2018 ANNUAL REPORT

Comprehensive Annual Financial Report
Fiscal Years Ended June 30, 2018 and 2017

NY STRS

Committed to Providing Educators
With a Secure Retirement Since 1921

NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

Comprehensive Annual Financial Report

Fiscal Years Ended June 30, 2018 and 2017

Our Mission:

To provide our members with a secure pension.

Our Vision:

To be <u>the</u> model for pension fund excellence and exceptional customer service.

Our Values:

Integrity • Excellence • Respect • Resourcefulness • Diversity • Diligence • Balance

In addition to the above, NYSTRS has five Strategic Objectives.
These objectives serve as a guiding light for staff and are a daily reminder of our core beliefs.

Each tabbed section divider in this report will examine one of the Strategic Objectives.
When taken in concert with our Mission, Vision and Values, these ideals form the fabric of our culture.

New York State Teachers' Retirement System

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

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Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

New York State Teachers' Retirement System

For its Comprehensive Annual Financial Report for the Fiscal Year Ended

June 30, 2017

Christopher P. Morrill

Executive Director/CEO

Government Finance Officers Association

Award for Outstanding Achievement in Popular Annual Financial Reporting

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For its Annual Financial Report for the Fiscal Year Ended

June 30, 2017

Christopher P. Morrill

Executive Director/CEO

PPCC

Public Pension Coordinating Council

Public Pension Standards Award For Funding and Administration 2017

Presented to

New York State Teachers' Retirement System

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

Presented by the Public Pension Coordinating Council, a confederation of

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

Alan H. Winkle
Program Administrator

INTRODUCTION

Governance Structure

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

INTRODUCTION

Page

Board of Trustees

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

Michael J. Masse
Vice President
Fayetteville
School Boards
Association Member
Elected by Board of Regents
First Elected 2009

Sheila Sullivan Buck
Rush-Henrietta
Teacher Member
Elected by NYSTRS Delegates
First Elected 2017

Paul J. Farfaglia
Jordan-Elbridge
Teacher Member
Elected by NYSTRS Delegates
First Elected 2009

Stephen P. Feehan
Windsor
School Boards
Association Member
Elected by Board of Regents
First Elected 2016

Ron Gross
William Floyd
Teacher Member
Elected by NYSTRS Delegates
First Elected 2017

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

Daniel J. Hogarty Jr.
Troy
Bank Executive
Elected by Board of Regents
First Elected 2005

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

Nicholas Smirensky
Delmar
State Comptroller Appointee
First Appointed 2007

Organizational Structure & Executive Staff

Retirement Board
David P. Keefe, President

Executive Director & Chief Investment Officer
Thomas K. Lee

Legal
Joseph J. Indelicato, General Counsel
- Contract Review
- Legislation
- Litigation
- Domestic Relations Orders

Internal Audit
Kenneth R. Kasper, Director
- Assurance Services
- Consulting Services

Actuary
Richard A. Young, Actuary
- Actuarial Valuations
- Fiscal Notes

Chief Financial Officer
Noreen Jones, CFO
- Finance
- Investment Operations
- Risk Management

Fixed Income
Michael A. Wolfe Jr., Managing Director
- Long/Short-Term Fixed Income Securities
- Global Bonds
- High Yield Bonds

Human Resources
Beth Bonacquist, Director
- Labor Relations
- Personnel Classification
- Recruitment & Training

Member Relations
Sheila O. Gardella, Director
- Member and Employer Services & Communications
- Benefit Administration
- Public Relations

Operations
Kevin J. Schaefer, Managing Director
- Information Technology
- Facilities Services

Private Equity & Debt
Gerald J. Yahoudy II, Managing Director
- Private Equity Investments
- Private Debt Opportunities

Public Equity
Frederick W. Herrmann, Managing Director
- Domestic, International and Global Equity Investments

Real Estate Equity & Debt
David C. Gillan, Managing Director
- Real Estate Equity Investments
- Commercial Lending

NYSTRS Staff

Executives

Thomas K. Lee
Executive Director &
Chief Investment Officer

Beth Bonacquist
Director of Human Resources

Sheila O. Gardella
Director of Member Relations

David C. Gillan
Managing Director of Real Estate

Frederick W. Herrmann
Managing Director of Public Equities

Joseph J. Indelicato Jr.
General Counsel

Noreen Jones
Chief Financial Officer

Kenneth R. Kasper
Director of Internal Audit

Kevin J. Schaefer
Managing Director of Operations

Michael A. Wolfe Jr.
Managing Director of Fixed Income

Gerald J. Yahoudy II
Managing Director of Private Equity

Richard A. Young
Actuary

Letter of Transmittal

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

Thomas K. Lee, Executive Director & CIO

November 1, 2018

Trustees of the Retirement System Board:

On behalf of System staff, I present you with the Comprehensive Annual Financial Report (CAFR) of the New York State Teachers' Retirement System (NYSTRS or the System) for the fiscal years ended June 30, 2018 and 2017. This report complies with all requirements governing the preparation and contents of annual reports.

History and Overview

Created in 1921 by an act of the state Legislature, NYSTRS administers the fund from which most New York State public school teachers and administrators receive retirement and ancillary benefits. Retirement benefits are provided in accordance with New York State law and may not under the New York Constitution be diminished or impaired. A summary of NYSTRS benefits is provided on pages 15-19 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 824 employers – including public school districts, BOCES, institutions of higher education and charter schools that elect to participate. NYSTRS has 430,875 active and retired members, including beneficiaries *(see chart below)*.

Membership Figures — as of June 30, 2018

Active Members:	264,590
Retired Members:	160,049
Beneficiaries:	6,236
Total Membership:	430,875

See page 121 for additional membership information.

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

Letter of Transmittal *(continued)*

Awards

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

Certificate of Achievement for Excellence in Financial Reporting, awarded by the Government Finance Officers Association (GFOA) of the United States and Canada. Given in recognition of the System's 2017 Comprehensive Annual Financial Report (CAFR), the award certifies the report was prepared in conformity with the highest standards in government accounting and financial reporting.

Award for Outstanding Achievement in Popular Annual Financial Reporting, also awarded by GFOA. The System's 2017 Popular Annual Financial Report was recognized for its high quality and for successfully presenting data from the 2017 CAFR in a manner easily understandable to the general public.

Distinguished Budget Presentation Award for the fiscal year July 1, 2017 through June 30, 2018, 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 criterion to qualify for this award includes compliance with specific principles in the areas of benefits, actuarial valuation, financial reporting, investment and disclosure.

Legislation

Chapter 47 of the Laws of 2018 made amendments to the Freedom of Information Law (FOIL), which provides a means for the public to access records maintained by government and other public entities. Chapter 47 requires entities with websites to allow the public to make FOIL requests online. NYSTRS accepts FOIL requests by mail, email, or online through its website (NYSTRS.org).

Chapter 266 of the Laws of 2018 amended the Retirement and Social Security Law and Workers' Compensation Law to extend the deadline for individuals who participated in the World Trade Center rescue, recovery and cleanup operations to file a disability claim. The new deadline is September 11, 2022. Chapter 266 also allows World Trade Center participants whose disablement occurred between September 11, 2015, and September 11, 2017 to file claims as long as they file by the 2022 deadline.

Noteworthy Actions

Portfolio Diversification

We continue to diversify our investment portfolio through asset allocation in our ongoing effort to minimize risk. In the past year, global equity and private debt were added as asset classes. Additionally, we built out the relatively new categories of high yield bonds and global bonds as we seek to achieve their target allocations.

Environmental Sustainability

NYSTRS headquarters earned LEED (Leadership in Energy and Environmental Design) silver certification from the United States Green Buildings Council (USGBC). The honor is particularly significant given the building is more than 30 years old. LEED is a rating system devised by USGBC to evaluate the environmental performance of a building and encourage market transformation toward sustainable design. The System also earned an Energy Star rating of 84 from the U.S. Environmental Protection Agency.

Letter of Transmittal *(continued)*

Service Improvements
Member service was enhanced with the introduction of an online retirement application and a benefits video series, both of which are accessible from NYSTRS.org. Work continues on streamlining the annual *Benefit Profile* and tightening online security to protect member data. For retired members, we are expanding the mechanism for reporting earnings in retirement so we can adequately alert those in danger of exceeding earnings limits.

Significant Litigation

Haring v. NYSTRS – The Albany County Supreme Court in November 2017 upheld a determination by NYSTRS that money earned by a member in a privately funded extended day program providing primarily child care services outside of regular school hours is not usable in the calculation of a pension. The petitioner did not file a Notice of Appeal and the case was closed.

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 require 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 23 of this report, audits the financial statements. An audit of our actuarial methods, assumptions and valuations was completed in 2015 by Gabriel Roeder Smith & Company, which concluded the actuarial valuation of the System fairly represented the actuarial position and funding requirements of the System. These oversight mechanisms provide scrupulous and transparent adherence to applicable regulations.

Major System expenses result from retirement benefit payments, death benefits and refunds of contributions to certain eligible members and beneficiaries. The increase in retirement benefit payments from 2017 to 2018 is attributable to a net increase of 2,467 retirees and beneficiaries (details are found on page 34 in the *Notes to Financial Statements-Plan Description*). Also see the *Benefits and Return of Contributions by Type* chart on pages 138-139 for more information.

For an overview of NYSTRS' financial activities for the fiscal year ended June 30, 2018, see *Management's Discussion and Analysis* beginning on page 25. 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 33 for more information.

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 10.62% will apply to 2018-19 school year salaries. The payments associated with this rate will be collected in the fall of 2019. 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 $119.9 billion. During the same period, benefits paid to retirees and beneficiaries were approximately $7.1 billion.

The plan's funded ratio as of June 30, 2017, the date of the most-recent annual actuarial valuation and calculated using the Actuarial Value of Assets, was 97.7%. Details of our funding progress may be obtained by turning to page 115.

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 9.01% net of fees for the fiscal year ended June 30, 2018, outperforming the benchmark by 19 basis points. Our 30-year rate of return is 9.16%, net of fees.

Refer to pages 75-107 for further information on NYSTRS' investments. A listing of our equity and fixed income holdings can be viewed on our website at NYSTRS.org.

Acknowledgements

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

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

We are proud that the System continues to be ranked highly among the nation's top 10 public pension systems in funded status. At a time when many Americans are concerned about their ability to achieve a secure retirement, our members can rest assured that their pension will be there for them. For nearly 100 years, NYSTRS has provided stability with a firm commitment to prudent fiscal management and investment, as shown in this report.

Our members devote their lives to achieving excellence in the classroom. Teachers and administrators deserve excellence in their pension fund management in return. System Board and staff work diligently to ensure our members and their beneficiaries can enjoy a secure retirement.

Respectfully submitted,

Thomas K. Lee
Executive Director & Chief Investment Officer

President's Message

David P. Keefe

Dear NYSTRS Members, Administrators and Teachers,

In 1921, the New York State Legislature had the amazing foresight to create a retirement system that would provide a secure, stable pension for public school teachers. Today more than 165,000 retired teachers and their beneficiaries are enjoying just that, as did hundreds of thousands before them.

No matter what changes or challenges came along in public education over the years, teachers and administrators could count on a steady stream of income in retirement. Many teachers would likely point to their NYSTRS pension as one of the most significant financial benefits of a career in public education.

After, in most cases, decades committed to educating and nurturing generations of young people, teachers know they can rely on NYSTRS to provide security for the so-called golden years. As a retired teacher myself, I understand the freedom that comes from knowing I have a guaranteed, defined benefit pension that will provide income for the rest of my life.

The promise of a secure future helps keep teachers in their classrooms as they develop their skills and continue to perfect their craft. Indeed, more than half of NYSTRS retired members worked 30 or more years to earn their pension. The vast majority of them continue to reside in New York where their pension spending helps fuel the economy.

Building a strong pension plan is a collaborative effort. Steady income from three sources of funding – member contributions, employer contributions, and investment returns – has resulted in NYSTRS being one of the most secure and best-funded pension plans in the country. Pooling employee and employer contributions and then prudently investing those funds for long-term growth has proven to be the most efficient and cost-effective way to provide for workers in retirement. In fact, investments generate the vast majority of NYSTRS income – 85% of income over the past 30 years.

It is an honor to serve as NYSTRS Board president. Our Board and the NYSTRS staff take their fiduciary responsibility very seriously and remain committed to maintaining a strong retirement plan that is a national model for pension fund excellence.

David P. Keefe

David P. Keefe
President

Summary of Benefits

Types of Benefits

NYSTRS provides service, vested and disability retirement benefits, as well as death benefits.

Membership Tiers

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

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

Eligibility for Service Retirement

Under Tiers 1-4, members may retire and receive a service retirement benefit at age 55 if credited with five years of New York State service. Retirement for Tier 1 members is also possible with fewer years of service under certain circumstances. Tier 5 and 6 members may retire at age 55 with 10 years of state service credit.

