76%	**34.9%**

DOMESTIC FIXED INCOME AND HIGH-YIELD BONDS QUALITY DISTRIBUTION* — as of June 30, 2020



Aaa**	**64.6 %**
Aa	**6.1 %**
A	**17.1 %**
Baa	**8.7 %**
Ba	**1.7 %**
B	**1.5 %**
Caa & Below	**0.2 %**
Not Rated***	**0.1 %**

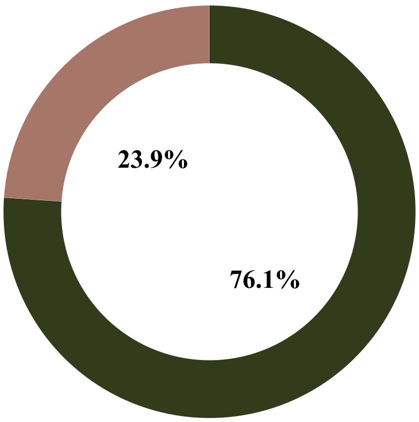
**Percentages may not sum to 100% due to rounding.*

***Includes explicitly and implicitly guaranteed debt issued by the U.S. government and its agencies.*

****Includes cash (U.S. dollar equivalents) and State Street Government Short-Term Investment Fund.*

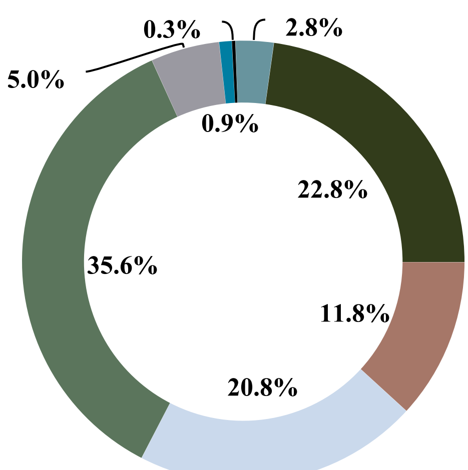
DOMESTIC FIXED INCOME AVERAGE MATURITY — as of June 30, 2020

Effective Duration 3.6 Years



Less than 5 Years Duration 2.56 Years	**76.1%**
5-10 Years Duration 6.89 Years	**23.9%**

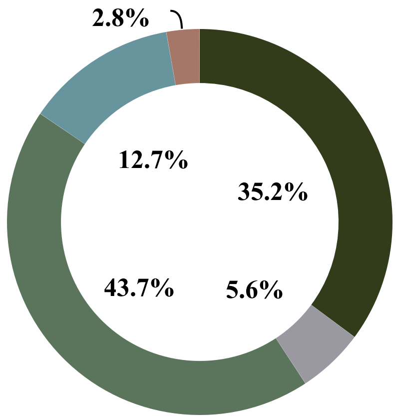
GLOBAL BONDS QUALITY DISTRIBUTION — as of June 30, 2020



Aaa	**22.8%**
Aa	**11.8%**
A	**20.8%**
Baa	**35.6%**
Ba	**5.0%**
B	**0.9%**
Caa & Below	**0.3%**
Not Rated*	**2.8%**

**Includes cash (U.S. dollar equivalents) and State Street Government Short-Term Investment Fund.*

GLOBAL BONDS SECTOR DISTRIBUTION — as of June 30, 2020



Global Treasuries	**35.2%**
Government Related	**5.6%**
Corporate	**43.7%**
Securitized	**12.7%**
Other*	**2.8%**

**Includes cash (U.S. dollar equivalents) and State Street Government Short-Term Investment Fund.*

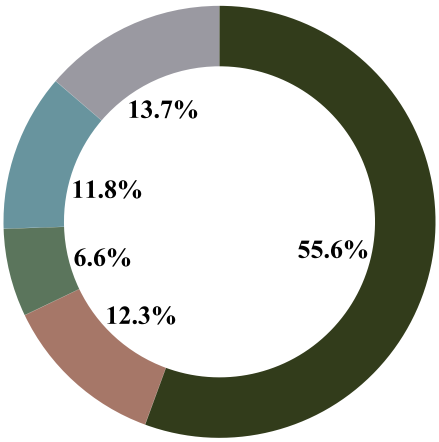
TEN LARGEST FIXED INCOME HOLDINGS* — as of June 30, 2020

Rank	Issue	Market Value	Percent Total Fixed Income Market Value
1	U.S. Treasury Note 1.75% Due 11/15/2029	$281,535,938	1.3%
2	U.S. Treasury Note 1.625% Due 08/15/2029	130,935,937	0.6%
3	AID-Israel 5.50% Due 04/26/2024	118,725,449	0.5%
4	U.S. Treasury Note 2.25% Due 08/15/2027	113,080,158	0.5%
5	U.S. Treasury Note 2.25% Due 10/31/2024	108,636,719	0.5%
6	U.S. Treasury Note 2.125% Due 12/31/2022	104,871,094	0.5%
7	U.S. Treasury Note 2.25% Due 11/15/2027	90,498,693	0.4%
8	U.S. Treasury Note 2.875% Due 05/15/2028	88,511,719	0.4%
9	Fannie Mae Pool 3.00% Due 10/01/2046	88,256,551	0.4%
10	U.S. Treasury Note 2.75% Due 02/15/2028	87,486,329	0.4%
Total		**$1,212,538,587**	**5.5%**

**Includes internally managed domestic and externally managed high-yield and global bond portfolios, excludes short-term portfolio holdings.*

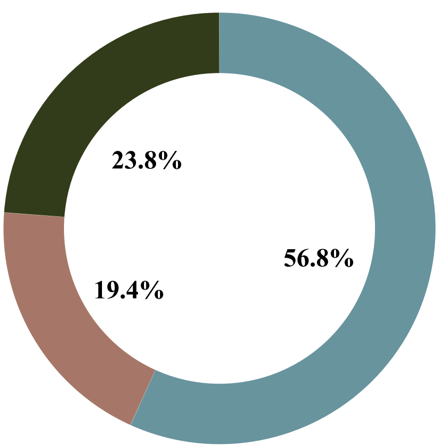
A complete list of the System's fixed income holdings (excluding cash equivalents) is available on our website (see About Us > Investments) or through the Public Information Office.

REAL ESTATE DEBT BY PROPERTY TYPE — as of June 30, 2020



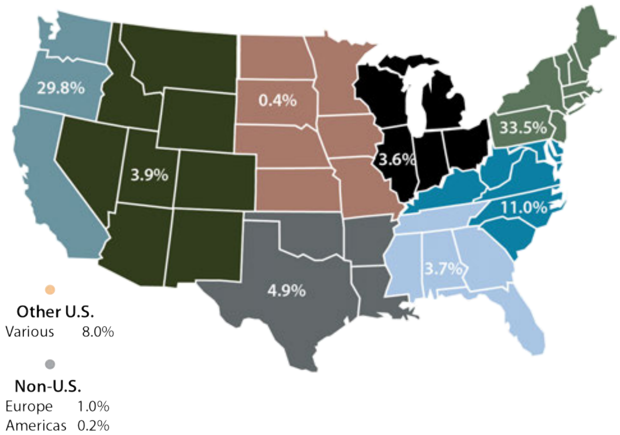
Office	55.6 %
Residential	12.3 %
Retail	6.6 %
Mixed Use/Other	11.8 %
Industrial/R&D	13.7 %

BREAKDOWN OF REAL ESTATE DEBT PORTFOLIO — as of June 30, 2020



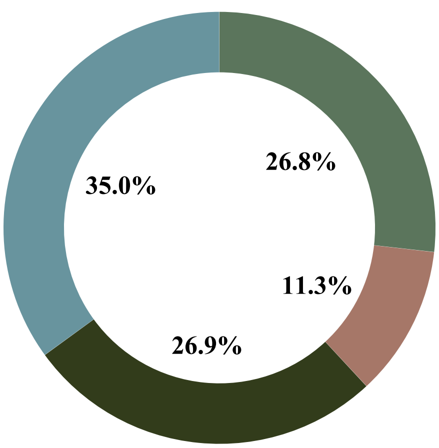
Conventional Mortgages	56.8 %
CMBS	19.4 %
Mezzanine Debt	23.8 %

GEOGRAPHICAL DISTRIBUTION OF THE REAL ESTATE DEBT PORTFOLIO — as of June 30, 2020



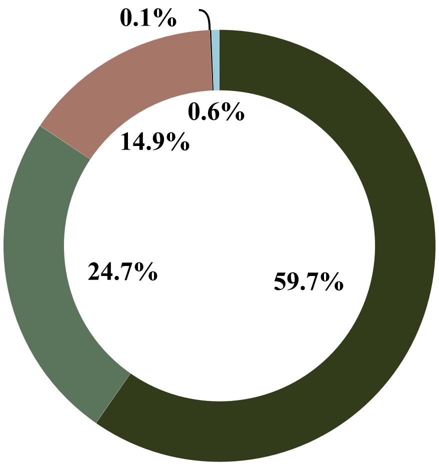
Pacific	29.8 %
Mountain	3.9 %
West North Central	0.4 %
East North Central	3.6 %
Northeast	33.5 %
Mideast	11.0 %
Southeast	3.7 %
Southwest	4.9 %
Non-U.S.	1.2 %
Other U.S.	8.0 %

PRIVATE DEBT NET ASSET VALUE BY INVESTMENT TYPE — as of June 30, 2020



Direct Lending	26.8 %
Distressed	11.3 %
Mezzanine	26.9 %
Special Situation	35.0 %

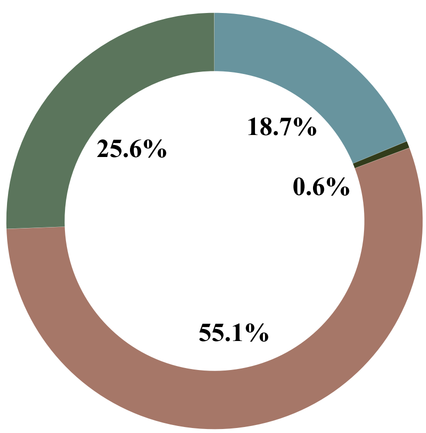
PRIVATE DEBT NET ASSET VALUE BY GEOGRAPHY* — as of June 30, 2020



●	North America	59.7 %
●	Western Europe	24.7 %
●	United Kingdom	14.9 %
●	Asia	0.1 %
●	Rest of World	0.6 %

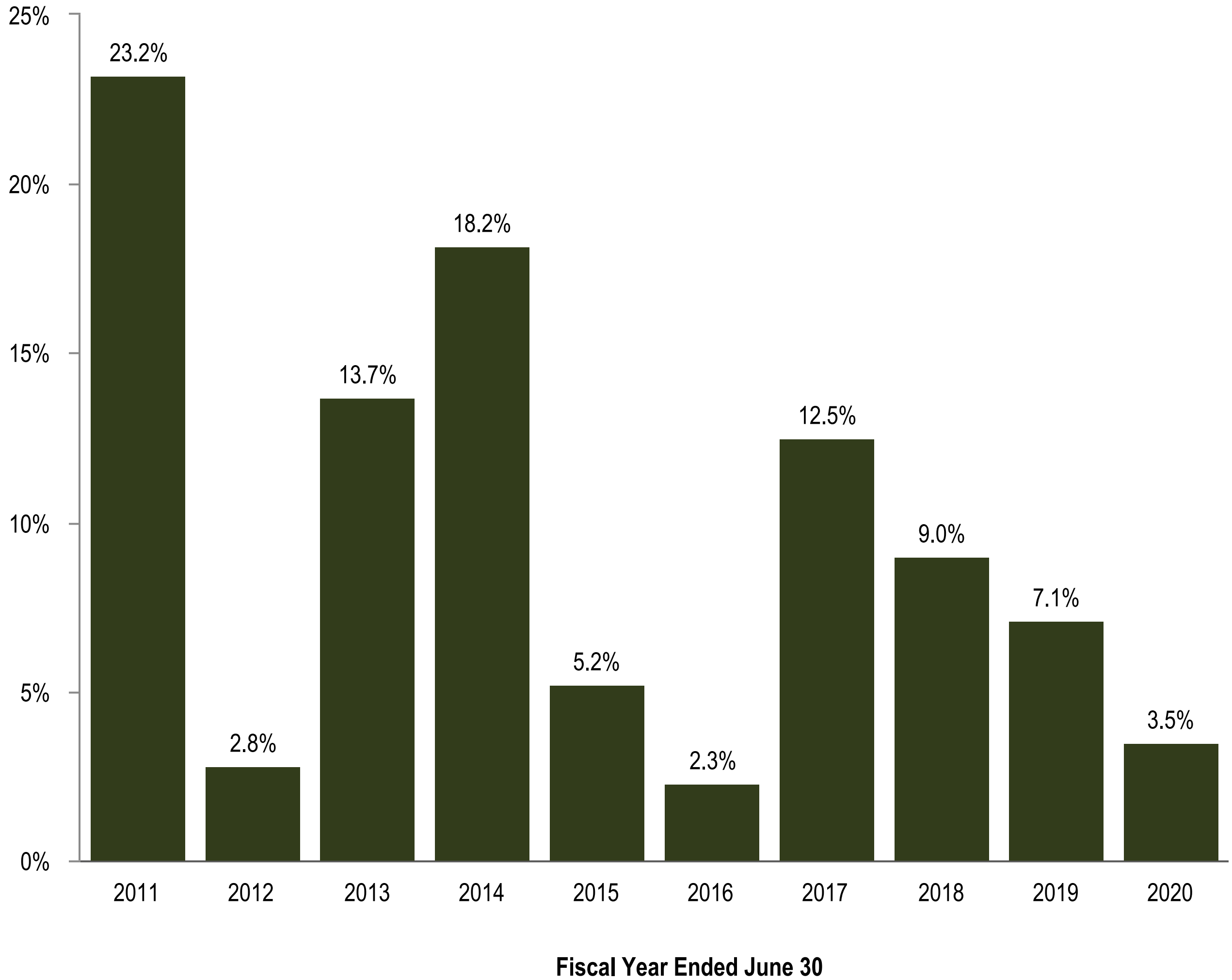
Excluding fund of funds and secondary funds.

CASH EQUIVALENTS SECTOR DISTRIBUTION — as of June 30, 2020



●	Industrial	18.7%
●	Governmental/Agency/Supranational	55.1%
●	Banks & Finance	25.6%
●	Utilities	0.6%

ANNUAL PERFORMANCE HISTORY



INVESTMENT PERFORMANCE RESULTS — as of June 30, 2020

The System is a long-term investor and therefore can withstand some short-term volatility. The liabilities are generally long-term in nature and may not become payable for 30 or more years in the future. The time-weighted performance (net of fees) and associated benchmark returns are shown in the following table. Some benchmarks have varied over time and those shown below are the current policy benchmarks.

	Annualized Rates of Return				
	1-YR	3-YR	5-YR	10-YR	30-YR
Domestic Equity	**6.0 %**	**9.7 %**	**9.9 %**	**13.7 %**	**9.8 %**
Benchmark: S&P Composite 1500 Index[2]	6.1	9.9	10.1	13.7	9.8
International Equity	**(3.7)**	**1.6**	**2.8**	**5.6**	**—**
Benchmark: MSCI ACWI Ex-U.S. Index	(4.8)	1.0	2.3	5.1	—
Global Equity	**3.1**	**—**	**—**	**—**	**—**
Benchmark: MSCI ACWI Index	2.1	—	—	—	—
Real Estate Equity	**(2.9)**	**4.4**	**6.1**	**10.8**	**8.4**
Benchmark: NCREIF - ODCE Index[2]	2.5	5.6	6.8	10.1	6.6
Private Equity	**4.3**	**11.4**	**12.0**	**13.7**	**—**
Benchmark: S&P 500 Index plus 5%	12.5	15.7	15.7	19.0	—
Domestic Fixed Income	**7.4**	**4.6**	**3.5**	**3.2**	**6.0**
Benchmark: Bloomberg Barclays U.S. Aggregate Float Adjusted Bond Index[1]	8.9	5.4	4.4	3.9	6.1
High-Yield Bonds	**(0.6)**	**—**	**—**	**—**	**—**
Benchmark: ICE BofAML U.S. BB-B Constrained Index[1]	0.5	3.6	—	—	—
Global Bonds	**7.2**	**5.8**	**4.9**	**—**	**—**
Benchmark: Bloomberg Barclays Global Aggregate Float Adjusted Ex-CNY Bond Index (in USD hedged to USD)[1]	6.5	5.4	4.6	—	—
Real Estate Debt	**4.1**	**4.7**	**4.7**	**5.4**	**7.3**
Benchmark: Giliberto-Levy Custom Index[2]	5.7	5.3	4.8	5.0	7.8
Private Debt	**(3.9)**	**6.4**	**—**	**—**	**—**
Benchmark: S&P/LSTA Leveraged Loan Index plus 3%	1.0	5.1	—	—	—
Cash Equivalents	**1.7**	**1.9**	**1.3**	**0.7**	**3.0**
Benchmark: iMoneyNet Money Fund Avg/Taxable (All)	1.1	1.3	0.9	0.4	2.5
Total Fund	**3.5**	**6.5**	**6.8**	**9.6**	**8.6**
Benchmark: Blended Benchmark	**5.3 %**	**7.5 %**	**7.5 %**	**9.8 %**	**8.4 %**

[1] See footnote on the Investments divider page.

