



New York State Teachers' Retirement System



100th Anniversary

Since 1921

A Pension Plan Built to Last

Comprehensive Annual Financial Report
Fiscal Years Ended June 30, 2021 and 2020



New York State Teachers' Retirement System

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

Comprehensive Annual Financial Report

Fiscal Years Ended June 30, 2021 and 2020

Celebrating a Century of Providing Retirement Security

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 and 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.

Our Strategic Objectives

Governance Structure: Promote a governance model to appropriately manage System finances and risk, and maintain a positive reputation.

Shared Accountability: Foster an environment of shared accountability, awareness, commitment and integrity.

Customer Service: Maintain a high level of customer service and confidence.

Safeguard System Funds: Safeguard System funds and invest them in a prudent and diversified manner in order to achieve optimum long-term returns with an appropriate level of risk.

Quality Workforce: Ensure a quality workforce.

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

ACHIEVEMENTS



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, 2020

Christopher P. Morrill

Executive Director/CEO

ACHIEVEMENTS



Public Pension Coordinating Council

***Public Pension Standards Award
For Funding and Administration
2020***

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)

A handwritten signature in cursive script that reads "Alan H. Winkle".

Alan H. Winkle
Program Administrator



Introduction

1920s-1940s Timeline

- 1921:** NYSTRS officially begins operating on August 1, 1921 out of the State Education Building in Albany, and 19,000 NYS public school teachers become members that first year. The System's "superannuation plan" combines a defined benefit pension with an annuity component based on required member contributions. System investments initially consist entirely of bonds (government, municipal, state); investments in stocks, mortgages and real estate were permitted later.
- 1930:** The System moves to the Standard Building at 112 State St. in downtown Albany.
- 1931:** Active membership totals 42,000. Net worth totals \$46 million. There are 2,800 retirees receiving \$1 million in annual benefits.
- 1935:** NYSTRS moves to 152 Washington Ave., Albany.
- 1940:** A revised NYS Constitution goes into effect which includes an amendment guaranteeing state public pension benefits. Article V, Section 1, says: "After July 1, 1940, membership in any pension or retirement system of the state or of a civil division thereof shall be a contractual relationship, the benefits of which shall not be diminished or impaired."
- 1941:** System assets pass the \$100 million mark.
- 1948:** A hand-operated adding machine is used to print teacher service and retirement records, replacing handwritten records for the first time.
- 1949:** The state enacts a prior service bill which allows members with 20 years of service to purchase enough uncredited prior service to make them eligible for retirement.



**State Education Building
1921**



**Standard Building
in the background
1930**



**152 Washington Ave., Albany
1935**

Introduction

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INTRODUCTION

BOARD OF TRUSTEES — as of June 30, 2021



David P. Keefe
President
Hempstead
Retired Teacher Member
Elected by NYSTRS Retirees
First Elected 2004



Dr. L. Oliver Robinson
Vice President
Clifton Park
School Administrator
Appointed by
Commissioner of Education
First Appointed 2010



Sheila Sullivan Buck
Rush-Henrietta
Teacher Member
Elected by NYSTRS Delegates
First Elected 2017
Resigned May 31, 2021



Jennifer J. Longtin
Ballston Lake
School Boards Association Member
Elected by Board of Regents
First Elected 2019



Elizabeth A. Chetney
Baldwinsville
Teacher Member
Elected by NYSTRS Delegates
First Elected 2019



Ruth Mahoney
Albany
Bank Executive
Elected by Board of Regents
First Elected 2021



Dr. Phyllis S. Harrington
Oceanside
School Administrator
Appointed by
Commissioner of Education
First Appointed 2010



Christopher Morin
Scarsdale
School Boards Association Member
Elected by Board of Regents
First Elected 2019



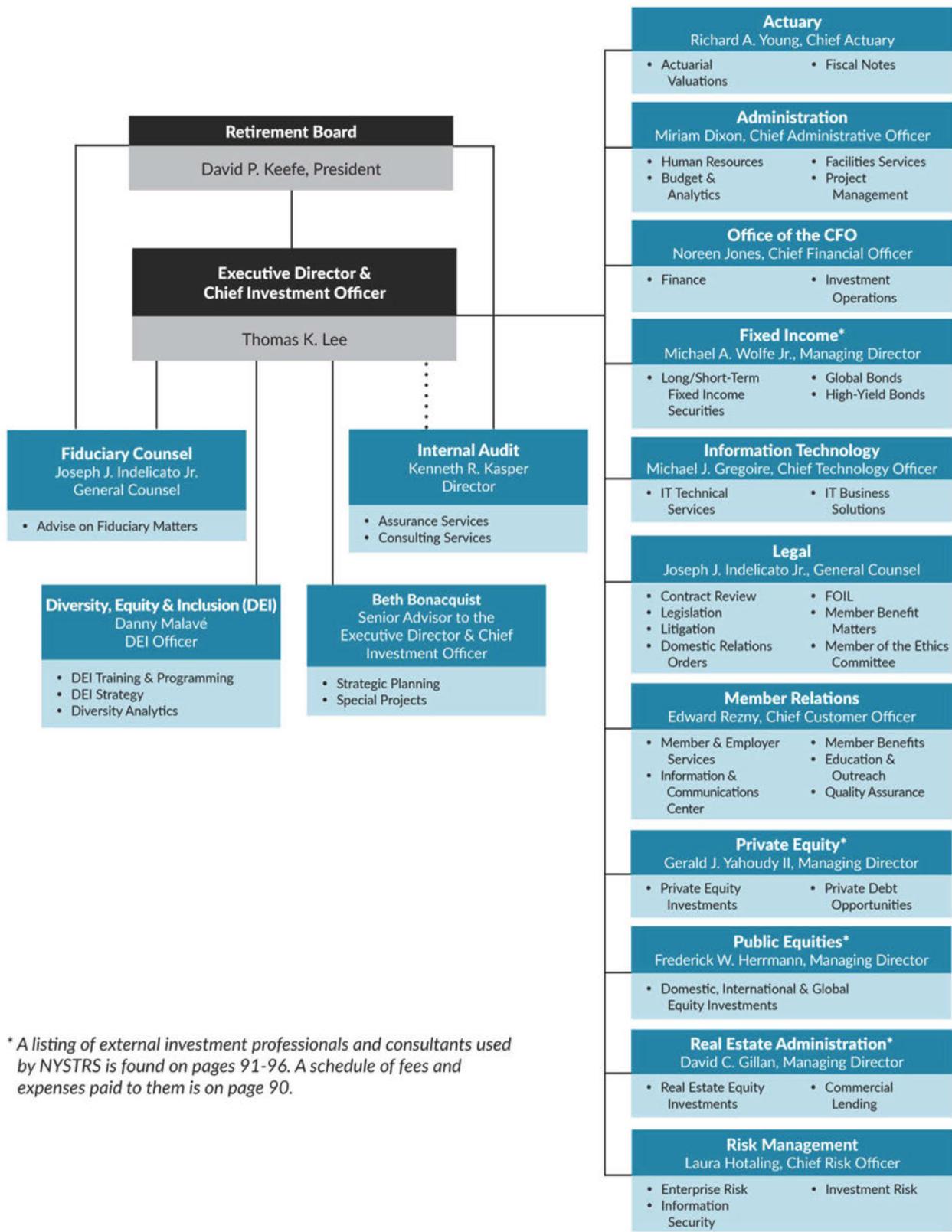
Eric J. Iberger
Bayport-Blue Point
Teacher Member
Appointed by
Commissioner of Education
First Appointed 2021



Nicholas Smirensky
Delmar
State Comptroller Appointee
First Appointed 2007

INTRODUCTION

ORGANIZATIONAL STRUCTURE – as of June 30, 2021



* A listing of external investment professionals and consultants used by NYSTRS is found on pages 91-96. A schedule of fees and expenses paid to them is on page 90.

INTRODUCTION

EXECUTIVE STAFF — as of June 30, 2021



Thomas K. Lee
Executive Director & Chief Investment Officer (CIO)



Beth Bonacquist
*Senior Advisor to the
Executive Director & CIO*



Miriam Dixon
Chief Administrative Officer



David C. Gillan
*Managing Director
of Real Estate Administration*



Michael J. Gregoire
Chief Technology Officer



Frederick W. Herrmann
*Managing Director
of Public Equities*



Laura Hotaling
Chief Risk Officer



Joseph J. Indelicato Jr.
General Counsel



Noreen Jones
Chief Financial Officer



Kenneth R. Kasper
Director of Internal Audit



Danny Malavé
*Diversity, Equity &
Inclusion Officer*



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
Chief Actuary

INTRODUCTION

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

RETIREMENT BOARD

David P. Keefe <i>President</i>	Hempstead
L. Oliver Robinson <i>Vice President</i>	Clifton Park
Sheila Sullivan Buck	Rush-Henrietta
Elizabeth A. Chetney	Baldwinsville
Phyllis S. Harrington	Oceanside
Eric J. Iberger	Bayport-Blue Point
Jennifer J. Longtin	Ballston Lake
Ruth Mahoney	Albany
Christopher Morin	Scarsdale
Nicholas Smirensky	Delmar

October 28, 2021

Trustees of the Retirement System Board:

On behalf of System staff, I present you with the Comprehensive Annual Financial Report of the New York State Teachers' Retirement System (NYSTRS or the System) for the fiscal years ended June 30, 2021 and 2020. This report complies with all requirements governing the preparation and contents of annual reports.

History and Overview

NYSTRS is proud to mark a historic milestone in 2021: our 100th anniversary. Throughout the course of the calendar year, we are celebrating a century of providing retirement security to New York's public educators.

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 15-16 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 821 employers – including public school districts, BOCES, institutions of higher education and charter schools that elect to participate. NYSTRS has 434,948 active and retired members, including beneficiaries (*see chart below*).

Membership Figures – as of June 30, 2021

Active Members:	259,158
Retired Members:	169,068
Beneficiaries:	6,722
Total Membership:	434,948

See page 109 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

INTRODUCTION

LETTER OF TRANSMITTAL *(continued)*

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.

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 2020 Comprehensive Annual Financial Report, 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 2020 Popular Annual Financial Report was recognized for its high quality and for successfully presenting data from the 2020 Comprehensive Annual Financial Report in a manner easily understandable to the general public.

Distinguished Budget Presentation Award for the fiscal year July 1, 2020 through June 30, 2021, 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 77 of the Laws of 2021 grants public employees with paid leave of up to four hours per injection to be vaccinated for COVID-19 unless the employee is entitled to more hours of leave under a collective bargaining agreement.

Chapter 78 of the Laws of 2021 grants and continues the COVID-19 accidental death benefit, established under Chapter 89 of the Laws of 2020, for statutory beneficiaries of active public employees who reported to a place of employment as directed on or after March 1, 2020, contracted COVID-19 and die on or before December 31, 2022 with COVID-19 causing or contributing to their death.

Chapter 94 of the Laws of 2021 amends the Uniform Commercial Code to establish provisions for the discontinuance of London Inter-Bank Offered Rate (LIBOR) as the benchmark for short-term interest rates.

Noteworthy Actions

Continued Operational Flexibility During the Pandemic

Despite transitioning the vast majority of staff to working remotely at the beginning of the COVID-19 pandemic, we were able to maintain our high standards of customer service to members and the System continued to provide benefits without interruption.

Diversity, Equity & Inclusion in the Workplace

NYSTRS expanded its efforts toward development of a more diverse and inclusive organization with the establishment of a Diversity, Equity and Inclusion (DEI) department. This unit is charged with broadening the educational offerings NYSTRS has traditionally provided to employees while also helping the System attract and retain diverse employees.

Our commitment to DEI extends to our external partners as well. Managers and consultants must 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) investments and professional services conference to provide emerging businesses and managers the opportunity to partner with us. In 2021, this event was held virtually.

INTRODUCTION

LETTER OF TRANSMITTAL (continued)

System Governance

This fiscal year, NYSTRS welcomed Eric J. Iberger and Ruth Mahoney to its 10-member Board of Trustees. Mr. Iberger, a teacher in the Bayport-Blue Point Union Free School District, is one of three active teacher members on the Board. Ms. Mahoney, executive vice president and president of wealth management at NBT Bank in Albany, is the Board's bank executive.

Consistent with its fiduciary duties, NYSTRS is actively investigating how to best integrate environmental, social and governance (ESG) factors in our investment portfolio. The Board and staff work with experts in this deliberative and thoughtful process.

Significant Litigation

There was no significant litigation that affected the Retirement System during the fiscal year.

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.

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 19 of this report, audits the financial statements. 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 2020 to 2021 is attributable to a net increase of 3,221 retirees and beneficiaries (details are found on page 27 in the *Notes to Financial Statements-Plan Description*). Also see the *Benefits and Return of Contributions by Type* chart on pages 124-125 for more information.

For an overview of NYSTRS' financial activities for the fiscal year ended June 30, 2021, see *Management's Discussion and Analysis* beginning on page 21. 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 26 for more information.

INTRODUCTION

LETTER OF TRANSMITTAL *(continued)*

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 9.80% will apply to 2021-2022 school year salaries. The payments associated with this rate will be collected in the fall of 2022. 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 \$148.1 billion. During the same period, benefits paid to retirees and beneficiaries were approximately \$7.7 billion.

The plan's funded ratio as of June 30, 2020, the date of the most-recent annual actuarial valuation and calculated using the Actuarial Value of Assets, was 98.9%. Details of our funding progress may be obtained by turning to page 103.

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 29.0%, net of fees, for the fiscal year ended June 30, 2021. Our 30-year rate of return is 9.2%, net of fees.

Refer to pages 65-96 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

The content of this Comprehensive Annual Financial Report is the responsibility of System management and is prepared by NYSTRS staff. The System's external auditor audits financial statements within 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.

With respect to our centennial, this significant milestone is a chance to reflect on the importance of our mission and the impact the System has had on generations of New York State educators. We say with pride that for a full century we have provided our members with a secure pension for life, on time and without fail since our founding in 1921.

We are prepared to continue our legacy in our next 100 years, and we will strive to remain the model for pension fund excellence in our second century.

Respectfully submitted,



Thomas K. Lee
Executive Director & Chief Investment Officer

INTRODUCTION

PRESIDENT'S MESSAGE



David P. Keefe

Dear NYSTRS Members, Administrators and Trustees,

Society has changed a great deal since 1921 when some children still attended one-room schoolhouses and enrollment at public high schools was just starting to grow. What hasn't changed is the safety and security of a NYSTRS pension. While NYSTRS has certainly grown and expanded since its founding on August 1, 1921, it has never wavered from its original — and sole — mission of providing a reliable, lifelong pension for our state's public school educators.

NYSTRS was founded to replace a patchwork of inefficiently planned and poorly funded smaller retirement plans. In contrast, NYSTRS was created with a sound funding structure based on scientific, actuarial calculations and an exemplary governance model. This structure has kept our Retirement System strong and, I am proud to say, approximately 100% funded as we mark our 100th anniversary.

In 1921, NYSTRS had about 19,000 active members and 1,000 retired members absorbed from a predecessor pension system. Today, NYSTRS serves about 259,000 active members plus more than 175,000 retired members and beneficiaries. Net assets have grown from \$1.5 million in 1921 with investments consisting entirely of bonds to about \$148 billion today in a broad range of diverse investments.

If you haven't already checked it out, I invite you to visit the centennial section of our website at NYSTRS.org/100 to learn more interesting facts about the Retirement System. The website features a timeline of key moments in our history and issues of *NYSTRS Centennial Stories* — reflections and photos from members. You can also find the timeline on the divider pages of this report.

NYSTRS' disciplined, risk-controlled and diversified investment strategy, combined with a shared funding structure in which employer and member contributions — collected without fail for 100 years — are pooled and invested, enables our System to remain one of the best-funded and top-performing public retirement systems in the country.

As a retired teacher and your Board president, I congratulate NYSTRS and its outstanding staff who continue to strive to be the model for pension fund excellence on our centennial, and I assure you that NYSTRS will be here serving the dedicated educators of New York state for the next 100 years and beyond.

A handwritten signature in black ink that reads "David P. Keefe". The signature is written in a cursive, flowing style.

David P. Keefe
President

INTRODUCTION

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 4:	Membership 9/1/83 – 12/31/09
Tier 2:	Membership 7/1/73 – 7/26/76	Tier 5:	Membership 1/1/10 – 3/31/12
Tier 3:	Membership 7/27/76 – 8/31/83	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 1.5% 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 1.5% 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.

INTRODUCTION

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.	RICHARD T. MACDOWELL, M.D.	LAURA E. PICA, M.D.
Board Certified Psychiatrist; Additional Qualifications in Geriatric Psychiatry	Attending Surgeon and Professor (Retired) at Albany Medical College	Diplomate of the National Board of Medical Examiners
Psychiatrist Pine Bush Mental Health, LLP	Fellow of the American College of Surgeons	Diplomate of the American Board of Internal Medicine
Psychiatric Consultant Albany County Community Mental Health Center	Member of the American Board of Surgery	Member of the American College of Physicians
Clinical Assistant Professor of Psychiatry Albany Medical College		Member of the American Society of Internal Medicine
Diplomate of the National Board of Medical Examiners		St. Peter's Health Partners Medical Association - Primary Care Physician - Internal Medicine
Member of the American Board of Psychiatry and Neurology		
Member of the American Psychiatric Association		

Member Contributions

Tier 3 and 4 members were mandated to contribute 3% of their salary to the Retirement System until they had been members for 10 years or had 10 years of service credit, whichever occurred 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.



Financial

1950s-1970s Timeline

- 1951:** Active membership totals 58,000. Net worth totals \$212 million. There are 6,600 retirees receiving \$6 million in annual benefits.
- 1953:** The System's Retirement Board provides optional membership to licensed substitute and part-time teachers.
- 1954:** A new law provides beneficiaries with a death benefit in addition to the member's accumulated contributions. System assets pass the \$300 million mark.
- 1960:** NYSTRS moves to 143 Washington Ave., Albany. The System begins to use electronic data processing equipment for the first time, and a state law permits investments in equities.
- 1960s:** Field consultation services are established as staff begin to travel around the state to offer individual retirement consultations and conduct benefit presentations.
- 1965:** The System gets its first computer for record-keeping and begins copying past files onto microfilm.
- 1968:** The Non-Contributory Retirement Plan is enacted which eliminates the requirement for members to contribute to an annuity and improves the defined benefit pension calculation.
- 1970:** The Career Retirement Plan is added, which provides improvements in retirement and death benefits.
- 1971:** Active membership totals 199,000. Net worth totals \$3 billion. There are 25,000 retirees receiving \$112 million in annual benefits.
- 1973:** New York State establishes Tier 2 with age reductions on pension benefits and restrictions on Final Average Salary (FAS) calculations, but Tier 2 also introduces the post-retirement death benefit that is available to all future tiers. Teachers who became members before July 1, 1973 are now considered Tier 1.
- 1976:** Tier 3 is established with new rules on service retirement benefits, disability eligibility and prior service credit purchases, but also introduces two enhancements that have stayed in effect for future tiers: an accidental death benefit and the removal of a cap on the maximum pension factor that can be earned. New members are required to make 3% contributions throughout their career (until Article 19 is enacted in 2000).



**NYSTRS Board meeting
1965**



**143 Washington Ave., Albany
1960**



**Delegates Meeting at
Hellman Theatre, Albany
1970**

Financial

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FINANCIAL



KPMG LLP
515 Broadway
Albany, NY 12207-2974

Independent Auditors' Report

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, 2021 and 2020, 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, 2021 and 2020, and the changes in its fiduciary net position for the years then ended in accordance with U.S. generally accepted accounting principles.

KPMG LLP, a Delaware limited liability partnership and a member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee.

FINANCIAL



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 28, 2021

FINANCIAL

MANAGEMENT'S DISCUSSION AND ANALYSIS

June 30, 2021 and 2020

(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, 2021, 2020, and 2019. 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 net position of the System represents funds available to pay current and future benefits. Net position was \$148.1 billion as of the fiscal year ended 2021, and \$120.5 billion and \$122.5 billion as of the fiscal years ended 2020 and 2019, respectively. The change for the fiscal year ended 2021 was \$27.6 billion or 23.0%, and the change for the fiscal year ended 2020 was negative \$2.0 billion, or negative 1.6%.
- The System's investments experienced appreciation of \$31.5 billion in 2021 and \$1.6 billion and \$5.6 billion in 2020 and 2019, respectively.
- Contributions from employers were \$1.6 billion in 2021, \$1.5 billion in 2020, and \$1.8 billion in 2019, 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 2021, 2020, and 2019 were \$7.7 billion, \$7.5 billion, and \$7.3 billion, respectively.
- The System's funded ratio, a comparison of the actuarial value of assets to the accrued pension benefit liability, was 98.9% as of the 2020 valuation. Valuations in 2019 and 2018 resulted in the System's funded ratio of 99.6% and 99.2%, 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 supplemental information is also presented and includes the schedules of administrative expenses, investment expenses, and consulting fees.

FINANCIAL

MANAGEMENT'S DISCUSSION AND ANALYSIS *(continued)*

June 30, 2021 and 2020

(Unaudited)

Financial Analysis

Tables 1 and 2 summarize and compare the System's financial results for the years 2021, 2020 and 2019. Investments comprise the overwhelming majority of assets of the System. Investment performance, contributions and benefit payments are the primary drivers of changes in net fiduciary position.

TABLE 1 - SUMMARY OF FIDUCIARY NET POSITION

(dollars in thousands)

	2021	June 30 2020	2019	Amount increase (decrease) 2020 to 2021	Percentage change of total 2020 to 2021
Investments at fair value	\$146,200,797	\$118,603,921	\$120,214,916	\$ 27,596,876	22.9 %
Receivables	2,302,028	2,070,049	2,545,784	231,979	0.2
Securities lending collateral – invested	481,018	486,845	881,304	(5,827)	0.0
Member Loans	236,944	256,935	264,721	(19,991)	0.0
Other Assets	59,639	60,140	45,991	(501)	0.0
Total Assets	149,280,426	121,477,890	123,952,716	27,802,536	23.1
Total Deferred Outflows of Resources	32,671	25,261	9,217	7,410	0.0
Securities lending collateral – due to borrowers	479,186	484,150	877,766	(4,964)	0.0
Investment Purchases Payable	450,377	314,679	406,053	135,698	0.1
Other Liabilities	198,526	217,360	189,333	(18,834)	0.0
Total Liabilities	1,128,089	1,016,189	1,473,152	111,900	0.1
Total Deferred Inflows of Resources	36,551	7,457	11,300	29,094	0.0
Net position restricted for pensions	\$148,148,457	\$120,479,505	\$122,477,481	\$ 27,668,952	23.0 %

The increase in the investment value as of June 30, 2021 is attributable to appreciation of the investment portfolio due to particularly strong market performance, net of benefit payments. The portfolio earned a rate of return of 28.98%, compared to an assumed rate of return of 7.1%. The increase in receivables through June 30, 2021 is due to two factors: 1) amounts due from employers increased \$109 million due to the increase in the employer contribution rate from 8.86% to 9.53%, and 2) timing of investment sales caused an increase in the amount receivable from \$226 million to \$320 million.

The decrease in the investment value as of June 30, 2020 resulted from appreciation on investments that was outpaced by retirement benefit payouts. The global pandemic and the subsequent effect on the markets resulted in a rate of return of 3.5%, compared to an assumed rate of return of 7.1%. The decline in receivables through June 30, 2020 is primarily due to two factors: 1) amounts due from employers declined \$258 million due to the decrease in the employer contribution rate from 10.62% to 8.86%, and 2) timing of investment sales caused a decline in the amount receivable from \$413 million to \$226 million.