Tier 3 members are also entitled to the benefits under Tier 4. Because of the improvements in Tier 4, most Tier 3 members retire under the provisions of Tier 4. When the benefits under one tier are obviously better, an eligible member will automatically receive the better benefits.

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 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 Benefit Enhancement legislation.

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

A Tier 5 member may retire at age 57 without a reduction in benefits if credited with at least 30 years of service. A Tier 6 member may retire at age 63 without a reduction in benefits.

Benefit Enhancement (Article 19)

New York State law enacted in 2000 provides up to two additional years of service credit at retirement for Tier 1 and 2 members who meet the eligibility requirements. It also allows Tier 3 and 4 members to cease making 3% required contributions when they have been a member for 10 years or have 10 years of total service credit, whichever occurs first. Tier 5 and 6 members are not entitled to any Benefit Enhancement.

Summary of Benefits *(continued)*

Pension Formulas

A retirement benefit is determined by the following formula:

Pension Factor x Age Factor (if applicable) x Final Average Salary = Maximum Annual Pension.

The pension factor under each tier for a service retirement is calculated using the percentages as shown in the chart below.

Pension Formulas for Service Retirement

Tier 1

- 2% x years of NYS service since July 1, 1959, including any applicable benefit enhancement credit.
- 1.8% x years of NYS service before July 1, 1959.
- 1% x years of out-of-state service prior to NYSTRS membership (10-year maximum).*
- 5% reduction in pension for each full year of NYS service under 20 years (prorated for partial years with a maximum reduction of 50%).

Tier 2

- Computed under the Tier 1 formula, including applicable benefit enhancement credit and/or the 5% reduction for each year of NYS service under 20 years. (Note: Tier 2 members cannot claim out-of-state service unless it was credited under a previous Tier 1 membership.)
- A prorated reduction of up to 27% when retirement occurs before age 62 with less than 30 years of NYS service.
- No reductions if the member is age 62 with at least 20 years of service, or at age 55 with 30 years or more.

Tier 3**

- 1.67% x years of NYS service if credited with less than 20 years, or 2% x years of NYS service if credited with 20 to 30 years.
- 60% maximum for 30 years or more.
- A prorated reduction of up to 30% when retirement occurs before age 62 with less than 30 years of NYS service.
- No reductions if the member is age 62, or if credit totals 30 years or more.
- At age 62 (or at retirement, if older), benefit reduced by 50% of primary Social Security benefit accrued while in NYS public employment.

Tier 4

- 1.67% x years of NYS service if credited with less than 20 years, or 2% x years of NYS service if credited with 20 to 30 years.
- 60% for 30 years plus 1.5% for each year of NYS service beyond 30 years.
- A prorated reduction of up to 27% when retirement occurs before age 62 with less than 30 years of NYS service.
- No reductions if the member is age 62, or if credit totals 30 years or more.

Tier 5

- 1.67% x years of NYS service if credited with less than 25 years, or 2% x years of NYS service if credited with 25 to 30 years.
- 60% for 30 years plus 1.5% for each year of NYS service beyond 30 years.
- A prorated reduction of up to 38% when retirement occurs before age 62 with less than 30 years of NYS service.
- No reduction if the member is age 62, or if credit totals 30 years or more <u>and</u> the member is at least age 55.

Tier 6

- 1.67% x years of NYS service if credited with less than 20 years, or 1.75% x years of NYS service if credited with 20 years.
- 35% for 20 years plus 2% per year beyond 20 years of service.
- A prorated reduction of up to 52% when retirement occurs before age 63 regardless of your total service.

**Any portion of this credit that brings the total service credit beyond 35 years is excluded from the pension calculation. Benefit Enhancement credit is <u>not</u> used to establish the 35-year threshold.*
***Tier 3 members are entitled to receive either the benefits under Tier 3 or 4, whichever are greater.*

Summary of Benefits *(continued)*

Final Average Salary

Final average salary is generally defined as the average of the member's three highest consecutive school years of regular salary, excluding termination pay, retirement bonuses, pay for unused sick leave or accumulated vacation, and increases in salary which exceed certain limitations. Tier 6 members are restricted to a five-year final average salary using regular salary.

Members who joined the System prior to June 17, 1971 are entitled to a five-year final average salary without the limitations of the three-year final average salary if the five-year final average salary is greater.

Vested Retirement

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. However, if vested members choose to withdraw their member contributions or transfer membership to another NYS public retirement system, they will not be eligible for a NYSTRS benefit. Tier 3-6 members with 10 or more years of service can only withdraw under the specific provisions of Chapter 553 of the Laws of 2011.

Disability Retirement

Generally, members credited with at least 10 years of New York State service (five years for Tier 3 members) who become disabled as defined by applicable statute 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 five-year or 10-year eligibility requirement is waived.

The members of the Medical Board are:

STEVEN D. KRONICK, M.D.

Psychiatrist
Pine Bush Mental Health, LLP

Psychiatric Consultant
Albany County Community
Mental Health Center

Clinical Assistant Professor of Psychiatry
Albany Medical College

Diplomate of the National
Board of Medical Examiners

Member of the American Board
of Psychiatry and Neurology

Member of the American
Psychiatric Association

RICHARD T. MacDOWELL, M.D.

Attending Surgeon at
Albany Medical College

Member of the American
College of Surgeons

Member of the American
Board of Surgery

LAURA E. PICA, M.D.

Diplomate of the National
Board of Medical Examiners

Diplomate of the American
Board of Internal Medicine

Member of the
American College of Physicians

Member of the American
Society of Internal Medicine

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

Summary of Benefits *(continued)*

Member Contributions

Tier 3 and 4 members are mandated to contribute 3% of their salary to the Retirement System until they have been a member for 10 years or have 10 years of service credit, whichever occurs first. Tier 5 members are required to contribute 3.5% of their salary throughout their active membership. Tier 6 members are required to contribute at a variable rate based on earnings throughout their active membership. These contributions are not included in the member's gross income for federal income tax purposes until they are distributed or made available to the member, generally at retirement as part of a retirement benefit or upon withdrawal from the System. The member's gross pensionable salary is used in all benefit calculations.

Tier 1 and 2 members are not required to contribute to the System. Tier 1 and 2 members who have made contributions to the Annuity Savings Fund (ASF) can withdraw them with interest upon retirement, or receive an annuity throughout retirement in addition to the employer-funded pension described earlier. The annuity is based on total member contributions, life expectancy, date of membership and choice of benefit.

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.

Ordinary Death Benefits

An employer-funded death benefit is paid if a member dies in service and certain eligibility requirements are met. In addition, if a member dies before retirement, any contributions made by the member to the System, plus interest, are paid to the designated beneficiary.

Tier 1 Death Benefit

The amount of the employer-provided death benefit under Tier 1 is the greater of:

a. One-twelfth (1/12) of the member's last 12 months of earnings (exclusive of any form of termination pay) for each year of credited New York State service to a maximum of three times such earnings with 36 or more years of New York State service,

OR

b. The Death Gamble provision. Under the Death Gamble, if a member dies in active service while eligible for retirement without a benefit reduction, the beneficiary is entitled to the pension reserve which would have been used to pay the retirement benefit computed under Section 510 of the Education Law.

Tiers 2-6 Death Benefit

If a Tier 2, 3 or 4 member who joined prior to January 1, 2001, dies before retirement and a death benefit is payable, NYSTRS will pay to the beneficiary a death benefit calculated under Paragraph 2, unless the member selected Paragraph 1 and that calculation is higher. Tier 4 members joining on or after January 1, 2001, and all Tier 5 and 6 members, are covered only by Paragraph 2.

Paragraph 1 — One-twelfth (1/12) of the member's last 12 months of regular earnings for each year of credited New York State service to a maximum of three times such earnings with 36 or more years of New York State service, or the Death Gamble benefit.

Paragraph 2 — One year's salary after a year of member service, increasing each year to a maximum of three years' salary after three or more years of member service. This benefit declines after age 60 at the rate of 4% per year, but never falls below 60% of the original death benefit otherwise payable.

Summary of Benefits *(continued)*

Tier 2-6 members who teach until retirement will also have a survivor's death benefit if death occurs after retirement. This is separate from any choice of a Maximum retirement benefit or an option.

1st Year	50% of benefit at retirement
2nd Year	25% of benefit at retirement
3rd & Ensuing Years	10% of benefit at age 60, if any, or at retirement if earlier

Accidental Death Benefit

An accidental death benefit is payable in the form of a pension to the beneficiaries of Tier 3-6 members who die as the result of an accident sustained in the performance of their teaching duties.

Vested Member Death Benefit

A vested member death benefit is payable to the designated beneficiary or the estate of any member who has 10 or more years of credited service and does not meet the in-service eligibility requirement for an ordinary death benefit.

The amount of the benefit is half the amount of the ordinary death benefit which would have been paid if the member's death had occurred on the last day of creditable service.

Retirement Options

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

Cost-of-Living Adjustment (COLA)

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

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FINANCIAL

Quality Workforce

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

FINANCIAL

Page

Independent Auditors' Report

KPMG LLP
515 Broadway
Albany, NY 12207-2974

The Retirement Board
New York State Teachers' Retirement System:

We have audited the accompanying financial statements of the New York State Teachers' Retirement System (the System), as of and for the years ended June 30, 2018 and 2017, and the related notes to the financial statements, which collectively comprise the System's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with 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, 2018 and 2017, and the changes in its fiduciary net position for the years then ended, in accordance with U.S. generally accepted accounting principles.

Independent Auditors' Report *(continued)*

Other Matters

Required Supplementary Information

U.S. generally accepted accounting principles require that the 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.

Other Supplementary Information

Our audits were conducted for the purpose of forming an opinion on the basic financial statements of the System. The accompanying Schedule of Administrative Expenses and Schedule of Investment Expenses 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 Schedule of Administrative Expenses and Schedule of Investment Expenses are the responsibility of management and were derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. This information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the Schedule of Administrative Expenses and Schedule of Investment Expenses are fairly stated, in all material respects, in relation to the basic financial statements as a whole.

The Introduction, Investments, Actuarial, and Statistical sections of this report have not been subjected to the auditing procedures applied in the audits of the basic financial statements and, accordingly, we express no opinion on them.

KPMG LLP

Albany, New York
November 1, 2018

Management's Discussion and Analysis
June 30, 2018 and 2017
(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, 2018, 2017, and 2016. Its purpose is to provide explanations and insights into the information presented in the financial statements, notes to the financial statements, and required supplementary information.

Financial Highlights

- The System's investments experienced appreciation of $7.7 billion in 2018 and $10.7 billion and $258 million in 2017 and 2016, respectively.
- The net position of the System represents funds available to pay current and future benefits. Net position was $119.9 billion at June 30, 2018, and $115.5 billion and $107.5 billion at June 30, 2017 and 2016, respectively.
- The 2018 net position increased from 2017 by $4.5 billion, or 3.9%, and 2017 net position increased from 2016 by $7.96 billion, or 7.4%.
- Contributions from employers were $1.6 billion in 2018, $1.9 billion in 2017, and $2.0 billion in 2016, 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, rising from $6.7 billion in 2016 to $6.9 billion in 2017 and $7.1 billion in 2018.
- The System's funded ratio, a comparison of the actuarial value of assets to the accrued pension benefit liability, was 97.7% as of the June 30, 2017 valuation. Valuations in 2016 and 2015 resulted in the System's funded ratio of 97.9% and 94.2%, respectively.

Overview of Financial Statements

The following discussion and analysis is intended to assist the reader in better understanding the purpose and meaning of each of the key components of NYSTRS' basic 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 as well as data on the System's net other postemployment benefits (OPEB) liability of the New York State Teachers' Retirement System Retired Employee Health Benefits Trust (the Trust) and contributions to the trust. Other supplemental information is also presented and includes the schedules of administrative expenses and investment expenses.

Management's Discussion and Analysis *(continued)*

June 30, 2018 and 2017

(Unaudited)

Financial Analysis

Tables 1 and 2 summarize and compare the System's financial results for the years 2018, 2017, and 2016. It is important to note that the change from year to year in a particular investment category is attributable not only to the change in fair value but also to purchases and sales or maturities of that investment.