[2] These benchmarks were changed from blended benchmarks to the asset class representative benchmark during the year.The Domestic Equity benchmark was changed effective October 1, 2019. The Real Estate Equity and Real Estate Debt benchmarks were changed effective January 1, 2020.

MANAGER INVESTMENT PERFORMANCE RESULTS — as of June 30, 2020

The assets under management (at market), time-weighted performance results (unless indicated otherwise) and the appropriate benchmark or equity multiple for each manager/advisor are summarized in the following table.

	Assets Managed ($ millions)	Rates of Return from Inception[1]	Benchmark from Inception[1]	Equity Multiple[3]	Inception Date
Domestic Equity					
Managers					
Iridian Asset Management LLC	$703.9	9.1 %	5.8 %		Apr-99
T. Rowe Price Associates Inc.	900.7	14.8	14.4		Jan-09
International Equity					
Managers					
AQR Capital Management LLC	880.1	4.6	4.4		Feb-12
Ariel Investments LLC	268.1	2.6	2.2		Apr-17
Arrowstreet Capital LP	625.2	2.7	(0.1)		Jul-17
Baillie Gifford Overseas Ltd.	839.7	9.1	4.8		Sep-11
BlackRock Institutional Trust Co. NA	7,172.1	5.6	5.3		Dec-11
Dimensional Fund Advisors	166.8	1.0	1.7		Feb-13
LSV Asset Management	633.8	2.7	2.7		Jul-11
Marathon Asset Management LLP	538.0	5.9	5.1		Jan-12
Rhumbline Advisors Limited Partnership	390.7	1.0	1.0		Jun-20
State Street Global Advisors	6,791.1	5.0	4.8		Jul-12
William Blair & Company	821.0	6.8	3.3		Oct-10
Xponance Inc. (formerly FIS Group Inc.)	252.7	2.6	2.8		May-13
Global Equity					
Managers					
Arrowstreet Capital LP	1,046.9	5.7	4.7		May-19
Harding Loevner LP	1,238.9	7.5	2.6		May-18
Leading Edge Investment Advisors	411.7	(0.7)	(0.7)		Jun-20
LSV Asset Management	904.5	(7.4)	2.6		May-18
Real Estate Equity					
Advisors					
BentallGreenOak	169.8	10.5	7.8		Apr-95
Cabot Properties LP	34.0	4.4	1.7		May-19
CBRE Global Investors	58.6	(1.8)	2.2		Nov-18
Clarion Partners	450.6	9.2	6.2		Jun-90
Forest Investment Associates	321.1	4.2	5.2		Dec-98
Invesco Advisors Inc. - Industrial	280.1	9.4	7.8		Nov-94
Invesco Advisors Inc. - Multifamily	119.5	11.2	7.2		Dec-98
JPMorgan Asset Management	3,100.9	10.1	6.4		Oct-90
Sentinel Real Estate Corporation	$442.9	11.5 %	7.9 %		Mar-96

[1] Returns for periods over 1 year are annualized.

[2] Return is an IRR (Internal Rate of Return), not time-weighted.

[3] Equity multiples are only shown for aggregates where returns are calculated as an IRR.

MANAGER INVESTMENT PERFORMANCE RESULTS — as of June 30, 2020 *(continued)*

	Assets Managed ($ millions)	Rates of Return from Inception[1]	Benchmark from Inception[1]	Equity Multiple[3]	Inception Date
Real Estate Equity *(continued)*					
Managers					
Adelante Capital Management LLC	$382.9	9.3 %	8.6 %		Aug-98
AEW Capital Management LP	207.3	(1.1)	(1.7)		Oct-17
Brookfield Investment Management	192.3	(3.9)	(2.0)		Sep-17
Cohen & Steers Capital Management Inc.	1,610.7	5.6	3.6		Feb-18
Dimensional Fund Advisors	217.3	0.6	(2.1)		Nov-17
Heitman Real Estate Securities LLC	211.1	(0.5)	(2.0)		Sep-17
Fund Investments					
Real Estate Equity Core Funds	1,359.0	7.0[2]	—	2.3	Jul-85
Real Estate Equity Opportunistic Funds	1,759.7	11.3[2]	—	1.4	Mar-99
Real Estate Equity Value-Added Funds	933.9	10.7[2]	—	1.3	Dec-89
Private Equity					
Fund Investments	9,461.8	12.1[2]	—	1.6	Oct-92
High-Yield Bonds					
Managers					
Columbia Management Investment Advisers, LLC	238.1	4.2	4.9		Oct-18
J.P. Morgan Asset Management	181.9	4.3	4.2		Apr-18
Nomura Corp Research and Asset Mgt Inc.	232.9	1.9	3.4		Dec-17
Global Bonds					
Managers					
Goldman Sachs Asset Management LP	745.0	4.3	3.8		Aug-16
Loomis, Sayles & Company	1,056.4	4.2	4.0		Nov-12
Wellington Management Company LLP	1,021.0	4.4	4.6		Aug-13
Real Estate Debt					
Managers					
BlackRock Financial Management Inc.	773.3	5.1	5.3		Apr-01
Prima Capital Advisors LLC	515.4	5.0	4.8		Nov-03
Raith Capital Partners LLC	103.4	(6.8)	(6.7)		Mar-19
Fund Investments					
Real Estate Debt Core Plus Funds	1,348.8	4.8[2]	—	1.1	Dec-04
Real Estate Debt Opportunistic Funds	359.7	0.1[2]	—	1.0	Jun-98
Private Debt					
Fund Investments	$702.2	6.3% [2]	— %	1.1 %	Jul-17

[1] Returns for periods over 1 year are annualized.

[2] Return is an IRR (Internal Rate of Return), not time-weighted.

[3] Equity multiples are only shown for aggregates where returns are calculated as an IRR.

CORPORATE GOVERNANCE

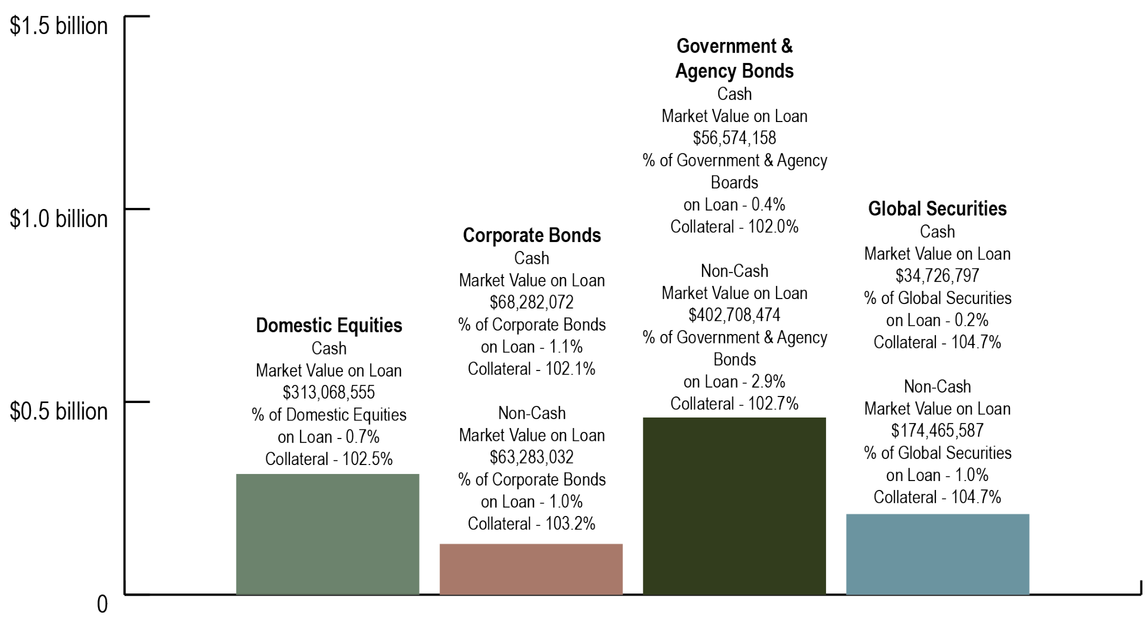
Shareholder responsibility is fundamental to good corporate governance, which recognizes an appropriate balance between the rights of shareholders (the owners of the corporation) and the need for management and the Board to direct the corporation's affairs with a long-term perspective. The System's shareholder voting rights must be managed with the same care as any of its other assets. Therefore, the Retirement Board has established a formal proxy voting policy reflecting three objectives: to protect the System's rights, to promote responsible corporate policies and activities, and to enhance long-term value.

For the 2019 calendar year, a total of 21,726 proposals were voted on, representing 2,195 meetings for the companies it owns in the System's equity portfolio. Many of the proxies focused on auditors/CPA and board-related issues, and executive compensation. System policies generally support management if the position is reasonable, is not detrimental to the long-term economic prospects of the company, and does not tend to diminish the rights of shareholders.

Management Proposals (20,236)			Shareholder Proposals (497)		
Position	Number of Proposals	Percentage of Position	Position	Number of Proposals	Percentages of Position
For	19,114	90.1%	For	267	51.6%
Against	2,052	9.7%	Against	247	47.8%
Abstain	43	0.2%	Abstain	3	0.6%

SECURITIES LENDING PROGRAM — as of June 30, 2020

Cash: $472,651,582 - Non-Cash: $640,457,093 - Total: $1,113,108,675



SCHEDULE OF INVESTMENT FEES AND EXPENSES — Year ended June 30, 2020*

(dollars in thousands)

	Assets Managed ($ millions)	Investment Management Expenses 2019-2020
Domestic Equity:		
Managers	$ 1,605	$ 9,926
International Equity:		
Managers	$ 19,379	$ 26,311
Global Equity:		
Managers	$ 3,602	$ 11,574
Real Estate Equity:		
Advisors	$ 4,977	$ 18,588
Managers	2,822	8,875
Fund Investments	4,053	71,479
Total Real Estate Equity:	$ 11,852	$ 98,942
Private Equity:		
Fund Investments	$ 9,462	$ 137,539
High-Yield:		
Managers	$ 653	$ 1,474
Global Bonds:		
Managers	$ 2,822	$ 5,655
Real Estate Debt:		
Advisors	$ 1,392	$ 2,464
Managers	1,454	101
Fund Investments	1,709	11,377
Total Real Estate Debt:	$ 4,555	$ 13,942
Private Debt:		
Fund Investments	$ 702	$ 13,711
Total Investment Manager Fees:		$ 319,074

	Investment Management Expenses 2019-2020
Legal Expenses:	
DLA Piper LLP (US)	$ 94
Hirschler Fleischer	121
K&L Gates	123
Katten Muchin Rosebmann LLP	140
Morgan, Lewis & Bockius	61
Nixon Peabody	65
Nossaman LLP	69
Reinhart	68
Seward & Kissel	121
Sidley Austin	144
Teigland Hunt	82
Other Legal Expenses	93
Total Legal Expenses:	$ 1,181
General Expenses:	
Advisory Committee - Investment	$ 53
Advisory Committee - Real Estate	51
Abel Noser Solutions, LLC	48
Aon Hewitt Investment Consulting Inc	538
Callan Associates	472
Investment Information Services	5,352
JPMorgan Chase	15
Real Estate Origination Costs	340
Real Estate Professional Fees	194
Real Estate Service Costs	33
State Street Corporation	1,287
StepStone Group LP	825
TorreyCove Capital Partners LLC	549
Total General Expenses:	$ 9,757
Total Investment Fees and Expenses:	**$ 330,012**

The above schedule is presented based on asset allocation, which differs from financial statement presentation.

INVESTMENT ADVISORY COMMITTEE

Robert Levine, CFA, Chairman
Chief Investment Officer (Retired)
Nomura Corporate Research and Asset Management Inc.
New York, New York

Howard J. Bicker
Executive Director/CIO (Retired)
Minnesota State Board of Investment
Saint Paul, Minnesota

Daniel J. Bukowski
Managing Partner
Net Alpha Advisors, LLC
Chicago, Illinois

Johanna Fink
Chief Operating Officer
Leducq Corporation
Boston, Massachusetts

Steven Huber, CFA, FSA
Portfolio Manager for Global Multi-Sector Bond Strategies (Retired)
T. Rowe Price Group, Inc.
Baltimore, Maryland

James W. O'Keefe
Managing Director (Retired)
UBS Realty Investors LLC
Hartford, Connecticut

June W. Yearwood
Managing Director
The Church Pension Fund
New York, New York

REAL ESTATE ADVISORY COMMITTEE

James W. O'Keefe, Chairman
Managing Director (Retired)
UBS Realty Investors LLC
Hartford, Connecticut

Herman Bulls
Vice Chairman, Americas
JLL
Washington, DC

Eileen Byrne
Managing Director (Retired)
BlackRock Inc.
New York, New York

Paul J. Dolinoy
President (Retired)
Equitable Real Estate/Lend Lease
Atlanta, Georgia

Blake Eagle
Chief Executive Officer (Retired)
National Council of Real Estate Investment Fiduciaries
Chicago, Illinois

Maureen A. Ehrenberg
Chief Executive Officer
Blue Skyre IBE
Chicago, Illinois

Jill S. Hatton
Managing Director (Retired)
BlackRock Inc.
Boston, Massachusetts

INVESTMENT CONSULTANTS

Abel Noser Solutions, LLC
New York, New York

Aon Hewitt Investment Consulting Inc.
Chicago, Illinois

Callan LLC
San Francisco, California

StepStone Group LP
La Jolla, California

TorreyCove Capital Partners
San Diego, California

MASTER CUSTODIAN

State Street Bank & Trust Co.
Boston, Massachusetts

SECURITIES LENDING

JPMorgan Chase Bank N.A.
New York, New York

State Street Bank & Trust Co.
Boston, Massachusetts

EXTERNAL INVESTMENT MANAGERS & ADVISORS

Domestic Equity:
Iridian Asset Management LLC
T. Rowe Price Associates Inc.