FINANCIAL

MANAGEMENT'S DISCUSSION AND ANALYSIS (continued)

June 30, 2021 and 2020

(Unaudited)

TABLE 2 - SUMMARY OF CHANGES IN FIDUCIARY NET POSITION

(dollars in thousands)

	Years ended June 30			Amount increase (decrease) 2020 to 2021	Percentage change of total 2020 to 2021
	2021	2020	2019		
Net appreciation in fair value of investments	\$ 31,499,853	\$ 1,643,319	\$ 5,631,436	\$ 29,856,534	24.8 %
Other investment income	2,168,155	2,280,314	2,391,744	(112,159)	(0.1)
Contributions- Employer and Member	1,788,336	1,653,677	1,920,343	134,659	0.1
Total Additions	35,456,344	5,577,310	9,943,523	29,879,034	24.8
Retirement benefits	(7,717,521)	(7,484,462)	(7,285,362)	(233,059)	(0.2)
Other deductions	(69,871)	(90,824)	(96,198)	20,953	0.0
Total Deductions	(7,787,392)	(7,575,286)	(7,381,560)	(212,106)	(0.2)
Net increase(decrease) in net position	27,668,952	(1,997,976)	2,561,963	29,666,928	24.6
Net position, beginning of year	120,479,505	122,477,481	119,915,518	(1,997,976)	(1.7)
Net position, end of year	\$148,148,457	\$120,479,505	\$122,477,481	\$ 27,668,952	23.0 %

Net Investment Income

For the year ended June 30, 2021, NYSTRS reported net investment income of \$33.7 billion compared to \$3.9 billion in 2020 and \$8.0 billion in 2019. The strong appreciation in 2021 was due to robust market returns, primarily in the equity segments. The net appreciation (depreciation) by asset class and year is shown in the table below:

TABLE 3 - NET APPRECIATION (DEPRECIATION) ON INVESTMENTS *

(dollars in thousands)

	Years ended June 30			Amount increase (decrease) 2020 to 2021
	2021	2020	2019	
Domestic equity	\$ 15,646,731	\$ 1,751,965	\$ 2,759,314	\$ 13,894,766
International equity	6,762,617	(1,016,484)	(138,261)	7,779,101
Global equity	1,527,191	46,357	41,498	1,480,834
Real estate equity	1,947,403	(21,446)	184,487	1,968,849
Private equity	5,679,894	534,144	1,133,447	5,145,750
Domestic fixed income	(452,552)	870,989	780,859	(1,323,541)
High-yield bonds	55,978	(8,969)	6,216	64,947
Global bonds	(22,191)	135,675	153,543	(157,866)
Real estate debt	130,075	(698,772)	596,515	828,847
Private debt	221,004	(6,908)	59,819	227,912
Cash equivalents	2,492	56,538	53,595	(54,046)
Other	1,211	230	404	981
Totals	\$ 31,499,853	\$ 1,643,319	\$ 5,631,436	\$ 29,856,534

*net of purchases, sales and maturities

FINANCIAL

MANAGEMENT'S DISCUSSION AND ANALYSIS *(continued)*

June 30, 2021 and 2020

(Unaudited)

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. In terms of demographics, the System will likely continue to experience a shift toward a greater proportion of retirees relative to active members. This year the System experienced strong appreciation on investments. 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. Lower than projected investment returns in the fiscal year ending June 30, 2020 contributed to an increase in the employer contribution rate, from 8.86% on 2019-20 member salaries to 9.53% on 2020-21 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.

FINANCIAL

STATEMENTS OF FIDUCIARY NET POSITION

June 30, 2021 and 2020

(dollars in thousands)

Assets:	2021	2020
Investments – at fair value (notes 4, 5 and 6):		
Domestic equity	\$ 50,050,654	\$ 41,432,220
International equity	24,795,559	19,367,874
Global equity	5,097,105	3,595,252
Real estate equity	14,844,615	11,851,640
Private equity	14,783,219	9,461,825
Domestic fixed income	18,815,502	18,775,420
High-yield bonds	941,987	653,947
Global bonds	3,305,959	2,861,293
Real estate debt	7,460,772	7,168,585
Private debt	1,163,794	702,239
Cash equivalents	4,941,631	2,733,626
Total investments	146,200,797	118,603,921
Receivables:		
Employer	1,581,828	1,473,169
Member contributions	135,357	118,437
Investment income	264,854	252,414
Investment sales	319,989	226,029
Total receivables	2,302,028	2,070,049
Other assets:		
Securities lending collateral – invested (note 5)	481,018	486,845
Member loans	236,944	256,935
Capital assets, net of depreciation	22,962	26,300
Miscellaneous assets	36,677	33,840
Total other assets	777,601	803,920
Total assets	149,280,426	121,477,890
Deferred outflows of resources:		
Changes in net OPEB liability (note 10)	10,904	7,518
Changes in net pension liability (note 9)	21,767	17,743
Total deferred outflows of resources	32,671	25,261
Liabilities:		
Securities lending collateral – due to borrowers (note 5)	479,186	484,150
Investment purchases payable	450,377	314,679
Mortgage escrows and deposits – net of investments	6,755	2,558
Net OPEB liability (note 10)	47,187	51,933
Other liabilities (notes 5 and 9)	144,584	162,869
Total liabilities	1,128,089	1,016,189
Deferred inflows of resources:		
Changes in net OPEB liability (note 10)	4,276	6,811
Changes in net pension liability (note 9)	32,275	646
Total deferred inflows of resources	36,551	7,457
Net position restricted for pensions (note 3)	\$ 148,148,457	\$ 120,479,505

See accompanying notes to financial statements.

FINANCIAL

STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION

Fiscal Years Ended June 30, 2021 and 2020

(dollars in thousands)

Additions:	2021	2020
Investment income:		
Net appreciation in fair value of investments	\$ 31,499,853	\$ 1,643,319
Interest income	762,391	819,183
Dividend income	1,306,813	1,320,921
Real estate – net operating income	416,860	447,481
Securities lending – gross earnings	3,456	15,082
Other – net	17,060	15,788
	34,006,433	4,261,774
Less:		
Investment expenses	339,540	330,012
Securities lending:		
Broker rebates	(2,849)	6,083
Management fees	871	1,203
Depreciation of collateral	863	843
Net investment income	33,668,008	3,923,633
Contributions:		
Employer (note 1)	1,618,437	1,504,688
Member contributions	159,874	145,034
Transfers	10,025	3,955
Total contributions	1,788,336	1,653,677
Net additions	35,456,344	5,577,310
Deductions:		
Retirement benefit payments – periodic	7,659,950	7,420,488
Beneficiary payments	57,571	63,974
Return of contributions	14,379	19,439
Administrative expenses	55,492	71,385
Total deductions	7,787,392	7,575,286
Net increase (decrease) in net position	27,668,952	(1,997,976)
Net position restricted for pensions, beginning of year	120,479,505	122,477,481
Net position restricted for pensions, end of year	\$ 148,148,457	\$ 120,479,505

See accompanying notes to financial statements.

FINANCIAL

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2021 and 2020
(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:

	2021	2020
Public school districts	679	679
Boards of Cooperative Educational Services (BOCES)	37	37
SUNY	31	31
Community colleges	30	30
Charter schools	26	26
Special act districts	9	10
Other	9	9
Total	821	822

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

	2021	2020
Retired members and beneficiaries currently receiving benefits	175,790	172,569
Members:		
Active members	249,355	252,091
Terminated members entitled to but not yet receiving benefits	9,803	9,141
Subtotal	259,158	261,232
Total	434,948	433,801

FINANCIAL

NOTES TO FINANCIAL STATEMENTS *(continued)*

June 30, 2021 and 2020

(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

FINANCIAL

NOTES TO FINANCIAL STATEMENTS (continued)

June 30, 2021 and 2020

(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 2020-21 and 2019-20 member salaries is 9.53% and 8.86%, 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 2021 and 2020 is as follows:

	June 30	
	2021	2020
Total required employer contributions	\$ 1,617,547	\$ 1,503,823
Miscellaneous billing adjustments	890	865
Additions from employer contributions	<u>\$ 1,618,437</u>	<u>\$ 1,504,688</u>

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 2020-21 salaries; deferring payment of the difference between the ADC and the contribution determined applying the SCO rate. Interest on deferred contribution amounts were based on the

FINANCIAL

NOTES TO FINANCIAL STATEMENTS (continued)

June 30, 2021 and 2020

(dollars in thousands)

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, 2021 and 2020 were \$2,722 and \$8,365, 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 2021 and 2020 is 1.4% and 1.0%, respectively.

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

FINANCIAL

NOTES TO FINANCIAL STATEMENTS (continued)

June 30, 2021 and 2020

(dollars in thousands)

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 investments. Due to the inherent nature of these estimates, actual results could differ from those estimates.

(g) Accounting Pronouncements Applicable to the System

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

FINANCIAL

NOTES TO FINANCIAL STATEMENTS *(continued)*

June 30, 2021 and 2020

(dollars in thousands)

beginning after December 15, 2020. In reviewing the criteria for fiduciary activity outlined in GASB 84, the System determined that this standard does not have a material effect on the System's financial statements.

(h) Reclassification

Certain amounts in the 2020 basic financial statements have been reclassified to conform to 2021 presentation.

(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, 2021 and 2020 were \$19,836 and \$20,280, 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 \$126,946 and \$118,495 for the years ended June 30, 2021 and 2020, 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.

FINANCIAL

NOTES TO FINANCIAL STATEMENTS *(continued)*

June 30, 2021 and 2020

(dollars in thousands)

(h) Summary of Fund Balances

Net position restricted for pensions at June 30, 2021 and 2020 consist of the following:

	2021	2020
Administrative fund	\$ 62,807	\$ 62,360
Annuity savings and reserve funds	72,002	79,456
Pension accumulation, group life insurance and CO-ESC funds	76,692,887	50,188,993
Pension reserve fund	71,320,761	70,148,696
Total	<u>\$148,148,457</u>	<u>\$120,479,505</u>

(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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NOTES TO FINANCIAL STATEMENTS (continued)

June 30, 2021 and 2020

(dollars in thousands)

(b) Asset Allocation

The System's asset allocation policy as of June 30, 2021 and 2020, 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 equity	11	6-16
Private equity	8	3-13
Total equity	<u>72</u>	
Domestic fixed income	16	12-20
High-yield bonds	1	0-3
Global bonds	2	0-3
Real estate debt	7	3-11
Private debt	1	0-5
Cash equivalents	1	0-4
Total debt	<u>28</u>	
Total	<u>100%</u>	

(c) Rate of Return

For the years ended June 30, 2021 and 2020, the annual money-weighted rate of return on System investments, net of pension plan investment expense, was 28.97% and 3.32%, 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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NOTES TO FINANCIAL STATEMENTS (continued)

June 30, 2021 and 2020

(dollars in thousands)

(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, 2021 and 2020 are as follows:

Quality rating	2021		2020	
	Fair value	Percentage of portfolio	Fair value	Percentage of portfolio
Short-term:				
P-1	\$ 3,659,642	12.4 %	\$ 1,534,561	5.8 %
Long-term:				
Aaa	5,831,554	19.7	5,858,083	22.3
Aa	1,769,281	6.0	1,671,541	6.4
A	4,301,876	14.5	4,029,648	15.4
Baa	3,214,781	10.9	3,173,438	12.1
Ba	705,347	2.4	565,192	2.2
B	516,285	1.7	369,937	1.4
Other	33,722	0.1	36,723	0.1
Total credit risk debt securities	20,032,488	67.7	17,239,123	65.7
U.S. government fixed income securities*	9,550,305	32.3	9,003,883	34.3
Total fixed income securities**	\$ 29,582,793	100.0 %	\$ 26,243,006	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, real estate debt, high-yield and global bond on the Statements of Fiduciary Net Position at June 30, 2021 and 2020 include \$272,588 and \$168,723, respectively, in cash and commingled commercial mortgage backed securities.

Additionally, as of June 30, 2021 and 2020, the System held mortgages, secured by a lien of the properties, valued at \$3.7 billion and \$4.1 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, 2021 and 2020, the System's bank balance was a negative \$3,128 and a negative \$2,434, respectively, representing a managed

FINANCIAL

NOTES TO FINANCIAL STATEMENTS *(continued)*

June 30, 2021 and 2020

(dollars in thousands)

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.

(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, 2021 and 2020, 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.

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NOTES TO FINANCIAL STATEMENTS *(continued)*

June 30, 2021 and 2020

(dollars in thousands)

- 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.
- 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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NOTES TO FINANCIAL STATEMENTS (continued)

June 30, 2021 and 2020

(dollars in thousands)

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, 2021 and 2020 as follows:

Investment type	2021		2020	
	Fair value	Duration (in years)	Fair value	Duration (in years)
Mortgages	<u>\$ 3,707,599</u>	3.017	<u>\$ 4,072,590</u>	3.617
Cash equivalents*	4,941,631	0.118	2,733,626	0.101
Domestic fixed income	18,815,502	3.979	18,775,420	3.563
CMBS	1,850,302	0.428	1,387,443	0.309
High-yield bonds	941,987	0.177	653,947	0.139
Global bonds	<u>3,305,959</u>	7.540	<u>2,861,293</u>	7.570
Total fair value	<u>\$ 29,855,381</u>		<u>\$ 26,411,729</u>	
Cash equivalents and fixed income portfolio modified duration		4.170		3.990

*Commercial paper, certificates of deposit and U.S. 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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NOTES TO FINANCIAL STATEMENTS (continued)

June 30, 2021 and 2020

(dollars in thousands)

(d) 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 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, 2021 and 2020 as follows:

	2021		2020	
	Equity Securities and REITs	Alternatives, Cash, and Global Bonds	Equity Securities and REITs	Alternatives, Cash, and Global Bonds
Currency:				
Euro	\$ 5,693,619	\$ 2,794,323	\$ 4,395,677	\$ 1,917,287
Japanese Yen	4,108,954	273,212	3,557,065	261,367
British Pound Sterling	2,432,008	801,998	1,966,318	477,975
Canadian Dollar	1,697,618	110,929	1,143,918	81,575
Hong Kong Dollar	1,803,830	—	1,234,100	—
Swiss Franc	1,484,802	9,311	1,339,577	7,679
China Renminbi	1,266,084	—	1,006,986	—
Australian Dollar	1,082,800	146,540	868,160	70,125
South Korean Won	1,137,216	45,698	713,429	26,274
New Taiwan Dollar	1,106,896	(21)	665,921	15
Swedish Krona	744,941	17,840	439,225	9,380
Indian Rupee	652,103	(1)	370,836	(33)
Danish Krone	475,474	13,990	381,168	13,121
Brazilian Real	451,539	4,771	317,747	4,719
South African Rand	274,992	12,442	219,042	15,100
Other	1,732,752	95,781	1,332,538	82,321
Totals	\$ 26,145,628	\$ 4,326,813	\$ 19,951,707	\$ 2,966,905

(e) 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 \$1.8 million as of June 30, 2021 and \$2.7 million as of June 30, 2020. 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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NOTES TO FINANCIAL STATEMENTS (continued)

June 30, 2021 and 2020

(dollars in thousands)

As of June 30, 2021 and 2020, JP Morgan Securities Lending (JP Morgan) acted as agent for the domestic equity and fixed income securities lending program while State Street Bank and Trust Co. (State Street) & Bank of New York (BNY Mellon) acted as agents 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, 2021 and 2020, the average effective duration of the funds managed by JP Morgan was 21 and 19 days respectively and of those managed by BNY Mellon and State Street was three days compared to one day, respectively. 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	2021	2020
Fair value of securities on loan – cash collateral	\$ 459,107	\$ 472,652
Fair value of securities on loan – non-cash collateral	941,509	640,457
Total fair value of securities on loan	<u>\$ 1,400,616</u>	<u>\$ 1,113,109</u>
Fair value of liabilities to borrowers – cash collateral	\$ 479,186	\$ 484,150
Fair value of liabilities to borrowers – non-cash collateral	962,850	661,675
Total collateral due to borrowers	<u>\$ 1,442,036</u>	<u>\$ 1,145,825</u>
Fair value of cash collateral invested by System	\$ 481,018	\$ 486,845
Fair value of non-cash collateral held by System	962,850	661,675
Total collateral invested and held by the System	<u>\$ 1,443,868</u>	<u>\$ 1,148,520</u>

(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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NOTES TO FINANCIAL STATEMENTS *(continued)*

June 30, 2021 and 2020

(dollars in thousands)

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 advisers 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.

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NOTES TO FINANCIAL STATEMENTS (continued)

June 30, 2021 and 2020

(dollars in thousands)

NYSTRS' investments and securities lending collateral reinvested have the following fair value measurements or net asset values (NAV) as of June 30, 2021 and 2020, respectively:

Investments by Fair Value Level	June 30, 2021	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)
Domestic equity	\$ 50,052,876	\$ 50,030,865	\$ 21,903	\$ 108
International equity	23,505,592	23,355,851	147,888	1,853
Global equity	5,081,316	4,968,274	113,042	—
Real estate equity:				
Direct equity real estate and joint venture investments	3,273,467	—	—	3,273,467
Real estate alternative investments	300,716	—	—	300,716
Domestic REIT	3,082,892	2,931,615	151,277	—
International REIT	—	—	—	—
Global REIT	1,532,577	1,521,169	11,402	6
Total real estate equity	\$ 8,189,652	\$ 4,452,784	\$ 162,679	\$ 3,574,189
Domestic fixed income	18,815,503	356,055	18,459,418	30
High-yield bonds	941,593	1,740	939,604	249
Global bonds	3,284,833	40,913	3,243,920	—
Real estate debt:				
Domestic commercial mortgage backed securities	1,860,302	—	1,860,302	—
Real estate alternative investments	549,603	—	—	549,603
Mortgages	3,707,599	—	—	3,707,599
Total real estate debt	\$ 6,117,504	\$ —	\$ 1,860,302	\$ 4,257,202
Cash Equivalents	4,941,136	—	4,941,136	—
Securities Lending Collateral, Invested	481,018	—	479,412	1,606
Total investments by fair value level	\$121,411,023	\$ 83,206,482	\$ 30,369,304	\$ 7,835,237

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NOTES TO FINANCIAL STATEMENTS *(continued)*

June 30, 2021 and 2020

(dollars in thousands)

Investments Measured at the NAV	June 30, 2021	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Commingled international equity funds (1)	1,185,388	–	Daily or Monthly	5-30 days
Privately held real estate investment trusts (2)	1,785,335	135,000	NA	NA
Real estate equity funds (3)				
Closed-end funds	3,818,185	3,208,548	NA	NA
Open-end funds	1,050,544	74,981	Quarterly	30-120 days
Private equity closed-end funds (4)	14,780,950	7,139,617	NA	NA
Real estate debt funds (5)				
Closed-end funds	1,242,091	1,741,723	NA	NA
Open-end funds	111,177	–	Quarterly	90 days
Private debt closed-end funds (6)	1,163,794	1,333,484	NA	NA
Total investments measured at the NAV	<u>\$ 25,137,464</u>	<u>\$ 13,633,353</u>		
Investment related cash, receivables and payables not included in above	<u>133,328</u>			
Total investments and securities lending collateral reinvested	<u><u>\$ 146,681,815</u></u>			

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NOTES TO FINANCIAL STATEMENTS (continued)

June 30, 2021 and 2020

(dollars in thousands)

Investments by Fair Value Level	June 30, 2020	Fair Value Measurements Using		
		Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
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	—
Real estate equity:				
Direct equity real estate and joint venture investments	2,922,218	—	—	2,922,218
Real estate alternative investments	321,099	—	—	321,099
Domestic REIT	1,991,571	1,852,831	138,740	—
International REIT	—	—	—	—
Global REIT	824,032	814,531	9,501	—
Total real estate equity	\$ 6,058,920	\$ 2,667,362	\$ 148,241	\$ 3,243,317
Domestic fixed income	18,775,420	—	18,775,355	65
High-yield bonds	654,431	14	654,417	—
Global bonds	2,833,173	10,576	2,822,597	—
Real estate debt:				
Domestic commercial mortgage backed securities	1,387,443	10,820	1,345,159	31,464
Real estate alternative investments	480,357	—	—	480,357
Mortgages	4,072,590	—	—	4,072,590
Total real estate debt	\$ 5,940,390	\$ 10,820	\$ 1,345,159	\$ 4,584,411
Cash Equivalents	2,732,929	—	2,732,929	—
Securities Lending Collateral, Invested	486,844	—	484,810	2,034
Total investments by fair value level	\$ 100,801,582	\$ 65,839,747	\$ 27,131,770	\$ 7,830,065

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NOTES TO FINANCIAL STATEMENTS *(continued)*

June 30, 2021 and 2020

(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 equity funds (3)				
Closed-end funds	3,266,981	2,689,827	NA	NA
Open-end funds	785,625	–	Quarterly	30-120 days
Private equity closed-end funds (4)	9,461,826	7,152,107	NA	NA
Real estate debt funds (5)				
Closed-end funds	1,122,461	1,239,866	NA	NA
Open-end funds	105,734	–	Quarterly	90 days
Private debt closed-end funds (6)	702,239	948,566	NA	NA
Total investments measured at the NAV	<u>\$ 18,168,756</u>	<u>\$ 12,165,366</u>		
Investment related cash, receivables and payables not included in above	<u>120,428</u>			
Total investments and securities lending collateral reinvested	<u><u>\$ 119,090,766</u></u>			

- (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 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 equity funds invest primarily in U.S. commercial real estate with some investing in global 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 ten years after final closing.
- (4) Private equity funds include buyout, growth equity, venture capital, co-investment, and turnaround/restructuring strategies. These investments are accessed through primary commitments to commingled funds, secondary funds, fund of funds and separately managed accounts. The fair values have been determined using the NAV per share (or its equivalent) of the Plan's ownership interest in partners' capital.
- (5) Real estate debt funds invest primarily in transitional first mortgage, mezzanine, and subordinate debt positions. 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.

FINANCIAL

NOTES TO FINANCIAL STATEMENTS (continued)

June 30, 2021 and 2020

(dollars in thousands)

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 ten years after final closing.

- (6) Private debt funds consist of direct lending, mezzanine, distressed and special situations. These investments are accessed through primary commitments to closed-end commingled funds and evergreen funds. The fair values have been determined using the NAV per share (or its equivalent) of the Plan's ownership interest in partners' capital.

(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, 2021 and 2020 were as follows:

	2021	2020
Total pension liability	\$ 130,819,415	\$ 123,242,776
Plan fiduciary net position	148,148,457	120,479,505
School districts' net pension liability (asset)	<u>\$ (17,329,042)</u>	<u>\$ 2,763,271</u>
Plan fiduciary net position as a percentage of total pension liability	113.2%	97.8%

FINANCIAL

NOTES TO FINANCIAL STATEMENTS *(continued)*

June 30, 2021 and 2020

(dollars in thousands)

(a) Actuarial Methods and Assumptions

The total pension liability at June 30, 2021 was determined using an actuarial valuation as of June 30, 2020, with update procedures used to roll forward the total pension liability to June 30, 2021. 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. These actuarial valuations applied the following actuarial methods and assumptions:

Actuarial cost method	Entry age normal
Inflation	2.40% for June 30, 2021 and 2.20% for June 30, 2020
Projected salary increases	Rates of increase differ based on service They have been calculated based upon recent NYSTRS member experience and were updated as of June 30, 2021.

	June 30, 2021	June 30, 2020
<u>Service</u>	<u>Rate</u>	<u>Rate</u>
5	5.18%	4.72%
15	3.64	3.46
25	2.50	2.37
35	1.95	1.90

Projected COLAs 1.3% for June 30, 2021 and June 30, 2020

Investment rate of return 6.95% for June 30, 2021 and 7.10% for June 30, 2020 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 MP2020 for June 30, 2021 and Scale MP2019 for June 30, 2020, applied on a generational basis. Active member mortality rates are based on plan member experience, with adjustments for mortality improvements based on Scale MP2020 starting as of June 30, 2021. No improvement scale was applied for June 30, 2020.

Experience Period The June 30, 2021 demographic actuarial assumptions and the salary scale are based on the results of an actuarial experience study for the period July 1, 2015 to June 30, 2020. The June 30, 2020 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. Refer to the Actuarial Assumptions Report for full details.

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.

FINANCIAL

NOTES TO FINANCIAL STATEMENTS *(continued)*

June 30, 2021 and 2020

(dollars in thousands)

The Long-Term Expected Real Rates of Return are presented by asset allocation classification. 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, 2021 and June 30, 2020 (see the discussion of the pension plan's investment policy) are summarized in the following table:

Asset Class	Long-Term Expected Real Rate of Return*	
	2021	2020
Domestic equity	6.8%	7.1%
International equity	7.6	7.7
Global equity	7.1	7.4
Real estate equity	6.5	6.8
Private equity	10.0	10.4
Domestic fixed income	1.3	1.8
Global bonds	0.8	1.0
Private debt	5.9	5.2
Real estate debt	3.3	3.6
High-yield bonds	3.8	3.9
Cash equivalents	(0.2)	0.7

*Real rates of return are net of the long-term inflation assumption of 2.4% for 2021 and 2.2% for 2020.