Table 1 - Summary of Fiduciary Net Position

(dollars in thousands)

	June 30			Amount increase (decrease)	Percentage change of total
	2018	2017	2016	2017 to 2018	2017 to 2018
Investments at fair value:					
Short-term	$ 2,669,572	$ 4,563,961	$ 2,311,958	$(1,894,389)	(1.64)%
Domestic fixed income securities	19,804,701	18,473,419	18,051,038	1,331,282	1.15
Global fixed income securities	2,667,873	2,543,227	1,968,043	124,646	0.11
Domestic equities	43,891,046	42,132,171	42,717,181	1,758,875	1.52
International equities	22,202,302	21,651,581	18,093,214	550,721	0.48
Global equities	1,003,867	—	—	1,003,867	0.87
Mortgages	3,764,533	3,337,830	3,786,206	426,703	0.37
Real estate	8,343,360	8,134,301	8,379,100	209,059	0.18
Real estate investment trusts	2,486,569	2,389,238	—	97,331	0.08
Alternative investments	11,007,906	10,008,555	9,671,168	999,351	0.87
Total investments	117,841,729	113,234,283	104,977,908	4,607,446	3.99
Net other assets, liabilities, and deferrals	2,073,789	2,234,077	2,528,234	(160,288)	(0.14)
Net position restricted for pensions	**$119,915,518**	**$115,468,360**	**$107,506,142**	**$4,447,158**	**3.85 %**

Table 2 - Summary of Changes in Fiduciary Net Position

(dollars in thousands)

	Years ended June 30			Amount increase (decrease)	Percentage change of total
	2018	2017	2016	2017 to 2018	2017 to 2018
Net appreciation in fair value of investments	$ 7,683,568	$10,743,830	$ 258,356	$ (3,060,262)	(38.43)%
Other investment income	2,244,443	2,208,062	2,133,998	36,381	0.46
Contributions	1,738,012	1,994,974	2,175,163	(256,962)	(3.23)
Retirement benefits	(7,088,949)	(6,903,361)	(6,701,637)	(185,588)	(2.33)
Other deductions	(80,660)	(81,287)	(78,655)	627	0.01
Net increase (decrease) in net position	**$4,496,414**	**$7,962,218**	**$(2,212,775)**	**$(3,465,804)**	**(43.52)%**

Management's Discussion and Analysis *(continued)*
June 30, 2018 and 2017
(Unaudited)

Fiscal Year 2018

In 2018, as a result of rebalancing, the internally managed domestic fixed income portfolio increased on a year over year basis. The June 30, 2018 balance was approximately 15.9% of invested System assets, higher than the 15.4% allocation at the end of the prior fiscal year and still within the allowable range of 12.0% to 20.0%. During the year, bond purchases of approximately $4.70 billion exceeded the sum of bond maturities, sales, tenders, calls, and agency mortgage principal prepayments by approximately $1.80 billion.

The yield curve continued its flattening trend during the fiscal year as the increase in rates at the long end of the curve was less than that at the front of the curve. The magnitude of the interest rate moves was reflected in the front and middle of the curve. For instance, at the 3- and 5-year points on the curve, yields increased by approximately 108 and 85 basis points respectively year over year. Contrast that with the 30-year point on the curve, where yields only increased by 15 basis points. The increase in interest rates produced asset capital depreciation that, although partially offset with the addition of interest income, resulted in a small negative return for the fiscal year.

The weighted average coupon of the domestic fixed income portfolio was relatively unchanged during the fiscal year, increasing by a little more than 2 basis points as the maturity of lower coupon bonds that had shorter original tenors were offset by the maturities of older high coupon bonds. The face amount of bonds held increased year over year resulting in an increase in interest income from the prior fiscal year.

Exposure to global bonds continued to increase during the 2018 fiscal year due to asset allocation into global bonds, positive global bond returns during the fiscal year and continued reinvestment of coupon in all three global bond portfolios. These factors resulted in a fiscal year-end total of $2.54 billion invested in the separately managed accounts. The global bond balance was approximately 2.2% of invested System assets at June 30, 2018, within the allowable range of 0.0% to 3.0%.

The System added a high-yield bonds asset class during the fiscal year and funded two high-yield bond money managers. The System's asset allocation target for high-yield bonds is 1.0% with a range of 0.0% to 3.0%. At year end the System's high yield bond exposure was approximately 0.1%.

At its April 2018 meeting, the Board approved a 4.0% asset allocation target for global equities and corresponding 2% reductions in the targets and allowable ranges for both domestic and international equities. The reduction in the allowable range for domestic equities, combined with strong market returns, left the balance at approximately 37.2% of invested System assets at June 30, 2018, falling slightly outside the revised allowable range of 29.0% to 37.0%.

Net appreciation of $4.9 billion for domestic equities was primarily driven by strong equity market returns, with the S&P 1500 index rising 14.5% for the fiscal year. During this period, $2.8 billion was raised from the domestic equity portfolio, while a further $500 million was transferred to fund the allocation to global equities. The combination of investment performance, portfolio rebalancing activities and funding for the new global equity asset class resulted in an increase in net position for domestic equities of $1.8 billion.

Net appreciation of $1.4 billion for international equities was also driven by positive equity market returns in Europe, Asia and Latin America, as measured by the MSCI All Country World Ex-U.S. index, which rose 7.3% for the fiscal year. Rebalancing towards the System's asset allocation targets, $665 million was raised from the international portfolio during the year, while $500 million was transferred to fund the System's new allocation to global equities, contributing to an overall increase in net position for international equities of $550 million. The balance was approximately 18.8% of invested System assets at June 30, 2018, remaining within the allowable range of 12.0% to 20.0%.

Real estate investments consist of a globally diversified portfolio of public and private commercial real estate assets. Net new investments coupled with positive investment returns resulted in net appreciation of $297 million for the equity real estate portfolio and depreciation of $108 million for the debt real estate portfolio. The balance of equity real estate was approximately 10.0% of invested System assets at June 30, 2018, remaining in the allowable range of 6.0% to 16.0%. The debt real estate investments were approximately 5.1% of invested System assets at June 30, 2018, remaining in the allowable range of 3.0% to 11.0%. The debt real estate investments remain on the low end of the allowable range due to historically low yields available in the market. Commercial real estate values, as measured by the National Council of Real Estate Investment Fiduciaries (NCREIF), continued to grow modestly each quarter during the year. Total unlevered appreciation for the fiscal year was 2.5%, consistent with the prior year.

The blended domestic REIT benchmark index generated a return of 3.9% for the fiscal year. The domestic REIT portfolio outperformed the index, returning 4.2% for the fiscal year. In March 2018, the System consolidated three separate domestic strategies managed by one investment manager into a single multi-strategy portfolio that outperformed the related benchmark since inception, returning 9.5%. In addition, the System liquidated one domestic REIT portfolio valued at $398.4 million to help fund four new global REIT mandates. This liquidation, offset by $65.1 million of reinvested dividends within the portfolios, contributed to an overall decrease in net position for the domestic REIT portfolios of $324.1 million.

The international REIT portfolios were liquidated during the year to help fund the four new global REIT mandates. The global REIT benchmark index generated a return of 2.8% since inception (September 2017). The global REIT portfolio outperformed the index returning 3.0% since inception. Market gains along with reinvested dividend income of approximately $28.3 million within the portfolios contributed to the year-end market value of $873.8 million for the global REIT portfolio.

Net appreciation in the private equity portfolio continued to remain positive as distributions from existing investments increased from the prior year. The System made $1.7 billion in capital contributions to new and existing private equity funds and took $2.6 billion in distributions from existing private equity investments. The balance was approximately 7.1% of invested System assets at June 30, 2018, within the allowable range of 3.0% to 13.0%. Nineteen new private equity commitments were made during the year.

Effective July 1, 2017, NYSTRS added private debt to its asset allocation. During the year the System made $104.1 million in contributions to new private debt funds, and took $140.7 million in distributions. The market value was approximately 0.4% of invested System assets at June 30, 2018, within the allowable range of 0.0% to 5.0%.

Within the money market space, which impacts the securities lending market, the Federal Reserve has continued their methodical pace of removing monetary accommodation by raising their Federal Funds target range three times during the fiscal year. In addition to the rate increases, the Federal Reserve has begun to reduce the size of its balance sheet by decreasing their reinvestment of the principal payments they receive from securities held. The primary factors in their removal of policy accommodation were the continued improvement in the employment picture during the fiscal year, and inflation readings hovering near their 2% objective as measured by the Personal Consumption Expenditures Core Price Index. The Federal Funds target range would end the fiscal year at 1.75%–2.00%, 75 basis points (bps) higher than the range of 1.00%-1.25% at the beginning of the fiscal year.

As a result of the passage of the Tax Cut and Jobs Act in January 2018, the demand for money market and front end paper declined at the same time Treasury was issuing a heavy amount of net bill supply. The increasing supply of Treasury bills would have a ripple effect through the money markets while the decreasing demand from large, "offshore" accounts (i.e. corporate cash portfolios) would cause spreads to widen. The three month Libor-OIS spread widened to 59 bps, a level which exceeded the measure during the run up to the SEC Money Market reform in 2016, and the Eurozone crisis in 2011. Securities lending cash loan balances were stable throughout the year as equity borrowers continued to lack conviction for shorts in prolonged risk-on periods. This was coupled with their preference to shift pledged collateral from cash to securities (aka non-cash) for regulatory capital purposes. Though year-end loan balances were higher year over year, throughout the 2018 fiscal year loan balances were lower, despite the System's participation in international non-cash lending. These lower loan balances combined with increased broker rebates resulted in a decline in securities lending net earnings year over year.

Investment expenses are primarily composed of investment management fees that are based on the market value of assets managed, and in some cases the returns achieved. The investment expense increase in 2018 from 2017 is primarily the result of activity within the System's alternative investments.

The change in employer contributions was a function of a decrease in the employer contribution rate from 11.72% in 2017 to 9.80% in 2018.

Fiscal Year 2017

In 2017, as a result of asset allocation rebalancing, the internally managed domestic fixed income portfolio balance increased due to the allocation of additional capital to the fixed income asset class. However, due to sizable appreciation in the System's equity-related asset classes, the overall allocation to domestic fixed income declined on a year over year basis. The June 30, 2017 balance was approximately 15.4% of invested System assets, lower than the 15.8% allocation at the end of the prior fiscal year and still within the allowable range of 12.0% to 20.0%. During the year, bond purchases of approximately $4.45 billion exceeded the sum of bond maturities, sales, tenders, calls, and agency mortgage principal prepayments by approximately $1.28 billion.

The yield curve flattened during the fiscal year as the increase in rates at the long end of the curve was less than that at the front of the curve. The magnitude of the interest rate moves was reflected in the middle of the curve. For instance, at the five-year point on the curve, yields increased by approximately 89 basis points year over year. Contrast that with the 30-year point on the curve, where yields only increased by 55 basis points. The increase in interest rates produced asset capital depreciation that, although partially offset with the addition of interest income, resulted in a small negative return for the fiscal year.

The weighted average coupon of the domestic fixed income portfolio was relatively unchanged during the fiscal year, decreasing by less than 2 basis points as the maturity of lower coupon bonds that had shorter original tenors were offset by the maturities of older high coupon bonds. The face amount of bonds held increased year over year resulting in a higher average portfolio balance during 2017. However, due to the lower weighted average coupon, the portfolio experienced a slight decrease in interest income from the prior fiscal year.

Exposure to global bonds continued to increase during the 2017 fiscal year due to the engagement and funding of external manager Goldman Sachs Asset Management, along with reinvestment of coupon in all three global bond portfolios. These factors resulted in a fiscal year-end total of $2.54 billion invested in the separately managed accounts. The global bond balance was approximately 2.2% of invested System assets at June 30, 2017, within the allowable range of 0.0% to 3.0%.

In domestic equities, net appreciation of $6.1 billion for the fiscal year was the result of strong market performance leading to a return of 18.3%. Domestic REIT performance was muted, returning 0.8% for the fiscal year. The strong domestic equities returns were offset by withdrawals of approximately $(5.7) billion as a result of rebalancing. Gains realized from domestic REITs, along with reinvested dividend income of approximately $82.1 million, contributed to an overall increase in net position for the domestic REIT portfolios of $20.7 million. The combined year-over-year change in net position at June 30, 2017 was an increase of $1.4 billion. The balance was approximately 37.2% of invested System assets at June 30, 2017, remaining within the allowable range of 31.0% to 39.0%.

International equities' net appreciation of $3.4 billion was also the result of strong market performance in both international equities and international REITs within the international equities portfolio, leading to returns of 20.9% in international equities and 5.9% in international REITs. While mostly driven by strong equity market performance, funding of new and existing managers totaling $268.4 million contributed to an overall increase for international equities of $4.0 billion. The balance was approximately 19.2% of invested System assets at June 30, 2017, remaining within the allowable range of 14.0% to 22.0%.

Real estate investments consist of a globally diversified portfolio of public and private commercial real estate assets. Net new investments coupled with positive investment returns resulted in net appreciation of $361 million for the equity real estate portfolio and depreciation of $135 million for the debt real estate portfolio. The balance of equity real estate was approximately 10.1% of invested System assets at June 30, 2017, remaining in the allowable range of 6.0% to 16.0%. The debt real estate investments were approximately 4.5% of invested System assets at June 30, 2017, remaining in the allowable range of 4.0% to 12.0%. The debt real estate investments remain on the low end of the allowable range due to historically low yields available in the market. Commercial real estate values, as measured by the National Council of Real Estate Investment Fiduciaries (NCREIF), grew slightly each quarter during the year. Total unlevered appreciation for the fiscal year was 2.2%, down from 5.6% in the prior year.