International Equity:
AQR Capital Management LLC
Ariel Investments LLC
Arrowstreet Capital LP
Baillie Gifford Overseas Ltd.
BlackRock Institutional Trust Co. NA
Dimensional Fund Advisors
LSV Asset Management
Marathon Asset Management LLP (Marathon-London)
Rhumbline Advisors Limited Partnership
State Street Global Advisors
William Blair & Company
Xponance Inc. (Manager of Managers)

Global Equity:
Arrowstreet Capital LP
Harding Loevner LP
LSV Asset Management
Leading Edge Investment Advisors (Manager of Managers)

Real Estate Equity:

Advisors:
BentallGreenOak
Cabot Properties LP
CBRE Global Investors
Clarion Partners
Federal Capital Partners
Forest Investment Associates
Invesco Advisers Inc.
JPMorgan Asset Management
Sentinel Real Estate Corporation

Managers:
Adelante Capital Management LLC
AEW Capital Management LP
Brookfield Public Securities Group LLC
Cohen & Steers Capital Management Inc.
Dimensional Fund Advisors LP
Heitman Real Estate Securities LLC

Fund Investments:
Abacus Multi-Family Partners III LP
Abacus Multi-Family Partners IV LP
Aermont Capital Real Estate Fund IV SCSP
AG Core Plus Realty Fund IV LP

EXTERNAL INVESTMENT MANAGERS & ADVISORS *(continued)*

Real Estate Equity: *(continued)*

Fund Investments: *(continued)*

AG Realty Fund VI LP
AG Realty Fund VII LP
AG Realty Fund VIII LP
AG Realty Fund IX LP
AG Realty Value Fund X LP
Artemis Real Estate Partners Fund I LP
Artemis Real Estate Partners Fund II LP
Artemis Real Estate Partners Fund III LP
BlackRock Europe Parallel Property Fund II LP
BlackRock Europe Property Fund III LP
Blackstone Real Estate Partners Asia LP
Blackstone Real Estate Partners Asia II LP
Blackstone Real Estate Partners Europe IV LP
Blackstone Real Estate Partners Europe V LP
Blackstone Real Estate Partners Europe Fund VI SCSp
Blackstone Real Estate Partners V TE2 LP
Blackstone Real Estate Partners VI TE2 LP
Blackstone Real Estate Partners VII TE1 LP
Blackstone Real Estate Partners VIII LP
Blackstone Real Estate Partners IX LP
Brockton Capital Fund III LP
Brookfield DC Office Partners LLC
Brookfield DTLA Holdings LLC
Brookfield Properties Office Partners Inc.
Brookfield Strategic Real Estate Partners III LP
Cabot Industrial Core Fund LP
Cabot Industrial Core Fund II LP
Cabot Industrial Value Fund V LP
California Select Industrial Partners LP
CBRE Strategic Partners Europe III LP
CBRE Strategic Partners U.S. Opportunity 5 LP
CBRE Strategic Partners U.S. Value Fund 7 LP
Cerberus Institutional Real Estate Partners LP - Series Two
Cerberus Institutional Real Estate Partners III LP
Clarion Development Ventures III LP
DLJ Real Estate Capital Partners III LP
DLJ Real Estate Capital Partners IV LP
Excelsior II LLC
Exeter Industrial Value Fund LP
Exeter Industrial Value Fund II LP
Exeter Industrial Value Fund III LP
Exeter Industrial Value Fund IV LP
FCP Realty Fund II LP
FCP Realty Fund III LP
FCP Realty Fund IV LP
Gateway Real Estate Fund IV LP
Gateway Real Estate Fund V LP
Gateway Real Estate Fund VI LP
GCM Grosvenor - NYSTRS RE Inv. Partners LP
GCM Grosvenor - NYSTRS RE Inv. Partners LP 2016-1
GCM Grosvenor - NYSTRS RE Inv. Partners LP 2018-1
GreenOak US III LP
Heritage Fields LLC
LaSalle Asia Opportunity Fund III
Lone Star Fund III (U.S.) LP
Lone Star Fund IV (U.S.) LP
Lone Star Fund V (U.S.) LP
Lone Star Fund VI (U.S.) LP
Lone Star Fund VII (U.S.) LP
Lone Star Fund IX (U.S.) LP
Lone Star Fund X (U.S.) LP
Lone Star Fund XI LP
Lone Star Real Estate Fund II (U.S.) LP
Lone Star Real Estate Fund III (U.S.) LP
Northwood Real Estate Partners LP - Series VI
Northwood Real Estate Partners LP - Series VIII
O’Connor North America Property Partners LP
O’Connor North America Property Partners II LP
Pennybacker V LP
Penwood Select Industrial Partners III LP
Penwood Select Industrial Partners IV LP
Penwood Select Industrial Partners V LP
Perella Weinberg Real Estate Fund I LP
Perella Weinberg Real Estate Fund II LP
PLA Residential Fund III LP
PRISA I
PRISA II
PRISA III
PW Real Estate Fund III LP
Rockpoint Finance Fund I LP
Rockpoint Growth and Income Real Estate Fund I LP
Rockpoint Growth and Income Real Estate Fund II LP
Rockpoint Growth and Income Real Estate Fund III LP
Rockpoint Real Estate Fund II LP
Rockpoint Real Estate Fund III LP
Rockpoint Real Estate Fund IV LP
Rockpoint Real Estate Fund V LP
Rockpoint Real Estate Fund VI LP
Rockwood Capital Real Estate Partners Fund VI LP
Rockwood Capital Real Estate Partners Fund VII LP
Rockwood Capital Real Estate Partners Fund VIII LP
Starwood Distressed Opportunity Fund IX LP
Starwood Global Opportunity Fund VII-A LP
Starwood Opportunity Fund X Global LP
Starwood Opportunity Fund XI Global LP
UBS Trumbull Property Fund
Walton Street Real Estate Fund VI LP
WB SJC Residential Site Partnership LP
Westbrook Real Estate Fund VI LP
Westbrook Real Estate Fund VII LP
Westbrook Real Estate Fund VIII LP
Westbrook Real Estate Fund IX LP
Westbrook Real Estate Fund X LP
Westbrook Real Estate Partners LP (Fund V)

EXTERNAL INVESTMENT MANAGERS & ADVISORS *(continued)*

Private Equity:

Fund Investments:

A&M Capital Partners II, LP
Abbott Select Buyout Fund II
Abbott Select Buyouts Fund
Abbot Select EM Buyouts LP
ABRY Partners Fund V
ABRY Partners Fund VI
ABRY Partners Fund VII
ABRY Partners Fund VIII
ABRY Partners Fund IX
ADV Opportunities Fund II LP
Aisling Capital II LP
Aisling Capital III LP
Amulet Capital Fund I LP
Amulet Capital Fund II LP
Apex VI
Apollo Real Estate Fund IV
Ares Corporate Opportunities Fund II LP
Ares Corporate Opportunities Fund III LP
Ares Corporate Opportunities Fund IV LP
Ares Corporate Opportunities Fund V LP
Astorg VII
BGH Capital Fund I LP
Blackstone Capital Partners Fund IV
Blackstone Capital Partners Fund V
CapStreet IV LP
CapStreet V LP
Capvis Equity V LP
Carlyle Asia Partners IV LP
Carlyle Asia Partners V LP
Carlyle European Partners III LP
Carlyle Partners IV LP
Carlyle Partners V LP
Carlyle/Riverstone Global Energy & Power Fund III
Charterhouse Capital Partners VIII
Charterhouse Capital Partners IX
Chisholm Partners III
ChrysCapital VIII LP
Cinven III
Cinven IV
Cinven V
Cinven VI
Cinven VII
Clayton Dubilier & Rice VI
Clearlake Capital Partners III LP
Clearlake Capital Partners IV LP
Clearlake Capital Partners V LP
Clearlake Capital Partners VI LP
Co-Investment Partners (NY) LP
Co-Investment Partners (NY) II LP
Co-Investment Partners (NY) III LP
Co-Investment Partners Europe LP
Cortec Group Fund V LP
Cortec Group Fund VI LP
Cortec Group Fund VII LP
Cressey & Co. V LP
Cressey & Co. VI LP
Cressey & Co. Overage VI LP
CVC Capital Partners Asia Pacific IV LP
CVC Capital Partners VI LP
CVC European Equity Partners V LP
DCP Capital Partners LP
Doughty Hanson & Co. V
ECI 11 LP
EIV Capital III LP
EIV Capital Fund IV LP
EIV Capital IV Top-Up Fund LP
Energy Capital Partners II LP
Energy Capital Partners III LP
Fairview Ventures Fund II
Fairview Ventures Fund III
FirstMark Capital II LP
FirstMark Capital III LP
GCM Grosvenor Cleantech
GCM Grosvenor Seasoned Primaries
GCM Grosvenor Seasoned Primaries II
GCM Grosvenor Seasoned Primaries III
General Catalyst Group VII LP
Gilde Buy-Out Fund V CV
Gilde Buy-Out Fund VI
Green Equity Investors V
GTCR Fund VIII
GTCR Fund IX
GTCR Fund X
GTCR Fund XI
GTCR Fund XII
Hahn & Company III LP
Hahn & Company III-S LP
HarbourVest International PEP IV
HarbourVest International PEP V
HarbourVest International PEP VI - Asia Pacific Fund
HarbourVest Partners VII-Mezzanine Fund
HarbourVest Partners VII-Venture Fund
HarbourVest Partners VIII-Venture Fund
HarbourVest VI - Partnership Fund
HarbourVest/The Maple Fund (Tranche H1)
HarbourVest/The Maple Fund (Tranche H2)
HarbourVest/The Maple Fund (Tranche H3)
HarbourVest/The Maple Fund (Tranche N1)
HarbourVest/The Maple Fund (Tranche N2)
HarbourVest/The Maple Fund (Tranche N3)
HarbourVest/The Maple Fund (Tranche N4)
HarbourVest/The Maple Fund (Tranche N5)
HarbourVest/NYSTRS Co-Investment Fund
HarbourVest/NYSTRS Co-Investment Fund II
HarbourVest/NYSTRS Co-Investment Fund III
Hellman & Friedman VI LP
Hellman & Friedman VII LP
Hellman & Friedman VIII LP
Hellman & Friedman IX LP
Highland Capital Partners IX LP
HIPEP Select Asia Fund LP
HIPEP Select Asia II LP
HIPEP Select Asia III LP
Horsley Bridge VII

EXTERNAL INVESTMENT MANAGERS & ADVISORS *(continued)*

Private Equity: *(continued)*

Fund Investments: *(continued)*

IK Fund VII LP
IK Fund VIII LP
IK Small Cap II Fund
Industri Kapital 2007 Fund
Inflexion 2010 Buyout Fund
Inflexion Buyout Fund IV LP
Inflexion Buyout Fund V LP
Inflexion Enterprise Fund IV LP
Inflexion Enterprise Fund V LP
Inflexion Partnership Capital Fund LP
Inflexion Partnership Capital Fund II LP
Inflexion Strategic Partners LP
Inflexion Supplemental Fund IV LP
Inflexion Supplemental Fund V LP
Institutional Venture Partners XIV LP
Institutional Venture Partners XV LP
JC Flowers II LP
JLL Partners Fund V LP
JLL Partners Fund VI LP
Kelso Investment Associates VII
Kelso Investment Associates VIII
Kinderhook Capital Fund VI LP
KKR Asian Fund II LP
KRG Capital Fund IV
Lexington Capital Partners V
Lexington Capital Partners VI
Lexington Capital Partners VII
Lexington Emerging Partners LP
Lexington Middle Market Investors
Lexington Middle Market Investors II
Lightspeed Venture Partners Select LP
Lightspeed Venture Partners IX LP
Lightspeed Venture Partners X LP
Linden Capital Partners Fund IV LP
Livingbridge 7 LP
Lovell Minnick Partners Fund V LP
LS Power Equity Partners IV LP
Madison Dearborn Capital Partners IV
Madison Dearborn Capital Partners V
Madison Dearborn Capital Partners VI
MBK Partners Fund IV LP
MBK Partners V LP
Metalmark Capital Partners LP
Monomoy Capital Partners III LP
Nautic V LP
Nautic VI LP
Nautic VII LP
Nautic Partners VIII LP
Nautic Partners IX LP
NMS Fund III LP
Olympus Growth Fund V
Olympus Growth Fund VI
One Rock Capital Partners II LP
One Rock Capital Partners III LP
P123 Ltd
Pacific Equity Partners Fund V LP
Pacific Equity Partners Fund VI LP
Patria - Brazilian Private Equity Fund V LP
Patria - Private Equity Fund VI LP
PEG Pooled Venture Capital Institutional Investors II LLC
PEG Pooled Venture Capital Institutional Investors III LLC
Permira IV
Phoenix Equity Partners 2010 Fund
Phoenix Equity Partners 2016 Fund
Pine Brook Capital Partners LP
Pine Brook Capital Partners II LP
Primavera Capital Fund III LP
Rhone Partners IV LP
Rhone Partners V LP
Riverstone/Carlyle Global Energy and Power Fund IV
Silver Lake Partners II LP
Silver Lake Partners III LP
Silver Lake Partners IV LP
Silver Lake Partners V LP
Siris Partners III LP
Siris Partners IV LP
SK Capital Partners V LP
SK Capital Partners Overage V LP
SKCP Catalyst Fund I LP
Spark Capital Growth Fund II LP
Spark Capital Partners IV LP
Spark Capital Partners V LP
StepStone Pioneer Capital Buyout Fund I LP
StepStone Pioneer Capital Europe I LP
StepStone Pioneer Capital Europe II LP
StepStone Pioneer Capital Fund II LP
StepStone Pioneer Capital Fund III LP
Sterling Group Partners III LP
Sterling Group Partners IV LP
Sterling Group Partners V LP
Strategic Partners III - Venture LP
Strategic Partners III LP
Strategic Partners IV - VC LP
Strategic Partners IV LP
Strategic Partners V LP
Sun Capital Partners V LP
Sycamore Partners III LP
Tailwater Energy Fund III LP
Tailwater Energy Fund IV LP
TCV IX LP
TCV X LP
TDR Capital IV LP
Technology Crossover Ventures V
Technology Crossover Ventures VI
Technology Crossover Ventures VII
Tenex Capital Partners II LP
Tenex Capital Partners III LP
The First Capital Access Fund LP
Thoma Bravo Discover Fund LP
Thoma Bravo Discover Fund II LP
Thoma Bravo Discover Fund III LP

EXTERNAL INVESTMENT MANAGERS & ADVISORS *(continued)*

Private Equity: *(continued)*

Fund Investments: *(continued)*

Thoma Bravo Fund X
Thoma Bravo Fund XI LP
Thoma Bravo Fund XII LP
Thoma Bravo Fund XIII LP
Thoma Bravo Fund XIV LP
Thoma Bravo Special Opportunities Fund I LP
Thoma Bravo Special Opportunities Fund II LP
TPG Partners IV
TPG Partners V
TPG Partners VI
Trident VII LP
TSG5 LP
TSG6 LP
TSG7 A LP
TSG7 B LP
TSG8 LP
Valhalla Partners II LP
Valor Equity Partners IV LP
Valor Equity Partners V LP
VantagePoint NY Venture Partners
VantagePoint Venture Partners 2006
VantagePoint Venture Partners IV
VCFA Private Equity Partners IV
Veritas Capital Buyout Fund VI LP
Vitruvian Investment Partners IV
Vista Equity Partners Fund IV
Warburg Pincus Private Equity VIII
Waud Capital Partners III LP
Waud Capital Partners IV LP
Welsh, Carson, Anderson, & Stowe X
Wynnchurch Capital Partners III LP

High-Yield Bonds:

Columbia Management Investment Advisors LLC
J.P. Morgan Asset Management
Nomura Corp. Research and Asset Mgt. Inc.

Global Bonds:

Goldman Sachs Asset Management LP
Loomis, Sayles & Company
Wellington Management Company LLP

Real Estate Debt:

Managers:

Blackrock Financial Management Inc.
Prima Capital Advisors LLC
Raith Capital Partners LLC

Fund Investments:

Barings Real Estate Credit Strategies High-Grade LP
Blackstone Real Estate Debt Strategies II LP
Blackstone Real Estate Debt Strategies High-Grade LP
Brookfield Real Estate Finance Fund IV LP
Brookfield Real Estate Finance Fund V LP
Brookfield Senior Mezzanine Real Estate Finance Fund LP
Brookfield Senior Real Estate Finance Account (N) LP

Real Estate Debt: *(continued)*

Fund Investments: *(continued)*

Capri Select Income II
GCM Grosvenor - NYSTRS Debt Inv. Partners LP
GCM Grosvenor - NYSTRS Debt Inv. Partners LP 2018-1
Madison Realty Capital Debt Fund III LP
PCCP Mezzanine Recovery Partners I LP
Pramerica Real Estate Capital IV LP
Prima Capital Advisors LLC
Sullivan Debt Fund LP
TCI Real Estate Partners Fund II LP

Private Debt:

Fund Investments:

ABRY Advanced Securities Fund II
ABRY Advanced Securities Fund III
ABRY Advanced Securities Fund IV
ABRY Mezzanine Partners
ABRY Senior Equity Fund II
ABRY Senior Equity Fund III
ABRY Senior Equity Fund IV
ABRY Senior Equity Fund V
AG Capital Recovery Partners VII LP
Blue Torch Credit Opportunities Fund II LP
Caltius Partners IV LP
Clearlake Opportunities Partners LP
Clearlake Opportunities Partners II LP
H.I.G. Whitehorse Principal Lending Fund
Hutton Collins Capital Partners II LP
Hutton Collins Capital Partners III LP
ICG Europe Fund V
ICG Europe Fund VI
ICG Europe Fund VII
ICG North American Private Debt Fund II LP
MGG SF Evergreen Fund LP
Oaktree European Principal Fund III L
Orion Energy Credit Opportunities Fund II LP
Orion Energy Credit Opportunities Fund III LP
Peninsula Fund V
WCAS Capital Partners IV

Actuarial

SHARED ACCOUNTABILITY

At NYSTRS, we believe each member of our team is individually and collectively responsible for excellence and exceptional customer service. We set and exceed high standards and work together to reach common goals. We are accountable in every way and go the extra mile every day.