(b) Discount Rate

The discount rate used to measure the total pension liability was 6.95% as of June 30, 2021 and 7.10% as of June 30, 2020. 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 6.95% for June 30, 2021 and 7.10% for June 30, 2020, 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	Current Discount Rate	1% Increase
June 30, 2021	(5.95%) \$(1,818,430)	(6.95%) \$(17,329,042)	(7.95%) \$(30,364,586)
June 30, 2020	(6.10%) \$17,454,630	(7.10%) \$2,763,271	(8.10%) \$(9,566,502)

FINANCIAL

NOTES TO FINANCIAL STATEMENTS *(continued)* June 30, 2021 and 2020 (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, 2021 and 2020, respectively, were: real estate and real estate alternative investments of \$3.6 billion and \$3.0 billion; mortgages and real estate debt funds of \$1.8 billion and \$1.3 billion; private equity \$7.1 billion and \$7.2 billion; and private debt investments of \$1.3 billion and \$948.6 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.

FINANCIAL

NOTES TO FINANCIAL STATEMENTS *(continued)*

June 30, 2021 and 2020

(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 14.5% and 14.4% was applicable to the annual covered payroll for the years ended March 31, 2021 and March 31, 2020, respectively. The contributions paid to ERS during the System's years ended June 30, 2021 and 2020 were \$4.5 million and \$4.4 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, 2021 and 2020, the System reported a liability of \$0.1 million and \$29.7 million, respectively, for its proportionate share of the ERS net pension liability measured as of March 31, 2021 and 2020, 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, 2021, the System's proportion was 0.1108277% and was 0.1120455% at March 31, 2020.

For the years ended June 30, 2021 and 2020, the System recognized pension expense of \$2.5 million and \$10.2 million, respectively.

Deferred outflows of resources were \$21.8 million and \$17.7 million at June 30, 2021 and 2020, respectively. Deferred inflows of resources were \$32.3 million and \$0.6 million at June 30, 2021 and 2020, respectively.

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

FINANCIAL

NOTES TO FINANCIAL STATEMENTS *(continued)*

June 30, 2021 and 2020

(dollars in thousands)

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, 2021, 673 participants including 374 current employees and 299 retired and/or spouses of retired employees participated in the healthcare plan. 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.

(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, 2021 and 2020, the Trust recognized contributions of \$6.3 million and \$6.0 million, respectively, which were approximately 107.5% and 100.8% of the ADC or 19.5% and 19.3% of covered payroll, respectively.

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

At June 30, 2021 and 2020, the System reported a net OPEB liability of \$47.2 million and \$51.9 million, respectively. The June 30, 2021 OPEB liability was determined using an actuarial valuation as of July 1, 2019, with update procedures used to roll forward the total OPEB liability to the measurement date of June 30, 2020. The total OPEB liability at June 30, 2020 was determined using an actuarial valuation as of July 1, 2018, with update procedures used to roll forward the total OPEB liability to June 30, 2019.

For the years ended June 30, 2021 and 2020, the System recognized OPEB expense of negative \$4.4 million and \$4.4 million, respectively.

Deferred outflows of resources were \$10.9 million for June 30, 2021 and \$7.5 million for June 30, 2020. Deferred inflows of resources were \$4.3 million at June 30, 2021 and \$6.8 million at June 30, 2020.

(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.

FINANCIAL

REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULE OF CHANGES IN THE SCHOOL DISTRICTS' NET PENSION LIABILITY

(ASSET) (UNAUDITED)

(Last Nine Fiscal Years)

(dollars in thousands)

	2021	2020	2019	2018
Total pension liability				
Service cost	\$ 1,755,405	\$ 1,563,222	\$ 1,528,402	\$ 1,319,513
Interest	8,752,345	8,418,885	8,189,405	8,224,221
Changes of benefit terms	—	678	815	—
Differences between expected and actual experience	558,905	1,169,842	753,802	964,258
Changes of assumptions	4,241,884	(285,424)	(1,392,886)	—
Benefit payments, including refunds of member contributions	(7,731,900)	(7,503,901)	(7,307,318)	(7,108,999)
Net change in total pension liability	7,576,639	3,363,302	1,772,220	3,398,993
Total pension liability — beginning	123,242,776	119,879,474	118,107,254	114,708,261
Total pension liability — ending (a)	\$ 130,819,415	\$ 123,242,776	\$ 119,879,474	\$ 118,107,254
Plan fiduciary net position				
Contributions — employer	\$ 1,618,437	\$ 1,504,688	\$ 1,774,646	\$ 1,597,139
Contributions — member	159,874	145,034	136,610	131,595
Net investment income	33,668,008	3,923,633	8,023,180	9,928,011
Benefit payments, including refunds of member contributions	(7,731,900)	(7,503,901)	(7,307,318)	(7,108,999)
Administrative expenses	(55,492)	(71,385)	(74,242)	(60,610)
Other	10,025	3,955	9,087	9,278
Net change in plan fiduciary net position	27,668,952	(1,997,976)	2,561,963	4,496,414
Plan fiduciary net position — beginning	120,479,505	122,477,481	119,915,518	115,468,360
Cumulative effect of change in accounting principle	—	—	—	(49,256)
Beginning balance as restated	120,479,505	122,477,481	119,915,518	115,419,104
Plan fiduciary net position — ending (b)	\$ 148,148,457	\$ 120,479,505	\$ 122,477,481	\$ 119,915,518
School districts' net pension liability (asset)				
— ending (a) — (b)	\$ (17,329,042)	\$ 2,763,271	\$ (2,598,007)	\$ (1,808,264)

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

See accompanying independent auditors' report.

FINANCIAL

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

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

(UNAUDITED) *(continued)*

(Last Nine Fiscal Years)

(dollars in thousands)

	2017	2016	2015	2014	2013
\$	1,292,143	\$ 1,181,609	\$ 1,396,824	\$ 1,397,547	\$ 1,406,084
	7,988,167	7,809,566	7,611,757	7,434,764	7,252,357
	—	—	—	—	—
	727,895	(111,652)	(161,043)	(181,834)	(128,194)
	3,045,909	7,085,423	—	—	—
	(6,923,037)	(6,719,866)	(6,531,140)	(6,343,538)	(6,139,718)
	6,131,077	9,245,080	2,316,398	2,306,939	2,390,529
	108,577,184	99,332,104	97,015,706	94,708,767	92,318,238
\$	114,708,261	\$ 108,577,184	\$ 99,332,104	\$ 97,015,706	\$ 94,708,767
\$	1,857,359	\$ 2,046,562	\$ 2,633,682	\$ 2,400,386	\$ 1,734,908
	129,770	124,587	119,411	120,762	128,903
	12,951,892	2,392,354	5,400,265	16,664,703	11,636,480
	(6,923,037)	(6,719,866)	(6,531,140)	(6,343,538)	(6,139,718)
	(61,611)	(60,426)	(56,948)	(55,616)	(54,338)
	7,845	4,014	3,213	1,365	4,522
	7,962,218	(2,212,775)	1,568,483	12,788,062	7,310,757
	107,506,142	109,718,917	108,155,083	95,367,021	88,056,264
	—	—	(4,649)	—	—
	107,506,142	109,718,917	108,150,434	95,367,021	88,056,264
\$	115,468,360	\$ 107,506,142	\$ 109,718,917	\$ 108,155,083	\$ 95,367,021
\$	(760,099)	\$ 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.

FINANCIAL

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

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

(Last Nine Fiscal Years)

(dollars in thousands)

	2021	2020	2019	2018	2017
Total pension liability	\$ 130,819,415	\$ 123,242,776	\$ 119,879,474	\$ 118,107,254	\$ 114,708,261
Plan fiduciary net position	148,148,457	120,479,505	122,477,481	119,915,518	115,468,360
School districts' net pension liability (asset)	<u>\$ (17,329,042)</u>	<u>\$ 2,763,271</u>	<u>\$ (2,598,007)</u>	<u>\$ (1,808,264)</u>	<u>\$ (760,099)</u>
Plan fiduciary net position as a percentage of the total pension liability	113.2%	97.8%	102.2%	101.5%	100.7%
Covered payroll	\$16,973,207	\$16,973,171	\$16,691,626	\$16,288,884	\$15,846,705
School districts' net pension liability (asset) as a percentage of covered payroll	(102.1)%	16.3%	(15.6)%	(11.1)%	(4.8)%

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)

	2021	2020	2019	2018
Actuarially determined contribution	\$ 1,617,547	\$ 1,503,823	\$ 1,772,651	\$ 1,596,311
Contributions in relation to the actuarially determined contribution	1,617,547	1,503,823	1,772,651	1,596,311
Contribution deficiency	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>
Covered payroll	\$ 16,973,207	\$ 16,973,171	\$ 16,691,626	\$ 16,288,884
Contributions as a percentage of covered payroll	9.53%	8.86%	10.62%	9.80%

See accompanying independent auditors' report.

FINANCIAL

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

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

(UNAUDITED) *(continued)*

(Last Nine Fiscal Years)

(dollars in thousands)

2016	2015	2014	2013
\$ 108,577,184	\$ 99,332,104	\$ 97,015,706	\$ 94,708,767
107,506,142	109,718,917	108,155,083	95,367,021
<u>\$ 1,071,042</u>	<u>\$ (10,386,813)</u>	<u>\$ (11,139,377)</u>	<u>\$ (658,254)</u>

99.0% 110.5% 111.5% 100.7%

\$ 15,431,009 \$ 15,021,357 \$ 14,771,301 \$ 14,647,830

6.9% (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)

2017	2016	2015	2014	2013	2012
\$ 1,857,234	\$ 2,046,152	\$ 2,633,244	\$ 2,400,378	\$ 1,734,303	\$ 1,626,589
1,857,234	2,046,152	2,608,266	2,383,145	1,734,303	1,626,589
<u>\$ —</u>	<u>\$ —</u>	<u>\$ 24,978</u>	<u>\$ 17,233</u>	<u>\$ —</u>	<u>\$ —</u>

\$15,846,705 \$ 15,431,009 \$ 15,021,357 \$ 14,771,301 \$ 14,647,830 \$ 14,640,764

11.72% 13.26% 17.36% 16.13% 11.84% 11.11%

See accompanying independent auditors' report.

FINANCIAL

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

SCHEDULE OF INVESTMENT RETURNS (UNAUDITED) **(Last Nine Fiscal Years)**

	2021	2020	2019	2018	2017	2016	2015	2014	2013
Annual money-weighted rate of return, net of investment expense	28.97%	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.

FINANCIAL

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

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

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

Changes of benefit terms. None

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. Current proposed assumptions are used in the 2021 determination of the Total Pension Liability.

The System's long-term rate of return assumption for purposes of the NPL is 6.95%, effective with the 2021 actuarial valuation. For the 2020 and 2019 actuarial valuations, the System's long-term rate of return assumption was 7.10%. 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 7.50%. Prior to the 2016 actuarial valuation, the System's long-term rate of return was 8.00%.

The System's assumed annual inflation rate is 2.40% for 2021 and 2.20% for 2019 and 2020. 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 3.00%.

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 2021 actuarial valuation, the assumed scale for mortality improvement was changed from MP2019 to MP2020. 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.

See accompanying independent auditors' report.

FINANCIAL

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

NOTES TO REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED) *(continued)* (Last Nine 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 2021. For assumptions and plan provisions used in contributions reported for years prior to 2021, 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, 2019										
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	2.20%										
Projected salary increases	Rates of increase differ based on service. They have been calculated based upon recent NYSTRS member experience.										
	<table border="0"> <thead> <tr> <th style="text-align: center;"><u>Service</u></th> <th style="text-align: center;"><u>Rate</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">4.72%</td> </tr> <tr> <td style="text-align: center;">15</td> <td style="text-align: center;">3.46</td> </tr> <tr> <td style="text-align: center;">25</td> <td style="text-align: center;">2.37</td> </tr> <tr> <td style="text-align: center;">35</td> <td style="text-align: center;">1.90</td> </tr> </tbody> </table>	<u>Service</u>	<u>Rate</u>	5	4.72%	15	3.46	25	2.37	35	1.90
<u>Service</u>	<u>Rate</u>										
5	4.72%										
15	3.46										
25	2.37										
35	1.90										
Projected COLAs	1.3% compounded annually										
Valuation rate of interest	7.10% 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.

FINANCIAL

OTHER SUPPLEMENTAL SCHEDULES

SCHEDULES OF ADMINISTRATIVE EXPENSES

Years ended June 30, 2021 and 2020

(dollars in thousands)

	2021	2020
Salaries and benefits:		
Salaries	\$ 35,141	\$ 34,144
Civil service	50	48
Employees retirement	4,383	4,517
Health and dental insurance	12,679	11,888
Overtime salaries	12	37
Social Security	2,461	2,385
Total salaries and benefits	54,726	53,019
Building occupancy expenses:		
Building, grounds and equipment	\$ 1,680	\$ 2,434
Depreciation - building and improvements	1,996	1,896
Depreciation - Equipment	189	288
Office supplies and expenses	114	186
Utilities and municipal assessments	911	920
Total building occupancy expenses	4,890	5,724
Computer expenses:		
Amortization/depreciation - computer equipment	\$ 1,379	\$ 633
Computer hardware and software	4,350	3,938
Computer maintenance and supplies	65	68
Total computer expenses	5,794	4,639
Personnel and meeting expenses:		
Board - meetings, travel and education	\$ 28	\$ 93
Delegates meeting	3	46
Pre-retirement seminars	—	134
Professional development	561	773
Travel and automobile expense	3	132
Other personnel expenses	65	84
Total personnel and meeting expenses	660	1,262
Professional and governmental services:		
Auditors - financial*	\$ 61	\$ 416
Auditors - Department of Financial Services	139	151
Disability medical examinations	94	68
Postage and cartage	780	770
Professional fees and services	688	816
Publications	152	114
Statutory custodian charges	130	131
Total professional and governmental services	2,044	2,466
Total administrative fund expenses	68,114	67,110
Reconciliation of contribution expense to pension and OPEB expense	(12,622)	4,275
Total Administrative Expenses	\$ 55,492	\$ 71,385

*Presented on an accrual basis for 2021. Expenses incurred in fiscal year 2022 when services performed.

See accompanying independent auditors' report.

FINANCIAL

OTHER SUPPLEMENTAL SCHEDULES (continued)

SCHEDULES OF INVESTMENT EXPENSES

Years ended June 30, 2021 and 2020

(dollars in thousands)

Investment Category	2021		2020	
	Fair Value of Assets Serviced or Under Management	Expenses	Fair Value of Assets Serviced or Under Management	Expenses
Externally managed/serviced assets:				
International equity	\$ 24,720,161	\$ 29,958	\$ 19,316,770	\$ 26,311
Real estate equity	14,839,765	94,632	11,846,790	98,942
Private equity	14,780,950	137,707	9,461,825	137,539
Real estate debt	5,083,135	15,713	4,550,445	13,942
Global equity	5,097,105	17,702	3,595,252	11,574
Global bonds	3,305,959	5,834	2,861,293	5,655
Domestic equity	2,162,554	5,729	1,602,775	9,926
Private debt	1,163,794	17,491	702,239	13,711
High-yield bonds	941,987	2,806	653,947	1,474
Sub-total	<u>72,095,410</u>	<u>327,572</u>	<u>54,591,336</u>	<u>319,074</u>
General expenses	—	11,968	—	10,938
Totals	<u>\$ 72,095,410</u>	<u>\$ 339,540</u>	<u>\$ 54,591,336</u>	<u>\$ 330,012</u>

See accompanying independent auditors' report.

FINANCIAL

OTHER SUPPLEMENTAL SCHEDULES (continued)

SCHEDULE OF CONSULTING FEES

Year ended June 30, 2021

Fees in excess of \$50,000 for outside professionals other than investment advisers.

Name	Amount	Nature
Stepstone Group LP	\$ 1,669,800	Investment Consulting
Callan LLC	741,321	Investment Consulting
Aon Investments USA Inc.	535,850	Investment Consulting
Sheppard Mullin Richter & Hampton LLP	382,197	Legal Services
Seward & Kissel LLP	371,051	Legal Services
Novacoast Inc.	234,832	IT Professional Services
DLA Piper LLP (US)	142,321	Legal Services
Nixon Peabody LLP	134,238	Legal Services
Nossaman LLP	130,185	Legal Services
Turner Construction	127,628	Construction Management
Cherry Road Technologies Inc.	124,350	IT Professional Services
Katten Muchin Rosenman LLP	122,496	Legal Services
Mercer Investments LLC	120,833	IT Professional Services
Sidley Austin LLP	113,547	Legal Services
KPMG LLP	96,112	Accounting Services
Janus Software Inc.	70,370	IT Professional Services
Lenox Park Solutions	65,000	MWBE Consulting
Glass Lewis & Co. LLC	59,000	Investment Consulting
K&L Gates LLP	57,806	Legal Services
Morgan Lewis & Bockius LLP	57,563	Legal Services
Cheiron Inc.	52,695	Actuarial Consulting

FINANCIAL

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Investments

1980s-2000s Timeline

- 1980s:** NYSTRS introduces Pre-Retirement Planning Seminars across the state. These develop into the Pension & Retirement Education Program (PREP) in 2010.
- 1983:** Tier 4 is established initially with new age reductions and a requirement that members work until 62 before retiring, but the new tier eliminates the Social Security benefit offset rule under Tier 3. Due to Tier 4 benefit improvements enacted by state law since then, Tier 3 members now automatically receive the better of Tier 3 or 4 benefits.
- 1984:** NYSTRS moves to its own newly constructed building at 10 Corporate Woods Drive, Albany.
- 1985:** A new law permits Tier 3 and 4 members to retire without an age factor at age 55 with 30 years of service.
- 1991:** Active membership totals 195,000. Net worth totals \$26 billion. There are 71,000 retirees receiving \$998 million in annual benefits.
- 1994:** A lump sum payment option is permitted for members whose benefit would be less than \$1,000 per year. In 2003, this is increased to \$2,400 per year.
- 1996:** NYSTRS begins offering benefits consultations through video at school locations. By 2020, members can have video consultations through their own personal mobile devices.
- 1998:** State laws introduce a vested death benefit for those with an active membership who are no longer working, as well as an accelerated death benefit for members who have a terminal illness or require extraordinary treatment. In addition, a reinstatement provision is introduced so current members can restore their original NYS membership. Vesting for Tier 1-4 members is changed to take effect after five years of service instead of 10.
- 1999:** The website NYSTRS.org is launched. Members today securely access self-service tools online through MyNYSTRS, and employers report members' salary and service credit electronically through the Employer Secure Area.
- 2000:** A guaranteed annual Cost of Living Adjustment (COLA) of 1-3% is established for the first \$18,000 of the Maximum pension benefit of eligible retirees. The Article 19 Benefit Enhancement is also enacted, which provides up to two additional years of service for Tier 1 and Tier 2 members and ends pension contributions from Tier 3 and Tier 4 members after 10 years of service or membership. Additional laws expand eligibility for prior service and military service credit.
- 2007:** NYSTRS' net assets exceed \$100 billion.



**Pre-retirement seminars begin
1980s**



**New headquarters built
1984**



**Video consultations
1996**

Investments

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Disclaimers

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INVESTMENTS

REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING JUNE 30, 2021

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 \$148.1 billion, and our funded ratio was 98.9% based on the June 30, 2020 actuarial value of assets.

The System's total fund return, net of fees, for the fiscal year ended June 30, 2021 was 29.0%, compared to the assumed rate of return of 7.1%. Our 10-year and 30-year annualized net rates of return were 10.1% and 9.2%, respectively.

Fiscal Year in Review

Despite COVID-19 maintaining its pandemic designation by the World Health Organization throughout the entirety of the System's 2021 fiscal year, the global economy and financial markets experienced a strong rebound supported by the continuation of extraordinary fiscal and monetary policy support as well as improvements in vaccine availability.

Domestic fiscal policy in the form of the Coronavirus Aid, Relief, and Economic Security (CARES) Act, Consolidated Appropriations Act, and American Rescue Plan supported workers, families, small businesses, and industries as the nation continued to address recovery efforts from the pandemic.

As re-opening continued in earnest, economic activity picked up at a steady pace. Imbalances between supply and demand pushed up the Core Personal Consumption Expenditures Index, the Federal Reserve's preferred measure of inflation, to 3.6% as of June 2021 from 1.1% the prior year. Employment measures improved markedly since the onset of the pandemic. The U.S. unemployment rate declined from 11.1% to 5.9% over the fiscal year as job openings hit their all-time high as of June 2021.

Monetary policy support continued during the fiscal year with the Federal Reserve maintaining its federal funds target rate at the zero lower bound, continuing the expansion of its balance sheet via purchases of Treasury and Agency Mortgage-Backed Securities, and operation of emergency lending facilities. Actions by the Federal Reserve to address stresses resulting from the pandemic have nearly doubled its balance sheet to \$8.1 trillion as of June 30, 2021. As the System's fiscal year ended, domestic monetary policy accommodation remained at historic highs.

Internationally the story bears strong resemblance to that domestically; lockdowns and restrictions have eased while growth and inflation have rebounded across many economies. Fiscal and monetary policy remains accommodative as policymakers attempt to provide support to cushion their respective economies against the negative effects resulting from the pandemic.

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.

Public Equities

The 2021 fiscal year was an exceptionally strong period for global equity markets. In the United States, a successful initial vaccine rollout combined with continued monetary and fiscal stimulus drove the S&P 500 index to an all-time high. The System's policy benchmark for domestic equities, the S&P 1500, rose 42.1%, as the improving economic outlook favored domestically focused smaller companies and those in cyclical industries, such as financials and industrials. After trailing their growth counterparts, inexpensive or value stocks rallied strongly in the second half of the fiscal year.

INVESTMENTS

REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING JUNE 30, 2021 *(continued)*

International markets also performed strongly with the System's policy benchmark, the MSCI All Country World Ex-U.S. Index, rising 35.7% over the period, led by faster growing emerging markets, notably Taiwan, South Korea and India. The technology sector performed strongly while the mining and materials industries benefited from rising commodity prices as the world's economies cautiously re-opened.

NYSTRS responded to rising equity markets by opportunistically rebalancing the public equities portfolio, raising \$7.8 billion from domestic equities, \$1.7 billion from international equities, and \$100 million from global equities during the fiscal year. Although modestly above target, the public equities portfolio remained well within the ranges specified by the System's asset allocation policy.

The System's public equities portfolio saw impressive gains for the period. A significant portion of the System's domestic and international public equity investments are passively managed in broadly diversified strategies that, as expected, generated returns in line with their respective markets. The portfolio's active strategies overall generated strong results, producing additional gains for the System.

The domestic equities portfolio, which represented 34.2% of System assets at the end of the fiscal year, generated a return of 42.3%, outperforming the S&P 1500 by 0.2%. The international equities portfolio, which represented 17.0% of System assets, returned 36.9%, outperforming the MSCI All Country World Ex-U.S. Index by 1.2%. The global equities portfolio, which represented 3.5% of System assets and is entirely comprised of active strategies, returned 44.4%, outperforming the MSCI All Country World Index by 5.2%.

Overall, NYSTRS' public equity portfolio returned 40.7% for the fiscal year. Over the past five years, the System's public equity investments have generated an average return of 15.4% per year.

Real Estate Equity

The target allocation for equity real estate is 11.0% with a range of 6.0% to 16.0%. The System invests in equity real estate through directly owned properties, investments in commingled funds, and public real estate securities. The portfolio is diversified by geography, property type and investment structure. At the end of the fiscal year, the actual amount of System assets invested was 10.2%, which increases to 12.3% when including unfunded commitments. The equity real estate portfolio returned 19.3% for the fiscal year, compared to the policy benchmark of 7.1%.

The unlevered NCREIF Property Index (NPI) of core diversified properties returned 7.4% for the fiscal year. However, returns varied widely by property type. Industrial properties continue to be the best performing property type, driven by increased demand for space to support distribution and last mile delivery of online goods. The increase in online shopping is at the detriment of physical retail, which was the worst performer for the year. Multifamily properties continued to be supported by tenant demand, especially in suburban locations; low cost of debt; and ample investor equity to deploy in the sector. In contrast, office returns remained subdued given the prolonged work-from-home environment and uncertainty surrounding future office demand.

The System's direct property portfolio generated an overall net return of 10.3% for the period, aided by rent collections and leasing in the mid to high 90% range. The System's public real estate securities performed strongly during the period, returning 36.9%, in line with global equity markets. The real estate department added \$675 million to the public real estate equity portfolios during the fiscal year.