Net appreciation in the private equity portfolio continued to remain positive as distributions from existing investments increased from the prior year. The System made $1.2 billion in capital contributions to new and existing private equity funds and took $2.2 billion in distributions from existing private equity investments. The balance was approximately 7.4% of invested System assets at June 30, 2017, within the allowable range of 3.0% to 13.0%. Nineteen new private equity commitments were made during the year.

Within the securities lending market, while the Federal Reserve has maintained the size of its balance sheet by reinvesting principal payments from agency debt and agency mortgage-backed securities and rolling over Treasury maturities at auction, the target range for Federal Funds was raised three times during the System's fiscal year. The improving employment picture and subdued inflation readings as measured by the Personal Consumption Expenditures Core Price Index were factors in the rate adjustments.

With the impending money market fund reform date of October 14, 2016 approaching, levels and spreads on short-term financial debt continued to rise during the first quarter of the 2017 fiscal year as issuers were forced to find alternative sources of funding and a large number of natural buyers exited the space. Following the implementation date, levels continued to trend higher as the market priced in a 25-basis-point rate hike in December -- the first of three during the fiscal year. The Federal Funds target range would end the fiscal year at 1.00-1.25%, 75 basis points higher than the range of 0.25-0.50% at the beginning of the fiscal year.

Declining loan balances was a trend throughout the year as equity borrowers lacked conviction for shorts in prolonged risk-on periods. This was coupled with their preference to shift pledged collateral from cash to securities for regulatory capital purposes. Net earnings from securities lending declined year over year, led by the lower level of loan balances combined with an increase in broker rebates which outpaced the rise in gross revenues.

Investment expenses are primarily comprised of investment management fees that are based on the market value of assets managed, and in some cases the returns achieved. The investment expense increase in 2017 from 2016 is primarily the result of activity within the System's alternative investments.

The change in employer contributions was a function of a decrease in the employer contribution rate from 13.26% in 2016 to 11.72% in 2017.

Management's Discussion and Analysis *(continued)*
June 30, 2018 and 2017
(Unaudited)

Net Appreciation (Depreciation)

For the year ended June 30, 2018, NYSTRS reported net investment income of $9.9 billion compared to $12.9 billion in 2017 and $2.4 billion in 2016. The most significant change was in appreciation (depreciation) on investments as follows:

Table 3 - Net Appreciation (Depreciation) on Investments

(dollars in thousands)

	Years ended June 30			Amount increase (decrease)
	2018	2017	2016	2017 to 2018
Short-term	$ 47,087	$ 26,395	$ 6,186	$ 20,692
Domestic fixed income securities	(559,127)	(475,254)	294,280	(83,873)
Global fixed income securities	(18,413)	(43,706)	81,172	25,293
Domestic equities	4,909,624	6,078,746	558,265	(1,169,122)
International equities	1,441,942	3,499,966	(2,180,990)	(2,058,024)
Global equities	(14,494)	—	—	(14,494)
Mortgages	(108,279)	(135,434)	112,055	27,155
Real estate	296,957	360,522	505,720	(63,565)
Real estate investment trusts	65,879	(67,672)	—	133,551
Alternative investments	1,623,497	1,499,449	881,668	124,048
Other	(1,105)	818	—	(1,923)
Totals	**$7,683,568**	**$10,743,830**	**$ 258,356**	**$(3,060,262)**

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 significant appreciation in 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. Stronger investment returns over the past few years have led to a decrease in the employer contribution rate, from 11.72% on 2016-17 member salaries to 9.80% on 2017-18 member salaries.

Requests for Information

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

Statements of Fiduciary Net Position
June 30, 2018 and 2017
(dollars in thousands)

Assets:	2018	2017
Investments — at fair value (note 4, 5 and 6):		
Short-term	**$ 2,669,572**	$ 4,563,961
Domestic fixed income securities	**19,804,701**	18,473,419
Global fixed income securities	**2,667,873**	2,543,227
Domestic equities	**43,891,046**	42,132,171
International equities	**22,202,302**	21,651,581
Global equities	**1,003,867**	—
Mortgages	**3,764,533**	3,337,830
Real estate	**8,343,360**	8,134,301
Real estate investments trusts	**2,486,569**	2,389,238
Alternative investments	**11,007,906**	10,008,555
Total investments	**117,841,729**	113,234,283
Receivables:		
Employer	**1,580,797**	1,851,733
Member contributions	**104,410**	99,838
Investment income	**258,983**	226,377
Investment sales	**428,434**	302,932
Total receivables	**2,372,624**	2,480,880
Other assets:		
Securities lending collateral — invested (note 5)	**1,200,766**	1,498,660
Member loans	**253,745**	246,809
Capital assets, net of depreciation	**25,605**	26,317
Miscellaneous assets	**16,627**	20,713
Total other assets	**1,496,743**	1,792,499
Total assets	**121,711,096**	117,507,662
Deferred outflows of resources:		
Changes in net OPEB liability (note 10)	**5,500**	—
Changes in net pension liability (note 9)	**9,279**	6,318
Total deferred outflows of resources	**14,779**	6,318
Liabilities:		
Securities lending collateral — due to borrowers (note 5)	**1,197,376**	1,495,909
Investment purchases payable	**412,437**	413,005
Mortgage escrows and deposits — net of investments	**592**	12
Net OPEB liability (note 10)	**45,494**	—
Other liabilities (notes 5 and 9)	**134,609**	135,110
Total liabilities	**1,790,508**	2,044,036
Deferred inflows of resources:		
Changes in net OPEB liability (note 10)	**8,382**	—
Changes in net pension liability (note 9)	**11,467**	1,584
Total deferred inflows of resources	**19,849**	1,584
Net position restricted for pensions (note 3)	**$119,915,518**	$115,468,360

See accompanying notes to financial statements.

Statements of Changes in Fiduciary Net Position

June 30, 2018 and 2017

(dollars in thousands)

Additions:	2018	2017
Investment income:		
Net appreciation in fair value of investments	$ 7,683,568	$ 10,743,830
Interest income	737,383	697,454
Dividend income	1,326,510	1,268,224
Real estate — net operating income	442,740	462,481
Securities lending — gross earnings	26,519	14,916
Other — net	1,611	14,661
	10,218,331	13,201,566
Less:		
Investment expenses	276,769	248,706
Securities lending:		
Broker rebates	12,031	(234)
Management fees	2,159	1,614
Depreciation (appreciation) of collateral	(639)	(412)
Net investment income	9,928,011	12,951,892
Contributions:		
Employer (note 1)	1,597,139	1,857,359
Member contributions	131,595	129,770
Transfers	9,278	7,845
Total contributions	1,738,012	1,994,974
Net additions	11,666,023	14,946,866
Deductions:		
Retirement benefit payments — periodic	7,023,870	6,838,093
Beneficiary payments	65,079	65,268
Return of contributions	20,050	19,676
Administrative expenses	60,610	61,611
Total deductions	7,169,609	6,984,648
Net increase in net position	4,496,414	7,962,218
Net position restricted for pensions, beginning of year	115,468,360	107,506,142
Cumulative effect of change in accounting principle	(49,256)	—
Beginning balance, as restated (note 2)	115,419,104	107,506,142
Net position restricted for pensions, end of year	$119,915,518	$115,468,360

See accompanying notes to financial statements.

Notes to Financial Statements
June 30, 2018 and 2017
(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 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.

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

	2018	2017
Public school districts	680	680
B.O.C.E.S.	37	37
S.U.N.Y.	31	31
Community colleges	30	30
Charter schools	27	25
Special act districts	10	10
Other	9	9
Total	824	822

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

	2018	2017
Retired members and beneficiaries currently receiving benefits	166,285	163,818
Members:		
Active members	255,930	256,171
Terminated members entitled to but not yet receiving benefits	8,660	8,590
Subtotal	264,590	264,761
Total	430,875	428,579

Notes to Financial Statements *(continued)*
June 30, 2018 and 2017
(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 members are eligible, beginning at age 55, for a service retirement allowance of approximately 2.0% per year of credited service times final average salary.

Under Article 19 of the RSSL, eligible Tiers 1 and 2 members can receive additional service credit of one-twelfth of a year for each year of retirement credit as of the date of retirement or death up to a maximum of two additional years.

Tiers 2 through 5 are eligible for the same but with the following limitations: (1) Tiers 2 through 4 members receive an unreduced benefit for retirement at age 62 or retirement at ages 55 through 61 with 30 years of service or a reduced benefit for retirement at ages 55 through 61 with less than 30 years of service; (2) Tier 5 members receive an unreduced benefit for retirement at age 62 or retirement at ages 57 through 61 with 30 years of service. They receive a reduced benefit for retirement at ages 55 and 56 regardless of service credit, or ages 57 through 61 with less than 30 years of service.

Tier 6 members are eligible for a service retirement allowance of 1.75% per year of credited service for the first 20 years of service plus 2.0% per year for years of service in excess of 20 years times final average salary. Tier 6 members receive an unreduced benefit for retirement at age 63. They receive a reduced benefit at ages 55-62 regardless of service credit.

Notes to Financial Statements *(continued)*
June 30, 2018 and 2017
(dollars in thousands)

(c) Vested Benefits

Retirement benefits vest after 5 years of credited service except for Tiers 5 and 6 where 10 years of credited service are required. 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 5 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. The benefit is based on final salary and the number of years of credited service.

(f) Prior Service

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

(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 2017-18 and 2016-17 member salaries is 9.80% and 11.72%, 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 2018 and 2017 is as follows:

	June 30	
	2018	**2017**
Total required employer contributions	$1,596,311	$1,857,234
Miscellaneous billing adjustments	828	125
Additions from employer contributions	$1,597,139	$1,857,359

In April 2013, the System's Retirement Board adopted a Stable Contribution Option (SCO) provided for under Chapter 57 of the Laws of 2013. Under the law, BOCES and public school districts participating in NYSTRS were offered the choice of either paying the actuarially determined contribution (ADC) or electing to participate in the SCO program, thereby paying a stable contribution rate for up to seven years beginning with the rate applied to the 2013-14 salaries and concluding with the rate applied to the 2019-20 salaries; deferring payment of the difference between the ADC and the contribution determined applying the SCO rate. Interest on deferred contribution amounts were based on the monthly average yield on 10-year U.S. Treasury securities for the 12-month period that precedes August 1 of the applicable deferred year, plus 1.0%. As of June 30, 2017, all districts that participated in the SCO have opted out and have either paid their outstanding deferral in full, or have opted to repay the System over 5 years. The SCO receivable balances at June 30, 2018 and 2017 were $22,417 and $33,786, respectively.

Notes to Financial Statements *(continued)*
June 30, 2018 and 2017
(dollars in thousands)

(i) Member Contributions

Tier 3 and Tier 4 members are required by law to contribute 3% of salary to the System. Effective October 2000, contributions were eliminated for Tiers 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 5 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 5 years or attained age 55 and have been retired for 10 years. Disability retirees must have been retired for 5 years, regardless of age, to be eligible. The annual COLA percentage is equal to 50.0% of the increase in the consumer price index, not to exceed 3.0% nor be lower than 1.0%. It is applied to the first eighteen thousand dollars of annual benefit. The applicable percentage payable beginning September 2018 is 1.2% remaining unchanged from the 1.2% paid beginning September 2017.

Members who retired prior to July 1, 1970 are eligible for a minimum benefit of seventeen thousand five hundred 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 consumer price index 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. 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).

(dollars in thousands)

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 twenty-five 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	50
Building improvements	Various
Roads and shrubbery	15
Office furniture and equipment	5 - 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) Reclassifications

Where necessary, amounts in the prior year's financial statements have been reclassified to conform to the presentation in the current year's financial statements.

(g) Use of Estimates

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

(h) Adoption of Accounting Pronouncements

In 2018, the System adopted Governmental Accounting Standards Board (GASB) Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions* (GASB 75); Statement No. 85, *Omnibus 2017* (GASB 85); and Statement No. 90, *Majority Equity Interests* (GASB 90).

GASB 75 addresses accounting and financial reporting for OPEB that are provided to the employees of state and local governmental employers. NYSTRS' employees are provided with OPEB through the Trust, a defined-benefit, single-employer, OPEB plan that accumulates resources to pay current and future health insurance premiums for retired System employees. In accordance with the provisions of GASB 75, the System has reported a net OPEB liability, deferred outflows of resources, deferred inflows of resources, and OPEB expense. As a result of the implementation of GASB 75, beginning net position restricted for pensions as of July 1, 2017 was decreased by $49.3 million.