Actuarial

Page

ACTUARIAL CERTIFICATION LETTER

New York State Teachers' Retirement System
10 Corporate Woods Drive
Albany, NY 12211-2395
(800) 348-7298 or (518) 447-2900
NYSTRS.org
Thomas K. Lee, Executive Director & CIO

Office of the Actuary

October 26, 2020

Retirement Board
New York State Teachers' Retirement System
10 Corporate Woods Drive
Albany, New York 12211-2395

Dear Members of the Board:

The financial objective of the New York State Teachers' Retirement System is to properly fund the retirement and ancillary benefits of members in order to ensure sufficient assets are being accumulated in order to pay benefits as they become due. The Retirement System is a cost-sharing multiple-employer defined benefit pension plan. Employer contributions are made by participating employers in accordance with an actuarially determined employer contribution rate. This rate is determined by an actuarial valuation made as of each June 30th. Members contribute in accordance with a fixed rate schedule as required by statute.

The most recently completed actuarial valuation was made as of June 30, 2019. This valuation relies on member data provided by the participating employers to the Retirement System. The administrative and actuarial staffs review this data for reasonability as well as reconcile it against prior data. In addition, the valuation relies on financial data provided by the Retirement System's Finance Department. The Retirement System's independent auditors provide reasonable assurances of the data provided by the Finance Department as part of the annual audit. We believe the member and financial data to be reasonable and appropriate for purposes of this valuation. Plan provisions are summarized in both the introduction section and the financial section of this report.

Actuarial assumptions, as adopted by the Retirement Board, are reviewed each year against experience on both an annual and quinquennial basis and changes are recommended when warranted. Assumptions are typically revised every five years. The current actuarial assumptions, other than the valuation rate of interest, mortality improvement scale and COLA assumptions, were adopted by the Retirement Board in October 2015 and first effective with the June 30, 2015 actuarial valuation. The valuation rate of interest was adopted by the Retirement Board in October 2017, lowering the rate from 7.50% to 7.25% effective with the June 30, 2017 actuarial valuation. The valuation rate of interest was lowered again from 7.25% to 7.10% effective with the June 20, 2019 actuarial valuation. Also effective with the June 30, 2019 actuarial valuation the mortality improvement scale was changed from MP2014 to MP2018, the COLA assumption was lowered from 1.5% to 1.3%, and the inflation assumption was lowered from 2.25% to 2.2%.

The actuarial funding method is the Aggregate Cost Method and is specified in statute. In this method, actuarial gains and losses are not separately amortized, but are spread as part of the annual normal rate calculation over the present value of future salaries of active members. This method is an appropriate contribution allocation procedure for the purpose of ongoing plan funding and having sufficient assets to pay benefits as they become due. A summary of the actuarial methods and assumptions used in the actuarial valuation is included later in this section. More detail on the valuation and actuarial methods and assumptions is available in the System's Actuarial Valuation Report. The actuarial cost method for funding differs from that used for financial reporting purposes.

ACTUARIAL CERTIFICATION LETTER *(continued)*

The System's market value rate of return on assets for the fiscal year ending June 30, 2019 was 7.1%. The System's five-year annualized rate of return stood at 7.2%. The June 30, 2019 actuarial valuation produced a required employer contribution rate of 9.53% of payroll, representing an increase of approximately 8% over the prior year's rate of 8.86%. Actuarial losses on demographic assumptions was the primary reason for the increase in the employer contribution rate.

Looking ahead to next year, the capital markets produced returns below expectations during the fiscal year ending June 30, 2020. The System's total fund net rate of return was 3.5% for the fiscal year. This will bring the System's five-year annualized rate of return down to 6.8%. The actuarial value of assets smoothing method recognizes gains and losses gradually over a five-year period thereby moderating their impact on the employer contribution rate.

As of this date the Retirement System is contemplating a change to the mortality improvement scale for the actuarial valuation as of June 30, 2020. The next scheduled revision of all other actuarial assumptions is expected to be implemented for the June 30, 2021 actuarial valuation. Hopefully at that time the System will be in a better position to gauge the impact of the COVID-19 pandemic on the System's membership.

The plan's funded ratio as of June 30, 2019, calculated using the Actuarial Value of Assets (AVA) was 99.6% and calculated using the Market Value of Assets (MVA) was 101.2%. While the funded ratios will fluctuate from year to year, a funded ratio of 100% is desirable and indicative of a well-funded System. The primary reason for this healthy funded ratio is that in accordance with statute the System has collected the actuarially-required contribution annually from employers. The significance of this cannot be overstated. It does not, however, imply that future contributions will not be required. A ten-year schedule of actuarially determined and actual contributions made are provided as required supplementary information in the financial section. Various exhibits in this section provide further information on the actuarial assets, liabilities, and the funding level.

All actuarial calculations have been prepared using actuarial assumptions and methods determined in accordance with generally accepted actuarial principles, procedures, and standards of practice as prescribed by the Actuarial Standards Board, and Statements of the Governmental Accounting Standards Board, where applicable. All schedules in the Actuarial section were prepared under my direction. Specifically these schedules consist of the Summary of Actuarial Methods and Assumptions, Actuarial Present Value of Future Benefits, Analysis of Funding Progress, Percent Funded, Solvency Test, Analysis of Financial Experience, History of Member Payroll and the Employer Contribution Rate, and Schedule of Retired Members and Beneficiaries Added to and Removed from the Benefit Payroll. I am a member of the Society of Actuaries and the American Academy of Actuaries and meet the qualification standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully submitted,

Richard A. Young, ASA, EA, MAAA, FCA
Actuary

cc: T. Lee

SUMMARY OF PLAN PROVISIONS AND ACTUARIAL METHODS AND ASSUMPTIONS — as of June 30, 2019

Plan Provisions

Plan Provisions are summarized in the Introduction section and Notes to the Financial Statements. Detailed Plan Provisions are available in the annual Actuarial Valuation Report and online at NYSTRS.org. All Plan Provisions and all changes in Plan Provisions are valued as part of the Actuarial Valuation.

Methods

Actuarial funding method:	Aggregate Cost Method (gains and losses are smoothed over the average future working lifetime of active members). All benefits are included in the actuarial valuation. See *Summary of Benefits* in the Introduction.
Actuarial asset valuation method:	Five-year phased-in deferred recognition of each year's net investment income/loss, in excess of (or less than) the assumed gain for each year in the five-year period.

Assumptions

Assumptions are computed by the Actuary and adopted by the Retirement Board. They are based upon recent NYSTRS member experience. Selected sample rates are shown below. Adoption dates are shown in parentheses. Detailed assumption information may be found in NYSTRS' annual Actuarial Valuation Report.

Valuation Rate of Interest (10/2019)
7.10% compounded annually. The valuation rate of interest contains a 2.20% assumed annual rate of inflation.

Rates of Salary Increase (10/2015) Including Cost-of-Living, Merit and Productivity	
Years of Service	
5	4.72%
15	3.46
25	2.37
35	1.90

Projected COLA Rate (10/2019)
1.3% annually

Base Rates of Mortality (10/2015)					
Male Age	Active Members	Male Age	Retired Members & Beneficiaries*	Male Age	Disabled Members*
30	0.03%	20	0.03%	30	18.00%
40	0.05	40	0.05	40	13.29
50	0.08	60	0.39	60	4.26
60	0.20	80	4.04	80	7.56
Female Age		Female Age		Female Age	
30	0.01%	20	0.01%	30	10.65%
40	0.02	40	0.04	40	8.19
50	0.06	60	0.29	60	3.13
60	0.10	80	2.82	80	7.40

Rates of Withdrawal (10/2015) Ten-Year Ultimate Rates	
Male Age	
35	0.85%
40	0.75
45	0.87
50	0.92
Female Age	
35	1.88%
40	1.15
45	1.01
50	0.94

Rates of Service Retirement (10/2015)					
Male Age	Tier 1 & Tiers 2-4 age 62 or with 30 years of service & Tier 5 age 62	Tiers 2-4 less than age 62 & less than 30 years of service	Tier 5 less than age 62 & less than 30 years of service	Tier 5 less than age 62 & with 30 years of service	Tier 6
55	30.67%	3.20%	1.60%	1.60%	1.60%
60	31.10	6.36	3.18	25.94	3.18
65	20.97	—	—	—	25.24
70	16.36	—	—	—	27.03
Female Age					
55	31.40%	3.46%	1.73%	1.73%	1.73%
60	27.94	7.04	3.52	26.10	3.52
65	23.83	—	—	—	26.95
70	22.93	—	—	—	25.72

Rates of Disability Retirement (10/2015)	
Male Age	
35	0.01%
40	0.02
45	0.05
50	0.09
Female Age	
35	0.01%
40	0.02
45	0.05
50	0.10

No assumption is made for optional forms of benefit available at retirement because options are actuarially equivalent to the single life benefit.

There are no other specific assumptions or significant events that have a material impact on the most recent Actuarial Valuation.

**Future annuitant mortality rates are the annuitant mortality base rates adjusted for mortality improvement using Society of Actuaries Scale MP-2018.*

ACTUARIAL PRESENT VALUE OF FUTURE BENEFITS — as of June 30, 2019 and June 30, 2018

(in thousands)

Each year an actuarial valuation determines the actuarial present value of future benefits (PVB), which is the present value of retirement and ancillary benefit payments, excluding group life insurance benefits, that the Retirement System can expect to pay in the future to current retirees and members. The PVB is based upon both service and salary projected to retirement. The results of the two most recent actuarial valuations are displayed in the following table.

	2019	2018
Present Value of Benefits Currently Being Paid:		
Service Retirement Benefits	$ 64,180,803	$ 63,093,963
Disability Retirement Benefits	353,622	357,913
Death Benefits	1,474	2,287
Survivor Benefits	1,107,460	1,063,411
Cost-of-Living Allowance	4,878,105	5,242,492
Total Present Value of Benefits Currently Being Paid	70,521,464	69,760,066
Present Value of Benefits Payable in the Future to Current Active Members:		
Service Retirement Benefits	59,396,166	56,167,649
Disability Retirement Benefits	236,212	232,210
Termination Benefits	2,290,161	2,188,574
Death and Survivor Benefits	427,006	396,140
Cost-of-Living Allowance	1,353,531	1,415,449
Total Active Member Liabilities	63,703,076	60,400,022
Present Value of Benefits Payable in the Future to Current Inactive (Vested) Members:		
Retirement Benefits	397,687	377,266
Death Benefits	308	319
Cost-of-Living Allowance	32,819	32,016
Total Vested Liabilities	430,814	409,601
Unclaimed Funds	19,396	17,701
Total Actuarial Present Value of Future Benefits	**$134,674,750**	**$130,587,390**

Note: Totals may not sum due to rounding.

FUNDING PROGRESS

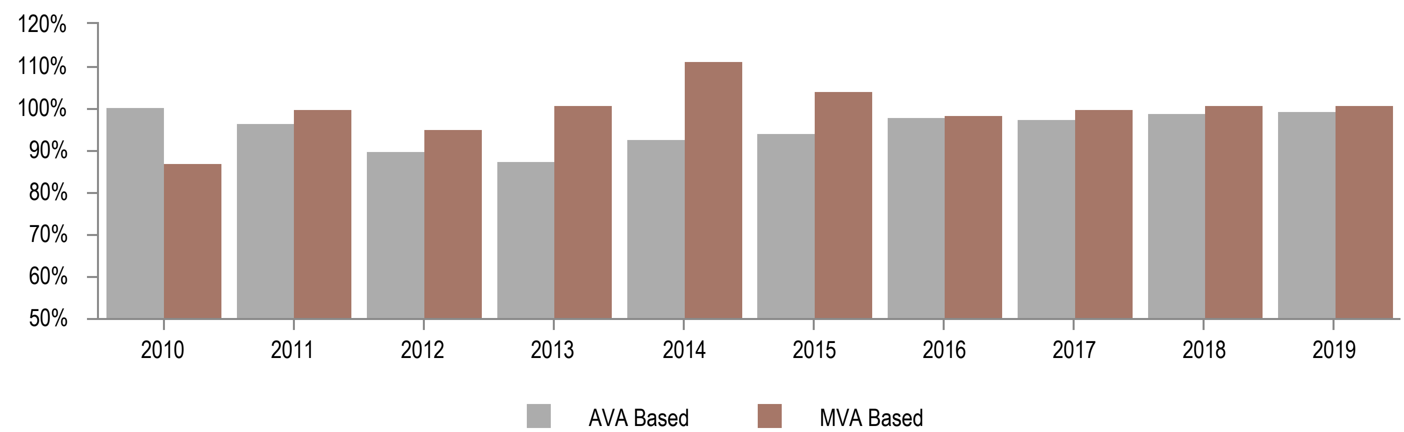
The portion of the actuarial present value of future benefits that is attributed to service rendered as of the valuation date is known as the actuarial accrued liability. In order to effectively assess the funding progress of a retirement system, it is necessary to compare the ratio of plan assets to the actuarial accrued liability over a period of time. Plan assets can be expressed as the market value of assets or as the actuarial value of assets. The market value of assets represents the market value of investments as of a particular date. The actuarial value of assets smooths the volatility inherent in the market value of assets by phasing in unexpected gains and losses over a period of five years, and represents more of an average value. The Retirement System's funding method has allowed the accumulation of assets appropriate for the funding of its liabilities in a systematic and reasonable manner.

ANALYSIS OF FUNDING PROGRESS

(in millions)

Fiscal Year Ended	Market Value of Assets (MVA)	Actuarial Value of Assets (AVA)[1]	Actuarial Accrued Liability[2]	Unfunded Actuarial Accrued Liability (Surplus)	Annual Member Payroll	Unfunded Actuarial Accrued Liability as a Percentage of Payroll	Percent Funded Based On MVA	Percent Funded Based On AVA
2010	$76,844.9	$88,544.4	$88,318.8	$(225.6)	$14,792.1	(1.5)%	87.0%	100.3%
2011	89,889.7	86,892.2	89,824.9	2,932.7	14,732.9	19.9	100.1	96.7
2012	88,056.3	82,871.4	92,250.9	9,379.5	14,640.8	64.1	95.5	89.8
2013	95,367.0	82,742.5	94,583.8	11,841.3	14,647.8	80.8	100.8	87.5
2014	108,155.1	90,007.1	96,904.5	6,897.4	14,771.3	46.7	111.6	92.9
2015	109,718.9	99,301.8	105,401.8	6,100.0	15,021.4	40.6	104.1	94.2
2016	107,506.1	107,039.2	109,305.1	2,265.9	15,431.0	14.7	98.4	97.9
2017	115,468.4	113,059.7	115,672.5	2,612.8	15,846.7	16.5	99.8	97.7
2018	119,915.5	117,859.5	118,861.1	1,001.6	16,288.9	6.1	100.9	99.2
2019	122,477.5	120,586.9	121,049.3	462.4	16,691.6	2.8	101.2	99.6

PERCENT FUNDED



[1] *The Retirement System's asset valuation method was changed effective with the June 30, 2015 actuarial valuation.*

[2] *Effective June 30, 2006, the Actuarial Accrued Liability is calculated under the Entry Age Normal Cost Method, including the Group Life Insurance Fund, as was required by Governmental Accounting Standards Board (GASB) Statement No. 50 prior to its replacement by GASB Statement No. 67. The System is funded in accordance with the Aggregate Cost Method. GASB Statement No. 50 required that the Entry Age Normal Cost Method be used to calculate the accrued liability for purposes of presenting the funded percentage.*

SOLVENCY TEST

(in millions)

Fiscal Year Ended	Aggregate Accrued Liabilities* for: Active Member Accumulated Contributions (A)	Current Retired Members and Beneficiaries (B)	Service Rendered by Active Members (Employer-Financed Portion) (C)	Actuarial Value of Assets (D)	Percentage of Aggregate Accrued Liabilities Covered by Actuarial Value of Assets (A)	(B)	(C)
2010	$4,016.4	$50,546.3	$33,756.1	$88,544.4	100.0%	100.0%	100.7%
2011	4,111.2	54,635.2	31,078.5	86,892.2	100.0	100.0	90.6
2012	4,256.4	56,197.6	31,796.9	82,871.4	100.0	100.0	70.5
2013	4,366.3	57,681.9	32,535.6	82,742.5	100.0	100.0	63.6
2014	4,457.8	59,190.2	33,256.5	90,007.1	100.0	100.0	79.3
2015	4,555.1	64,504.9	36,341.8	99,301.8	100.0	100.0	83.2
2016	4,657.8	65,858.4	38,788.9	107,039.2	100.0	100.0	94.2
2017	4,751.2	68,736.2	42,185.2	113,059.7	100.0	100.0	93.8
2018	4,844.9	70,128.9	43,887.3	117,859.5	100.0	100.0	97.7
2019	5,114.7	70,971.4	44,963.2	120,586.9	100.0	100.0	99.0

**NYSTRS is funded in accordance with the Aggregate Cost Method. The accrued liabilities in this chart are calculated in accordance with the Entry Age Normal Cost Method for purposes of disclosing the funded ratio.*

ANALYSIS OF FINANCIAL EXPERIENCE

The table below shows, for each potentially significant experience source, the effect on the employer contribution rate due to the difference between actual experience and that predicted by the actuarial assumptions.