The System's real estate department continues to focus on long-term demand drivers to identify property sectors and geographic regions poised to provide the best long-term, risk-adjusted returns.

INVESTMENTS

REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING JUNE 30, 2021 *(continued)*

Private Equity

The target allocation for private equity is 8.0% with a range of 3.0% to 13.0%. The System invests through partnership structures that generally cover periods of 10 years or more with the goal to achieve higher long-term returns than available through public markets. The program seeks to outperform the S&P 500 by 5% over the long-term. The System is focused on investing with disciplined top-performing managers who have demonstrated an ability to prudently invest across varying macroeconomic backdrops and cycles while maintaining a strong alignment of interest with NYSTRS.

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

The 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 strategies with a track record of strong performance. 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 \$24.2 billion across 80 fund sponsors. The private equity portfolio was valued at \$14.8 billion, representing 10.1% of the System's total assets. Unfunded commitments totaled \$7.1 billion. Over the last fiscal year, the private equity program returned 59.0%, versus the stated benchmark of 45.8%. Over the last 20 years, the private equity program returned 13.5%, versus the stated benchmark of 13.6%.

Fixed Income

NYSTRS manages its fixed income investments with a focus on preserving capital and generating cash flow to meet the System's current and growing \$7.7 billion annual retirement benefit obligation. These goals are accomplished by seeking returns with appropriate levels of risk. 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 excess returns and taking 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 negative 0.3% during the fiscal year. Index performance reflected an economic recovery that was supported by extraordinary fiscal and monetary policy measures. Shorter maturity instruments outperformed longer maturities. In general, securities with lower credit ratings outperformed those with higher ratings. Corporate bonds outperformed and were followed by government-related, securitized, and U.S. Treasuries.

As of June 30, 2021, the internally managed domestic fixed income portfolio represented approximately 12.9% of System investments. For the one- and five-year periods ended June 30, 2021, the System's long-term bond portfolio's annual return was negative 0.1% and 2.7%, respectively. This compares to benchmark returns of negative 0.3% and 3.1%. The one-year outperformance was largely attributable to the portfolio's lower interest rate risk in U.S. Treasuries.

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 0.1% for the fiscal year ended June 30, 2021. All credit spread sectors outperformed global Treasuries, led by corporate bonds, and followed by government-related and securitized. Issues with maturities inside of 10 years outperformed longer maturity bonds. From a ratings perspective, lower credit quality issues also outperformed. Overall, European securities outperformed those in the U.S. and Asia.

INVESTMENTS

REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING JUNE 30, 2021 *(continued)*

As of June 30, 2021, approximately 2.2% of System assets were invested in externally managed global bond portfolios significantly hedged to U.S. dollars. For the one- and five-year periods, global bonds returned 1.4% and 3.8%, respectively, compared to 0.1% and 3.1% for the benchmark. An overweight to the corporate sector along with security selection were the primary factors in outperforming the benchmark over the past fiscal year. Long term, NYSTRS expects the global bond managers will continue to add investment diversification and help generate greater risk-adjusted fixed income returns than the benchmark.

In the high-yield space, returns as measured by the ICE BofAML BB-B US High-Yield Constrained Index were 13.4% for the year ending June 30, 2021. The financial and industrial sectors outperformed utilities while lower credit quality and longer maturities issues outperformed their counterparts.

As of June 30, 2021, approximately 0.6% of System assets were invested in externally managed high-yield portfolios. For the one-year period, high-yield returned 13.4%, in line with the benchmark.

Real Estate Debt

As of fiscal year-end, the target allocation for real estate debt was 7.0% with a range of 3.0% to 11.0%. The System invests in real estate debt through directly held first mortgages, subordinate/mezzanine debt (through commingled funds and separately managed accounts), and public real estate debt securities. The portfolio is diversified by geography, property type and investment structure. At the end of the fiscal year, the actual amount of System assets invested was 5.1%, which increases to 6.2% when including unfunded commitments. The real estate debt portfolio returned 5.9% for the fiscal year, compared to the policy benchmark of 4.7%.

The public commercial mortgage-backed securities (CMBS) market was volatile throughout the fiscal year driven by COVID-19 and the resulting government intervention. The decrease in supply of CMBS issuance for investment in the first half of the fiscal year, coupled with strong investor demand searching for yield, led to significant spread tightening with lower credit rated securities outperforming higher credit. The flat rate yield curve has resulted in shorter term maturities outperforming longer term maturities. The real estate department focuses on higher yielding single-asset single-borrower securities and risk retention bonds. The public debt security portfolio returned 9.12% for the fiscal year, outperforming the benchmark by 4.25%.

The System's directly held mortgage portfolio consists of a diverse group of first mortgage investments collateralized by high-quality, core, stabilized properties. At year-end, all-in market yields for similar quality mortgages were in the range of 2.5%-3.0%. The System's existing mortgage portfolio was valued at a premium due to our higher in-place weighted average coupon of 3.9%. The overall size of the direct mortgage portfolio is decreasing over time as loans mature and borrowers repay early to refinance at lower rates.

To supplement the direct first mortgage and CMBS investments, the System continues to invest in senior mezzanine and bridge first mortgage loans on transitional assets with experienced, well-capitalized borrowers. These shorter-term investments can generate yields at a 250-300 basis points premium to the direct first mortgage and CMBS markets. The real estate department committed \$600 million to these strategies during the fiscal year.

Private Debt

As of fiscal year-end, the target allocation for private debt was 1.0% with a 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 by 3.0% over the long term.

INVESTMENTS

REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING JUNE 30, 2021 *(continued)*

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

The 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 \$2.8 billion across 13 fund sponsors. The private debt portfolio was valued at \$1.2 billion, representing 0.8% of the System's total assets. Unfunded commitments totaled \$1.3 billion. Over the last fiscal year, the private debt program returned a time-weighted one-year return of 24.8% versus the stated benchmark time-weighted one-year return of 14.7%. Over the last three years, the private debt program returned 9.7%, versus the stated benchmark of 7.4%.

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, 2021, the portfolio represented 3.4% of total invested System assets, within the allowable range of 0.0% to 4.0%. At fiscal year-end, both the portfolio's weighted average maturity and weighted average life were 43 days. For the one- and five-year periods ended June 30, 2021, the System's short-term portfolio's annual return was 0.1% and 1.3%, respectively. This compares to the iMoneyNet Money Fund Averages/All-Taxable Index benchmark returns of 0.0% and 0.9% for the comparable periods.

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.

INVESTMENTS

REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING JUNE 30, 2021 *(continued)*

As of June 30, 2021, 1.5% of the System's assets available to lend were on loan and collateralized at 103.0%. Utilization increased slightly from 1.4% on June 30, 2020 as the System began accepting U.S. Treasuries as collateral on loans of domestic equities. However, utilization levels remain low by historical standards. Though borrower demand weakened, it continued to generate the majority of securities lending income, which totaled \$5.4 million for the fiscal year, compared to \$7.8 million for the fiscal year ended June 30, 2020. The unrealized gain on investments in the System's cash collateral reinvestment portfolio declined during the 2021 fiscal year, settling at \$1.8 million (including unpaid income) as of June 30, 2021.

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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INVESTMENTS

ASSET ALLOCATION — as of June 30, 2021

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%	34.2 %
International Equity	16 %	12-20%	17.0 %
Global Equity	4 %	0-8%	3.5 %
Real Estate Equity	11 %	6-16%	10.2 %
Private Equity	8 %	3-13%	10.1 %
Total Equity	72 %		75.0 %
Debt			
Domestic Fixed Income	16 %	12-20%	12.9 %
High-Yield Bonds	1 %	0-3%	0.6 %
Global Bonds	2 %	0-3%	2.2 %
Real Estate Debt	7 %	3-11%	5.1 %
Private Debt	1 %	0-5%	0.8 %
Cash Equivalents	1 %	0-4%	3.4 %
Total Debt	28 %		25.0 %

CHANGES IN NET ASSET VALUE

The fair value of investments presented below are based on net asset value, which differs from the financial statement presentation.

Asset Class	Net Asset Value 6/30/2020	Net Income	Net Appreciation (Depreciation)	Net Cash Inflows (Outflows)	Net Asset Value 6/30/2021
Equity					
Domestic Equity	\$ 41,465,509,851	\$ 732,047,423	\$ 15,646,730,979	\$ (7,765,079,295)	\$ 50,079,208,958
International Equity	19,430,974,764	354,620,048	6,762,148,551	(1,673,310,164)	24,874,433,199
Global Equity	3,602,009,211	80,456,220	1,527,282,765	(100,031,962)	5,109,716,234
Real Estate Equity	11,856,543,282	422,902,002	1,947,550,252	636,615,928	14,863,611,464
Private Equity	9,461,825,353	(137,706,896)	5,679,894,253	(220,794,169)	14,783,218,541
Total Equity	85,816,862,461	1,452,318,797	31,563,606,800	(9,122,599,662)	109,710,188,396
Debt					
Domestic Fixed Income	18,870,001,167	458,091,876	(465,013,565)	32,902,690	18,895,982,168
High-Yield Bonds	652,802,265	41,547,848	55,699,353	200,000,000	950,049,466
Global Bonds	2,822,404,427	58,024,044	(11,705,534)	350,000,000	3,218,722,937
Real Estate Debt	7,173,203,927	286,953,950	128,357,823	(146,039,836)	7,442,475,864
Private Debt	702,238,875	(17,491,306)	221,004,096	258,042,647	1,163,794,312
Cash Equivalents	2,718,686,222	12,423,708	22,653	2,212,930,351	4,944,062,934
Total Debt	32,939,336,883	839,550,120	(71,635,174)	2,907,835,852	36,615,087,681
Total	\$ 118,756,199,344	\$ 2,291,868,917	\$ 31,491,971,626	\$ (6,214,763,810)	\$ 146,325,276,077

INVESTMENTS

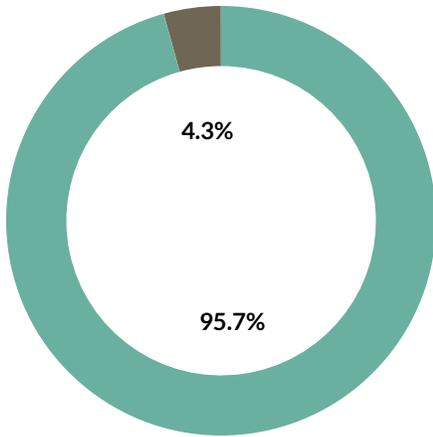
DIVERSIFICATION OF INVESTMENTS – June 30, 2021

Asset Class	Net Asset Value 6/30/2021	Percent	Net Asset Value 6/30/2020	Percent
Equity:				
Public Equity (Domestic Equity, International Equity and Global Equity)				
Communications Services	\$7,166,850		\$5,637,048	
Consumer Discretionary	10,406,382		7,475,471	
Consumer Staples	5,086,795		4,757,339	
Energy	2,633,612		2,104,372	
Financials	10,922,458		8,020,974	
Health Care	9,383,360		8,682,348	
Industrials	8,454,558		6,398,376	
Information Technology	17,720,765		14,469,228	
Materials	3,763,602		2,815,694	
Other	560,843		467,508	
Real Estate	2,043,170		1,790,773	
Utilities	1,920,963		1,879,363	
Total Public Equity	<u>80,063,358</u>	54.7%	<u>64,498,494</u>	54.3%
Real Estate Equity				
Core Funds	1,548,534		1,364,101	
Direct Properties/Other Real Estate Owned	5,058,802		4,661,190	
Opportunistic Funds	2,005,041		1,754,570	
Real Estate Investment Trusts (REITs)	4,635,364		2,821,643	
Timber	300,716		321,104	
Value Added Funds	1,315,154		933,935	
Total Real Estate Equity	<u>14,863,611</u>	10.2	<u>11,856,543</u>	10.0
Private Equity				
Co-Investments	1,131,653		805,237	
Fund of Funds	931,472		650,561	
LBO/MBO	9,766,804		6,303,161	
Other	2,269		–	
Secondary Funds	335,633		298,081	
Turnaround	782,984		507,872	
Venture Capital	1,832,404		896,913	
Total Private Equity	<u>14,783,219</u>	10.1	<u>9,461,825</u>	8.0
Total Equity	<u>109,710,188</u>	75.0%	<u>85,816,862</u>	72.3%
Debt:				
Fixed Income (Domestic Fixed Income, High-Yield Bonds, Global Bonds)				
Corporate	8,149,328		8,014,717	
Global Treasuries	9,512,577		8,746,894	
Government Related	1,258,046		1,091,119	
Other	200,413		105,810	
Securitized	3,944,391		4,386,668	
Total Fixed Income	<u>23,064,755</u>	15.7	<u>22,345,208</u>	18.8
Real Estate Debt				
Commercial Mortgage Backed (CMBS)	1,832,006		1,392,063	
Core Plus	1,413,324		1,348,847	
Direct Mortgages	3,707,598		4,072,589	
Opportunistic	489,548		359,705	
Total Real Estate Debt	<u>7,442,476</u>	5.1	<u>7,173,204</u>	6.0
Private Debt				
Direct Lending	388,530		188,410	
Distressed	85,840		79,560	
Mezzanine	307,595		188,717	
Special Situation	381,829		245,552	
Total Private Debt	<u>1,163,794</u>	0.8	<u>702,239</u>	0.6
Cash Equivalents				
Corporate	1,763,389		744,635	
Global Treasuries	1,037,818		735,882	
Government Related	1,067,429		748,670	
Other	495		15,693	
Securitized	1,074,932		473,806	
Total Cash Equivalents	<u>4,944,063</u>	3.4	<u>2,718,686</u>	2.3
Total Debt	<u>36,615,088</u>	25.0%	<u>32,939,337</u>	27.7%
Total	<u>\$ 146,325,276</u>	100.0%	<u>\$ 118,756,199</u>	100.0%

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

INVESTMENTS

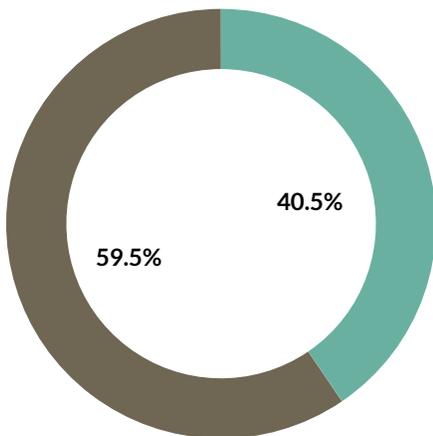
DOMESTIC EQUITY DISTRIBUTION — as of June 30, 2021



● Internal	95.7%
S&P 1500 Index2	79.1%
S&P 100 Index	3.8%
S&P 1500 Value Tilt2	2.9%
S&P 1500 Growth Tilt2	2.8%
S&P 500 Index	4.5%
S&P 600 Index	0.7%
All Cap Disciplined Equity	1.9%
● External	4.3%
Large Cap	2.6%
Mid Cap	1.7%

DOMESTIC EQUITY EXTERNALLY MANAGED STYLE DISTRIBUTION

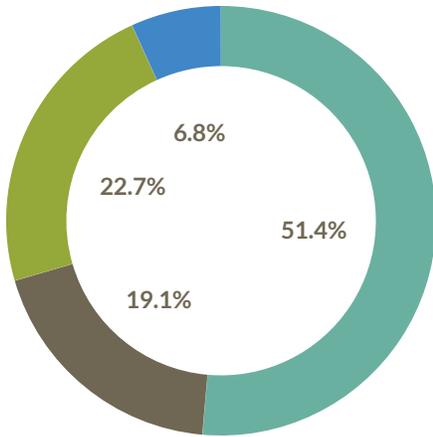
— as of June 30, 2021



● Mid Cap	40.5%
● Large Cap Enhanced	59.5%

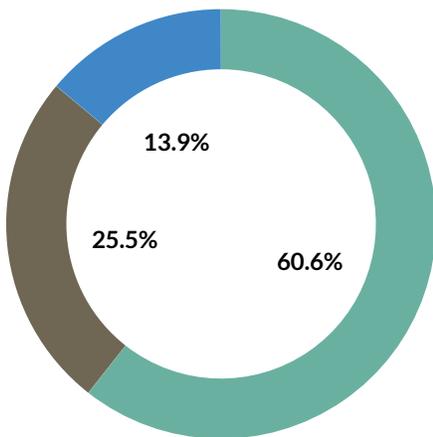
INVESTMENTS

INTERNATIONAL EQUITY STYLE DISTRIBUTION – as of June 30, 2021



● Developed Markets - Passive	51.4%
● Developed Markets - Active	19.1%
● Emerging & Frontier Markets - Passive	22.7%
● Emerging & Frontier Markets - Active	6.8%

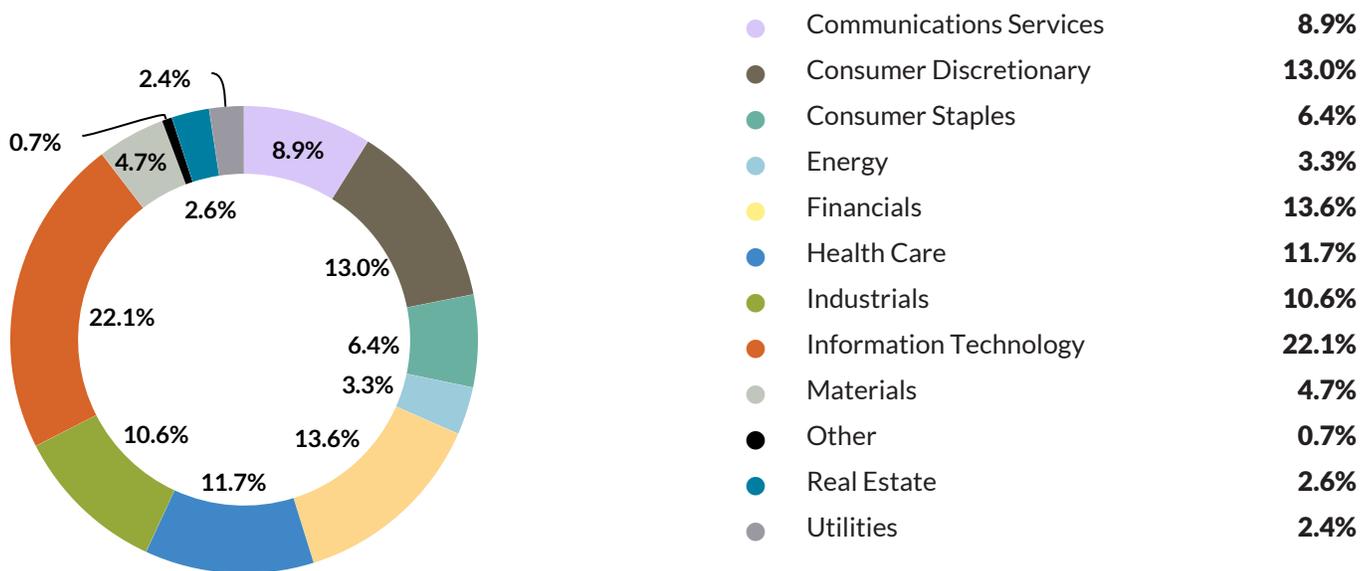
GLOBAL EQUITY STYLE DISTRIBUTION – as of June 30, 2021



● U.S. Markets - Active	60.6%
● International Developed - Active	25.5%
● International Emerging & Frontier - Active	13.9%

INVESTMENTS

PUBLIC EQUITY HOLDINGS BY INDUSTRY DISTRIBUTION — as of June 30, 2021



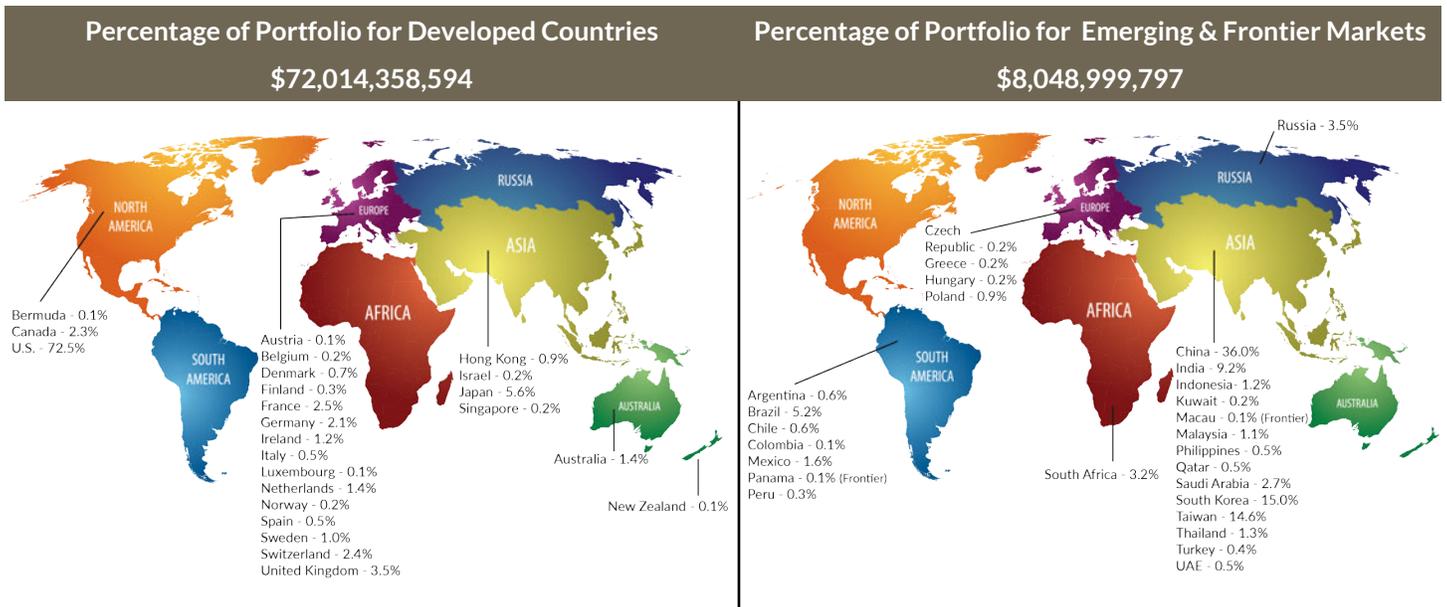
TEN LARGEST PUBLIC EQUITY HOLDINGS — as of June 30, 2021

Rank	Company	Cost	Market Value	Percent of Equities
1	Apple Inc.	\$ 86,396,859	\$ 2,774,138,359	3.5 %
2	Microsoft Corp.	293,531,415	2,717,069,298	3.4
3	Amazon.com Inc.	179,740,103	1,980,586,116	2.5
4	Alphabet Inc.	265,099,178	1,969,479,003	2.5
5	Facebook Inc.	232,354,325	1,118,083,063	1.4
6	Berkshire Hathaway Inc.	242,777,009	704,663,937	0.9
7	Tesla Inc.	663,217,504	650,445,712	0.8
8	Nvidia Corp.	45,326,621	647,604,140	0.8
9	J.P. Morgan & Co.	90,169,793	594,252,858	0.7
10	Johnson & Johnson	105,964,290	573,313,157	0.7
Total		\$2,204,577,097	\$ 13,729,635,643	17.2 %