GASB 85 addresses practice issues that have been identified during implementation and application of certain GASB Statements. This statement addresses a variety of topics including issues related to blending component units, goodwill, fair value measurement and application, and postemployment benefits. The adoption of GASB 85 resulted in no significant changes to the information reported in the System's financial statements.

GASB 90 addresses the accounting for a majority equity interest in a legally separate organization. The statement defines the differences between treating a majority equity interest as an investment or a component unit of the government. GASB 90 also identifies when a majority equity interest should be accounted for using the equity method of accounting or reported at fair value. As of June 30, 2018, the System's majority equity interest in legally separate organizations has been reported at fair value in accordance with GASB 90 and GASB 72, *Fair Value Measurement and Application*. The adoption of GASB 90 resulted in no significant changes to the information reported in the System's financial statements.

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

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. GASB 84 will be effective for fiscal years beginning after December 15, 2018. The System is evaluating the impact of this statement.

(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 Tiers 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 Tiers 1 and 2 members, supplemental retirement allowances, and group term life insurance.

(d) Pension Reserve Fund

The fund that pays pensions with the reserves transferred 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, 2018 and 2017 were $19,113, and $17,553, respectively. For reporting purposes below, this fund is combined with the Pension Accumulation Fund.

(dollars in thousands)

(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 $109,345 and $108,324 for the years ended June 30, 2018 and 2017, 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 noninvestment-related operating expenses.

(h) Summary of Fund Balances

Net position restricted for pensions at June 30, 2018 and 2017 consist of the following:

	2018	2017
Administrative Fund	$ 63,572	$ 62,354
Annuity Savings and Reserve Funds	98,710	108,902
Pension Accumulation Fund	53,697,883	50,214,413
Pension Reserve Fund	66,055,353	65,082,691
Total	$119,915,518	$115,468,360

(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.

Notes to Financial Statements *(continued)*
June 30, 2018 and 2017
(dollars in thousands)

(b) Asset Allocation

The System's asset allocation policy as of June 30, 2018 and 2017, as adopted by the Retirement Board is as follows:

	2018		2017	
Asset Class	**Target**	**Range**	**Target**	**Range**
Domestic equities	33%	29-37%	35%	31-39%
International equities	16	12-20	18	14-22
Global equities	4	0-8	—	—
Real estate	11	6-16	11	6-16
Private equities	8	3-13	8	3-13
Total equities	72		72	
Domestic fixed income securities	16	12-20	16	12-20
Global fixed income securities	2	0-3	2	0-3
High-yield fixed income securities	1	0-3	1	0-3
Private debt	1	0-5	—	—
Real estate debt	7	3-11	8	4-12
Short-term	1	0-4	1	0-4
Total fixed income	28		28	
Total	100%		100%	

(c) Rate of Return

For the years ended June 30, 2018 and 2017, the annual money-weighted rate of return on System investments, net of pension plan investment expense, was 8.95% and 13.05%, respectively. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Notes to Financial Statements *(continued)*
June 30, 2018 and 2017
(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, 2018 and 2017 are as follows:

	2018		2017	
Quality rating	Fair value	Percentage of portfolio	Fair value	Percentage of portfolio
Aaa	$8,907,458	35.59%	$ 9,606,706	37.85%
Aa	1,240,573	4.96	1,505,760	5.93
A	3,464,061	13.84	3,873,682	15.26
Baa	2,536,675	10.14	2,539,728	10.01
Other	267,332	1.07	156,767	0.62
Total credit risk debt securities	16,416,099	65.60	17,682,643	69.67
U.S. government fixed income securities*	8,610,163	34.40	7,695,974	30.33
Total fixed income securities**	$25,026,262	100.00%	$25,378,617	100.00%

* *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.*

** *Short-term, domestic fixed income securities and global fixed income securities on the Statements of Fiduciary Net Position at June 30, 2018 and 2017 include $115,884 and $201,990, respectively, in cash and commingled commercial mortgage backed securities.*

(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, 2018 and 2017, the System's bank balance was $(8,965) and $(8,355), respectively, representing a managed overdraft. Consistent with the System's investment policy, all of the System's securities are held by the System's custodial bank in the System's name.

(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, 2018 and 2017, 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.

Notes to Financial Statements *(continued)*
June 30, 2018 and 2017
(dollars in thousands)

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% of the System's assets.
- Bonds of the Savings and Loan Bank of the State of New York, Federal Land Bank, Federal Intermediate Credit Banks, and Banks for Cooperatives.
- Bonds of Freddie Mac, Federal Home Loan Banks, Tennessee Valley Authority, Fannie Mae, and the United States Postal Service.
- Obligations issued or guaranteed by the International Bank for Reconstruction and Development, provided the aggregate unpaid principal amount of such obligations at any time held by the System shall not exceed 5.0% of the System's assets.
- 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.

Notes to Financial Statements *(continued)*
June 30, 2018 and 2017
(dollars in thousands)

- 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 securities 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% 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.

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

(d) Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of the investment. The System is exposed to interest rate risk at June 30, 2018 and 2017 as follows:

	2018		2017	
Investment type	**Fair value**	**Duration (in years)**	**Fair value**	**Duration (in years)**
Mortgages	$ 3,764,533	4.611	$3,337,830	4.718
Short-term	$ 2,669,572	0.107	$4,563,961	0.066
Domestic fixed income*	19,804,701	4.257	18,430,012	4.052
Global fixed income	2,667,873	7.000	2,543,227	7.130
Total fair value	$25,142,146		$25,537,200	
Short-term and fixed income portfolio modified duration		4.108		3.650

**Domestic fixed income on the Statements of Fiduciary Net Position at June 30, 2017 includes $43,407 in commingled commercial mortgage-backed securities.*

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.

Notes to Financial Statements *(continued)*
June 30, 2018 and 2017
(dollars in thousands)

(e) Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit. The System has exposure through global and international holdings in commingled investment trust funds and separate accounts, global and international real estate investment trusts (REITs), global bonds, and alternatives. The "alternatives" represent private equity and real estate investments denominated in foreign currency. With respect to global bond investments, the majority of currency risk inherent in non-U.S. dollar denominated bonds owned by the System in a separate account is hedged away by the managers through currency forwards. The System has an exposure to foreign currency fluctuation at June 30, 2018 and 2017 as follows (holdings valued in U.S. dollars):

	2018		2017	
	Equity Securities and REITs	Alternatives, Cash, and Global Fixed Income	Equity Securities and REITs	Alternatives, Cash, and Global Fixed Income
Currency:				
Euro	$ 5,054,995	$1,913,818	$ 4,848,820	$1,781,942
Japanese Yen	3,816,562	295,666	3,642,216	278,420
British Pound Sterling	2,914,215	403,547	2,768,045	296,648
Canadian Dollar	1,489,227	88,489	1,358,950	75,665
Hong Kong Dollar	1,252,895	(2)	1,081,729	3
Swiss Franc	1,146,168	7,730	1,212,597	7,907
Australian Dollar	1,017,535	111,442	1,031,991	92,257
South Korean Won	771,809	24,099	782,728	18,716
China Renminbi	795,730	113	653,490	—
New Taiwan Dollar	592,618	25	602,889	15
Swedish Krona	438,269	12,896	457,195	9,375
South African Rand	364,154	18,942	333,836	14,684
Indian Rupee	380,552	19	388,446	(30)
Danish Krone	307,871	13,532	300,440	13,080
Brazilian Real	274,066	8,611	304,040	5
Other	1,405,250	124,692	1,411,967	92,049
Totals	$22,021,916	$3,023,619	$21,179,379	$2,680,736

(f) Securities Lending Transactions

The Retirement and Social Security Law authorizes the System to enter into agreements to loan securities. Agreements to lend a security must be with a broker dealer or with New York State or nationally chartered banks and must not exceed a period of one year. The market value of securities loaned may not exceed 20% of the market value of the System's invested assets. Domestic and international bonds, domestic and international equities, and global REIT securities 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 $3.4 million as of June 30, 2018 and $2.8 million as of June 30, 2017. For each year end, the System had no 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).

(dollars in thousands)

As of June 30, 2018 and 2017, JP Morgan Securities Lending (JP Morgan) acted as agent for the domestic equity and fixed income securities lending programs and State Street Bank and Trust Co. (State Street) acted as agent for the international equity, global bonds and global REIT securities lending program. Under the terms of the contract 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. 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, 2018 and 2017, the average effective duration of the funds managed by JP Morgan was 25 days and of those managed by State Street was 2 days compared to 22 days and 3 days, respectively. Securities loans and related collateral investments are monitored on a daily basis to ensure compliance with collateral requirements, limitations, and collateral investment guidelines.

Securities Lending Program	2018	2017
Fair value of securities on loan — cash collateral	$1,167,384	$1,457,165
Fair value of securities on loan — non-cash collateral	789,986	205,551
Total fair value of securities on loan	$1,957,370	$1,662,716
Fair value of liabilities to borrowers — cash collateral	$1,197,376	$1,495,909
Fair value of liabilities to borrowers — non-cash collateral	810,042	210,480
Total collateral due to borrowers	$2,007,418	$1,706,389
Fair value of cash collateral invested by System	$1,200,766	$1,498,660
Fair value of non-cash collateral held by System	810,042	210,480
Total collateral invested and held by the System	$2,010,808	$1,709,140

(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.

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

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

Notes to Financial Statements *(continued)*

June 30, 2018 and 2017

(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, 2018 and 2017, respectively:

		Fair Value Measurements Using		
Investments by Fair Value Level	**June 30, 2018**	**Quoted Prices in Active Markets for Identical Assets (Level 1)**	**Significant Other Observable Inputs (Level 2)**	**Significant Unobservable Inputs (Level 3)**
Fixed income securities:				
Short-term instruments	$ 3,867,295	$ —	$ 3,864,854	$ 2,441
Domestic fixed income securities	18,714,153	99,881	18,614,127	145
Domestic commercial mortgage backed securities	1,088,810	4,510	1,084,299	1
Global fixed income securities	2,629,068	12,691	2,616,377	—
Total fixed income securities	$ 26,299,326	$ 117,082	$26,179,657	$ 2,587
Equity securities:				
Domestic equities	$ 43,892,631	$43,855,022	$ 37,609	$ —
International equities	21,178,020	20,997,102	177,151	3,767
Global equities	1,002,948	989,382	13,566	—
Total equity securities	$ 66,073,599	$65,841,506	$ 228,326	$ 3,767
Real estate investment trusts securities:				
Domestic REIT	$ 1,616,803	$ 1,535,211	$ 81,592	$ —
International REIT	—	—	—	—
Global REIT	867,950	857,503	10,447	—
Total real estate investment trust securities	$ 2,484,753	$ 2,392,714	$ 92,039	$ —
Mortgages:	$ 3,764,533	$ —	$ —	$3,764,533
Real estate:				
Direct equity real estate investments	$ 3,125,470	$ —	$ —	$3,125,470
Real estate alternative investments	507,804	—	—	507,804
Total real estate	$ 3,633,274	$ —	$ —	$3,633,274
Total investments by fair value level	$102,255,485	$68,351,302	$26,500,022	$7,404,161

Notes to Financial Statements *(continued)*
June 30, 2018 and 2017
(dollars in thousands)

Investments Measured at the NAV	June 30, 2018	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Commingled domestic fixed income fund (1)	$ —	$ —	Daily	30 days
Commingled global fixed income fund (2)	20,668	—	Semi-monthly	15 days
Commingled international equity funds (3)	892,166	—	Daily or monthly	5–30 days
Privately held real estate investment trusts (4)	1,914,299	153,500	NA	NA
Real estate commingled funds (5):				
Closed-end funds	2,199,484	1,524,634	NA	NA
Open-end funds	1,104,107	—	Quarterly	30–120 days
Alternative investments (6)	10,498,270	8,011,896	NA	NA
Total investments measured at the NAV	$ 16,628,994	$9,690,030		
Investment related cash, receivables and payables not included in above	158,016			
Total investments and securities lending collateral reinvested	$119,042,495			

Investments by Fair Value Level	June 30, 2017	Fair Value Measurements Using: Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Fixed income securities:				
Short-term instruments	$ 6,060,602	$ —	$ 6,057,967	$ 2,635
Domestic fixed income securities	17,338,490	198,900	17,139,406	184
Domestic commercial mortgage backed securities	1,091,320	—	1,085,389	5,931
Global fixed income securities	2,485,546	(9,531)	2,495,077	—
Total fixed income securities	$26,975,958	$ 189,369	$26,777,839	$ 8,750
Equity securities:				
Domestic equities	$42,132,383	$42,062,474	$ 69,909	$ —
International equities	20,707,811	20,416,236	291,440	135
Total equity securities	$62,840,194	$62,478,710	$ 361,349	$ 135

Notes to Financial Statements *(continued)*
June 30, 2018 and 2017
(dollars in thousands)

Investments by Fair Value Level	June 30, 2017	Fair Value Measurements Using: Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Real estate investment trusts securities:				
Domestic REITs	$ 1,945,962	$ 1,909,137	$ 36,825	$ —
International REITs	441,616	437,729	3,845	42
Total real estate investment trust securities	$ 2,387,578	$ 2,346,866	$ 40,670	$ 42
Mortgages:	$ 3,337,830	$ —	$ —	$3,337,830
Real estate:				
Direct equity real estate investments	$ 2,981,494	$ —	$ —	$2,981,494
Real estate alternative investments	387,581	—	—	387,581
Total real estate	$ 3,369,075	$ —	$ —	$3,369,075
Total investments by fair value level	$98,910,635	$65,014,945	$27,179,858	$6,715,832

Investments Measured at the NAV	June 30, 2017	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Commingled domestic fixed income fund (1)	$ 43,407	$ —	Daily	30 days
Commingled global fixed income funds (2)	40,464	—	Semi-monthly	15 days
Commingled international equity funds (3)	836,992	—	Daily or monthly	5–30 days
Privately held real estate investment trusts (4)	1,805,875	127,667	NA	NA
Real estate commingled funds (5):				
Closed-end funds	2,285,824	1,092,063	NA	NA
Open-end funds	1,061,107	—	Quarterly	30–120 days
Alternative investments (6)	9,620,974	7,028,313	NA	NA
Total investments measured at the NAV	$ 15,694,643	$8,248,043		
Investment related cash, receivables and payables not included in above	127,665			
Total investments and securities lending collateral reinvested	$114,732,943			

Notes to Financial Statements *(continued)*
June 30, 2018 and 2017
(dollars in thousands)

(1) Commingled domestic fixed income fund consists of one commingled investment vehicle which primarily invests in publicly traded domestic commercial mortgage backed securities. The investment is valued at the net asset value of units held at the end of the period based upon the fair value of the underlying investments. Subsequent to June 30, 2018, this investment was liquidated.