Experience Source	Change in the Employer Contribution Rate during Fiscal Year Ended June 30, 2019	June 30, 2018
Revised Actuarial Assumptions:	-0.01%	0.00%
Net Investment Gain:	+0.08	-1.30
Salary/Service:	+0.36	+0.12
New Entrants:	-0.07	-0.11
Withdrawal:	+0.02	-0.04
Mortality:	+0.03	+0.01
Retirement:	+0.07	-0.16
Pension Payments:	-0.02	-0.02
Cost-of-Living Adjustment:	-0.06	-0.05
Change in the Administrative Rate:	0.00	0.00
Miscellaneous:	+0.27	-0.21
Total Change in Employer Contribution	**+0.67%**	**-1.76%**
Employer Contribution Rate at Prior Year-End	8.86%	10.62%
Employer Contribution Rate at Year-End	9.53%	8.86 %

HISTORY OF MEMBER PAYROLL AND THE EMPLOYER CONTRIBUTION RATE*

Fiscal Year Ended	Participating Employers	Active Members	Annual Member Payroll (in millions)	Percentage Increase In Annual Member Payroll	Average Full-Time Member Salary	Percentage Increase in Average Full-Time Member Salary	Employer Contribution Rate (Percent of Payroll)
2011	826	280,435	$14,732.9	-0.4%	$72,947	2.4%	8.62%
2012	825	277,273	14,640.8	-0.6	74,922	2.7	11.11
2013	827	273,328	14,647.8	0.0	76,348	1.9	11.84
2014	824	270,039	14,771.3	0.8	77,585	1.6	16.25
2015	822	267,715	15,021.4	1.7	78,695	1.4	17.53
2016	821	266,350	15,431.0	2.7	79,813	1.4	13.26
2017	822	264,761	15,846.7	2.7	80,951	1.4	11.72
2018	824	264,590	16,288.9	2.8	82,071	1.4	9.80
2019	823	263,517	16,691.6	2.5	84,078	2.4	10.62
2020	822	261,232	16,973.2	1.7	84,985	1.1	8.86

**For recent changes in the actuarial methods and assumptions, plan provisions, or significant events, please refer to the annual Actuarial Valuation Report and the Report on Recommended Actuarial Assumptions.*

SCHEDULE OF RETIRED MEMBERS AND BENEFICIARIES ADDED TO AND REMOVED FROM THE BENEFIT PAYROLL*

	Number of Retired Members and Beneficiaries		Annual Benefit of Retired Members and Beneficiaries						
Fiscal Year Ended	Added During the Year	Removed During the Year	Added During the Year	Removed During the Year	Total Number of Retired Members and Beneficiaries	Total Annual Benefit**	Percentage Increase in Total Annual Benefit	Average Annual Benefit	Percentage Increase in Average Annual Benefit
2011	8,873	3,746	$469,318,353	$97,889,187	146,843	$5,826,583,044	6.8%	$39,679	3.1%
2012	6,463	3,494	319,324,379	96,522,713	149,812	6,049,384,710	3.8	40,380	1.8
2013	6,776	3,766	327,889,400	104,595,554	152,822	6,272,678,556	3.7	41,046	1.6
2014	7,003	3,894	332,495,800	110,681,561	155,931	6,494,492,795	3.5	41,650	1.5
2015	6,679	4,152	314,972,220	123,973,317	158,458	6,685,491,698	2.9	42,191	1.3
2016	6,719	4,029	318,693,576	122,540,821	161,148	6,881,644,453	2.9	42,704	1.2
2017	6,880	4,210	332,625,259	131,259,139	163,818	7,083,010,573	2.9	43,237	1.2
2018	6,951	4,484	342,878,955	144,338,778	166,285	7,281,550,750	2.8	43,790	1.3
2019	7,424	4,506	366,842,566	149,818,310	169,203	7,498,575,006	3.0	44,317	1.2
2020	8,205	4,839	417,236,881	163,825,172	172,569	7,751,986,715	3.4	44,921	1.4

Computed on the Maximum annual benefit including supplementation and COLA. Annual benefits paid in this chart may differ from retirement benefit payments that appear elsewhere in this report because this chart reflects the rate of annual payment for retired members and their beneficiaries in pay as of the last day of the fiscal year.*

INDEPENDENT ACTUARIAL REVIEW

KPMG LLP
515 Broadway
Albany, NY 12207-2974

Retirement Board
New York State Teachers' Retirement System:

As part of our audit of the financial statements of the New York State Teachers' Retirement System (the System) as of and for the year ended June 30, 2020, we performed procedures over the actuarial assumptions, methods, and procedures used by the System's Actuary to calculate the employer contributions for the System to determine the reasonableness of the employer contributions reported in the System's June 30, 2020 basic financial statements. As part of those procedures, an actuary from our firm reviewed the following for reasonableness as compared to Actuarial Standard of Practice (ASOP) No. 4, Measuring Pension Obligations, as adopted by the Actuarial Standards Board:

- The actuarial assumptions, methods and procedures described in the System's Actuarial Valuation Report as of June 30, 2018, used to derive the resultant employer contribution rate of 8.86% applied to employer payroll for the fiscal year ended June 30, 2020.

- The System's Experience Studies as of June 30, 2018, and the opinions of the System's Actuary presented thereon.

Based on the results of the above procedures, we determined that the methods, procedures, and actuarial assumptions used to develop the employer contributions reported in the System's 2020 basic financial statements appeared reasonable in the context of ASOP No. 4.

This report is intended solely for the use of the New York State Teachers Retirement System and should not be used for any other purpose.

KPMG LLP

October 29, 2020

Statistical

CUSTOMER SERVICE

Our commitment is to the customer. We understand our connection to all System stakeholders and strive to put their needs before our own. Staff is expected to contribute to a culture of excellence, as well as look for better ways to serve.

Statistical

The objective of the statistical section is to provide financial statement users with historical perspective, context and detail to assist in using the information in the financial statements, notes to financial statements, and required supplementary information to better understand and assess the economic condition of NYSTRS. This section relies on a snapshot of member data provided by the participating employers to the Retirement System taken at the end of each fiscal year.

DEMOGRAPHIC & ECONOMIC INFORMATION

The schedules on pages 113-125 are intended to assist users in understanding the environment within which NYSTRS operates and to provide information that facilitates comparison of financial statement information over time and among similar entities. The demographic and economic information schedules presented are:

FINANCIAL TRENDS INFORMATION

The schedules on pages 126-129 are intended to assist users in understanding and assessing how the financial position of NYSTRS has changed over time. The financial trend schedules presented are:

OPERATING INFORMATION

The schedules on pages 130-135 are intended to provide contextual information about the operations and resources of NYSTRS to assist readers in using financial statement information. The operating information schedules are:

Demographic & Economic Information

ACTIVE MEMBERS:

	Male	Female	Total
June 30, 2019	61,871	201,646	**263,517**
Changes During Year:			
Added	2,276	8,365	**10,641**
Withdrawn	1,319	3,801	**5,120**
Retired	1,628	6,014	**7,642**
Died	60	104	**164**
June 30, 2020	61,140	200,092	**261,232**

MEMBERS RETIRED FOR:

	Service*			Disability				Total		
	Male	Female	Total	Male	Female	Total		Male	Female	Total
June 30, 2019	49,368	111,345	**160,713**	439	1,655	**2,094**		49,807	113,000	**162,807**
Changes During Year:										
Retired	1,605	5,926	**7,531**	23	88	**111**		1,628	6,014	**7,642**
Died	1,737	2,447	**4,184**	25	76	**101**		1,762	2,523	**4,285**
Lump Sum	29	127	**156**	0	0	**0**		29	127	**156**
Restored to Active Membership	0	0	**0**	0	0	**0**		0	0	**0**
June 30, 2020	49,207	114,697	**163,904**	437	1,667	**2,104**	**	49,644	116,364	**166,008**

BENEFICIARIES OF DECEASED:

	Service Annuitants			Disability Annuitants			Active Members			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
June 30, 2019	1,423	4,595	**6,018**	109	162	**271**	23	84	**107**	1,555	4,841	**6,396**
Changes During Year:												
Added	181	369	**550**	5	8	**13**	0	0	**0**	186	377	**563**
Died	113	262	**375**	6	10	**16**	3	4	**7**	122	276	**398**
June 30, 2020	1,491	4,702	**6,193**	108	160	**268**	20	80	**100**	1,619	4,942	**6,561**

SUMMARY:

	Male	Female	Total
Active Members	61,140	200,092	**261,232**
Retired Members	49,644	116,364	**166,008**
Beneficiaries	1,619	4,942	**6,561**
Total	112,403	321,398	**433,801**

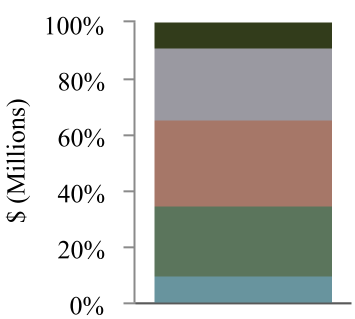
**Also includes vested retirees.*
***Includes 17 males and 37 females retired for disability who receive a service benefit.*

DISTRIBUTION OF ACTIVE MEMBERS BY AGE AND YEARS OF SERVICE* — as of June 30, 2020

		Years of Credited Service				
Age		0-5	6-10	11-15	16-20	21-25
20-24	Number of Members	5,848	0	0	0	0
	Average Salary	*$40,994*	*$0*	*$0*	*$0*	*$0*
25-29	Number of Members	19,588	1,408	0	0	0
	Average Salary	*$53,084*	*$64,449*	*$0*	*$0*	*$0*
30-34	Number of Members	17,103	10,422	1,659	0	0
	Average Salary	*$57,560*	*$67,875*	*$78,062*	*$0*	*$0*
35-39	Number of Members	10,688	7,701	13,959	2,501	2
	Average Salary	*$56,636*	*$68,875*	*$82,371*	*$94,736*	*$95,121*
40-44	Number of Members	7,797	5,191	8,347	16,613	2,160
	Average Salary	*$53,223*	*$67,821*	*$85,010*	*$98,686*	*$106,759*
45-49	Number of Members	6,435	4,506	5,069	10,412	12,965
	Average Salary	*$49,296*	*$63,127*	*$80,282*	*$100,350*	*$109,294*
50-54	Number of Members	5,518	4,295	4,515	6,325	9,295
	Average Salary	*$45,862*	*$57,790*	*$72,101*	*$93,157*	*$107,549*
55-59	Number of Members	3,723	2,577	3,307	4,776	4,548
	Average Salary	*$44,026*	*$55,093*	*$64,907*	*$83,420*	*$99,909*
60-64	Number of Members	2,188	1,277	1,730	3,323	3,060
	Average Salary	*$44,226*	*$53,307*	*$63,243*	*$78,095*	*$92,028*
65-69	Number of Members	936	530	573	1,043	985
	Average Salary	*$46,220*	*$60,253*	*$64,950*	*$81,778*	*$92,484*
70+	Number of Members	468	195	170	245	237
	Average Salary	*$36,272*	*$55,817*	*$59,138*	*$69,051*	*$82,470*
Total	Number of Members	80,292	38,102	39,329	45,238	33,252
	Average Salary	*$52,873*	*$65,933*	*$79,207*	*$94,548*	*$105,129*

**Average salary data is for the 192,599 members who earned a full year of service.*
The average salary for all active members, full-time and part-time, is $76,723.

DISTRIBUTION OF ACTIVE MEMBERS BY AGE — as of June 30, 2020



Age Group	Percent
60+ Years of Age	**9%**
50-59 Years of Age	**26%**
40-49 Years of Age	**31%**
30-39 Years of Age	**24%**
20-29 Years of Age	**10%**

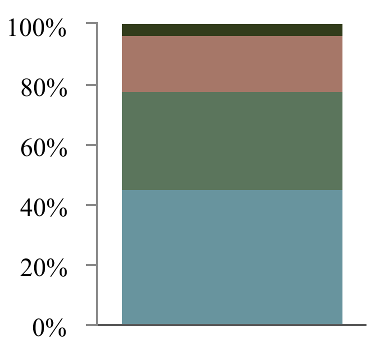
Averages — as of June 30, 2020

Gender	Age	Years of Service
Female	44	12
Male	44	13

DISTRIBUTION OF ACTIVE MEMBERS BY AGE AND YEARS OF SERVICE* — as of June 30, 2020 *(continued)*

Years of Credited Service						
26-30	31-35	36-40	41-45	46-50	51+	Total
0	0	0	0	0	0	5,848
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$40,994*
0	0	0	0	0	0	20,996
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$54,345*
0	0	0	0	0	0	29,184
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$64,482*
0	0	0	0	0	0	34,851
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$76,136*
1	0	0	0	0	0	40,109
$132,124	*$0*	*$0*	*$0*	*$0*	*$0*	*$88,649*
1,112	2	0	0	0	0	40,501
$111,942	*$125,864*	*$0*	*$0*	*$0*	*$0*	*$95,647*
8,255	1,167	0	0	0	0	39,370
$113,128	*$114,623*	*$0*	*$0*	*$0*	*$0*	*$96,473*
4,646	3,700	267	0	0	0	27,544
$111,200	*$116,629*	*$119,540*	*$0*	*$0*	*$0*	*$93,356*
2,184	1,181	659	55	1	0	15,658
$103,806	*$116,733*	*$123,550*	*$133,763*	*$128,914*	*$0*	*$88,343*
607	357	192	130	20	1	5,374
$98,055	*$108,913*	*$122,972*	*$138,540*	*$134,922*	*$212,429*	*$89,962*
154	125	64	45	65	29	1,797
$90,016	*$83,723*	*$107,454*	*$129,218*	*$135,431*	*$156,251*	*$84,908*
16,959	6,532	1,182	230	86	30	261,232
$110,601	*$115,258*	*$121,679*	*$135,574*	*$135,237*	*$158,124*	*$84,985*