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

INVESTMENTS

PUBLIC EQUITY COUNTRY EXPOSURE DISTRIBUTION – as of June 30, 2021



REAL ESTATE EQUITY BY PROPERTY TYPE – as of June 30, 2021



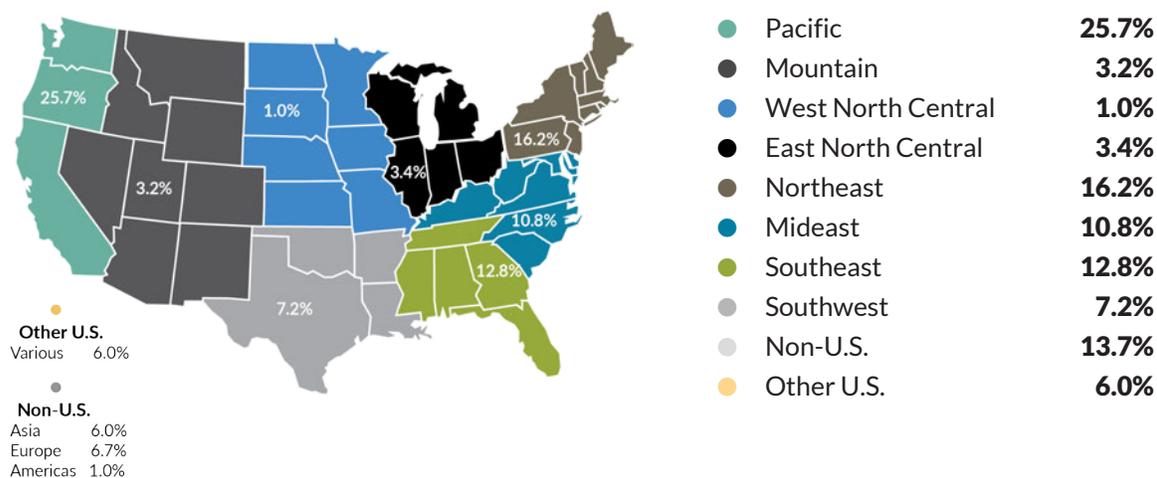
INVESTMENTS

BREAKDOWN OF REAL ESTATE EQUITY PORTFOLIO — as of June 30, 2021



GEOGRAPHICAL DISTRIBUTION OF THE REAL ESTATE EQUITY PORTFOLIO

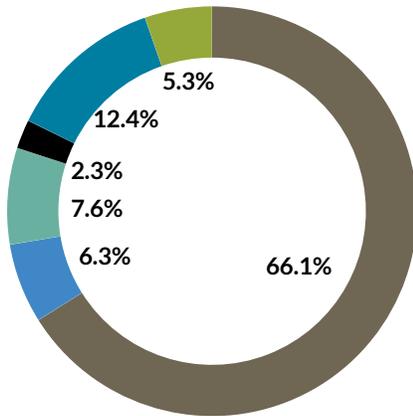
— as of June 30, 2021



INVESTMENTS

PRIVATE EQUITY NET ASSET VALUE BY INVESTMENT TYPE*

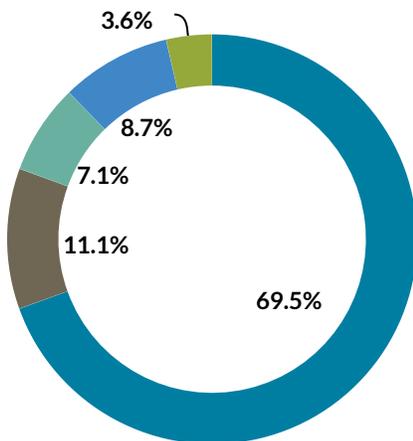
— as of June 30, 2021



● LBO/MBO	66.1%
● Fund of Funds	6.3%
● Co-Investments	7.6%
● Secondary Funds	2.3%
● Venture Capital	12.4%
● Turnaround	5.3%

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

PRIVATE EQUITY NET ASSET VALUE BY GEOGRAPHY* — as of June 30, 2021



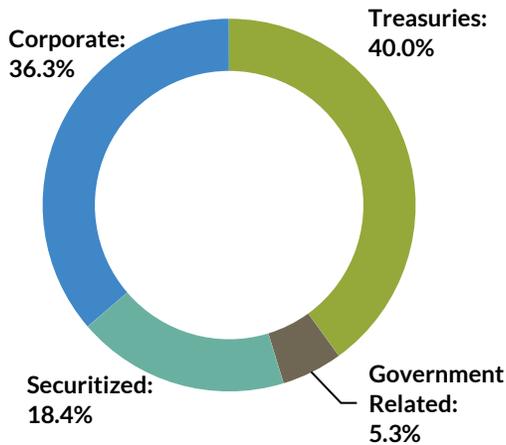
● North America	69.5 %
● Western Europe	11.1 %
● United Kingdom	7.1 %
● Asia	8.7 %
● Rest of World	3.6 %

**Excluding fund of funds and secondary funds.*

DOMESTIC FIXED INCOME AND HIGH-YIELD BONDS DISTRIBUTION

— as of June 30, 2021

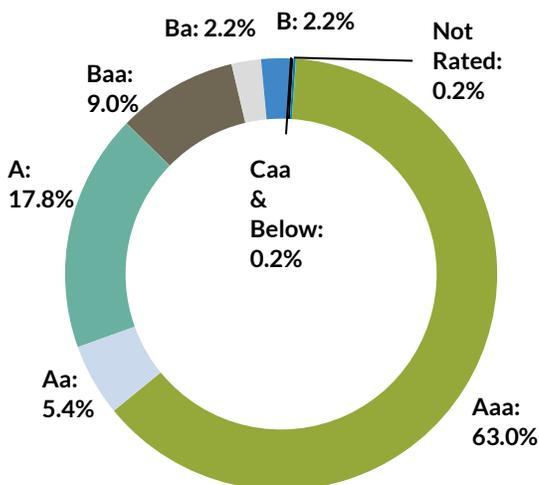
Yield to Maturity 1.3%



	Weight	Yield to Maturity
Treasuries	40.0%	0.77%
Government Related	5.3%	0.74%
Securitized	18.4%	1.52%
Corporate	36.3%	1.74%

DOMESTIC FIXED INCOME AND HIGH-YIELD BONDS QUALITY DISTRIBUTION*

— as of June 30, 2021



**	Aaa	63.0 %
	Aa	5.4 %
	A	17.8 %
	Baa	9.0 %
	Ba	2.2 %
	B	2.2 %
	Caa & Below	0.2 %
***	Not Rated	0.2 %

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

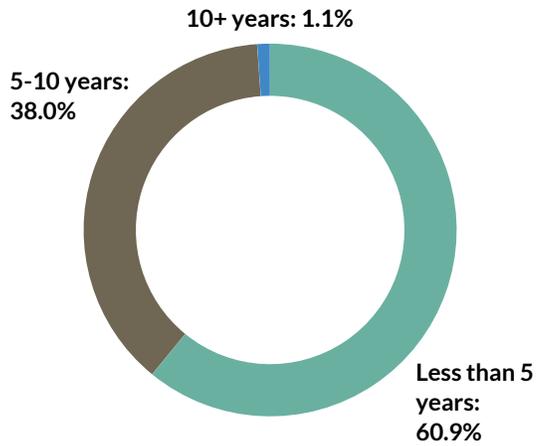
**Includes explicitly and implicitly guaranteed debt issued by the U.S. government and its agencies.

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

INVESTMENTS

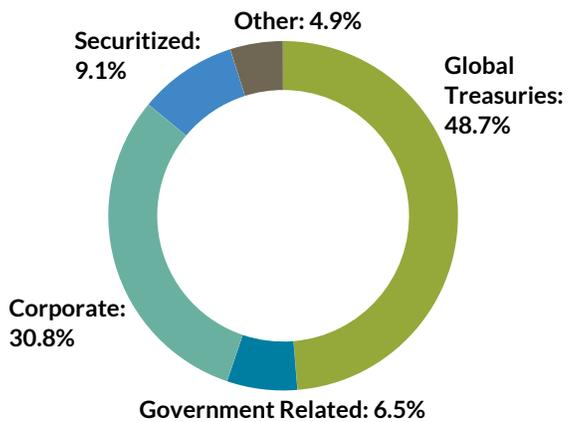
DOMESTIC FIXED INCOME AVERAGE MATURITY — as of June 30, 2021

Effective Duration 4.4 Years



	Weight	Effective Duration in Years
● Less than 5 Years	60.9%	2.67
● 5-10 Years	38.0%	6.79
● 10+ Years	1.1%	15.98

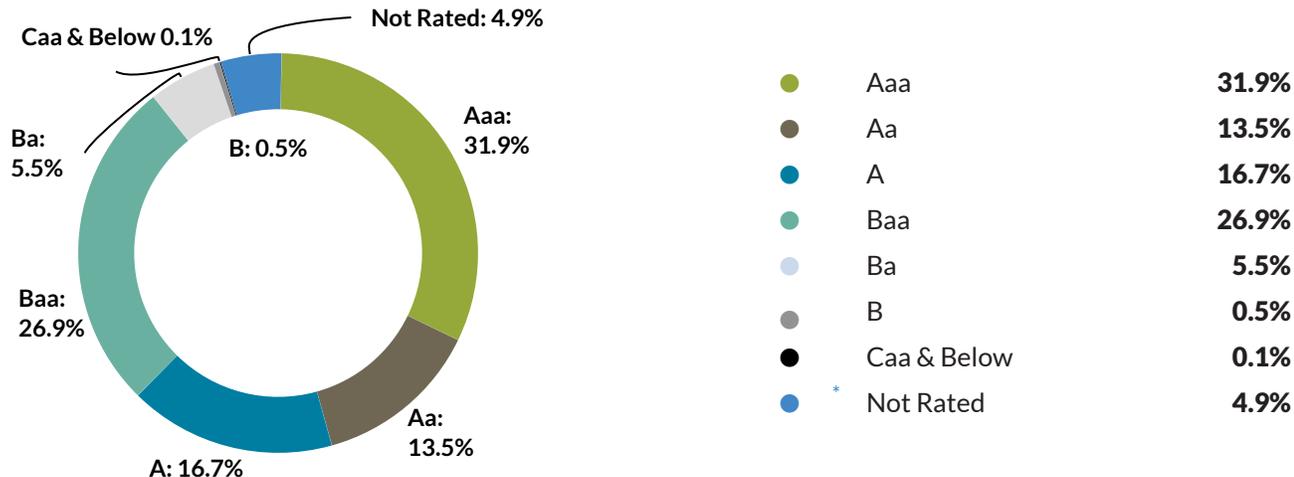
GLOBAL BONDS SECTOR DISTRIBUTION — as of June 30, 2021



● Global Treasuries	48.7%
● Government Related	6.5%
● Corporate	30.8%
● Securitized	9.1%
● * Other	4.9%

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

GLOBAL BONDS QUALITY DISTRIBUTION — as of June 30, 2021



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

TEN LARGEST FIXED INCOME HOLDINGS* — as of June 30, 2021

Rank	Issue	Market Value	Percent Total Fixed Income Market Value
1	US Treasury Note 1.75% Due 11/15/2029	\$263,207,813	1.1%
2	US Treasury Note 1.125% Due 02/15/2031	203,976,673	0.9%
3	US Treasury Note 0.625% Due 05/15/2030	158,585,708	0.7%
4	US Treasury Note 0.875% Due 11/15/2030	147,571,236	0.6%
5	US Treasury Note 0.625% Due 08/15/2030	139,746,093	0.6%
6	US Treasury Note 1.625% Due 05/15/2031	132,401,827	0.6%
7	US Treasury Note 1.625% Due 08/15/2029	122,732,813	0.5%
8	US Treasury Note 1.875% Due 02/15/2041	115,770,348	0.5%
9	AID-Israel 5.5% Due 4/26/2024	113,890,073	0.5%
10	US Treasury Note 2.25% Due 08/15/2027	107,672,540	0.5%
Total		\$1,505,555,124	6.5%

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

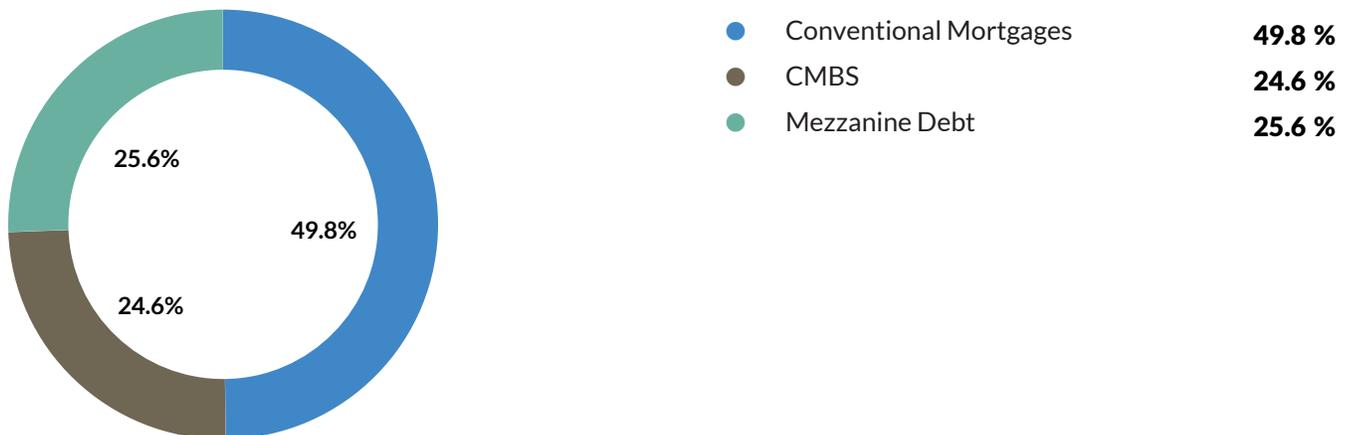
A complete list of the System's fixed income holdings (excluding cash equivalents) is available on our website (see About Us > Investments) or through the Public Information Office.

INVESTMENTS

REAL ESTATE DEBT BY PROPERTY TYPE — as of June 30, 2021



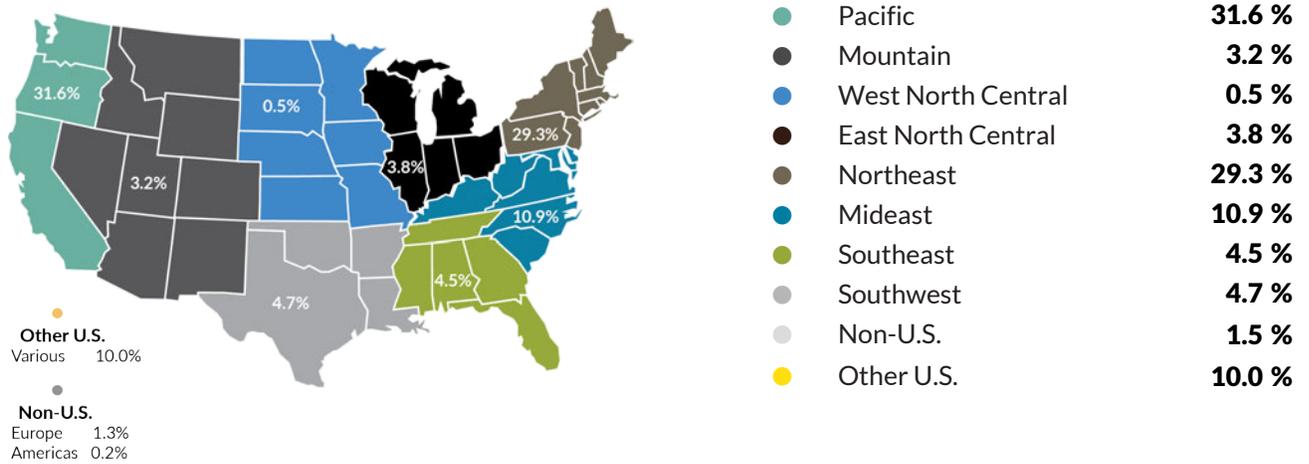
BREAKDOWN OF REAL ESTATE DEBT PORTFOLIO — as of June 30, 2021



INVESTMENTS

GEOGRAPHICAL DISTRIBUTION OF THE REAL ESTATE DEBT PORTFOLIO

— as of June 30, 2021

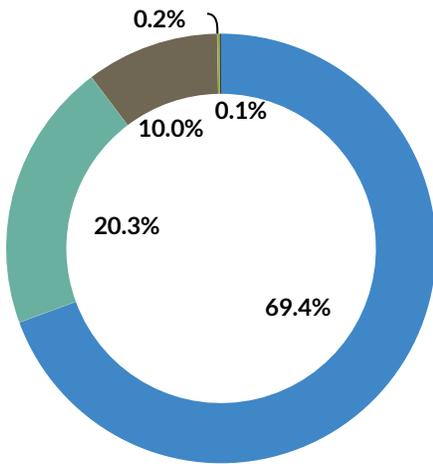


PRIVATE DEBT NET ASSET VALUE BY INVESTMENT TYPE — as of June 30, 2021



INVESTMENTS

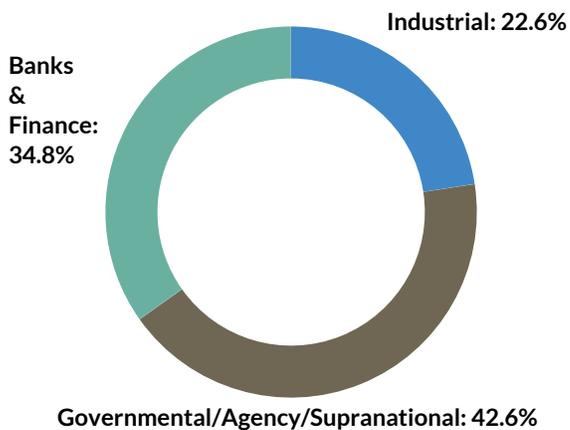
PRIVATE DEBT NET ASSET VALUE BY GEOGRAPHY* — as of June 30, 2021



● North America	69.4 %
● Western Europe	20.3 %
● United Kingdom	10.0 %
● Asia	0.2 %
● Rest of World	0.1 %

**Excluding fund of funds and secondary funds.*

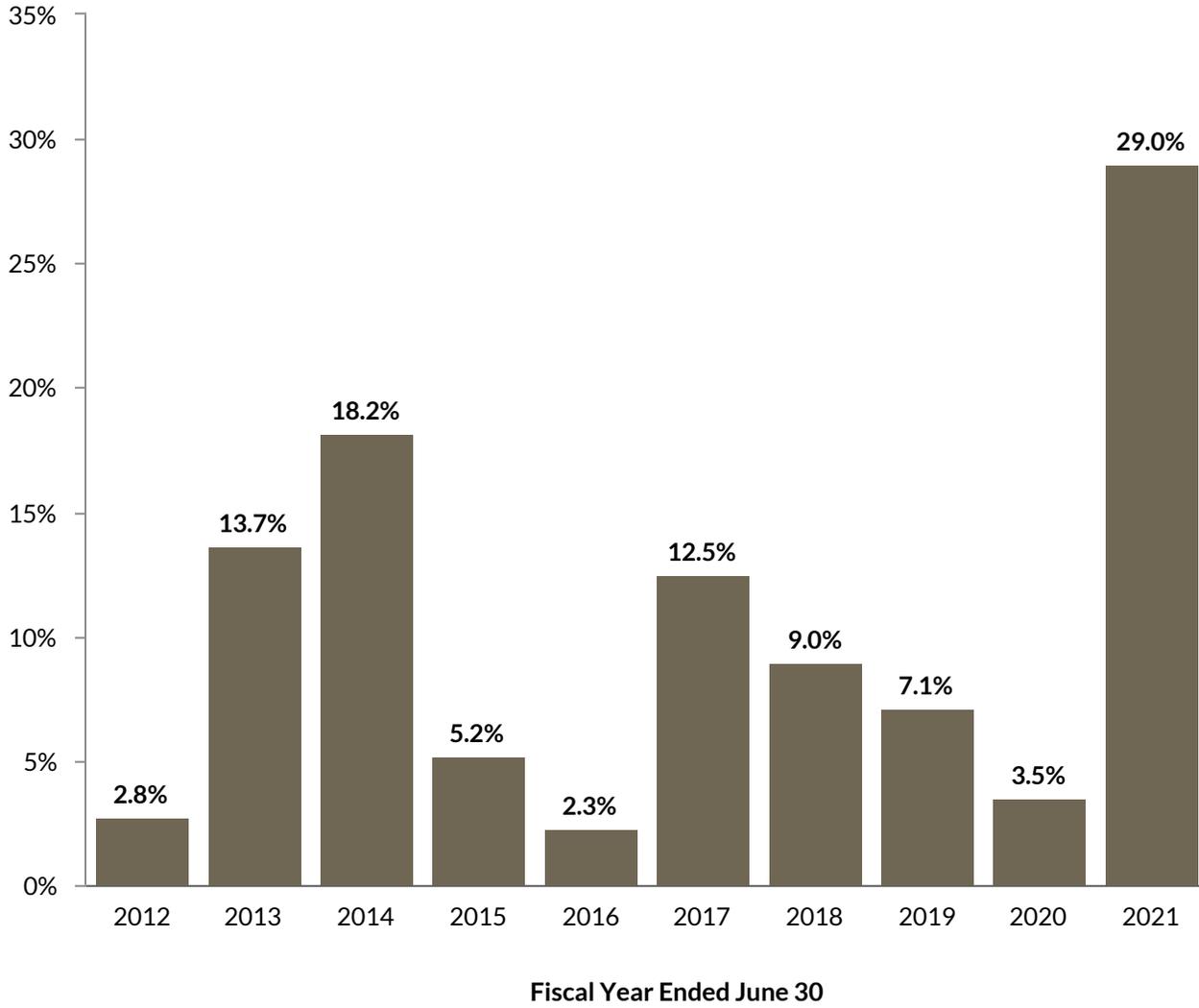
CASH EQUIVALENTS SECTOR DISTRIBUTION — as of June 30, 2021



● Industrial	22.6%
● Governmental/Agency/Supranational	42.6%
● Banks & Finance	34.8%

INVESTMENTS

ANNUAL PERFORMANCE HISTORY



INVESTMENTS

INVESTMENT PERFORMANCE RESULTS – as of June 30, 2021

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	42.3 %	18.0 %	17.3 %	14.5 %	10.9 %
Benchmark: S&P Composite 1500 Index	42.1	18.1	17.4	14.6	10.9
International Equity	36.9	10.1	11.7	6.1	6.3
Benchmark: MSCI ACWI Ex-U.S. Index	35.7	9.4	11.1	5.6	5.9
Global Equity	44.4	14.6	—	—	—
Benchmark: MSCI ACWI Index	39.3	14.6	—	—	—
Real Estate Equity	19.3	7.8	7.7	10.4	9.0
Benchmark: NCREIF - ODCE Index	7.1	5.6	5.9	8.7	7.0
Private Equity	59.0	22.9	20.8	16.6	—
Benchmark: S&P 500 Index plus 5%	45.8	23.7	22.6	19.8	—
Domestic Fixed Income	(0.1)	4.7	2.7	2.8	5.7
Benchmark: Bloomberg Barclays U.S. Aggregate Float Adjusted Bond Index ¹	(0.3)	5.4	3.1	3.4	5.8
High-Yield Bonds	13.4	6.9	—	—	—
Benchmark: ICE BofAML U.S. BB-B Constrained Index ¹	13.4	7.4	—	—	—
Global Bonds	1.4	5.6	3.8	—	—
Benchmark: Bloomberg Barclays Global Aggregate Float Adjusted Ex-CNY Bond Index (in USD hedged to USD) ¹	0.1	4.9	3.1	4.0	—
Real Estate Debt	5.9	6.0	4.4	5.3	7.1
Benchmark: Giliberto-Levy Custom Index	4.7	6.5	4.5	4.7	7.6
Private Debt	24.8	9.7	—	—	—
Benchmark: S&P/LSTA Leveraged Loan Index plus 3%	14.7	7.4	—	—	—
Cash Equivalents	0.1	1.4	1.3	0.7	2.7
Benchmark: iMoneyNet Money Fund Avg/Taxable (All)	0.0	1.0	0.9	0.4	2.3
Total Fund	29.0	12.6	11.9	10.1	9.2
Benchmark: Blended Benchmark	25.4 %	12.7 %	11.9 %	10.0 %	8.9 %

¹ See footnote on the Investments divider page.