(2) Commingled global fixed income fund consists of one commingled investment vehicle which invests primarily in publicly traded global fixed income securities. The investment is valued at the net asset value of units held at the end of the period based upon the fair value of the underlying investments.

(3) 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.

(4) 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.

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

(6) Alternative investments include private equity, private debt, real estate debt funds, and real estate equity funds assessed through a variety of vehicles including but not limited to: commingled funds, fund of funds, secondary funds and separately managed accounts. Private equity (79% at 6/30/18, 84% at 6/30/17) consists of buyout, growth equity, venture capital, co-investment, turnaround/restructuring strategies and real estate funds. Private debt (5% at 6/30/18, 0% at 6/30/17) consists of direct lending mezzanine, special situation and distressed debt investments. The real estate debt funds (9% at 6/30/18, 7% at 6/30/17) consist of funds investing primarily in transitional first mortgage, mezzanine and subordinate debt positions. The real estate equity funds (7% at 6/30/18, 9% at 6/30/17) consist of global commercial real estate funds. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of the Plan's ownership interest in partners' capital. These funds are not eligible for redemption. Distribution is received as underlying investments within the funds are liquidated, which on average can occur over the span of 5 to 10 years.

(dollars in thousands)

(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, 2018 and 2017 were as follows:

	2018	2017
Total pension liability	$118,107,254	$114,708,261
Plan fiduciary net position	119,915,518	115,468,360
School districts' net pension liability (asset)	$ (1,808,264)	$ (760,099)
Plan fiduciary net position as a percentage of total pension liability	101.53%	100.66%

(a) Actuarial Methods and Assumptions

The total pension liability at June 30, 2018 was determined using an actuarial valuation as of June 30, 2017, with update procedures used to roll forward the total pension liability to June 30, 2018. The total pension liability at June 30, 2017 was determined using an actuarial valuation as of June 30, 2016, with update procedures used to roll forward the total pension liability to June 30, 2017. These actuarial valuations applied the following actuarial methods and assumptions:

Actuarial cost method — Entry age normal

Inflation — 2.25% at June 30, 2017 and 2.50% at June 30, 2016

Projected salary increases — Rates of increase differ based on service

They have been calculated based upon recent NYSTRS member experience.

Service	Rate
5	4.72%
15	3.46
25	2.37
35	1.90

Projected COLAs — 1.5% compounded annually

Investment rate of return — 7.25% for the June 30, 2018 and the June 30, 2017 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 MP2014, applied on a generational basis. Active member mortality rates are based on plan member experience.

Experience Period — The actuarial assumptions were based on the results of an actuarial experience study for the period July 1, 2009 to June 30, 2014.

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

Notes to Financial Statements *(continued)*
June 30, 2018 and 2017
(dollars in thousands)

The Long-Term Expected Real Rates of Return are presented by asset allocation classification, which differs from the financial statement presentation. Best estimates of arithmetic real rates of return for each major asset class included in the System's target asset allocation as of the measurement date of June 30, 2018 and June 30, 2017 (see the discussion of the pension plan's investment policy) are summarized in the following table:

Long-Term Expected Real Rate of Return*		
Asset Class	2018	2017
Domestic equities	5.8%	5.9%
International equities	7.3	7.4
Global equities	6.7	—
Real estate equities	4.9	4.3
Private equities	8.9	9.0
Domestic fixed income securities	1.3	1.6
Global fixed income securities	0.9	1.3
Private debt	6.8	—
Real estate debt	2.8	2.8
High-yield fixed income securities	3.5	3.9
Short-term	0.3	0.6

Real rates of return are net of the long-term inflation assumption of 2.3% for 2018 and 2.2% for 2017.

(b) Discount Rate

The discount rate used to measure the total pension liability as of June 30, 2018 and 2017 was 7.25%. The projection of cash flows used to determine the discount rate assumed that contributions from plan members will be made at the current member contribution rates and that contributions from school districts will be made at statutorily required rates, actuarially determined. Based on those assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

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

The following presents the net pension liability (asset) of the NYSTRS participating school districts calculated using the discount rate of 7.25% for June 30, 2018 and 2017, as well as what the school districts' net pension liability (asset) would be if it were calculated using a discount rate that is 1 percentage point lower or 1 percentage point higher than the current rate:

System's Net Pension Liability (Asset)			
	1% Decrease (6.25%)	Current Discount Rate (7.25%)	1% Increase (8.25%)
June 30, 2018	$12,423,071	$(1,808,264)	$(13,730,169)
June 30, 2017	$13,094,259	$ (760,099)	$(12,362,437)

Notes to Financial Statements *(continued)*
June 30, 2018 and 2017
(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, 2018 and 2017, respectively, were: real estate and real estate alternative investments of $2.99 billion and $2.03 billion; mortgages and real estate debt funds of $1.06 billion and $1.36 billion; and private equity investments of $5.68 billion and $5.03 billion. At June 30, 2018, the System had $6.2 million in private debt commitments.

(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 the 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 5 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 Tiers 1 – 5 members with greater than 20 years of service credit are 2.0% of final average salary. Tiers 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 the 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.

Plan members who joined the System between July 27, 1976 and April 1, 2012, 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 15.1% and 15.5% was applicable to the annual covered payroll for the years ended March 31, 2018 and March 31, 2017, respectively. The contributions paid to ERS during the System's years ended June 30, 2018 and 2017 were $4,310 and $4,318, 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, 2018 and 2017, the System reported a liability of $3.6 million and $10.3 million, respectively, for its proportionate share of the ERS net pension liability measured as of March 31, 2018 and 2017, 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, 2018, the System's proportion was 0.1115115% and was 0.1098533% at March 31, 2017.

For the years ended June 30, 2018 and 2017, the System recognized pension expense of $4.5 million and $6.1 million, respectively.

Deferred outflows of resources were $9.3 million and $6.3 million at June 30, 2018 and 2017, respectively. Deferred inflows of resources were $11.5 million at June 30, 2018 and $1.6 million at June 30, 2017.

(10) System Employees' Other Postemployment Benefits

(a) Plan Description

The System's Board established the Trust in 2008. The Trust was created for the sole purpose of accepting irrevocable contributions from the System in order to provide postemployment health insurance benefits.

The Trust is a defined-benefit, single-employer 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 postemployment healthcare benefits to eligible System employees who retire from the System. 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 below 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 12.0% of the premium paid by the System up to the premium of the Empire Plan option. If more expensive coverage is elected, the retiree pays 12.0% of the Empire Plan option and 100% of the difference between the two.

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

(dollars in thousands)

As of June 30, 2018, 626 participants including 354 current employees, and 272 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, 2018, the Trust recognized a contribution of $5,500, which was approximately 104.0% of the ADC or 18.5% of covered payroll.

(d) Actuarial Assumptions

The June 30, 2018 OPEB liability was determined using an actuarial valuation as of July 1, 2016, with update procedures used to roll forward the total OPEB liability to the measurement date of June 30, 2017.

The measurement of total OPEB liability at June 30, 2017 used the following actuarial assumptions:

Valuation Date	July 1, 2016
Investment rate of return	7.0%
Payroll increase rate	3.0%
Salary increase rate	Varies by service from 3.0% - 8.0%
Healthcare cost trend rates:	
Non-Medicare	7.4% graded to 4.5% over 12 years
Medicare	8.5% graded to 4.5% over 12 years
Retiree premium	7.5% graded to 4.5% over 12 years
Pre-retirement mortality	Mortality rates are based on those used in the NYS/SUNY "Development of Recommended Actuarial Assumptions Participating Agency Version" dated September 2016.
Post-retirement mortality	Mortality rates are based on those used in the NYS/SUNY "Development of Recommended Actuarial Assumptions Participating Agency Version" dated September 2016. These dates were adjusted to reflect that the System's retirees are white collar and then projected generationally from 2014 with Scale MP-2014.

The long-term expected rate of return on OPEB plan investments was determined using a building-block method in which best estimate ranges of expected future rates of return (expected returns, net of investment expense and inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

Notes to Financial Statements *(continued)*
June 30, 2018 and 2017
(dollars in thousands)

Best estimates of arithmetic real rates of return for each major asset class included in the Trust's target asset allocation as of June 30, 2017 are summarized in the following table:

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return* 2017
Domestic equities	50%	6.89%
International equities	25	7.89
Domestic fixed income securities	24	2.29
Short-term	1	1.28
	100%	

** Real rates of return are net of the long-term inflation assumption of 2.00%*

(e) Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates

Healthcare cost trend rates measure the anticipated overall rate at which health plan costs are expected to increase in future years. The following presents the net OPEB liability of the System at June 30, 2018 calculated using the healthcare cost trend rates presented previously in the actuarial assumptions, as well as what the System's net OPEB liability would be if it were calculated using healthcare cost trend rates that are 1-percentage-point lower or 1-percentage-point higher than the applied healthcare cost trend rates:

	System's Net OPEB Liability		
Measurement Date	1% Decrease	Current Healthcare Cost Trend Rates	1% Increase
June 30, 2017	$36,013	$45,494	$57,045

(f) Discount Rate

The discount rate used to measure the total OPEB liability as of June 30, 2017 was 7.0%. The projection of cash flows used to determine the discount rate assumed that contributions would be made at rates equal to the actuarially determined contribution rates. Based on these assumptions, the OPEB Plan'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 of 7.0% on plan investments was applied to all periods of projected benefit payments to determine the total OPEB liability.

(g) Sensitivity of the Net OPEB Liability to Changes in the Discount Rate

The following presents the net OPEB liability of the System at June 30, 2018 calculated using the applied discount rate of 7.0% as well as what the System's net OPEB liability would be if it were calculated using a discount rate that is 1-percentage-point lower or 1-percentage-point higher than the applied rate:

	System's Net OPEB Liability		
Measurement Date	1% Decrease (6.0%)	Current Discount Rate (7.0%)	1% Increase (8.0%)
June 30, 2017	$56,281	$45,494	$36,510

Notes to Financial Statements *(continued)*
June 30, 2018 and 2017
(dollars in thousands)

(h) Changes in the Net OPEB Liability

	Increase (Decrease)		
	Total OPEB Liability (a)	Plan Fiduciary Net Position (b)	Net OPEB Liability (a) - (b)
Balance at June 30, 2016	$ 84,321	$ 29,565	$ 54,756
Service Cost	2,491	-	2,491
Interest	5,959	-	5,959
Differences between expected and actual experience	(2,166)	-	(2,166)
Changes of assumption	(5,849)	-	(5,849)
Contributions - employer	-	5,500	(5,500)
Net investment income	-	4,212	(4,212)
Benefit payments	(3,412)	(3,412)	-
Professional fees and services	-	(15)	15
Net changes	(2,977)	6,285	(9,262)
Balance at June 30, 2017	**$81,344**	**$35,850**	**$45,494**
Plan fiduciary net position as a percentage of the total OPEB liability			44.07%
Covered payroll			$ 29,087
System's net OPEB liability as a percentage of covered-employee payroll			156.40%

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

At June 30, 2018, the System recognized OPEB expense of $4.6 million.