DISTRIBUTION OF ACTIVE MEMBERS BY SERVICE — as of June 30, 2020

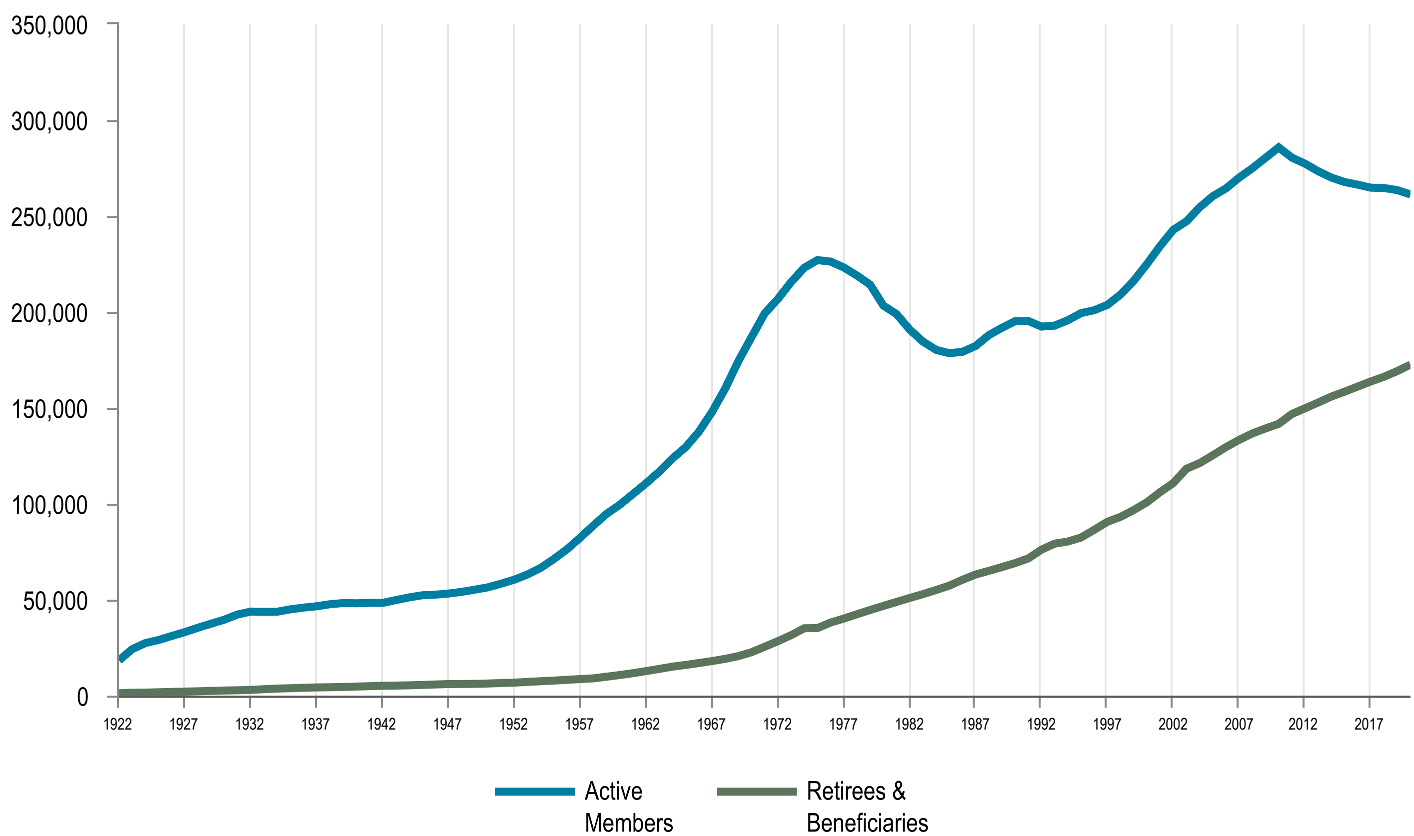


Service Group	Percent
31+ Years of Service	3%
21-30 Years of Service	19%
11-20 Years of Service	33%
0-10 Years of Service	45%

ACTIVE MEMBERS AND ANNUITANTS 1922-2020

As of June 30	Active Members	Retirees & Beneficiaries	As of June 30	Active Members	Retirees & Beneficiaries
1922	18,412	1,296	1970	186,914	22,700
1925	29,057	1,815	1975	227,038	35,252
1930	39,663	2,732	1980	203,330	46,812
1935	45,031	3,919	1985	178,516	57,366
1940	48,193	4,771	1990	195,194	69,127
1945	52,359	5,637	1995	199,398	82,459
1950	56,504	6,374	2000	224,986	100,839
1955	71,273	7,897	2005	260,356	125,325
1960	99,555	10,796	2010	285,774	141,716
1965	129,543	16,043	2015	267,715	158,458
			2020	261,232	172,569

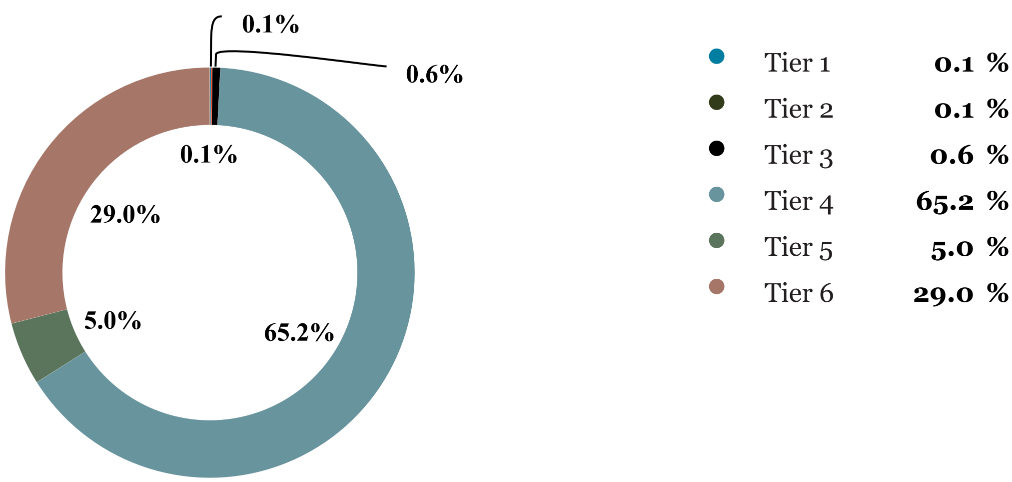
See related graph below.



NUMBER OF ACTIVE MEMBERS BY TIER

As of June 30	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Total
2001	41,169	15,472	19,914	157,795	—	—	234,350
2002	35,601	15,121	19,674	172,438	—	—	242,834
2003	28,327	14,463	19,083	185,374	—	—	247,247
2004	22,986	13,947	18,835	198,747	—	—	254,515
2005	17,901	13,210	18,535	210,710	—	—	260,356
2006	13,621	12,084	18,173	220,532	—	—	264,410
2007	10,838	10,178	17,743	231,286	—	—	270,045
2008	8,630	8,171	17,007	241,093	—	—	274,901
2009	6,943	6,752	16,111	250,532	—	—	280,338
2010	5,582	5,706	14,942	255,966	3,578	—	285,774
2011	3,814	4,137	12,690	247,530	12,264	—	280,435
2012	2,756	3,253	11,180	239,199	19,969	916	277,273
2013	1,968	2,447	9,450	231,258	19,452	8,753	273,328
2014	1,439	1,810	7,753	222,545	19,124	17,368	270,039
2015	1,116	1,348	6,222	214,020	18,878	26,131	267,715
2016	832	974	4,920	204,912	18,540	36,172	266,350
2017	607	720	3,881	195,226	17,722	46,605	264,761
2018	446	546	2,993	186,581	16,499	57,525	264,590
2019	349	403	2,276	178,516	14,595	67,378	263,517
2020	249	282	1,638	170,306	13,040	75,717	261,232

ACTIVE MEMBERS BY TIER



MEMBERS RETIRED IN 2019-2020 FOR:

	Service*	Disability
Number Retired	**7,531**	**111**
Age at Retirement:		
Average	61 yrs., 4 mos.	50 yrs., 5 mos.
Median	61 yrs., 5 mos.	51 yrs., 1 mo.
Years of Service:		
Average	25 yrs., 8 mos.	19 yrs., 2 mos.
Median	28 yrs., 3 mos.	19 yrs., 0 mos.
**Benefit:		
Average	$48,273	$30,501
Median	$50,101	$28,480
Final Average Salary (FAS):		
Average	$90,228	$84,770
Median	$90,305	$82,204
***Benefit as % of FAS:		
Average	48.78%	35.46%
Median	54.44%	33.33%

MEMBERS RETIRED IN 2019-2020 FOR SERVICE* WITH:

	Less Than 10 Yrs. Svc.	10 or More Yrs. and Less Than 20 Years Svc.	20 or More Yrs. and Less Than 30 Yrs. Svc.	30 or More Yrs. Svc.
Number Retired	**435**	**1,085**	**2,502**	**3,509**
Age at Retirement:				
Average	61 yrs., 10 mos.	62 yrs., 0 mos.	63 yrs., 0 mos.	59 yrs., 9 mos.
Median	61 yrs., 8 mos.	62 yrs., 1 mo.	62 yrs., 8 mos.	58 yrs., 11 mos.
Years of Service:				
Average	7 yrs., 0 mos.	14 yrs., 7 mos.	24 yrs., 0 mos.	33 yrs., 1 mo.
Median	7 yrs., 0 mos.	15 yrs., 0 mos.	23 yrs., 6 mos.	32 yrs., 1 mo.
**Benefit:				
Average	$3,924	$12,511	$40,337	$70,487
Median	$3,381	$9,523	$39,234	$66,587
Final Average Salary (FAS):				
Average	$37,373	$54,873	$87,713	$109,506
Median	$34,239	$48,048	$86,143	$103,754
***Benefit as % of FAS:				
Average	10.03%	22.29%	45.44%	64.15%
Median	9.81%	22.04%	45.05%	63.00%

**Also includes vested retirees.*

***The Maximum, even though the member may have chosen an option.*

****The average and median of individual benefits as percentages of final average salary.*

ALL RETIREES AS OF JUNE 30, 2020 RETIRED FOR:

	Service*	Disability
Number Retired	**163,958**	**2,050**
Age at Retirement:		
Average	59 yrs., 0 mos.	49 yrs., 7 mos.
Median	58 yrs., 0 mos.	50 yrs., 5 mos.
Age Attained as of June 30, 2020:		
Average	73 yrs., 4 mos.	65 yrs., 8 mos.
Median	72 yrs., 7 mos.	66 yrs., 4 mos.
Years of Service:		
Average	27 yrs., 8 mos.	18 yrs., 4 mos.
Median	30 yrs., 1 mo.	17 yrs., 6 mos.
**Benefit:		
Average	$43,316	$21,689
Median	$43,707	$19,957
Final Average Salary (FAS):		
Average	$74,895	$59,802
Median	$73,130	$56,647
***Benefit as % of FAS:		
Average	53.69%	35.52%
Median	60.17%	33.33%

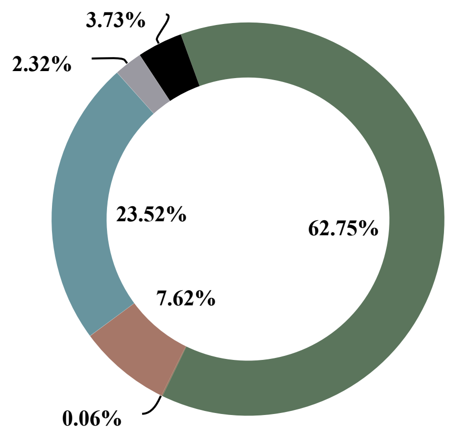
ALL RETIREES AS OF JUNE 30, 2020 RETIRED FOR SERVICE* WITH:

	Less Than 10 Yrs. Svc.	10 or More Yrs. and Less Than 20 Years Svc.	20 or More Yrs. and Less Than 30 Yrs. Svc.	30 or More Yrs. Svc.
Number Retired	**4,900**	**23,413**	**48,455**	**87,190**
Age at Retirement:				
Average	60 yrs., 5 mos.	59 yrs., 2 mos.	60 yrs., 2 mos.	58 yrs., 2 mos.
Median	59 yrs., 7 mos.	57 yrs., 8 mos.	60 yrs., 4 mos.	57 yrs., 1 mo.
Years of Service:				
Average	7 yrs., 3 mos.	14 yrs., 5 mos.	24 yrs., 7 mos.	34 yrs., 3 mos.
Median	7 yrs., 4 mos.	14 yrs., 5 mos.	25 yrs., 0 mos.	34 yrs., 0 mos.
**Benefit:				
Average	$4,243	$9,720	$33,959	$59,733
Median	$3,624	$7,568	$31,494	$56,039
Final Average Salary (FAS):				
Average	$40,531	$43,344	$70,779	$87,586
Median	$36,935	$36,575	$66,771	$82,751
***Benefit as % of FAS:				
Average	10.50%	21.80%	47.70%	68.01%
Median	10.12%	20.93%	48.22%	67.37%

**Also includes vested retirees.*
***The Maximum, even though the member may have chosen an option.*
****The average and median of individual benefits as percentages of final average salary.*

RETIREMENT BENEFIT OPTIONS AND PERCENT OF ELECTION

2016-2020 Retirees



Option	Number Electing	Percent of Election*
Maximum	21,078	62.75 %
Annuity/Declining Reserve	20	0.06 %
Joint & Survivor	2,559	7.62 %
Pop-Up	7,899	23.52 %
Guarantee	781	2.32 %
Alternative	1,252	3.73 %
Total	**33,589**	**100.00 %**

**Percentages may not sum to 100% due to rounding.*

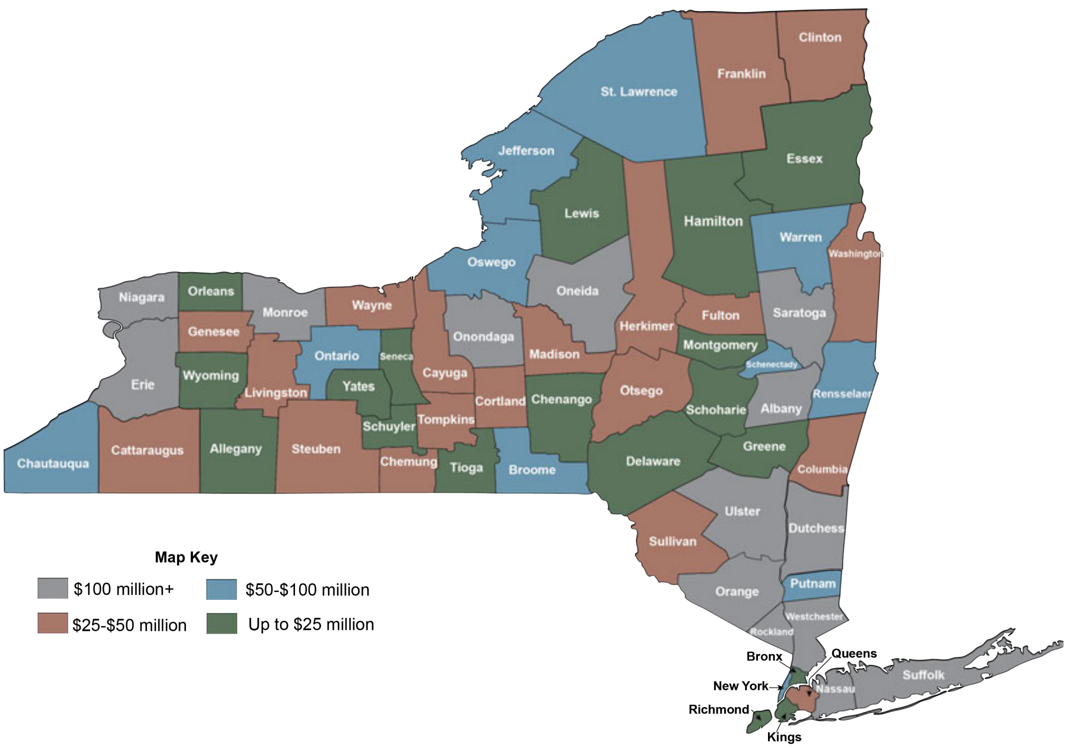
RETIRED MEMBERS' CHARACTERISTICS*

By Year of Retirement

Retired in Fiscal Year Ended	Number of Retired Members	Average Age at Retirement (yrs.- mos.)	Average Service at Retirement (yrs.- mos.)	Average Final Average Salary	Average Maximum Annual Benefit
2011	8,423	60-3	28-7	$85,010	$51,200
2012	6,033	60-9	26-3	82,461	45,759
2013	6,330	60-10	25-6	81,987	44,768
2014	6,547	61-0	25-4	84,545	44,978
2015	6,161	60-11	25-4	84,362	44,487
2016	6,245	61-2	25-0	84,308	44,215
2017	6,396	61-3	25-0	85,242	45,049
2018	6,416	61-1	25-1	86,910	45,725
2019	6,890	61-0	25-1	87,085	45,713
2020	7,642	61-4	25-8	90,228	48,273