INVESTMENTS

MANAGER INVESTMENT PERFORMANCE RESULTS — as of June 30, 2021

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	\$875.0	10.7 %	7.4 %		Apr-99
T. Rowe Price Associates Inc.	1,287.8	16.8	16.3		Jan-09
International Equity					
Managers					
AQR Capital Management LLC	1,115.9	7.7	7.4		Feb-12
Ariel Investments LLC	321.7	6.4	9.4		Apr-17
Arrowstreet Capital LP	863.9	13.8	8.0		Jul-17
Baillie Gifford Overseas Ltd.	1,086.5	11.5	7.6		Sep-11
BlackRock Institutional Trust Co. NA	8,829.4	8.4	8.1		Dec-11
Dimensional Fund Advisors	245.6	5.7	5.7		Feb-13
LSV Asset Management	876.6	5.8	5.6		Jul-11
Marathon Asset Management LLP	589.0	9.0	7.7		Jan-12
Rhumblin Advisors Limited Partnership	1,054.6	35.4	35.2		Jun-20
State Street Global Advisors	8,511.0	8.1	7.9		Jul-12
William Blair Investment Management LLC	946.4	9.7	5.9		Oct-10
Xpance Inc. (formerly FIS Group Inc.)	357.7	6.7	6.4		May-13
Global Equity					
Managers					
Arrowstreet Capital LP	1,549.4	23.4	19.6		May-19
Harding Loevner LP	1,627.1	17.0	13.2		May-18
Leading Edge Investment Advisors	607.8	44.6	37.4		Jun-20
LSV Asset Management	1,325.4	7.2	13.2		May-18
Real Estate Equity					
Advisors					
BentallGreenOak	331.0	10.9	7.8		Apr-95
Cabot Properties LP	44.7	18.4	4.1		May-19
CBRE Global Investors	61.9	0.6	4.1		Nov-18
Clarion Partners	479.2	9.3	6.2		Jun-90
Forest Investment Associates	300.7	4.2	5.0		Dec-98
Invesco Advisors Inc. - Industrial	250.7	10.2	7.8		Nov-94
Invesco Advisors Inc. - Multifamily	137.2	12.2	7.2		Dec-98
J.P. Morgan Asset Management	3,296.9	9.9	6.4		Oct-90
Sentinel Real Estate Corporation	\$452.3	11.7 %	7.8 %		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.

INVESTMENTS

MANAGER INVESTMENT PERFORMANCE RESULTS – as of June 30, 2021 (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	\$532.5	10.5 %	9.8 %		Aug-98
AEW Capital Management LP	383.6	7.2	7.0		Oct-17
Brookfield Public Securities Group LLC	368.4	5.5	6.7		Sep-17
Cohen & Steers Capital Management Inc.	2,565.1	14.5	11.5		Feb-18
Dimensional Fund Advisors	394.4	8.5	6.9		Nov-17
Heitman Real Estate Securities LLC	391.4	7.8	6.7		Sep-17
Fund Investments					
Real Estate Equity Core Funds	1,548.5	6.7	6.2		Jul-85
Real Estate Equity Opportunistic Funds	2,005.0	11 ² .1	–	1.4	Mar-99
Real Estate Equity Value-Added Funds	1,315.2	11 ² .8	–	1.5	Dec-89
Private Equity					
Fund Investments	14,780.9	13 ² .4	–	1.7	Oct-92
High-Yield Bonds					
Managers					
Columbia Management Investment Advisers, LLC	319.9	7.2	8.0		Oct-18
J.P. Morgan Investment Management Inc.	308.0	6.8	7.0		Apr-18
Nomura Corp. Research and Asset Mgt. Inc.	322.1	5.6	6.2		Dec-17
Global Bonds					
Managers					
Goldman Sachs Asset Management LP	852.8	3.6	3.1		Aug-16
Loomis, Sayles & Company LP	1,216.0	4.1	3.5		Nov-12
Wellington Management Company LLP	1,149.9	3.9	4.0		Aug-13
Real Estate Debt					
Managers					
BlackRock Financial Management Inc.	1,252.8	5.2	5.2		Apr-01
Prima Capital Advisors LLC	518.3	5.3	4.9		Nov-03
Raith Capital Partners LLC	60.8	2.7	5.8		Mar-19
Fund Investments					
Real Estate Debt Core Plus Funds	1,413.3	5 ² .5	–	1.1	Dec-04
Real Estate Debt Opportunistic Funds	489.5	0 ² .4	–	1.0	Jun-98
Private Debt					
Fund Investments	\$1,163.8	11.9 ² %	– %	1.2	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.

INVESTMENTS

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, promote responsible corporate policies and activities, and enhance long-term value.

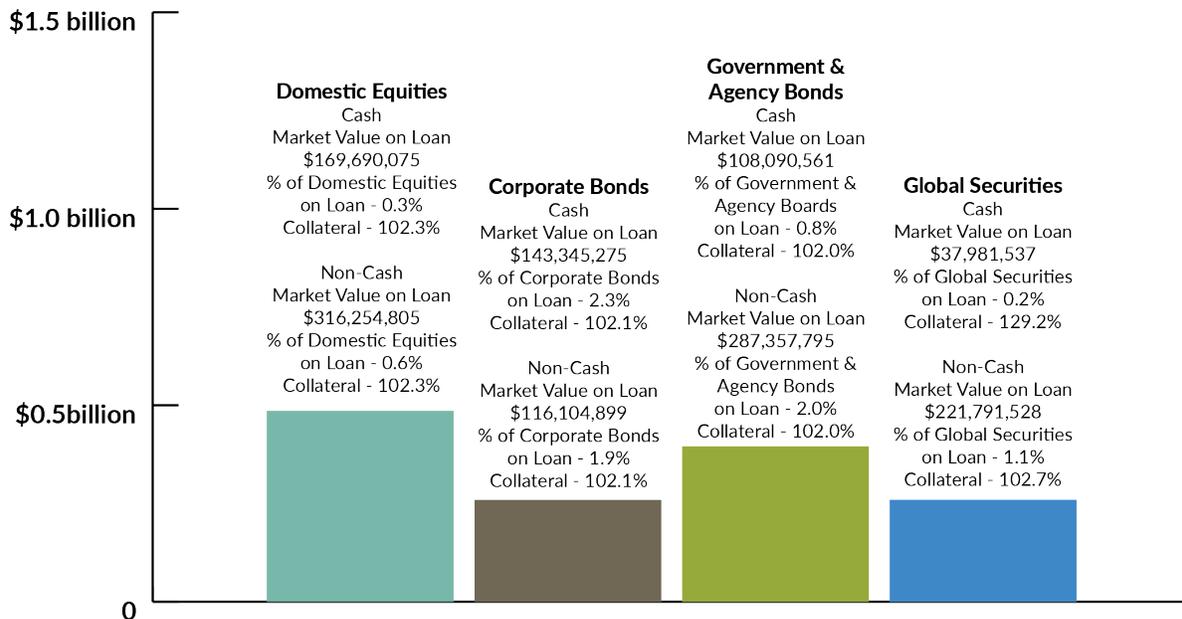
For the 2020 calendar year, a total of 105,968 proposals* were voted, many of which focused on board-related issues, ratification of auditors, and executive compensation. System policy generally supports management if the position is reasonable, not detrimental to the long-term economic prospects of the company, and does not tend to diminish the rights of shareholders.

Domestic & Canadian Portfolios			International & Global Portfolios		
Position	Number of Proposals	Percentage of Position	Position	Number of Proposals	Percentage of Position
For	16,780	84.1%	For	74,782	86.9%
Against	3,128	15.7%	Against	9,682	11.3%
Abstain	43	0.2%	Abstain	1,553	1.8%
Total	19,951	100.0%	Total	86,017	100.0%

*Proposals at companies held in multiple externally managed international and global portfolios are counted once for each portfolio.

SECURITIES LENDING PROGRAM – as of June 30, 2021

Cash: \$459,107,448 - Non-Cash: \$941,509,027 - Total: \$1,400,616,475



INVESTMENTS

SCHEDULE OF INVESTMENT FEES AND EXPENSES – Year ended June 30, 2021* (dollars in thousands)

	Assets Managed (\$ millions)	Investment Management Expenses 2020-2021		Investment Management Expenses 2020-2021
Domestic Equity:			Legal Expenses:	
Managers	\$ 2,163	\$ 5,729	DLA Piper LLP (US)	\$ 142
International Equity:			Hirschler Fleischer	49
Managers	\$ 24,799	\$ 29,958	K&L Gates	54
Global Equity:			Katten Muchin Rosenman LLP	122
Managers	\$ 5,110	\$ 17,702	Morgan, Lewis & Bockius	58
Real Estate Equity:			Nixon Peabody	134
Advisors	\$ 5,355	\$ 15,219	Nossman LLP	130
Managers	4,635	9,909	Sidley Austin	114
Fund Investments	4,869	69,504	Other Legal Expenses	54
Total Real Estate Equity:	\$ 14,859	\$ 94,632	Total Legal Expenses:	\$ 857
Private Equity:			General Expenses:	
Fund Investments	\$ 14,781	\$ 137,707	Abel Noser Solutions, LLC	\$ 48
High-Yield:			Advisory Committee - Investment	40
Managers	\$ 950	\$ 2,806	Advisory Committee - Real Estate	30
Global Bonds:			Aon Hewitt Investment Consulting Inc	536
Managers	\$ 3,219	\$ 5,834	Callan LLC	465
Real Estate Debt:			Callan Associates	741
Advisors	\$ 1,832	\$ 3,139	Investment Information Services	5,690
Managers	1,330	86	JPMorgan Chase	55
Fund Investments	1,903	12,488	Mercer Investments LLC	50
Total Real Estate Debt:	\$ 5,065	\$ 15,713	Real Estate Origination Costs	331
Private Debt:			Real Estate Professional Fees	79
Fund Investments	\$ 1,164	\$ 17,491	Real Estate Service Costs	2
Total Investment Manager Fees:	\$ 327,572		State Street Corporation	1,374
			StepStone Group LP	1,670
			Total General Expenses:	\$ 11,111
			Total Investment Fees and Expenses:	\$ 339,540

*The above schedule is presented at net present value, which differs from financial statement presentation.

INVESTMENTS

INVESTMENT ADVISORY COMMITTEE

Robert Levine, CFA, Chairman

Chief Investment Officer, President & CEO (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

President

The Hovenden Group, LLC
Charlestown, 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 Global Asset Management
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

Maureen A. Ehrenberg

Chief Executive Officer

Blue Skyre IBE
Chicago, Illinois

Jill S. Hatton

Managing Director (Retired)

BlackRock Inc.
Boston, Massachusetts

Laura Huntington, CFA

President

Institutional Property Consultants
Lakewood, Washington

INVESTMENTS

INVESTMENT CONSULTANTS

Abel Noser Solutions, LLC

New York, New York

Aon Hewitt Investment Consulting Inc.

Chicago, Illinois

Callan LLC

San Francisco, California

Mercer Investments LLC

Boston, Massachusetts

StepStone Group LP

La Jolla, California

MASTER CUSTODIAN

State Street Bank & Trust Co.

Boston, Massachusetts

SECURITIES LENDING

JPMorgan Chase Bank N.A.

New York, New York

The Bank of New York Mellon

New York, New York

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)
Rhumblin Advisors Limited Partnership
State Street Global Advisors
William Blair Investment Management LLC
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.
J.P. Morgan 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
Abacus Multi-Family Partners V LP
Aermont Capital Real Estate Fund IV SCSP
AG Core Plus Realty Fund IV LP

INVESTMENTS

EXTERNAL INVESTMENT MANAGERS & ADVISORS *(continued)*

Real Estate Equity: *(continued)*

Fund Investments: *(continued)*

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 BioMed Life Science Real Estate 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
Cabot Industrial Value Fund VI 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 Europe Industrial Core Fund SCSp
Exeter Industrial Value Fund LP
Exeter Industrial Value Fund II LP
Exeter Industrial Value Fund III LP
Exeter Industrial Value Fund IV LP
Exeter Industrial Value Fund V 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 IV LP
Penwood Select Industrial Partners V LP
Penwood Select Industrial Partners VI 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
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)

INVESTMENTS

EXTERNAL INVESTMENT MANAGERS & ADVISORS *(continued)*

Private Equity:

Fund Investments:

A&M Capital Partners II, LP
Abbott Select Buyouts Fund
Abbott Select Buyouts Fund II
Abbot Select EM Buyouts LP
ABRY Partners Fund V
ABRY Partners Fund VI
ABRY Partners Fund VII
ABRY Partners Fund VIII
ABRY Partners IX LP
ADV Opportunities Fund II LP
Aisling Capital II LP
Aisling Capital III LP
Amulet Capital Fund I LP
Amulet Capital Fund II LP
Amulet Capital Overage Fund I LP
Apex VI
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
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 V LP
Carlyle/Riverstone Global Energy & Power Fund III
Charterhouse Capital Partners VIII
Chisholm Partners III
ChrysCapital VIII LP
Cinven III
Cinven IV
Cinven V
Cinven VI
Cinven VII
Cinven Strategic Financials Co-Investment Fund LP
Cinven Strategic Financials Fund LP
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. Fund VI LP
Cressey & Co. Overage Fund VI LP
CVC Capital Partners Asia Pacific IV LP
CVC Capital Partners VI LP
CVC European Equity Partners V LP
DCP Capital Partners LP
DCP Capital Partners II 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
GCM Grosvenor Cleantech
GCM Grosvenor Seasoned Primaries
GCM Grosvenor Seasoned Primaries II
GCM Grosvenor Seasoned Primaries III
Gilde Buy-Out Fund V CV
Gilde Buy-Out Fund VI
GTCR Fund VIII
GTCR Fund X
GTCR Fund XI
GTCR Fund XII
GTCR Fund XIII
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/The Maple Fund (Tranche N6)
HarbourVest/NYSTRS Co-Investment Fund
HarbourVest/NYSTRS Co-Investment Fund II
HarbourVest/NYSTRS Co-Investment Fund III, LP
Hellman & Friedman VI LP
Hellman & Friedman VII LP
Hellman & Friedman VIII LP
Hellman & Friedman IX LP
Hellman & Friedman X LP
HIPEP Select Asia Fund LP
HIPEP Select Asia II LP
HIPEP Select Asia III LP

INVESTMENTS

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
JFL Equity Investors V LP
Kinderhook Capital Fund VI LP
KKR Asian Fund II LP
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 IX LP
Lightspeed Venture Partners X LP
Lightspeed Venture Partners Select 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 V
MBK Partners Fund IV LP
MBK Partners Fund V LP
Metalmark Capital Partners LP
Mill Point Capital Partners II LP
Monomoy Capital Partners III LP
Monomoy Capital Partners IV LP
Nautic V LP
Nautic VI LP
Nautic VII LP
Nautic Partners VIII LP
Nautic Partners IX LP
NMS Fund III LP
NMS Fund IV LP
Olympus Growth Fund V
Olympus Growth Fund VI
One Rock Capital Partners II LP
One Rock Capital Partners III LP
P123 Ltd
PBPE V LP
Pacific Equity Partners Fund V LP
Pacific Equity Partners Fund VI LP
Patria - Private Equity Fund VI LP
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
Primavera Capital Fund IV 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
Silver Lake Partners VI 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 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
Sycamore Partners III LP
Tailwater Energy Fund III LP
Tailwater Energy Fund IV LP
TCV IX LP
TCV X LP
TCV XI 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

INVESTMENTS

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
Thomas H. Lee VI
TPG Partners III
TPG Partners IV
TPG Partners V
TPG Partners VI
Trident VII LP
TSG6 LP
TSG7 A LP
TSG7 B LP
TSG8 LP
Valor Equity Partners IV LP
Valor Equity Partners V LP
Veritas Capital Buyout Fund VI LP
Vista Equity Partners Fund IV
Warburg Pincus Private Equity VIII
Waud Capital Partners III LP
Waud Capital Partners IV LP

High-Yield Bonds:

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

Global Bonds:

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

Real Estate Debt:

Managers:

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

Fund Investments:

Artemis Real Estate Partners Debt Fund LP
Barings Real Estate Credit Strategies Account-NY LP
Blackstone Real Estate Debt Strategies II LP
Blackstone Real Estate Debt Strategies IV 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
Raith Real Estate Debt Separate Account
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
ABRY Senior Equity VI
AG Capital Recovery Partners VII LP
Blue Torch Credit Opportunities Fund II LP
Caltius Partners IV LP
Clearlake Flagship Plus Partners LP
Clearlake Opportunities Partners LP
Clearlake Opportunities Partners II LP
Comvest Credit Partners V LP
H.I.G. Whitehorse Direct Lending 2020 Fund LP
H.I.G. Whitehorse Principal Lending Fund
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
MGG Special Opportunities 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
Peninsula Fund VII
WCAS Capital Partners IV



Actuarial

2010s-Present Timeline

- 2010:** Tier 5 is established with new service retirement benefit calculation rules, prior service costs and 10-year vesting. Members make 3.5% contributions throughout their careers.
- 2011:** NYSTRS hosts its first annual Minority- and Women-Owned Business Enterprises (MWBE) conference on investments and professional services. Active membership totals 280,000. There are 146,000 retirees receiving \$5.6 billion in annual benefits.
- 2012:** Tier 6 is established with new service retirement benefit rules, FAS calculation criteria and prior service purchase costs. Members make contributions ranging from 3% to 6%, based on salary level, throughout their careers.
- 2014:** The System introduces what is believed to be the first Mobile App for public retirement systems, with helpful resources such as the Countdown to Retirement.
- 2017:** Members begin filing their service retirement applications online, as the latest MyNYSTRS self-service tool debuts.
- 2020:** Active membership totals 261,000. Net worth totals \$120.5 billion. There are 166,000 retirees and 6,500 beneficiaries receiving \$7.5 billion in annual benefits.
- 2021:** NYSTRS celebrates 100 years of excellence.



**First MWBE Conference
2011**



**NYSTRS staff
2018**



**10 Corporate Woods Dr.
Albany
2020**

Actuarial

Page

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Funding Progress

103	- Funding Progress - Analysis of Funding Progress - Percent Funded
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105	History of Member Payroll and the Employer Contribution Rate Schedule of Retired Members and Beneficiaries Added to and Removed from the Benefit Payroll
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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 29, 2021

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 to ensure sufficient assets are being accumulated 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, 2020. 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 actuarial assumptions used in the June 30, 2020 valuation, other than the valuation, rate of interest, mortality improvement scale and the COLA assumption, 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 lowered by the Retirement Board in October 2017 from 7.50% to 7.25% effective with the June 30, 2017 actuarial valuation and was lowered again in October 2019 from 7.25% to 7.10% effective with the June 30, 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 changed from 1.5% to 1.3%, and the inflation assumption was changed from 2.25% to 2.2%. Effective with the June 30, 2020 actuarial valuation, the mortality improvement scale was changed to MP-2019.

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

ACTUARIAL CERTIFICATION LETTER *(continued)*

The System's market value rate of return on assets for the fiscal year ending June 30, 2020 was 3.5%. The System's five-year annualized rate of return stood at 6.8%. The June 30, 2020 actuarial valuation produced a required employer contribution rate of 9.80% of payroll, representing an increase of approximately 3% over the prior year's rate of 9.53%. The actuarial loss related to the System's rate of return assumption was the primary reason for the increase in the employer contribution rate.

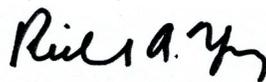
Looking ahead to next year, the capital markets produced returns significantly exceeding expectations during the fiscal year ending June 30, 2021. The System's total fund net rate of return was 29.0% for the fiscal year. This will bring the System's five-year annualized rate of return up to 11.9%. The 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.

After a very detailed review, the System revised its actuarial assumptions to make them more reflective of recent experience and expectations. The new assumptions were adopted by the Retirement Board at its meeting on October 28, 2021 and will be effective with the next actuarial valuation, that of June 30, 2021. The new assumptions, which reflect increases in life expectancy, greater rates of retirement, increases in salaries, and more pessimistic forecasts for future investment returns, will represent increases in plan liability and therefore in the employer contribution rate. It is expected that for the next actuarial valuation, however, the investment gain will largely offset the cost increase due to the new assumptions.

The plan's funded ratio, as of June 30, 2020, calculated using the Actuarial Value of Assets (AVA) was 98.9% and calculated using the Market Value of Assets (MVA) was 97.3%. 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 10-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. More detailed information can be found in the System's Actuarial Valuation Report.

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
Chief Actuary

cc: T. Lee

ACTUARIAL

SUMMARY OF PLAN PROVISIONS AND ACTUARIAL METHODS AND ASSUMPTIONS – as of June 30, 2020

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-2019.

ACTUARIAL

ACTUARIAL PRESENT VALUE OF FUTURE BENEFITS

– as of June 30, 2020 and June 30, 2019

(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.

	2020	2019
Present Value of Benefits Currently Being Paid:		
Service Retirement Benefits	\$ 65,897,141	\$ 64,180,803
Disability Retirement Benefits	375,951	353,622
Death Benefits	2,083	1,474
Survivor Benefits	1,150,016	1,107,460
Cost-of-Living Allowance	4,889,298	4,878,105
Total Present Value of Benefits Currently Being Paid	72,314,489	70,521,464
Present Value of Benefits Payable in the Future to Current Active Members:		
Service Retirement Benefits	60,165,966	59,396,166
Disability Retirement Benefits	238,303	236,212
Termination Benefits	2,298,335	2,290,161
Death and Survivor Benefits	439,006	427,006
Cost-of-Living Allowance	1,346,999	1,353,531
Total Active Member Liabilities	64,488,609	63,703,076
Present Value of Benefits Payable in the Future to Current Inactive (Vested) Members:		
Retirement Benefits	426,494	397,687
Death Benefits	346	308
Cost-of-Living Allowance	35,125	32,819
Total Vested Liabilities	461,965	430,814
Unclaimed Funds	22,012	19,396
Total Actuarial Present Value of Future Benefits	\$ 137,287,075	\$ 134,674,750

Note: Totals may not sum due to rounding.

ACTUARIAL

FUNDING PROGRESS

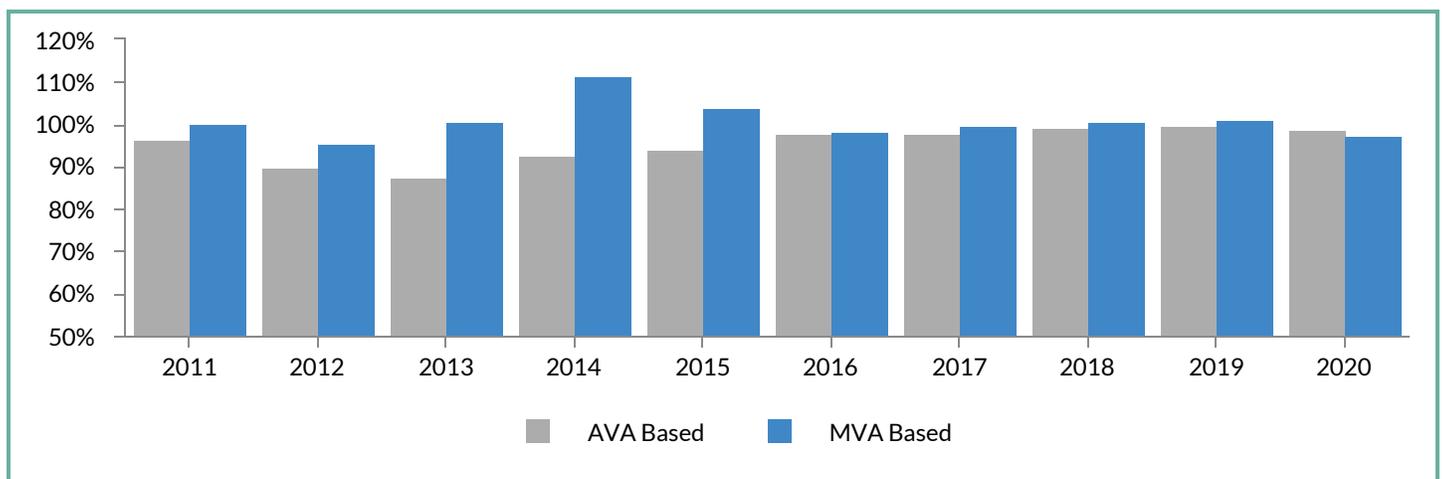
The portion of the actuarial present value of future benefits that is attributed to service rendered as of the valuation date is known as the actuarial accrued liability. In order to effectively assess the funding progress of a retirement system, it is necessary to compare the ratio of plan assets to 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	AVA
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
2020	120,479.5	122,400.4	123,801.7	1,401.3	16,973.2	8.3	97.3	98.9

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.

ACTUARIAL

SOLVENCY TEST

(in millions)

Fiscal Year Ended	Aggregate Accrued Liabilities* for:			Actuarial Value of Assets (D)	Percentage of Aggregate Accrued Liabilities Covered by Actuarial Value of Assets		
	Active Member Accumulated Contributions (A)	Current Retired Members and Beneficiaries (B)	Service Rendered by Active Members (Employer-Financed Portion) (C)		(A)	(B)	(C)
	2011	\$4,111.2	\$54,635.2		\$31,078.5	\$86,892.2	100.0%
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	42,185.1	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
2020	5,397.7	72,839.6	45,564.4	122,400.4	100.0	100.0	96.9

*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. A positive number (+) represents an actuarial loss and the negative numbers (-) represent an actuarial gain.