The following presents a summary of deferred outflows of resources and deferred inflows of resources at June 30, 2018:

	2018
Deferred outflows of resources:	
Contributions after the measurement date	$5,500
	$5,500
Deferred inflows of resources:	
Changes of assumptions	$4,908
Net difference between projected and actual earnings on OPEB investments	1,656
Difference between expected and actual experience	1,818
	$8,382

(dollars in thousands)

Amounts reported as deferred outflows of resources and deferred inflows of resources at June 30, 2018 related to OPEB will be recognized in OPEB expense as follows:

Year ended June 30:	
2019	$(1,703)
2020	(1,703)
2021	(1,703)
2022	(1,702)
2023	(1,288)
Thereafter	(283)
	$(8,382)

(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 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 existed.

Required Supplementary Information

Schedule of Changes in the School Districts' Net Pension Liability (Asset) (Unaudited)

(Last Six Fiscal Years)

(dollars in thousands)

	2018	2017	2016	2015
Total pension liability				
Service cost	$ 1,319,513	$ 1,292,143	$ 1,181,609	$ 1,396,824
Interest	8,224,221	7,988,167	7,809,566	7,611,757
Changes of benefit terms	—	—	—	—
Differences between expected and actual experience	964,258	727,895	(111,652)	(161,043)
Changes of assumptions	—	3,045,909	7,085,423	—
Benefit payments, including refunds of member contributions	(7,108,999)	(6,923,037)	(6,719,866)	(6,531,140)
Net change in total pension liability	3,398,993	6,131,077	9,245,080	2,316,398
Total pension liability — beginning	114,708,261	108,577,184	99,332,104	97,015,706
Total pension liability — ending (a)	$118,107,254	$114,708,261	$108,577,184	$ 99,332,104
Plan fiduciary net position				
Contributions — employer	$ 1,597,139	$ 1,857,359	$ 2,046,562	$ 2,633,682
Contributions — member	131,595	129,770	124,587	119,411
Net investment income	9,928,011	12,951,892	2,392,354	5,400,265
Benefit payments, including refunds of member contributions	(7,108,999)	(6,923,037)	(6,719,866)	(6,531,140)
Administrative expenses	(60,610)	(61,611)	(60,426)	(56,948)
Other	9,278	7,845	4,014	3,213
Net change in plan fiduciary net position	4,496,414	7,962,218	(2,212,775)	1,568,483
Plan fiduciary net position — beginning	115,468,360	107,506,142	109,718,917	108,155,083
Cumulative effect of change in accounting principle	(49,256)	—	—	(4,649)
Beginning balance, as restated	115,419,104	107,506,142	109,718,917	108,150,434
Plan fiduciary net position — ending (b)	$119,915,518	$115,468,360	$107,506,142	$109,718,917
School districts' net pension liability (asset) — ending (a) — (b)	$ (1,808,264)	$ (760,099)	$ 1,071,042	$(10,386,813)

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

See accompanying independent auditors' report.

Required Supplementary Information *(continued)*

Schedule of Changes in the School Districts' Net Pension Liability (Asset) (Unaudited) *(continued)*

(Last Six Fiscal Years)
(dollars in thousands)

2014	2013
$ 1,397,547	$ 1,406,084
7,434,764	7,252,357
—	—
(181,834)	(128,194)
—	—
(6,343,538)	(6,139,718)
2,306,939	2,390,529
94,708,767	92,318,238
$ 97,015,706	$94,708,767
$ 2,400,386	$ 1,734,908
120,762	128,903
16,664,703	11,636,480
(6,343,538)	(6,139,718)
(55,616)	(54,338)
1,365	4,522
12,788,062	7,310,757
95,367,021	88,056,264
—	—
95,367,021	88,056,264
$108,155,083	$95,367,021
$ (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.

Schedule of the School Districts' Net Pension Liability (Asset) (Unaudited)

(Last Six Fiscal Years)

(dollars in thousands)

	2018	2017	2016	2015
Total pension liability	$118,107,254	$114,708,261	$108,577,184	$ 99,332,104
Plan fiduciary net position	119,915,518	115,468,360	107,506,142	109,718,917
School districts' net pension liability (asset)	$ (1,808,264)	$ (760,099)	$ 1,071,042	$(10,386,813)
Plan fiduciary net position as a percentage of the total pension liability	101.53 %	100.66%	99.01%	110.46%
Covered payroll	$ 16,288,884	$ 15,846,705	$ 15,431,009	$ 15,021,357
School districts' net pension liability (asset) as a percentage of covered payroll	(11.10)%	(4.80)%	6.94%	(69.15)%

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 10 Fiscal Years)

(dollars in thousands)

	2018	2017	2016	2015
Actuarially determined contribution	$ 1,596,311	$ 1,857,234	$ 2,046,152	$ 2,633,244
Contributions in relation to the actuarially determined contribution	1,596,311	1,857,234	2,046,152	2,608,266
Contribution deficiency	$ —	$ —	$ —	$ 24,978
Covered payroll	$16,288,884	$15,846,705	$15,431,009	$15,021,357
Contributions as a percentage of covered payroll	9.80%	11.72%	13.26%	17.36%

See accompanying independent auditors' report.

Required Supplementary Information *(continued)*

Schedule of the School Districts' Net Pension Liability (Asset) (Unaudited)
(Last Six Fiscal Years)
(dollars in thousands)

2014	2013
$ 97,015,706	$94,708,767
108,155,083	95,367,021
$(11,139,377)	$ (658,254)
111.48%	100.70%
$ 14,771,301	$14,647,830
(75.41)%	(4.49)%

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 10 Fiscal Years)
(dollars in thousands)

2014	2013	2012	2011	2010	2009
$ 2,400,378	$ 1,734,303	$ 1,626,589	$ 1,269,976	$ 915,632	$ 1,096,155
2,383,145	1,734,303	1,626,589	1,269,976	915,632	1,096,155
$ 17,233	$ —	$ —	$ —	$ —	$ —
$14,771,301	$14,647,830	$14,640,764	$14,732,895	$14,792,116	$14,366,387
16.13%	11.84%	11.11%	8.62%	6.19%	7.63%

See accompanying independent auditors' report.

Notes to Required Supplementary Information
(Last 10 Fiscal Years)

Changes of benefit terms. Chapter 504 of the Laws of 2009 created a new tier of membership (Tier 5) for members with a date of membership on or after January 1, 2010. The Tier 5 benefit structure represents a reduction in benefits from those of prior tiers and an increase in the required employee contribution rate. The Tier 5 benefit changes were first included in the 2010 actuarial valuation. Chapter 18 of the Laws of 2012 created a new tier of membership (Tier 6) for members who join on or after April 1, 2012. The Tier 6 benefit formula is slightly less generous than that of Tier 5, and the required employee contribution rate was increased further. The Tier 6 benefit changes were first included in the 2012 actuarial valuation.

Changes of assumptions. Actuarial assumptions are revised periodically to more closely reflect actual, as well as anticipated future experience. The actuarial assumptions used in the actuarial valuations prior to 2011 were adopted by the Retirement Board on October 26, 2006. Revised assumptions were adopted by the Retirement Board on October 27, 2011 and first used in the 2011 actuarial valuation. The actuarial assumptions were revised again in 2015. These assumptions were adopted by the Retirement Board on October 29, 2015 and first used in the 2015 actuarial valuation.

The System's valuation rate of interest for purposes of the ADC is 7.50% effective with the 2015 actuarial valuation. Prior to the 2015 actuarial valuation, the System's valuation rate of interest assumption was 8.0%.

Prior to the 2007 actuarial valuation, the asset valuation method used was a five-year market smoothing for equities, real estate, and alternative investments, based upon book values. The asset valuation method was changed effective with the 2007 actuarial valuation to use a five-year phased in deferred recognition, at a rate of 20% per year, of each year's realized and unrealized appreciation in excess of (or less than) an assumed inflationary gain of 3.0%. The asset valuation method was changed again effective with the 2015 actuarial valuation to recognize each year's net investment income/loss in excess of (or less than) 7.5% at a rate of 20% per year, until fully recognized after five years.

Prior to the 2011 actuarial valuation, COLAs were projected to increase at a rate of 1.75% annually. Effective with the 2011 actuarial valuation, COLAs were projected to increase at a rate of 1.625% annually. Effective with the 2015 actuarial valuation, COLAs are projected to increase at a rate of 1.50% annually.

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. Unless otherwise noted above, the following actuarial methods and assumptions were used to determine contribution rates reported in the Schedule of the School Districts' Contributions.

Required Supplementary Information *(continued)*

Notes to Required Supplementary Information *(continued)*
(Last 10 Fiscal Years)

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) 7.5% at a rate of 20.0% per year, until fully recognized after five years. For fiscal years ending prior to June 30, 2015, realized and unrealized appreciation in excess of (or less than) the assumed inflationary rate of 3.0% is subject to the five-year phase-in.
Inflation	2.5%
Projected salary increases	Rates of increase differ based on service. They have been calculated based upon recent NYSTRS member experience.

Service	Rate
5	4.72%
15	3.46
25	2.37
35	1.90

Projected COLAs	1.5% compounded annually
Investment rate of return	7.5% 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.

Schedule of Investment Returns (Unaudited)
(Last Six Fiscal Years)

	2018	2017	2016	2015	2014	2013
Annual money-weighted rate of return, net of investment expense	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.

Schedule of NYSTRS' Net OPEB Liability

New York State Teachers' Retirement System Retired Employee Health Benefits Trust

(dollars in thousands)

	2018
NYSTRS' total OPEB liability	$81,344
OPEB Plan fiduciary net position	35,850
NYSTRS' net OPEB liability	$45,494
OPEB fiduciary net position as a percentage of the total OPEB liability	44.07%
Covered-employee payroll	$29,087
NYSTRS' net OPEB liability as a percentage of covered-employee payroll	156.40%

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

See accompanying independent auditors' report.

Required Supplementary Information *(continued)*

Schedule of NYSTRS and Other Contributing Entity Contributions (Unaudited)

New York State Teachers' Retirement System Retired Employee Health Benefits Trust
(Last Ten Fiscal Years)

	2018	2017	2016	2015
Actuarially determined contribution	$ 5,278,747	$ 5,374,220	$ 4,782,000	$ 4,542,000
Contributions in relation to the actuarially determined contribution:				
NYSTRS	5,500,000	5,500,000	5,500,000	5,500,000
Other contributing entity	—	—	—	—
Total contributions	5,500,000	5,500,000	5,500,000	5,500,000
Contribution deficiency (excess)	$ (221,253)	$ (125,780)	$ (718,000)	$ (958,000)
Covered-employee payroll	$29,752,583	$29,087,397	$26,506,965	$25,556,000
Contributions as a percentage of covered payroll	18.49%	18.91%	20.75%	21.52%

See accompanying independent auditors' report.

Required Supplementary Information *(continued)*

Schedule of NYSTRS and Other Contributing Entity Contributions (Unaudited) *(continued)*

New York State Teachers' Retirement System Retired Employee Health Benefits Trust
(Last Ten Fiscal Years)

2014	2013	2012	2011	2010	2009
$ 4,767,000	$ 5,240,000	$ 4,853,000	$ 4,154,000	$ 3,499,000	$ 3,585,000
5,500,000	5,240,000	4,853,000	4,154,000	3,499,000	3,585,000
756	95,397	97,704	86,248	80,997	92,189
5,500,756	5,335,397	4,950,704	4,240,248	3,579,997	3,677,189
$ (733,756)	$ (95,397)	$ (97,704)	$ (86,248)	$ (80,997)	$ (92,189)
$26,500,000	$25,993,000	$24,631,000	$24,021,000	$23,676,000	$21,240,000
20.76%	20.53%	20.10%	17.65%	15.12%	17.31%

See accompanying independent auditors' report.

Other Supplemental Schedules

Schedule of Administrative Expenses

Years ended June 30, 2018 and 2017

(dollars in thousands)

	2018	2017
Salaries and benefits:		
Salaries	$30,864	$30,472
Civil service	52	22
Employees retirement	4,253	4,318
Health and dental insurance	11,180	10,909
Overtime salaries	46	51
Social security	2,170	2,147
Total salaries and benefits	48,565	47,919
Building occupancy expenses:		
Building, grounds and equipment	1,780	1,573
Depreciation — building and improvements	1,667	1,531
Depreciation — equipment	427	362
Office supplies and expenses	223	146
Utilities and municipal assessments	930	899
Total building occupancy expenses	5,027	4,511
Computer expenses:		
Amortization/depreciation — computer micro	969	1,021
Computer hardware and software	2,676	2,718
Computer maintenance and supplies	85	79
Total computer expenses	3,730	3,818
Personnel and meeting expenses:		
Board — meetings, travel and education	73	86
Delegates meeting	39	46
Preretirement seminars	151	162
Professional development	720	716
Travel and automobile expense	181	151
Other personnel expenses	74	59
Total personnel and meeting expenses	1,238	1,220
Professional and governmental services:		
Auditors — financial	375	374
Auditors — department of financial services	300	132
Disability medical examinations	82	106
Postage and cartage	805	893
Professional fees and services	759	460
Publications	286	303
Statutory custodian charges	124	122
Total professional and governmental services	2,731	2,390
Total administrative fund expenses	61,291	59,858
Reconciliation of contribution expense to pension and OPEB expense	(681)	1,753
Total Administrative Expenses	$60,610	$61,611

See accompanying independent auditors' report.