**Averages are for service and vested retirees.*

DISTRIBUTION OF BENEFITS PAID BY COUNTY* — as of June 30, 2020



County	Retired Members and Beneficiaries	Annual Benefits Paid**	County	Retired Members and Beneficiaries	Annual Benefits Paid**	County	Retired Members and Beneficiaries	Annual Benefits Paid**
Albany	3,172	$129,539,754	Jefferson	1,419	$53,753,863	Saratoga	3,718	$157,089,220
Allegany	646	$22,598,161	Kings	222	$9,848,811	Schenectady	1,767	$70,459,046
Bronx	261	$12,835,464	Lewis	383	$13,908,599	Schoharie	477	$16,909,091
Broome	2,374	$89,554,719	Livingston	1,007	$39,300,362	Schuyler	265	$9,347,765
Cattaraugus	946	$37,417,773	Madison	1,022	$38,997,561	Seneca	438	$16,467,138
Cayuga	1,041	$38,829,537	Monroe	9,311	$376,639,932	St. Lawrence	1,746	$62,775,999
Chautauqua	1,947	$79,505,358	Montgomery	538	$21,066,840	Steuben	1,393	$49,645,228
Chemung	1,103	$40,082,589	Nassau	9,665	$554,790,572	Suffolk	17,608	$1,045,913,950
Chenango	709	$24,678,612	New York	1,266	$61,789,872	Sullivan	833	$38,045,483
Clinton	1,279	$48,481,416	Niagara	2,297	$101,106,631	Tioga	569	$21,228,312
Columbia	749	$30,171,872	Oneida	3,233	$123,804,583	Tompkins	1,046	$34,542,939
Cortland	789	$28,777,889	Onondaga	7,078	$266,222,190	Ulster	2,857	$126,660,024
Delaware	633	$22,318,004	Ontario	2,022	$79,961,107	Warren	1,451	$58,041,436
Dutchess	3,403	$157,478,152	Orange	3,436	$165,543,467	Washington	755	$28,301,457
Erie	10,979	$473,702,414	Orleans	456	$19,747,773	Wayne	1,297	$48,746,753
Essex	655	$22,299,376	Oswego	1,729	$62,913,015	Westchester	6,853	$381,054,872
Franklin	730	$25,932,384	Otsego	1,091	$36,646,507	Wyoming	522	$19,916,783
Fulton	787	$31,100,760	Putnam	1,035	$57,927,143	Yates	417	$15,252,874
Genesee	787	$31,825,523	Queens	820	$44,961,795			
Greene	561	$21,055,410	Rensselaer	1,691	$66,353,587	Out of State	41,685	$1,532,084,012
Hamilton	140	$5,582,971	Richmond	47	$1,847,959			
Herkimer	1,019	$36,365,109	Rockland	2,394	$120,162,482	**Grand Total**	**172,569**	**$7,459,910,280**

**Computed on the optional annual benefit including supplementation and COLA.*
***Annual benefits paid in this chart may differ from retirement benefit payments that appear elsewhere in this report because this chart reflects the rate of annual payment for retired members and their beneficiaries in pay as of the last day of the fiscal year.*

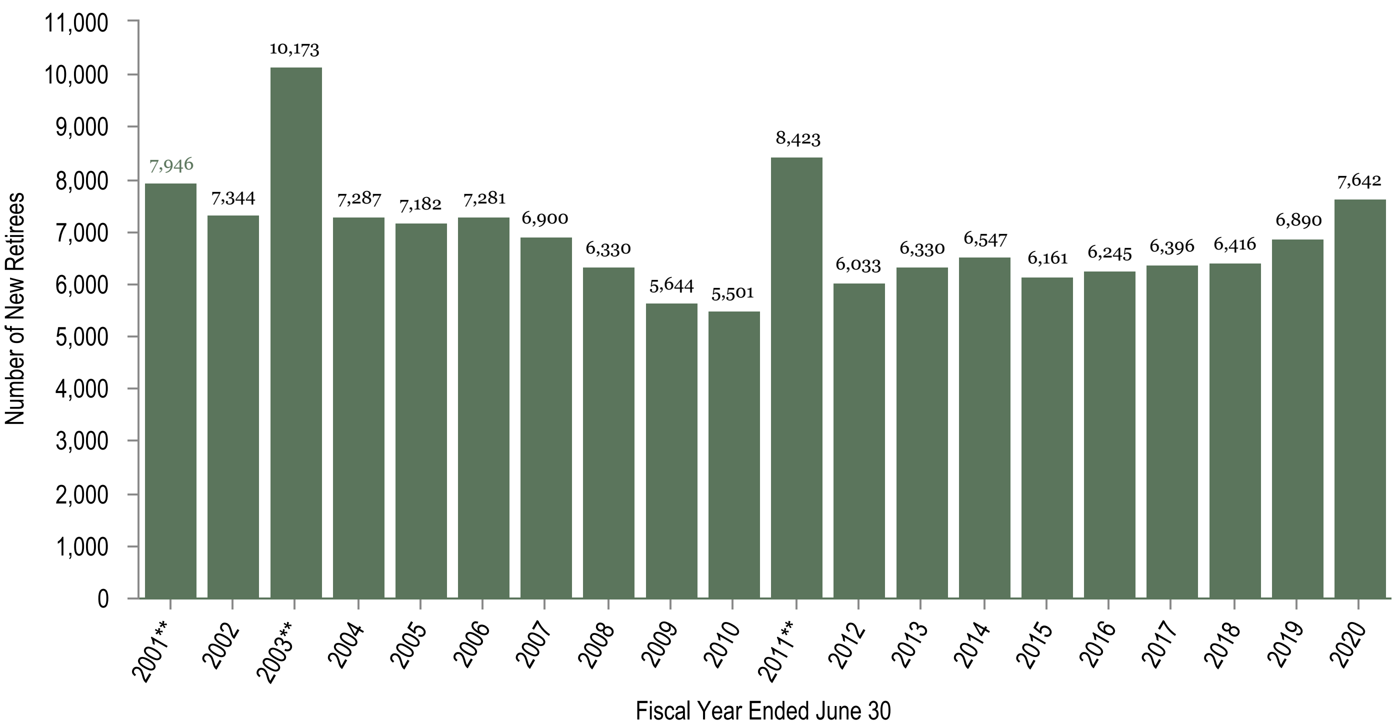
DISTRIBUTION OF RETIRED MEMBERS AND BENEFICIARIES BY TIER — as of June 30, 2020

	Tier 1	Tier 2	Tier 3		Tier 4	Tier 5	Tier 6	Total
Members Retired for:								
Service*	81,160	16,677	19,875	(198) **	46,135	43	14	163,904
Disability	544	171	234	(28) **	1,155	0	0	2,104
Beneficiaries of Deceased:								
Service Annuitants	5,016	383	319	(7) **	474	1	0	6,193
Disability Annuitants	153	25	29	(5) **	61	0	0	268
Active Members	98	1	1	(0) **	0	0	0	100
Total	**86,971**	**17,257**	**20,458**	**(238)****	**47,825**	**44**	**14**	**172,569**

*Also includes vested retirees.

**Those receiving an Article 14 (Tier 3) benefit. The remainder are receiving an Article 15 (Tier 4) benefit. Tier 3 members receive the better of the two benefits.

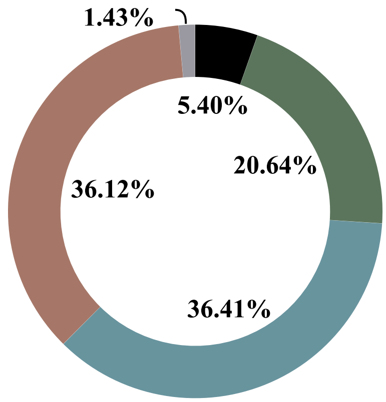
HISTORY OF THE NUMBER OF NEW RETIREES*



*Includes service, vested and disability retirements.

**Retirements in this fiscal year include the impact of legislatively enacted early retirement incentive programs.

RETIRED MEMBERS AND BENEFICIARIES* WITH MONTHLY BENEFITS BY DECADE OF RETIREMENT — as of June 30, 2020



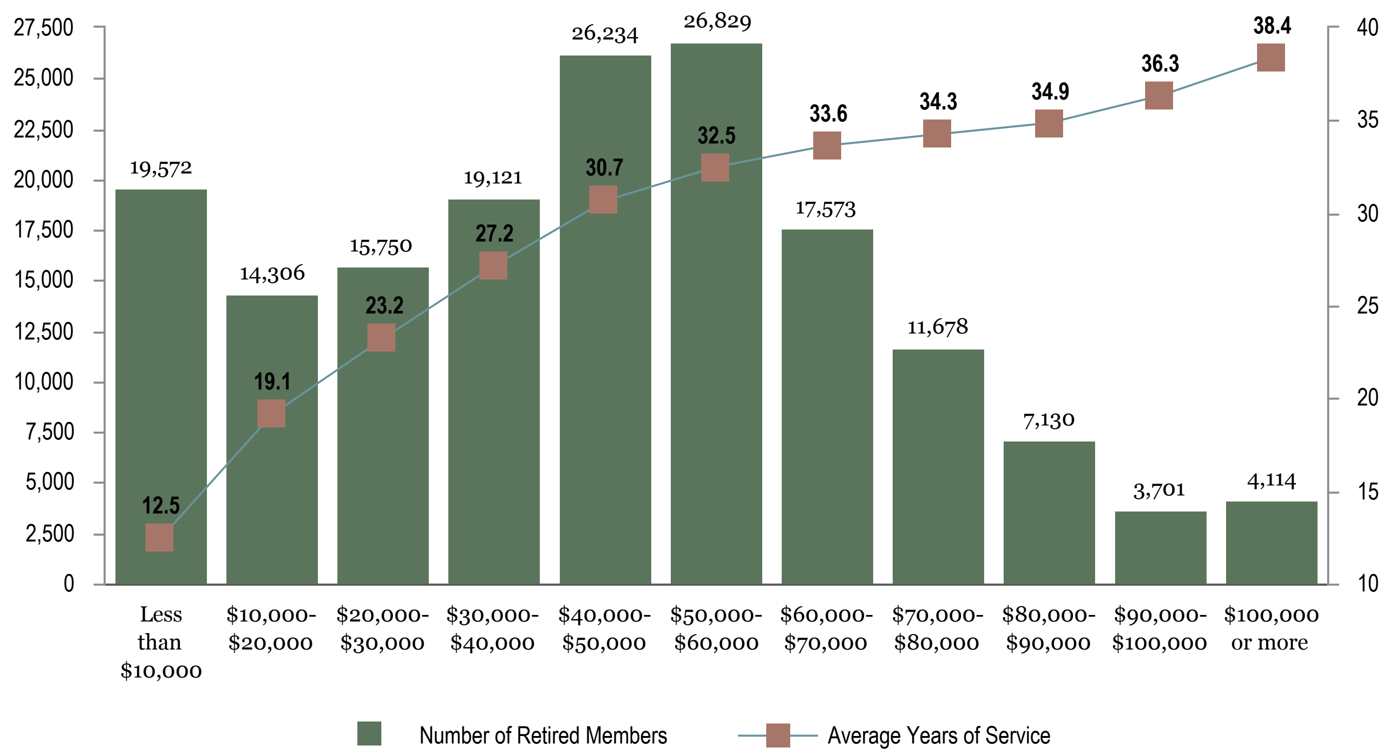
Calendar Years	Number of People	Percentage**	Average Monthly Maximum Benefit	Average Total Monthly Maximum Benefit***
1989 or earlier	9,319	5.40 %	$1,461.06	$2,019.45
1990-1999	35,595	20.64 %	$2,886.68	$3,224.26
2000-2009	62,803	36.41 %	$3,883.87	$4,054.40
2010-2019	62,293	36.12 %	$3,963.96	$3,991.40
2020	2,459	1.43 %	$3,709.63	$3,709.63
Total	**172,469**			

**Excludes 100 beneficiaries of deceased active members.*

***Percentages may not sum to 100% due to rounding.*

****Average total monthly Maximum benefit includes supplementation and COLA.*

DISTRIBUTION OF THE ANNUAL BENEFIT* OF ALL RETIRED MEMBERS — as of June 30, 2020



**Maximum annual retirement benefit including supplementation and COLA.*

HISTORY OF THE MONTHLY COLA

Commencing September	Year Ended March 31 CPI Percentage Change	Applicable COLA Percentage	Maximum Annual Base Benefit Amount	Maximum Monthly COLA Increase	Cumulative Maximum Monthly COLA	Average Monthly COLA Increase	Cumulative Average Monthly COLA
2001	2.92%	1.5%	$18,000	$22.50	$22.50	$18.80	$18.80
2002	1.48%	1.0%	$18,000	$15.00	$37.50	$12.64	$31.44
2003	3.02%	1.6%	$18,000	$24.00	$61.50	$20.32	$51.76
2004	1.74%	1.0%	$18,000	$15.00	$76.50	$12.85	$64.61
2005	3.15%	1.6%	$18,000	$24.00	$100.50	$20.68	$85.29
2006	3.36%	1.7%	$18,000	$25.50	$126.00	$22.09	$107.38
2007	2.78%	1.4%	$18,000	$21.00	$147.00	$18.29	$125.67
2008	3.98%	2.0%	$18,000	$30.00	$177.00	$26.24	$151.91
2009	-0.38%	1.0%	$18,000	$15.00	$192.00	$13.17	$165.08
2010	2.31%	1.2%	$18,000	$18.00	$210.00	$15.86	$180.94
2011	2.68%	1.4%	$18,000	$21.00	$231.00	$18.55	$199.49
2012	2.65%	1.4%	$18,000	$21.00	$252.00	$18.59	$218.08
2013	1.47%	1.0%	$18,000	$15.00	$267.00	$13.30	$231.38
2014	1.51%	1.0%	$18,000	$15.00	$282.00	$13.32	$244.70
2015	-0.07%	1.0%	$18,000	$15.00	$297.00	$13.36	$258.06
2016	0.85%	1.0%	$18,000	$15.00	$312.00	$13.36	$271.42
2017	2.38%	1.2%	$18,000	$18.00	$330.00	$16.03	$287.45
2018	2.36%	1.2%	$18,000	$18.00	$348.00	$16.02	$303.47
2019	1.86%	1.0%	$18,000	$15.00	$363.00	$13.35	$316.82
2020	1.54%	1.0%	$18,000	$15.00	$378.00	$13.35	$330.17

DISTRIBUTION OF MONTHLY COLA INCREASE COMMENCING SEPTEMBER 2020

Monthly COLA Increase	Number of Retired Members and Beneficiaries
$15.00	112,035
$12.50 - $14.99	3,175
$10.00 - $12.49	3,317
$7.50 - $9.99	8,812
$5.00 - $7.49	4,726
$2.50 - $4.99	6,688
$0.01 - $2.49	2,859
$0 (currently ineligible)	30,957
Total	**172,569**

DISTRIBUTION OF CUMULATIVE MONTHLY COLA COMMENCING SEPTEMBER 2020

Cumulative Monthly COLA	Number of Retired Members and Beneficiaries
$378.00	19,966
$317.50 - $377.99	8,565
$257.00 - $317.49	15,892
$196.50 - $256.99	19,772
$136.00 - $196.49	22,816
$75.50 - $135.99	26,690
$0.01 - $75.49	27,911
$0 (currently ineligible)	30,957
Total	**172,569**

Financial Trends Information

CHANGES IN FIDUCIARY NET POSITION
Last Ten Fiscal Years
(dollars in thousands)

Additions:	2011	2012	2013	2014
Net investment income	$ 17,250,415	$ 2,375,262	$ 11,636,480	$ 16,664,703
Employer contributions	1,389,415	1,628,491	1,734,908	2,400,386
Member contributions	154,327	138,583	128,903	120,762
Transfers	2,144	4,188	4,522	1,365
Total additions	18,796,301	4,146,524	13,504,813	19,187,216
Deductions: (See Benefits and Return of Contributions by Type on Pages 128-129)				
Benefit payments	5,681,007	5,907,795	6,118,849	6,324,546
Return of contributions	20,348	19,732	20,869	18,992
Administrative expenses	50,159	52,457	54,338	55,616
Total deductions	5,751,514	5,979,984	6,194,056	6,399,154
Change in fiduciary net position restricted for pensions	$ 13,044,787	$ (1,833,460)	$ 7,310,757	$ 12,788,062