Experience Source	Change in the Employer Contribution Rate during Fiscal Year Ended	
	June 30, 2020	June 30, 2019
Revised Actuarial Assumptions:	-0.25%	-0.01%
Net Investment (Gain)/Loss:	+0.38	+0.08
Salary/Service:	-0.06	+0.36
New Entrants:	-0.07	-0.07
Withdrawal:	+0.03	+0.02
Mortality:	+0.05	+0.03
Retirement:	+0.11	+0.07
Pension Payments:	-0.07	-0.02
Cost-of-Living Adjustment:	-0.03	-0.06
Change in the Administrative Rate:	0.00	0.00
Miscellaneous:	+0.18	+0.27
Total Change in Employer Contribution Rate	+0.27%	+0.67%
Employer Contribution Rate at Prior Year-End	9.53%	8.86%
Employer Contribution Rate at Year-End	9.80%	9.53%

ACTUARIAL

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)
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
2021	821	259,158	16,973.2	0.0	86,307	1.6	9.53

*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*

Fiscal Year Ended	Number of Retired Members and Beneficiaries		Annual Benefit of Retired Members and Beneficiaries		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
	Added During the Year	Removed During the Year	Added During the Year	Removed During the Year					
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
2021	8,205	4,984	429,827,431	175,457,944	175,790	8,006,356,202	3.3	45,545	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.

ACTUARIAL



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, 2021, 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, 2021 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, 2019, used to derive the resultant employer contribution rate of 9.53% applied to employer payroll for the fiscal year ended June 30, 2021.
- The System's Experience Studies as of June 30, 2019, 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 2021 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 28, 2021

KPMG LLP, a Delaware limited liability partnership and a member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee.



Statistical

NYSTRS Executive Directors (formerly Executive Secretary)

1921-Present

A stable leadership adds to organizational stability. NYSTRS is very proud to have had only six executive directors over the past 100 years.

Edgar G. Lantman

Executive Secretary

1921 - 1939

Lantman also served on the board of the system that was the precursor to NYSTRS.

Randolf T. Congdon

Executive Secretary

1939 - 1944

Cornelius B. Murray

Executive Secretary

1944 - 1966

Dr. Harold N. Langlitz

Executive Director

1967 - 1995

George M. Philip

Executive Director

1995 - 2007

Thomas K. Lee

Executive Director & Chief Investment Officer

2007 - Present

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 109-121 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:

Page

109	Number of Active Members, Retired Members and Beneficiaries of Deceased
110	Distribution of Active Members by Age and Years of Service Distribution of Active Members by Age
111	Distribution of Active Members by Service
112	Active Members and Annuitants 1922-2021
113	Number of Active Members by Tier
114	Retirement Statistics
116	Retirement Benefit Options and Percent of Election Retired Members' Characteristics by Year of Retirement
117	Distribution of Benefits Paid by County
118	Distribution of Retired Members and Beneficiaries by Tier History of the Number of New Retirees
119	Retired Members and Beneficiaries With Monthly Benefits by Decade of Retirement Distribution of the Annual Benefit of All Retired Members
120	History of the Monthly COLA
121	Distribution of Monthly COLA Increase Commencing September 2021 Distribution of Cumulative Monthly COLA Commencing September 2021

Financial Trends Information

The schedules on pages 122-125 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:

Page

122	Changes in Fiduciary Net Position
123	Breakdown of Income Sources
124	Benefits and Return of Contributions by Type

Operating Information

The schedules on pages 126-131 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:

Page

126	Average Benefit Payments
128	Retired Members and Beneficiaries by Type of Benefit
130	Principal Participating Employers

STATISTICAL

Demographic & Economic Information

ACTIVE MEMBERS:

	Male	Female	Total
June 30, 2020	61,140	200,092	261,232
Changes During Year:			
Added	2,276	7,844	10,120
Withdrawn	1,141	3,262	4,403
Retired	1,614	6,003	7,617
Died	69	105	174
June 30, 2021	60,592	198,566	259,158

MEMBERS RETIRED FOR:

	Service*			Disability			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
June 30, 2020	49,207	114,697	163,904	437	1,667	2,104	49,644	116,364	166,008
Changes During Year:									
Retired	1,599	5,938	7,537	15	65	80	1,614	6,003	7,617
Died	1,773	2,579	4,352	38	90	128	1,811	2,669	4,480
Lump Sum	13	63	76	0	0	0	13	63	76
Restored to Active Membership	0	0	0	0	1	1	0	1	1
June 30, 2021	49,020	117,993	167,013	414	1,641	2,055 **	49,434	119,634	169,068

BENEFICIARIES OF DECEASED:

	Service Annuitants			Disability Annuitants			Active Members			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
June 30, 2020	1,491	4,702	6,193	108	160	268	20	80	100	1,619	4,942	6,561
Changes During Year:												
Added	178	394	572	8	5	13	1	2	3	187	401	588
Died	130	289	419	3	4	7	0	1	1	133	294	427
June 30, 2021	1,539	4,807	6,346	113	161	274	21	81	102	1,673	5,049	6,722

SUMMARY:

	Male	Female	Total
Active Members	60,592	198,566	259,158
Retired Members	49,434	119,634	169,068
Beneficiaries	1,673	5,049	6,722
Total	111,699	323,249	434,948

*Also includes vested retirees.

**Includes 15 males and 34 females retired for disability who receive a service benefit.

STATISTICAL

DISTRIBUTION OF ACTIVE MEMBERS BY AGE AND YEARS OF SERVICE*

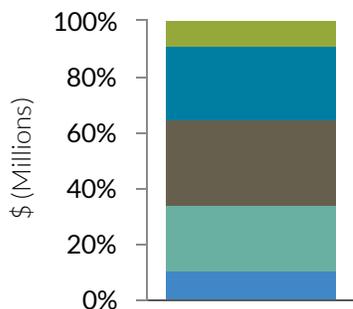
— as of June 30, 2021

Age		Years of Credited Service				
		0-5	6-10	11-15	16-20	21-25
20-24	Number of Members	6,908	0	0	0	0
	Average Salary	\$42,484	\$0	\$0	\$0	\$0
25-29	Number of Members	19,138	1,411	0	0	0
	Average Salary	\$53,817	\$65,104	\$0	\$0	\$0
30-34	Number of Members	15,991	10,848	1,434	0	0
	Average Salary	\$58,555	\$68,153	\$77,976	\$0	\$0
35-39	Number of Members	10,107	8,086	12,630	2,182	0
	Average Salary	\$57,402	\$69,567	\$82,609	\$95,140	\$0
40-44	Number of Members	7,725	5,538	7,991	16,227	2,591
	Average Salary	\$54,658	\$68,317	\$84,503	\$99,207	\$107,971
45-49	Number of Members	6,102	4,541	4,530	9,507	14,108
	Average Salary	\$50,838	\$63,149	\$80,514	\$100,848	\$110,428
50-54	Number of Members	5,484	4,501	4,340	5,995	10,481
	Average Salary	\$47,294	\$57,979	\$73,280	\$94,046	\$108,681
55-59	Number of Members	3,655	2,785	3,072	4,320	4,850
	Average Salary	\$44,904	\$53,614	\$66,006	\$84,384	\$100,730
60-64	Number of Members	2,208	1,355	1,653	3,033	3,173
	Average Salary	\$46,938	\$52,288	\$61,173	\$78,647	\$91,979
65-69	Number of Members	952	520	530	981	919
	Average Salary	\$46,362	\$61,489	\$67,249	\$83,614	\$90,880
70+	Number of Members	485	234	160	232	247
	Average Salary	\$39,380	\$54,593	\$60,578	\$75,134	\$82,718

*Average salary data is for the 189,295 members who earned a full year of service. The average salary for all active members, full-time and part-time, is \$78,392.

DISTRIBUTION OF ACTIVE MEMBERS BY AGE

— as of June 30, 2021



Age Group	Percent
60+ Years of Age	8%
50-59 Years of Age	26%
40-49 Years of Age	31%
30-39 Years of Age	24%
20-29 Years of Age	11%

AVERAGES

— as of June 30, 2021

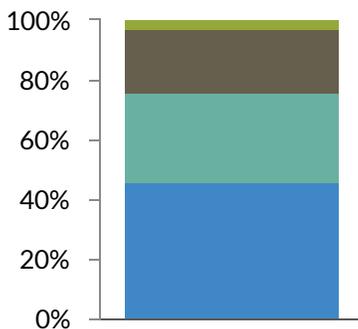
Gender	Age	Years of Service
Female	44	12
Male	44	14

STATISTICAL

DISTRIBUTION OF ACTIVE MEMBERS BY AGE AND YEARS OF SERVICE* — as of June 30, 2021

Years of Credited Service							Total
26-30	31-35	36-40	41-45	46-50	51+	Total	
0	0	0	0	0	0	0	6,908
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$42,484
0	0	0	0	0	0	0	20,549
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$55,106
0	0	0	0	0	0	0	28,273
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$65,190
0	0	0	0	0	0	0	33,005
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$76,182
3	0	0	0	0	0	0	40,075
\$115,835	\$0	\$0	\$0	\$0	\$0	\$0	\$89,199
1,059	1	0	0	0	0	0	39,848
\$114,678	\$139,382	\$0	\$0	\$0	\$0	\$0	\$97,297
9,162	1,081	1	0	0	0	0	41,045
\$115,000	\$115,643	\$156,995	\$0	\$0	\$0	\$0	\$98,760
4,813	3,580	273	0	0	0	0	27,348
\$113,188	\$118,490	\$118,946	\$0	\$0	\$0	\$0	\$95,190
2,089	1,093	652	45	1	0	0	15,302
\$105,328	\$115,318	\$124,753	\$142,978	\$175,503	\$0	\$0	\$88,717
526	276	172	131	12	1	1	5,020
\$96,229	\$111,130	\$123,043	\$132,863	\$142,731	\$227,740	\$0	\$89,733
140	107	58	45	50	27	0	1,785
\$91,572	\$87,278	\$107,105	\$128,757	\$136,309	\$162,669	\$0	\$86,912
17,792	6,138	1,156	221	63	28	0	259,158
\$112,652	\$116,566	\$122,279	\$134,070	\$138,215	\$165,079	\$0	\$86,307

DISTRIBUTION OF ACTIVE MEMBERS BY SERVICE — as of June 30, 2021



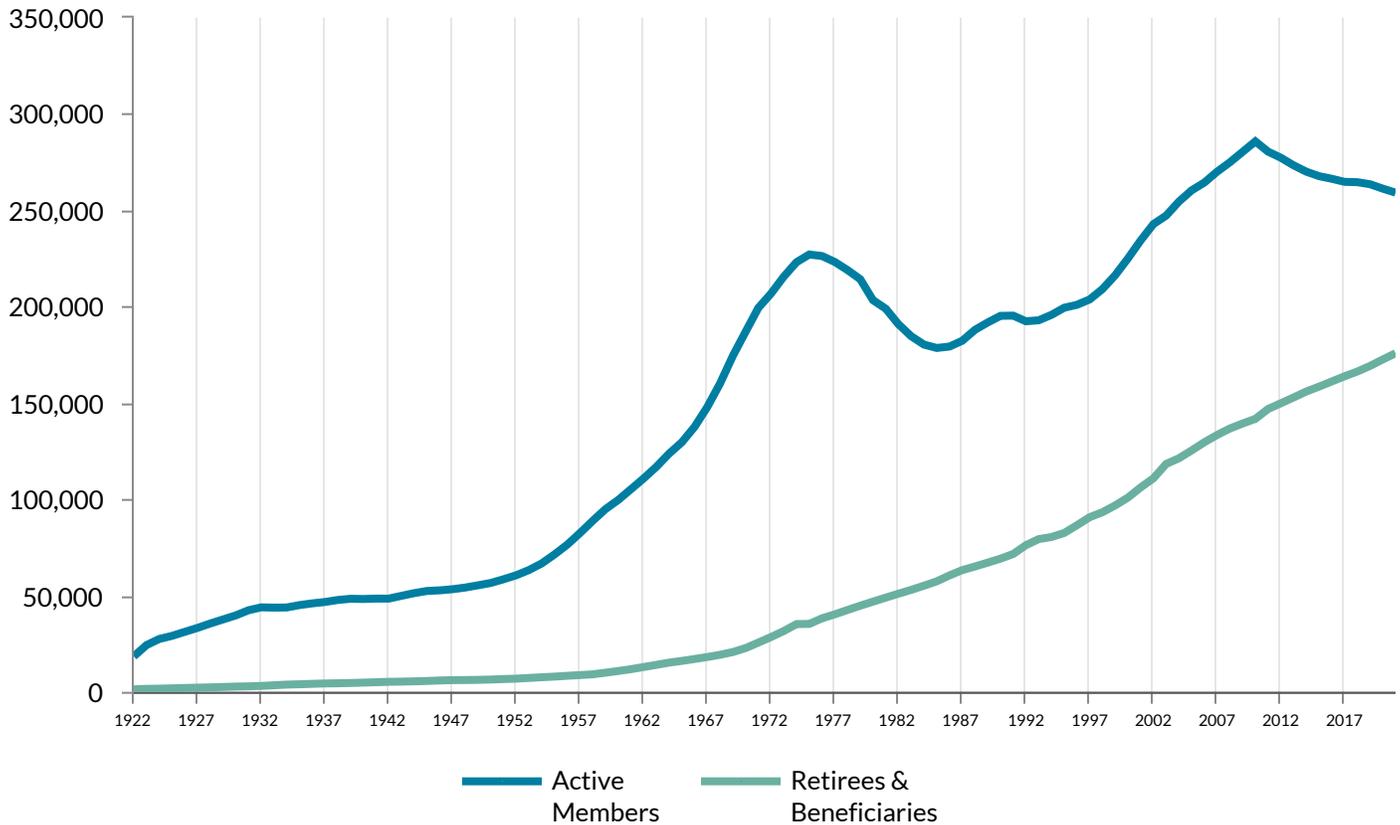
Service Group	Percent
● 31+ Years of Service	3%
● 21-30 Years of Service	21%
● 11-20 Years of Service	30%
● 0-10 Years of Service	46%

STATISTICAL

ACTIVE MEMBERS AND ANNUITANTS 1922-2021

As of June 30	Active Members	Retirees & Beneficiaries	As of June 30	Active Members	Retirees & Beneficiaries
1922	18,412	1,296	1975	227,038	35,252
1925	29,057	1,815	1980	203,330	46,812
1930	39,663	2,732	1985	178,516	57,366
1935	45,031	3,919	1990	195,194	69,127
1940	48,193	4,771	1995	199,398	82,459
1945	52,359	5,637	2000	224,986	100,839
1950	56,504	6,374	2005	260,356	125,325
1955	71,273	7,897	2010	285,774	141,716
1960	99,555	10,796	2015	267,715	158,458
1965	129,543	16,043	2020	261,232	172,569
1970	186,914	22,700	2021	259,158	175,790

See related graph below.

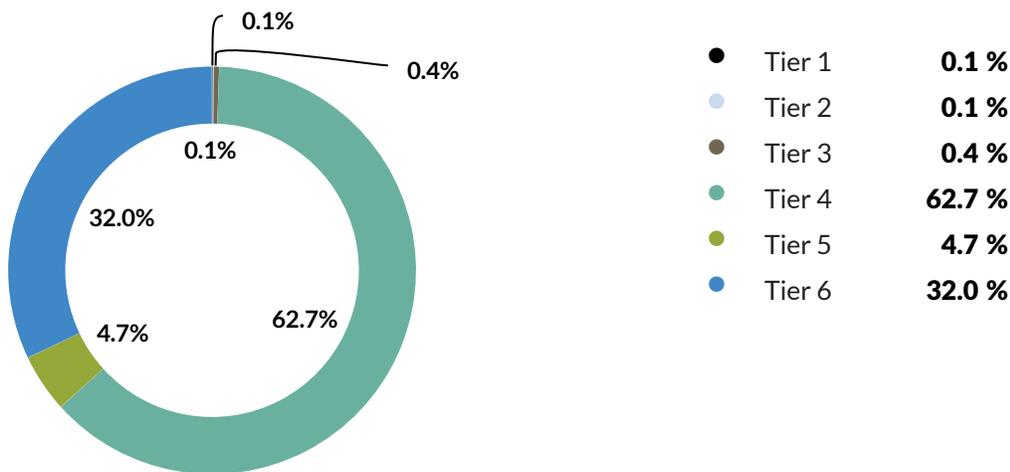


STATISTICAL

NUMBER OF ACTIVE MEMBERS BY TIER

As of June 30	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Total
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
2021	169	202	1,106	162,627	12,061	82,993	259,158

ACTIVE MEMBERS BY TIER



STATISTICAL

MEMBERS RETIRED IN 2020-2021 FOR:

	Service*	Disability
Number Retired	7,537	80
Age at Retirement:		
Average	61 yrs., 5 mos.	50 yrs., 7 mos.
Median	61 yrs., 6 mos.	50 yrs., 5 mos.
Years of Service:		
Average	26 yrs., 3 mos.	19 yrs., 8 mos.
Median	28 yrs., 0 mos.	19 yrs., 7 mos.
**Benefit:		
Average	\$49,145	\$30,076
Median	\$50,322	\$29,292
Final Average Salary (FAS):		
Average	\$91,713	\$82,312
Median	\$92,370	\$81,431
***Benefit as % of FAS:		
Average	49.22%	35.79%
Median	53.33%	33.33%

MEMBERS RETIRED IN 2020-2021 FOR SERVICE* WITH:

	Less Than 10 Yrs. Svc.	10 or More Yrs. and Less Than 20 Yrs. Svc.	20 or More Yrs. and Less Than 30 Yrs. Svc.	30 or More Yrs. Svc.
Number Retired	300	1,063	2,739	3,435
Age at Retirement:				
Average	61 yrs., 10 mos.	62 yrs., 6 mos.	63 yrs., 1 mo.	59 yrs., 9 mos.
Median	61 yrs., 1 mo.	62 yrs., 6 mos.	62 yrs., 9 mos.	58 yrs., 9 mos.
Years of Service:				
Average	7 yrs., 3 mos.	15 yrs., 0 mos.	24 yrs., 1 mo.	33 yrs., 2 mos.
Median	7 yrs., 5 mos.	15 yrs., 1 mo.	24 yrs., 0 mos.	32 yrs., 2 mos.
**Benefit:				
Average	\$4,228	\$12,601	\$40,194	\$71,515
Median	\$3,469	\$9,373	\$38,928	\$68,202
Final Average Salary (FAS):				
Average	\$37,676	\$53,927	\$87,629	\$111,382
Median	\$35,013	\$43,546	\$86,738	\$105,626
***Benefit as % of FAS:				
Average	10.72%	22.79%	45.24%	63.94%
Median	10.19%	22.78%	45.11%	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.

STATISTICAL

ALL RETIREES AS OF JUNE 30, 2021 RETIRED FOR:

	Service*	Disability
Number Retired	167,062	2,006
Age at Retirement:		
Average	59 yrs., 1 mo.	49 yrs., 7 mos.
Median	58 yrs., 1 mo.	50 yrs., 4 mos.
Age Attained as of June 30, 2021:		
Average	73 yrs., 6 mos.	66 yrs., 0 mos.
Median	73 yrs., 0 mos.	66 yrs., 8 mos.
Years of Service:		
Average	27 yrs., 8 mos.	18 yrs., 4 mos.
Median	30 yrs., 1 mo.	17 yrs., 6 mos.
**Benefit:		
Average	\$43,943	\$21,895
Median	\$44,371	\$20,128
Final Average Salary (FAS):		
Average	\$76,245	\$60,585
Median	\$74,290	\$57,459
***Benefit as % of FAS:		
Average	53.53%	35.40%
Median	60.00%	33.33%

ALL RETIREES AS OF JUNE 30, 2021 RETIRED FOR SERVICE* WITH:

	Less Than 10 Yrs. Svc.	10 or More Yrs. and Less Than 20 Yrs. Svc.	20 or More Yrs. and Less Than 30 Yrs. Svc.	30 or More Yrs. Svc.
Number Retired	5,028	23,795	49,609	88,630
Age at Retirement:				
Average	60 yrs., 5 mos.	59 yrs., 3 mos.	60 yrs., 4 mos.	58 yrs., 3 mos.
Median	59 yrs., 7 mos.	57 yrs., 11 mos.	60 yrs., 8 mos.	57 yrs., 2 mos.
Years of Service:				
Average	7 yrs., 4 mos.	14 yrs., 5 mos.	24 yrs., 7 mos.	34 yrs., 3 mos.
Median	7 yrs., 5 mos.	14 yrs., 5 mos.	25 yrs., 0 mos.	34 yrs., 0 mos.
**Benefit:				
Average	\$4,284	\$9,894	\$34,636	\$60,543
Median	\$3,662	\$7,699	\$32,190	\$56,730
Final Average Salary (FAS):				
Average	\$40,764	\$44,098	\$72,423	\$89,028
Median	\$37,190	\$37,215	\$68,258	\$83,944
***Benefit as % of FAS:				
Average	10.54%	21.79%	47.53%	67.85%
Median	10.17%	20.96%	48.00%	67.11%

*Also includes vested retirees.

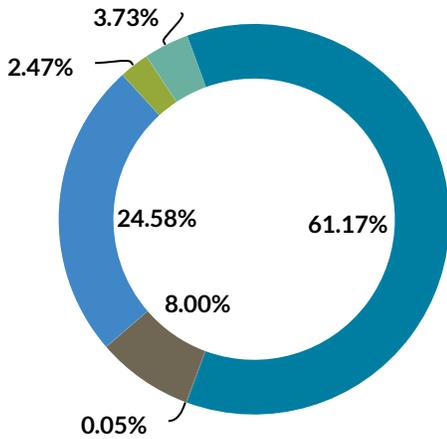
**The Maximum, even though the member may have chosen an option.

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

STATISTICAL

RETIREMENT BENEFIT OPTIONS AND PERCENT OF ELECTION

2017-2021 Retirees



Option	Number Electing	Percent of Election*
● Maximum	21,385	61.17 %
● Annuity/Declining Reserve	17	0.05 %
● Joint & Survivor	2,797	8.00 %
● Pop-Up	8,592	24.58 %
● Guarantee	866	2.47 %
● Alternative	1,304	3.73 %
Total	34,961	100.00 %

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

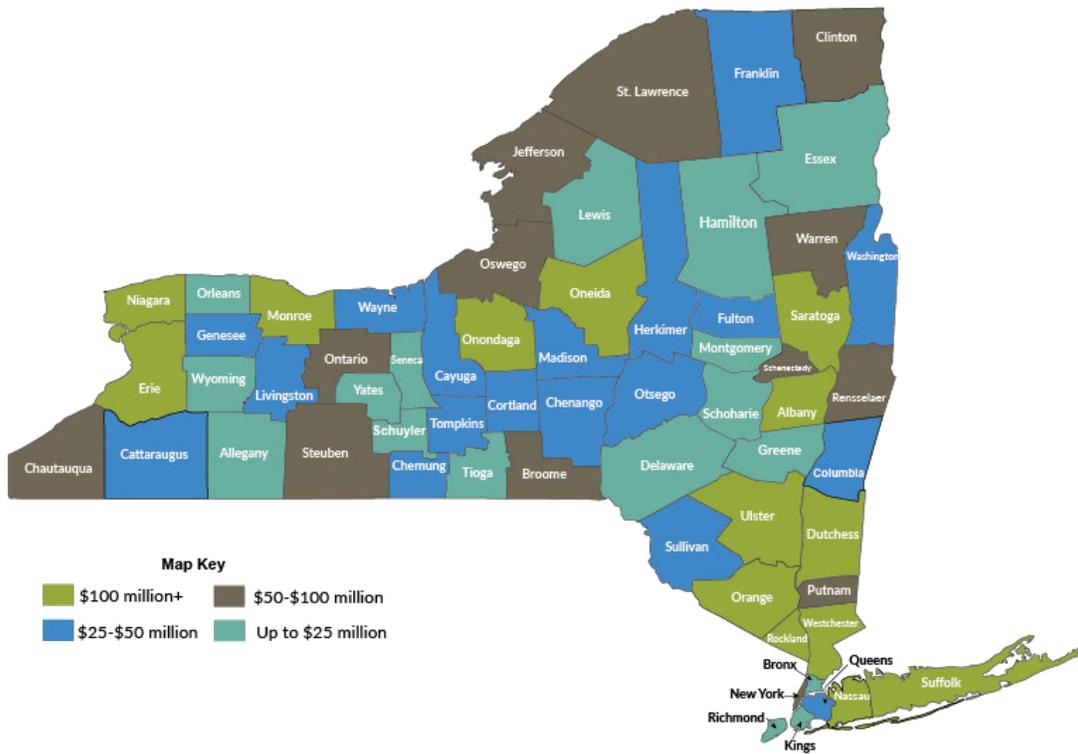
RETIRED MEMBERS' CHARACTERISTICS* BY YEAR OF RETIREMENT

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
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
2021	7,617	61-5	26-3	91,713	49,145

*Averages are for service and vested retirees.

STATISTICAL

DISTRIBUTION OF BENEFITS PAID BY COUNTY* – as of June 30, 2021



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	3,212	\$132,585,501	Jefferson	1,447	\$55,645,671	St. Lawrence	1,763	\$63,573,137
Allegany	655	\$23,544,194	Kings	219	\$9,938,349	Saratoga	3,860	\$165,306,589
Bronx	262	\$13,287,303	Lewis	379	\$13,988,606	Schenectady	1,794	\$72,581,127
Broome	2,381	\$90,828,807	Livingston	1,036	\$41,162,059	Schoharie	491	\$17,589,295
Cattaraugus	953	\$38,098,979	Madison	1,045	\$40,224,482	Schuyler	272	\$9,706,515
Cayuga	1,059	\$39,964,178	Monroe	9,444	\$384,699,558	Seneca	446	\$16,857,586
Chautauqua	1,969	\$81,644,950	Montgomery	551	\$22,007,489	Steuben	1,406	\$50,594,766
Chemung	1,126	\$41,679,586	Nassau	9,934	\$576,621,990	Suffolk	17,988	\$1,079,146,633
Chenango	722	\$25,599,582	New York	1,212	\$60,049,754	Sullivan	857	\$40,097,715
Clinton	1,311	\$50,071,803	Niagara	2,345	\$104,445,448	Tioga	575	\$21,814,545
Columbia	765	\$31,317,701	Oneida	3,276	\$126,759,414	Tompkins	1,073	\$36,262,319
Cortland	802	\$30,068,158	Onondaga	7,239	\$274,189,807	Ulster	2,952	\$132,391,106
Delaware	643	\$22,806,183	Ontario	2,089	\$83,280,000	Warren	1,479	\$59,636,000
Dutchess	3,523	\$165,192,304	Orange	3,482	\$170,138,315	Washington	777	\$29,397,344
Erie	11,176	\$486,549,864	Orleans	472	\$20,677,012	Wayne	1,325	\$49,831,489
Essex	655	\$22,652,043	Oswego	1,768	\$64,693,797	Westchester	7,020	\$396,490,755
Franklin	755	\$26,893,893	Otsego	1,110	\$37,870,267	Wyoming	527	\$20,206,716
Fulton	786	\$31,566,284	Putnam	1,058	\$59,429,004	Yates	420	\$15,595,974
Genesee	792	\$32,100,681	Queens	818	\$45,668,467			
Greene	564	\$21,336,000	Rensselaer	1,747	\$68,884,623	Out of State	42,314	\$1,589,291,489
Hamilton	147	\$5,955,515	Richmond	44	\$1,775,948			
Herkimer	1,025	\$36,633,214	Rockland	2,453	\$123,282,773	Grand Total	175,790	\$7,702,180,656

*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.

STATISTICAL

DISTRIBUTION OF RETIRED MEMBERS AND BENEFICIARIES BY TIER

— as of June 30, 2021

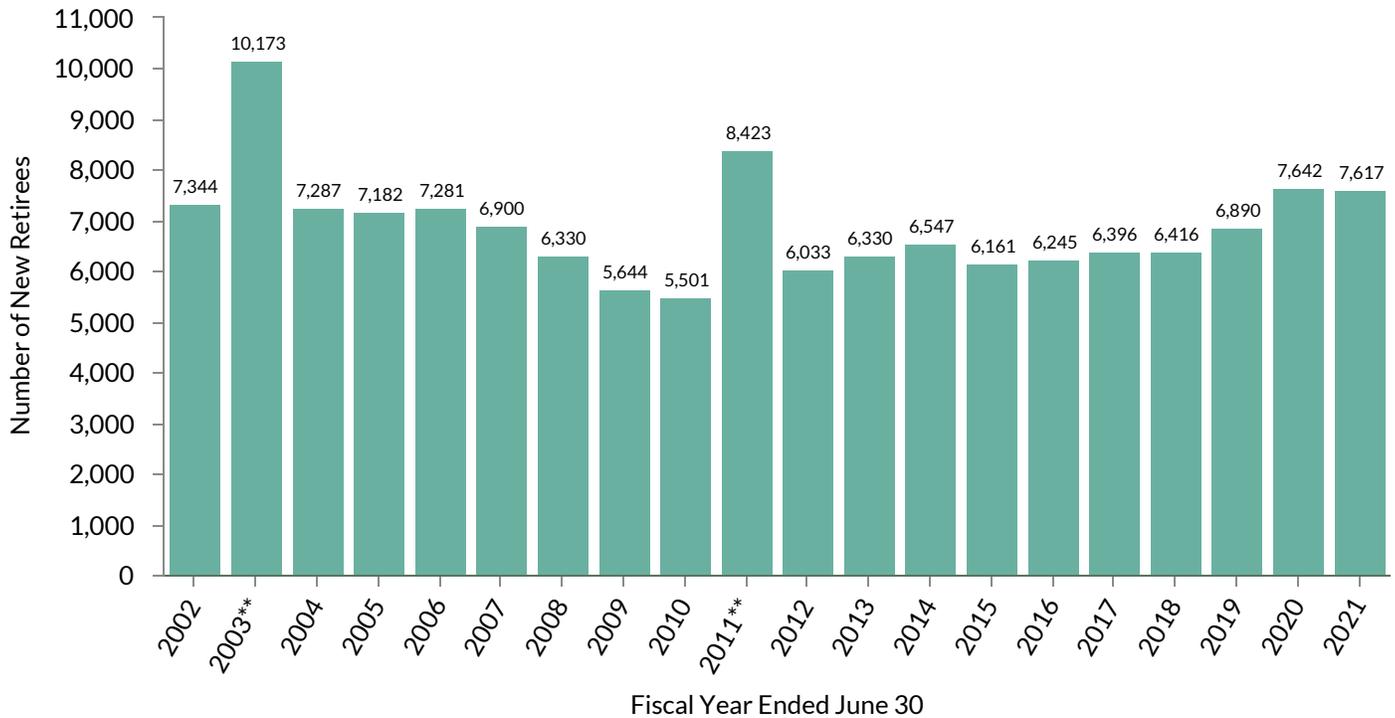
	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Total	
Members Retired for:								
Service*	77,777	16,513	20,186	(191)**	52,428	84	25	167,013
Disability	493	163	225	(27)**	1,174	0	0	2,055
Beneficiaries of Deceased:								
Service Annuitants	5,043	406	350	(7)**	546	1	0	6,346
Disability Annuitants	156	25	28	(5)**	65	0	0	274
Active Members	97	1	1	(0)**	3	0	0	102
Total	83,566	17,108	20,790	(230)**	54,216	85	25	175,790

*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*

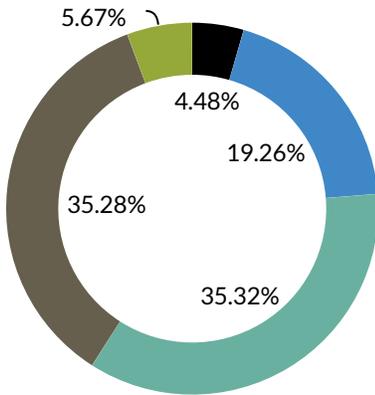


*Includes service, vested and disability retirements.

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

STATISTICAL

RETIRED MEMBERS AND BENEFICIARIES* WITH MONTHLY BENEFITS BY DECADE OF RETIREMENT – as of June 30, 2021



Calendar Years	Number of People	Percentage**	Average Monthly Maximum Benefit	Average Total Monthly Maximum Benefit***
● 1989 or earlier	7,863	4.48 %	\$1,468.06	\$2,027.54
● 1990-1999	33,840	19.26 %	\$2,893.13	\$3,240.66
● 2000-2009	62,053	35.32 %	\$3,889.97	\$4,073.53
● 2010-2019	61,975	35.28 %	\$3,973.53	\$4,009.58
● 2020-2021	9,957	5.67 %	\$4,045.50	\$4,045.50
Total	175,688			

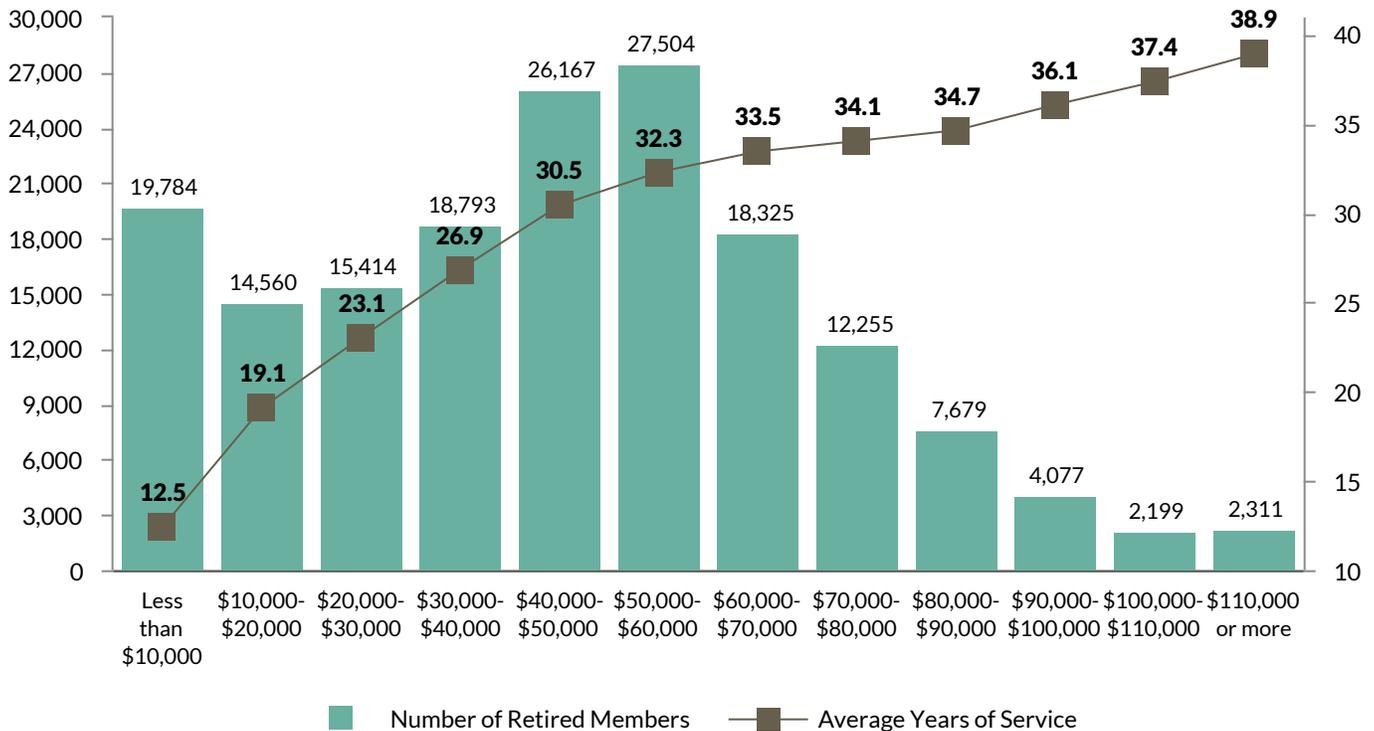
*Excludes 102 beneficiaries of deceased active members.

**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, 2021



*Maximum annual retirement benefit including supplementation and COLA.

STATISTICAL

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
2021	2.62%	1.4%	\$18,000	\$21.00	\$399.00	\$18.69	\$348.86

*Consumer Price Index

STATISTICAL

DISTRIBUTION OF MONTHLY COLA INCREASE COMMENCING SEPTEMBER 2021

Monthly COLA Increase	Number of Retired Members and Beneficiaries
\$21.00	113,268
\$17.50 - \$20.99	3,187
\$14.00 - \$17.49	3,409
\$10.50 - \$13.99	8,982
\$7.00 - \$10.49	4,877
\$3.50 - \$6.99	6,844
\$0.01 - \$3.49	2,802
\$0 (currently ineligible)	32,421
Total	175,790

DISTRIBUTION OF CUMULATIVE MONTHLY COLA COMMENCING SEPTEMBER 2021

Cumulative Monthly COLA	Number of Retired Members and Beneficiaries
\$399.00	18,018
\$338.50 - \$398.99	8,035
\$278.00 - \$338.49	15,348
\$217.50 - \$277.99	19,315
\$157.00 - \$217.49	22,060
\$96.50 - \$156.99	25,596
\$0.01 - \$96.49	34,997
\$0 (currently ineligible)	32,421
Total	175,790

STATISTICAL

Financial Trends Information

CHANGES IN FIDUCIARY NET POSITION

Last Ten Fiscal Years

(dollars in thousands)

Additions:	2012	2013	2014	2015
Net investment income	\$ 2,375,262	\$ 11,636,480	\$ 16,664,703	\$ 5,400,265
Employer contributions	1,628,491	1,734,908	2,400,386	2,633,682
Member contributions	138,583	128,903	120,762	119,411
Transfers	4,188	4,522	1,365	3,213
Total additions	4,146,524	13,504,813	19,187,216	8,156,571
Deductions: (See Benefits and Return of Contributions by Type on Pages 124-125)				
Benefit payments	5,907,795	6,118,849	6,324,546	6,513,931
Return of contributions	19,732	20,869	18,992	17,209
Administrative expenses	52,457	54,338	55,616	56,948
Total deductions	5,979,984	6,194,056	6,399,154	6,588,088
Change in fiduciary net position restricted for pensions	\$ (1,833,460)	\$ 7,310,757	\$ 12,788,062	\$ 1,568,483

STATISTICAL

CHANGES IN FIDUCIARY NET POSITION *(continued)*

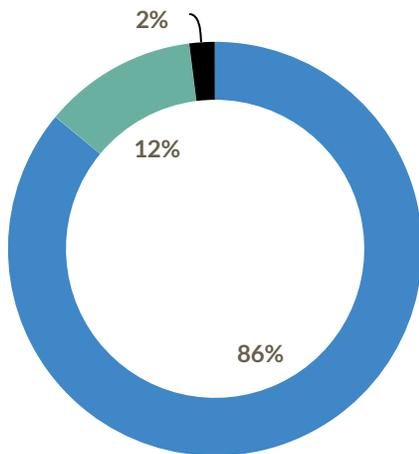
Last Ten Fiscal Years

(dollars in thousands)

	2016	2017	2018	2019	2020	2021
\$	2,392,354	\$ 12,951,892	\$ 9,928,009	\$ 8,023,180	\$ 3,923,633	\$ 33,668,008
	2,046,562	1,857,359	1,597,139	1,774,646	1,504,688	1,618,437
	124,587	129,770	131,595	136,610	145,034	159,874
	4,014	7,845	9,278	9,087	3,955	10,025
	4,567,517	14,946,866	11,666,021	9,943,523	5,577,310	35,456,344
	6,701,637	6,903,361	7,088,949	7,285,362	7,484,462	7,717,521
	18,229	19,676	20,049	21,956	19,439	14,379
	60,426	61,611	60,610	74,242	71,385	55,492
	6,780,292	6,984,648	7,169,608	7,381,560	7,575,286	7,787,392
\$	(2,212,775)	\$ 7,962,218	\$ 4,496,413	\$ 2,561,963	\$ (1,997,976)	\$ 27,668,952

BREAKDOWN OF INCOME SOURCES

Fiscal Years Ended 1992-2021



- Investment Income 86 %
- Employer Contributions 12 %
- Member Contributions 2 %

STATISTICAL

BENEFITS AND RETURN OF CONTRIBUTIONS BY TYPE

Last Ten Fiscal Years

(dollars in thousands)

Type of Benefit	2012	2013	2014	2015
Age and service benefits:				
Retirees	\$ 5,811,739	\$ 6,023,506	\$ 6,233,619	\$ 6,419,576
Survivors	29,153	32,879	28,918	31,888
Death in service benefits	29,266	23,666	21,634	20,730
Disability benefits:				
Ordinary	37,350	38,507	39,871	41,251
Accidental	287	291	504	486
Total benefits	\$ 5,907,795	\$ 6,118,849	\$ 6,324,546	\$ 6,513,931
Type of Return of Contributions				
Death	\$ 2,393	\$ 2,434	\$ 2,325	\$ 2,350
Separation from service	17,339	18,435	16,667	14,859
Total return of contributions	\$ 19,732	\$ 20,869	\$ 18,992	\$ 17,209

STATISTICAL

BENEFITS AND RETURN OF CONTRIBUTIONS BY TYPE *(continued)*
Last Ten Fiscal Years
(dollars in thousands)

2016	2017	2018	2019	2020	2021
\$ 6,601,664	\$ 6,794,278	\$ 6,978,694	\$ 7,179,640	\$ 7,375,088	\$ 7,614,539
34,051	41,662	35,234	40,775	38,101	35,205
22,801	23,606	29,845	21,339	25,873	22,366
42,591	43,469	44,828	43,256	45,045	45,055
530	346	348	352	355	356
\$ 6,701,637	\$ 6,903,361	\$ 7,088,949	\$ 7,285,362	\$ 7,484,462	\$ 7,717,521
\$ 3,011	\$ 3,061	\$ 3,211	\$ 2,865	\$ 3,215	\$ 2,497
15,218	16,615	16,838	19,091	16,224	11,882
\$ 18,229	\$ 19,676	\$ 20,049	\$ 21,956	\$ 19,439	\$ 14,379

STATISTICAL

Operating Information

AVERAGE BENEFIT PAYMENTS – JULY 1, 2011 – JUNE 30, 2021

Retirement Effective Dates	Years of Credited Service							
	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35+
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
Period 7/1/2020 to 6/30/2021								
Average monthly benefit	\$213	\$399	\$819	\$1,586	\$2,868	\$4,375	\$5,702	\$7,273
Average final average salary	\$41,885	\$39,264	\$49,996	\$63,726	\$81,929	\$98,964	\$109,407	\$120,727
Number of retired members	20	305	520	710	1,551	1,378	2,466	667

STATISTICAL

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STATISTICAL

RETIRED MEMBERS AND BENEFICIARIES BY TYPE OF BENEFIT

— as of June 30, 2021

Amount of Monthly Benefit	Number of Retired Members	Type of Retirement					
		1	2	3	4	5	6
\$1 - \$500	13,935	7,244	6,180	101	315	21	74
\$501 - \$1,000	12,727	6,359	5,539	343	411	65	10
\$1,001 - \$1,500	10,581	6,541	3,097	420	451	65	7
\$1,501 - \$2,000	10,037	6,543	2,547	404	495	47	1
\$2,001 - \$2,500	10,896	7,680	2,320	312	549	33	2
\$2,501 - \$3,000	11,626	8,818	1,967	208	612	17	4
\$3,001 - \$3,500	13,535	11,226	1,510	122	665	11	1
\$3,501 - \$4,000	16,502	14,676	1,126	71	624	4	1
\$4,001 - \$4,500	17,464	15,981	834	41	600	8	0
\$4,501 - \$5,000	14,636	13,627	515	16	477	1	0
over \$5,000	43,851	41,890	793	17	1,147	2	2
Total	175,790	140,585	26,428	2,055	6,346	274	102

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.*

STATISTICAL

RETIRED MEMBERS AND BENEFICIARIES BY TYPE OF BENEFIT — as of June 30, 2021

Option Selected					
1	2	3	4	5	6
10,674	777	1,094	626	355	409
9,264	833	1,580	524	207	319
7,452	748	1,576	414	184	207
6,983	786	1,626	318	155	169
7,505	881	1,898	331	121	160
7,846	987	2,180	288	148	177
9,093	1,174	2,609	337	84	238
10,860	1,261	3,604	381	108	288
11,128	1,367	4,163	375	83	348
9,060	1,262	3,631	289	66	328
25,283	4,141	12,027	825	133	1,442
115,148	14,217	35,988	4,708	1,644	4,085

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

STATISTICAL

PRINCIPAL PARTICIPATING EMPLOYERS

Current Year and Nine Years Ago

Participating Employer 2021	Covered Employees	Rank	Percentage of Total System**
Buffalo Public Schools	4,476	1	1.73%
Rochester City School District	3,554	2	1.37%
Syracuse City School District	2,868	3	1.11%
Yonkers Public Schools	2,048	4	0.79%
Brentwood Union Free Schools	1,752	5	0.68%
Newburgh Central Schools	1,421	6	0.55%
Greece City School District	1,377	7	0.53%
Sachem Central Schools	1,341	8	0.52%
Middle Country City School District	1,198	9	0.46%
Clarkstown Central Schools	1,151	10	0.44%
All Other*	237,972 ⁺		91.83%
Total	259,158 ⁺		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	216,519 ⁺
Boards of Cooperative Educational Services (BOCES)	37	13,671
SUNY	31	2,445
Community Colleges	30	2,568
Charter Schools	26	1,953
Special Act Districts	9	505
Other	9	311
Total All Other	811	237,972 ⁺

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

STATISTICAL

PRINCIPAL PARTICIPATING EMPLOYERS *(continued)* Current Year and Nine Years Ago

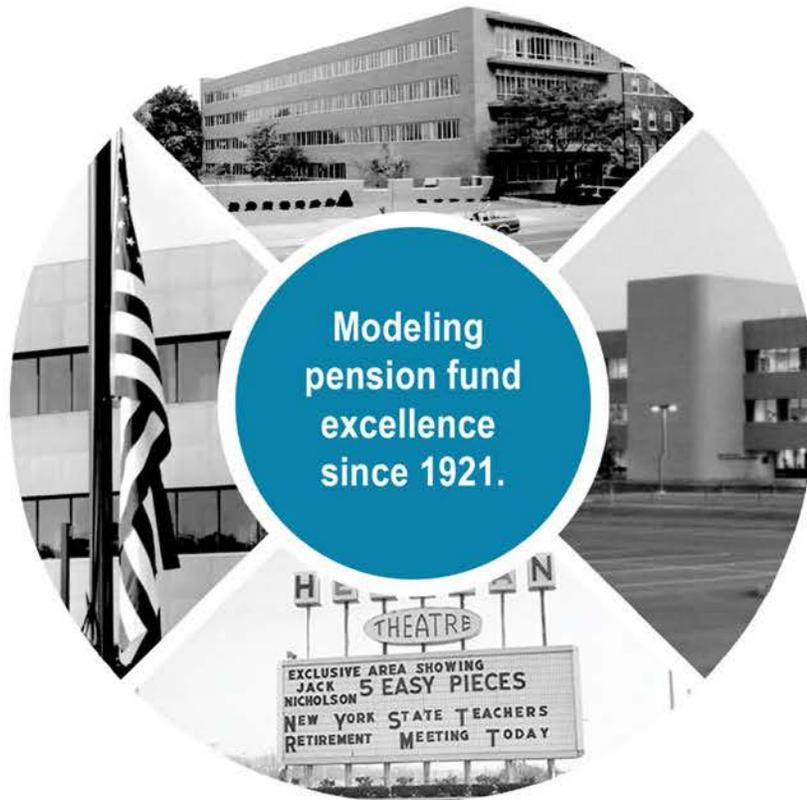
Participating Employer 2012	Covered Employees	Rank	Percentage of Total System**
Buffalo Public Schools	4,586	1	1.65%
Rochester City School District	3,943	2	1.42%
Syracuse City School District	2,827	3	1.02%
Yonkers Public Schools	2,086	4	0.75%
Brentwood Union Free Schools	1,759	5	0.63%
Sachem Central Schools	1,508	6	0.54%
Greece Central Schools	1,493	7	0.54%
Newburgh City School District	1,368	8	0.49%
Clarkstown Central Schools	1,238	9	0.45%
Wappingers Central Schools	1,221	10	0.44%
All Other	255,244 ⁺		92.06%
Total	277,273 ⁺		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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