CHANGES IN FIDUCIARY NET POSITION *(continued)*

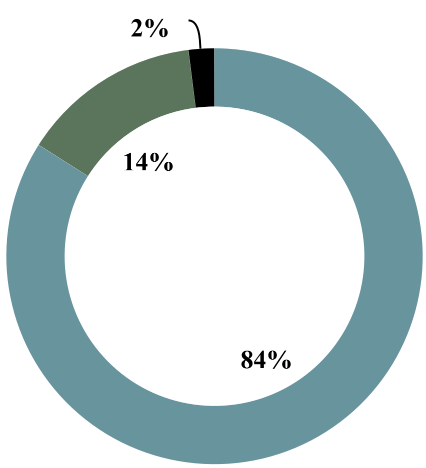
Last Ten Fiscal Years

(dollars in thousands)

2015	2016	2017	2018	2019	2020
$ 5,400,265	$ 2,392,354	$ 12,951,892	$ 9,928,009	$ 8,023,180	$ 3,923,633
2,633,682	2,046,562	1,857,359	1,597,139	1,774,646	1,504,688
119,411	124,587	129,770	131,595	136,610	145,034
3,213	4,014	7,845	9,278	9,087	3,955
8,156,571	4,567,517	14,946,866	11,666,021	9,943,523	5,577,310
6,513,931	6,701,637	6,903,361	7,088,949	7,285,362	7,484,462
17,209	18,229	19,676	20,049	21,956	19,439
56,948	60,426	61,611	60,610	74,242	71,385
6,588,088	6,780,292	6,984,648	7,169,608	7,381,560	7,575,286
$ 1,568,483	$ (2,212,775)	$ 7,962,218	$ 4,496,413	$ 2,561,963	$ (1,997,976)

BREAKDOWN OF INCOME SOURCES

Fiscal Years Ended 1991-2020



Investment Income	84 %
Employer Contributions	14 %
Member Contributions	2 %

BENEFITS AND RETURN OF CONTRIBUTIONS BY TYPE

Last Ten Fiscal Years

(dollars in thousands)

Type of Benefit	2011	2012	2013	2014
Age and service benefits:				
Retirees	$ 5,593,968	$ 5,811,739	$ 6,023,506	$ 6,233,619
Survivors	28,237	29,153	32,879	28,918
Death in service benefits	22,852	29,266	23,666	21,634
Disability benefits:				
Ordinary	35,667	37,350	38,507	39,871
Accidental	283	287	291	504
Total benefits	$ 5,681,007	$ 5,907,795	$ 6,118,849	$ 6,324,546
Type of Return of Contributions				
Death	$ 2,240	$ 2,393	$ 2,434	$ 2,325
Separation from service	18,108	17,339	18,435	16,667
Total return of contributions	$ 20,348	$ 19,732	$ 20,869	$ 18,992

BENEFITS AND RETURN OF CONTRIBUTIONS BY TYPE *(continued)*

Last Ten Fiscal Years

(dollars in thousands)

2015	2016	2017	2018	2019	2020
$ 6,419,576	$ 6,601,664	$ 6,794,278	$ 6,978,694	$ 7,179,640	$ 7,375,088
31,888	34,051	41,662	35,234	40,775	38,101
20,730	22,801	23,606	29,845	21,339	25,873
41,251	42,591	43,469	44,828	43,256	45,045
486	530	346	348	352	355
$ 6,513,931	$ 6,701,637	$ 6,903,361	$ 7,088,949	$ 7,285,362	$ 7,484,462
$ 2,350	$ 3,011	$ 3,061	$ 3,211	$ 2,865	$ 3,215
14,859	15,218	16,615	16,838	19,091	16,224
$ 17,209	$ 18,229	$ 19,676	$ 20,049	$ 21,956	$ 19,439

Operating Information

AVERAGE BENEFIT PAYMENTS — JULY 1, 2010 – JUNE 30, 2020

	Years of Credited Service							
Retirement Effective Dates	**0-5**	**5-10**	**10-15**	**15-20**	**20-25**	**25-30**	**30-35**	**35+**
Period 7/1/2010 to 6/30/2011								
Average monthly benefit	$166	$301	$710	$1,386	$2,571	$3,924	$5,017	$6,877
Average final average salary	$38,073	$33,593	$44,505	$58,067	$72,641	$86,710	$94,654	$106,004
Number of retired members	38	403	507	431	1,128	1,705	2,103	2,108
Period 7/1/2011 to 6/30/2012								
Average monthly benefit	$196	$371	$818	$1,402	$2,748	$3,807	$5,142	$6,992
Average final average salary	$43,570	$39,131	$50,185	$59,356	$77,772	$85,469	$96,934	$108,825
Number of retired members	44	431	571	444	1,079	840	1,604	1,020
Period 7/1/2012 to 6/30/2013								
Average monthly benefit	$201	$326	$782	$1,513	$2,721	$3,910	$5,285	$7,061
Average final average salary	$33,171	$34,780	$47,730	$62,797	$76,501	$89,200	$100,095	$110,455
Number of retired members	48	501	705	452	1,061	954	1,709	900
Period 7/1/2013 to 6/30/2014								
Average monthly benefit	$221	$367	$837	$1,571	$2,836	$4,140	$5,275	$7,305
Average final average salary	$41,966	$38,623	$51,493	$65,104	$80,215	$93,124	$100,079	$115,852
Number of retired members	47	484	649	562	1,133	1,161	1,778	733
Period 7/1/2014 to 6/30/2015								
Average monthly benefit	$255	$306	$842	$1,543	$2,879	$4,163	$5,277	$6,887
Average final average salary	$35,508	$33,815	$51,353	$64,139	$82,057	$92,745	$100,927	$110,667
Number of retired members	37	400	615	521	1,081	1,255	1,660	592
Period 7/1/2015 to 6/30/2016								
Average monthly benefit	$188	$321	$873	$1,532	$2,873	$4,280	$5,353	$6,907
Average final average salary	$35,355	$34,747	$51,987	$63,932	$81,515	$94,402	$102,221	$112,592
Number of retired members	32	491	589	582	1,079	1,223	1,676	573
Period 7/1/2016 to 6/30/2017								
Average monthly benefit	$120	$329	$868	$1,645	$2,871	$4,282	$5,452	$7,076
Average final average salary	$23,555	$35,957	$52,383	$66,494	$81,188	$94,415	$104,070	$115,549
Number of retired members	117	457	569	565	1,079	1,185	1,864	560
Period 7/1/2017 to 6/30/2018								
Average monthly benefit	$119	$335	$854	$1,665	$2,960	$4,499	$5,433	$7,112
Average final average salary	$29,014	$36,702	$51,465	$68,612	$83,811	$98,562	$103,842	$116,274
Number of retired members	51	493	567	581	1,173	1,088	1,921	542
Period 7/1/2018 to 6/30/2019								
Average monthly benefit	$172	$329	$813	$1,733	$2,972	$4,406	$5,518	$7,006
Average final average salary	$39,231	$35,270	$51,300	$70,026	$84,394	$96,529	$105,222	$115,394
Number of retired members	55	516	582	657	1,250	1,177	2,124	529
Period 7/1/2019 to 6/30/2020								
Average monthly benefit	$136	$364	$838	$1,684	$2,903	$4,449	$5,623	$7,062
Average final average salary	$30,831	$38,777	$50,970	$67,553	$82,646	$98,885	$107,546	$117,306
Number of retired members	39	423	562	718	1,455	1,255	2,499	691

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RETIRED MEMBERS AND BENEFICIARIES BY TYPE OF BENEFIT — as of June 30, 2020

Amount of Monthly Benefit	Number of Retired Members	Type of Retirement 1	2	3	4	5	6
$1 - $500	13,962	7,410	6,031	107	319	21	74
$501 - $1,000	12,566	6,364	5,335	367	424	65	11
$1,001 - $1,500	10,632	6,669	2,973	428	490	65	7
$1,501 - $2,000	10,168	6,730	2,468	405	517	47	1
$2,001 - $2,500	11,056	7,914	2,226	319	563	32	2
$2,501 - $3,000	11,673	8,975	1,859	208	610	17	4
$3,001 - $3,500	13,567	11,388	1,410	122	637	9	1
$3,501 - $4,000	16,347	14,637	1,051	74	582	3	0
$4,001 - $4,500	17,112	15,759	751	41	554	7	0
$4,501 - $5,000	14,166	13,232	463	16	455	0	0
over $5,000	41,320	39,556	703	17	1,042	2	0
Total	**172,569**	**138,634**	**25,270**	**2,104**	**6,193**	**268**	**100**

Type of retirement:

1 - Normal retirement for age and service

2 - Early retirement*

3 - Disability retirement

4 - Beneficiary payment, normal or early retirement

5 - Beneficiary payment, disability retirement

6 - Beneficiary payment, death in service

**Tiers 2-5: retirement at age less than 62 and service less than 30 years.*
Tier 6: retirement at age less than 63.

RETIRED MEMBERS AND BENEFICIARIES BY TYPE OF BENEFIT — as of June 30, 2020 *(continued)*

Option Selected					
1	2	3	4	5	6
10,676	777	1,090	628	394	397
9,106	824	1,554	538	236	308
7,468	754	1,565	431	222	192
7,091	798	1,606	330	177	166
7,661	889	1,873	341	134	158
7,944	974	2,139	288	159	169
9,162	1,156	2,578	338	99	234
10,835	1,244	3,500	374	112	282
11,015	1,317	4,003	361	88	328
8,862	1,210	3,444	271	68	311
24,076	3,887	11,110	748	136	1,363
113,896	**13,830**	**34,462**	**4,648**	**1,825**	**3,908**

Option selected:

1 - Unmodified; Single life annuity (Maximum)

2 - Joint and survivor

3 - Joint and survivor with pop-up

4 - Guarantee period

5 - Declining reserve / Annuity reserve

6 - Alternative

PRINCIPAL PARTICIPATING EMPLOYERS

Current Year and Nine Years Ago

Participating Employer 2020	Covered Employees	Rank	Percentage of Total System**
Buffalo Public Schools	4,463	1	1.71%
Rochester City School District	3,841	2	1.47%
Syracuse City School District	2,885	3	1.10%
Yonkers Public Schools	2,103	4	0.81%
Brentwood Union Free Schools	1,724	5	0.66%
Sachem Central Schools	1,315	6	0.50%
Newburgh City School District	1,313	7	0.50%
Greece Central Schools	1,308	8	0.50%
Albany City School District	1,263	9	0.48%
Wappingers Central Schools	1,133	10	0.43%
All Other*	239,884 +		91.83%
Total	**261,232** +		**100.00%**

+ Covered Employees represents members of the System which includes those currently employed and members formerly employed by a participating employer but not yet retired.
** For a breakdown of the "All Other" category, please see below.*
***Percentages may not sum to 100% due to rounding.*

All Other Participating Employers:

Type	Number	Covered Employees
Public School Districts	669	218,130 +
BOCES	37	13,687
SUNY	31	2,518
Community Colleges	30	2,667
Charter Schools	26	1,882
Special Act Districts	10	605
Other	9	395
Total "All Other"	**812**	**239,884** +

+ Covered Employees represents members of the System which includes those currently employed and members formerly employed by a participating employer but not yet retired.

PRINCIPAL PARTICIPATING EMPLOYERS *(continued)*

Current Year and Nine Years Ago

Participating Employer 2011	Covered Employees	Rank	Percentage of Total System**
Buffalo Public Schools	4,600	1	1.64%
Rochester City School District	4,235	2	1.51%
Syracuse City School District	3,087	3	1.10%
Yonkers Public Schools	2,155	4	0.77%
Brentwood Union Free Schools	1,783	5	0.64%
Greece Central Schools	1,574	6	0.56%
Sachem Central Schools	1,571	7	0.56%
Newburgh City School District	1,436	8	0.51%
Wappingers Central Schools	1,246	9	0.44%
Utica City School District	1,232	10	0.44%
All Other	257,516 +		91.83%
Total	**280,435** +		**100.00%**

+ Covered Employees represents members of the System which includes those currently employed and members formerly employed by a participating employer but not yet retired.

***Percentages may not sum to 100% due to rounding.*

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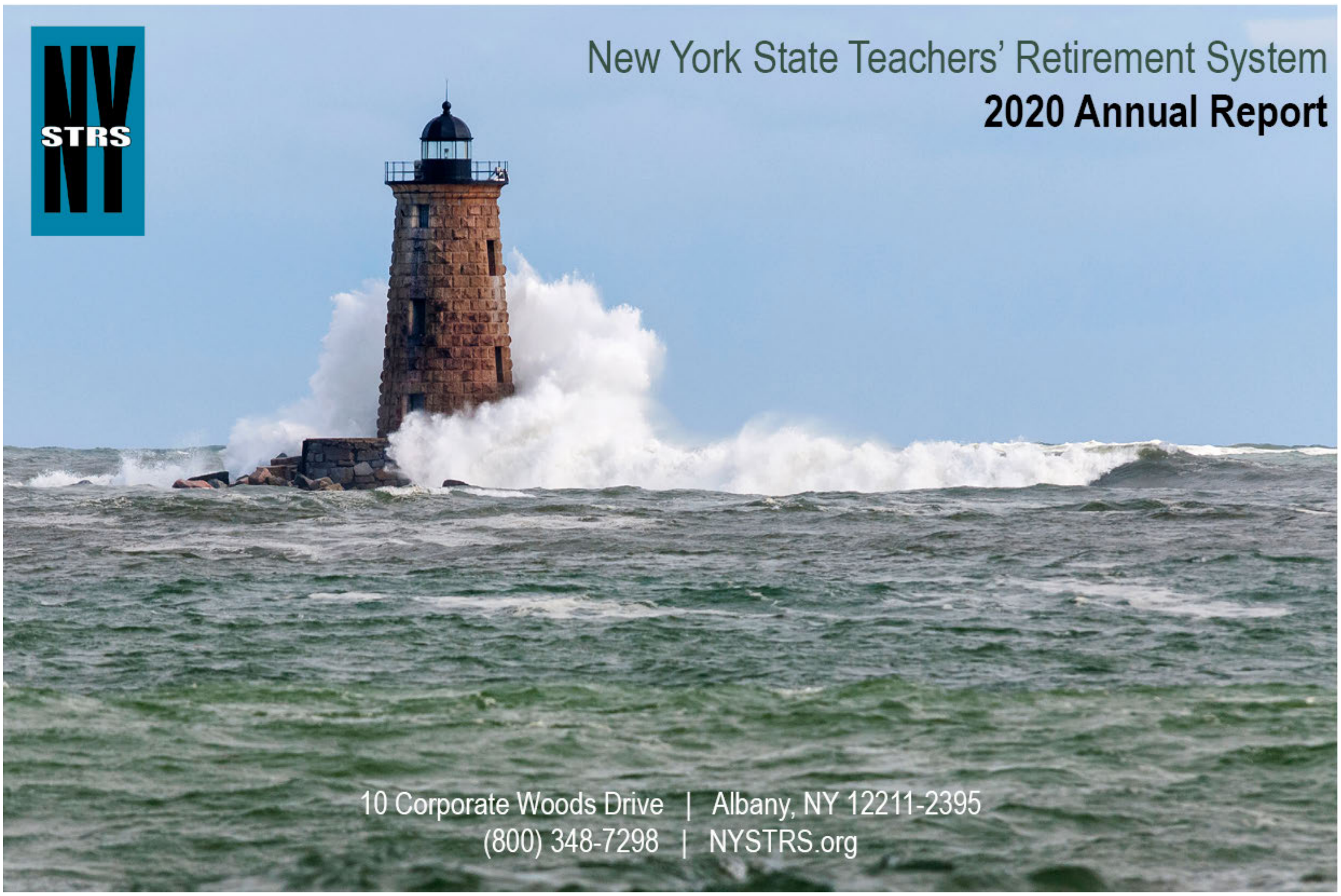
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