Schedule of Investment Expenses

Years ended June 30, 2018

(dollars in thousands)

Investment Category	Fair Value of Assets Serviced or Under Management	Expenses
Externally managed/serviced assets:		
Domestic fixed income securities	$ 1,190,453	$ 1,999
Global fixed income securities	2,635,706	4,577
Domestic equities	2,909,629	14,469
International equities	22,193,960	29,943
Global equities	999,250	465
Mortgages	1,185,718	59
Real estate	8,338,360	60,669
Real estate investment trusts	2,502,468	6,867
Alternative investments	11,007,906	148,352
Sub-total	52,963,450	267,400
General expenses	—	9,369
Totals	**$52,963,450**	**$276,769**

See accompanying independent auditors' report.

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INVESTMENTS

Safeguard System Funds

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

INVESTMENTS

Page

Disclaimers

Report on Investment Activity for Fiscal Year Ending June 30, 2018

Overall Objectives and Performance

We take great pride in being one of the best-funded public pension plans in the nation. This allows us to maintain a disciplined, long-term approach to investing that emphasizes risk control. NYSTRS' funded ratio was 97.7% based on an actuarial value of assets, and its net position at fiscal year-end was $119.9 billion.

Our total fund return, net of fees, for the fiscal year ended June 30, 2018 was 9.01%, outpacing the System's 7.25% assumed rate of return. It marked the sixth time in the past nine years that actual returns exceeded the System's assumed rate. Our 25-year and 30-year annualized net rates of return were 8.49% and 9.16%, respectively.

With more than half of our assets administered internally by System staff, we are able to manage investments at a very low cost compared to the value of assets — approximately 25 basis points.

Basis of Presentation

Following is an overview of how each System 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 longer than one year are annualized.

Public Equities

The U.S. equity market continued to deliver exceptional returns for investors in fiscal 2018. Domestic equities, as measured by the S&P 1500 index, rose 14.5%. Returns were particularly robust during the first half of the year, as expectations for strong earnings growth were boosted by December's reduction in the corporate tax rate and other related reforms. However, renewed inflation concerns contributed to a sharp sell-off in February, and the market remained volatile through the end of the year, as fears of a trade war between the United States and its major trading partners, most notably China, escalated.

For the year, technology stocks led the way while defensive sectors such as consumer staples lagged the broader market. Rising oil prices provided a catalyst for energy stocks. Smaller, more domestically focused companies also thrived given the prevailing economic sentiment, with the S&P 600 small-cap index rising 20.5% for the year.

International equities also generated positive returns for U.S. investors. Developed markets, as measured by the MSCI EAFE index, rose 6.8% over the period, led by Japan as expectations for continued domestic reforms improved with the re-election of Prime Minister Shinzo Abe. The United Kingdom also performed well despite continued uncertainty regarding the ongoing Brexit negotiations. In contrast, the Eurozone was one area of relative weakness amid signs of slowing economic growth and intensified political risks in Italy and Spain. It was also a volatile year for emerging markets given their macroeconomic sensitivity to the U.S. dollar, commodity prices, and tariffs. The MSCI Emerging Markets index rose 8.2% over the period, with Asia outperforming Latin America.

Several market developments impacted the System's public equity investments during the year. In response to rising equity markets, staff opportunistically raised $2.8 billion from the domestic equity portfolio through rebalancing. This activity also helped move the portfolio closer toward meeting strategic asset allocation targets. Additionally, $800 million in dividend income was swept from the domestic portfolio. The System's international equity portfolio gained exposure to China's domestic equity market for the first time in May following MSCI's inclusion in its indexes. During the year, a net $665 million was also raised from the international portfolio through rebalancing.

At its April 2018 meeting, the Retirement Board approved the addition of a new global equity asset class. Holdings in this class are a combination of both domestic and international equities, and are funded by a reduction in allocations to each of those assets. The new asset class does not change the System's overall exposure to public equity markets, but is expected to enhance portfolio performance by expanding the investment opportunity set for select actively managed strategies. Staff completed an initial funding for the new asset class in May with the inception of two new global active mandates.

The System's public equity investments generated returns for the period consistent with expectations. The System's passively managed strategies performed in-line with their respective benchmarks, while excess returns generated by the System's active strategies, both internally and externally managed, were mixed. The domestic equity portfolio generated a return of 14.3%,

Report on Investment Activity for Fiscal Year Ending June 30, 2018 *(continued)*

trailing the System's S&P 1500 policy benchmark by 0.2%. In contrast, the international equity portfolio generated a return of 7.5%, beating its policy benchmark, the MSCI ACWI Ex-U.S. index, by 0.2%. Overall, the NYSTRS public equity portfolio returned 11.9% for the fiscal year. Over the past five years, the System's public equity investments have generated an average return of 11% per year.

Private Equity

NYSTRS made its first private equity investment in 1984 and formally committed to the asset class in 1999, establishing an initial target of 1.0% of plan assets. Today, the target allocation is 8.0% with an allocation range of 3.0% to 13.0%. Partnership structures generally cover periods of 10 years or more, with the goal to achieve higher long-term returns than available through marketable securities. The program seeks to outperform public equities by 500 basis points (S&P 500 plus 5.0%) over the long term.

Private equity activity continues to be characterized by an abundance of capital. The demand for private equity exposure has continued to steadily increase, with interest from new entrants and an increased appetite from well-established limited partners fueling record fundraising levels across strategies and geographies. Continued robustness in the capital markets and increased competition for assets (from both sponsors and well-capitalized strategic buyers) continue to drive entry and leverage multiples higher. Given the current market environment, the System is focused on investing with disciplined top-performing managers that have demonstrated an ability to prudently invest across varying macroeconomic backdrops and cycles. Alignment of interest remains a paramount consideration.

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

The Retirement System has a mature, cash-flow positive private equity program diversified by both investment strategy and geographic focus. The program continues to focus on recommitting to its top-performing partnerships, while strategically adding new relationships that provide increased exposure to particular strategies and geographies. Specifically, NYSTRS continues to de-emphasize large and mega buyout exposure, while increasing small and medium buyout exposure in both North America and Europe. Additionally, the System will continue to marginally increase exposure to sector-focused opportunities and mid-size distressed/turnaround managers. The program also seeks to supplement its venture portfolio through selective commitments to growth strategies. Exposure to Asia and Latin America has increased and is expected to continue to do so over the next five to 10 years through selective commitments with top-performing, country-specific and pan-regional managers.

By fiscal year-end, the System had active commitments of $20.7 billion across 95 fund sponsors. The private equity portfolio was valued at $8.4 billion, representing 7.1% of the System's total assets. Unfunded commitments totaled $5.7 billion. Over the last 10 years, the private equity program has returned 10.5%, versus the stated benchmark of 15.2%. Over the last 20 years, the private equity program has returned 11.5%, on par with the benchmark.

Fixed Income

The Federal Open Market Committee (FOMC) continued its orderly removal of accommodative monetary policy during NYSTRS' fiscal year. The federal funds rate rose three times and the stated target range of 1.75% - 2.0% was achieved by June 30, 2018. Household spending and corporate investment also were robust during this period.

More policy tightening is expected, as inflation is near the FOMC's 2.0% target and the employment picture continues to be positive, as evidenced by consistently strong job gains. By fiscal year-end, the FOMC indicated that monetary policy was still accommodative and financial conditions remained supportive of economic expansion.

In February 2018, Jerome Powell was sworn in for a four-year term as the new Chairman of the Federal Reserve (a.k.a. the Fed), succeeding Janet Yellen. The transition was smooth, with monetary policy normalization transpiring as planned and the focus remaining on the primary components of FOMC's September 2014 strategy: gradually raise the target range

Report on Investment Activity for Fiscal Year Ending June 30, 2018 *(continued)*

for federal funds and gradually reduce the Fed's securities holdings. Another segment of the plan, balance sheet normalization, commenced in October 2017 and continues today, with the Fed reducing reinvestment of maturing bonds and mortgage prepayments.

The accommodative Fed monetary policy, along with an additional late-cycle tailwind in the form of fiscal stimulus via the Tax Cuts and Jobs Act signed into law in December 2017, proved beneficial. The combination had a positive impact on key economic metrics, such as the unemployment rate, manufacturing indexes and sentiment indicators — each of which impacted domestic fixed income markets in the form of higher interest rates. The U.S. unemployment rate declined to 4.0% by the end of NYSTRS' fiscal year and the underemployment rate continued its descent, declining back to pre-crisis levels. The labor force participation rate, or the total labor force as a percentage of the working-age population, was virtually unchanged during the fiscal year and remains well below pre-crisis levels. Why this rate has not bounced back to pre-financial crisis levels remains a mystery, but weekly jobless claims posted at fiscal year-end hovered at levels not seen this low since the late 1960s.

Economic and business activity measured by the Institute for Supply Management (ISM) indexes revealed continued economic expansion in both the manufacturing and non-manufacturing sectors during the fiscal year. Sentiment indicators such as the University of Michigan's Survey of Consumers and the National Federation of Independent Businesses (NFIB) Small Business Optimism Index continued to trend positive, as both metrics hit cyclical highs during the fiscal year.

Positive growth globally was also seen for most of the fiscal year in both developed and developing regions. In contrast to current U.S. monetary policy, where accommodation is being removed, monetary stimulus was added by policymakers in Europe, Japan and other parts of the world. Non-U.S. monetary policy continued to promote negative overnight interest rates, as well as negative yielding securities, throughout the globe. In some cases negativity extended well beyond overnight. One benchmark estimated approximately $8.0 trillion in negative yielding fixed income instruments globally.

With some U.S. interest rates hitting their highest levels in nearly 10 years, such as the five-year U.S. Treasury, different challenges presented themselves, including market priced depreciation of existing holdings. However, the higher rates will also provide opportunities for fixed income portfolios to invest in securities that will pay greater coupons.

NYSTRS' focus remains on generating cash flow to help meet its $7.1 billion annual retirement benefit obligation and preserving capital. Both are accomplished within the context of receiving proportionate return for risk taken. To mitigate risk, the System's internally and externally managed fixed income portfolios are well diversified by sector, issuer and interest rate exposure. Additionally, similar to the internally managed long-term bond portfolio, the System's external portfolio managers actively monitor and manage risk while striving to generate cash flow in excess of what could be earned in risk-free fixed income investments. They also strive to take advantage of market opportunities as they arise.

At fiscal year-end, roughly 71.6% of the internally managed domestic fixed income portfolio consisted of Aaa securities, the highest credit quality rating granted. About 45.0% was invested in U.S. Treasury securities with the remaining 26.0% invested in high-quality U.S. agencies, agency mortgage-backed securities and supranational debt. A portion of the portfolio was invested in corporate bonds with a weighted average credit rating of mid-single A. These positions, many of which are issued by multinational industry leaders, provide the System with yields greater than what could be gained by investing solely in U.S. Treasury securities of similar duration.

The externally managed global bond portfolios had a sizeable 45.0% allocation to the highest rated Aaa securities. These managers rely on their deep sovereign and corporate credit research resources to identify and invest in lower-rated investment grade securities that have value and, to a lesser extent, non-investment grade bonds that provide additional yield. Roughly 91.0% of the combined portfolios were invested in investment grade bonds, with a modest position in cash.

As a result of rising U.S. interest rates during the fiscal year, the investment grade domestic fixed income market as measured by the Bloomberg Barclays U.S. Aggregate Float Adjusted Index generated slightly negative returns of -0.45%. Although the overall benchmark return was negative, investors who took less interest rate as well as credit risk performed marginally better than the benchmark. Domestic bonds with maturities of one to three years actually had positive returns

Report on Investment Activity for Fiscal Year Ending June 30, 2018 *(continued)*

of 0.22% during the fiscal year, while the best performing bonds by credit quality were Aa rated, with a 0.00% return. The worst performing bonds were those with maturities 10 years and greater returning -0.77%, driven by -1.75% returns in long maturity corporate bonds. Lower credit quality bonds, mostly corporate bonds rated single A and Baa, returned -0.99% and -0.56% respectively.

From a sector perspective, both government-related securities and securitized assets returned 0.12% for the year. At the opposite end of the spectrum, the two sectors with the greatest interest rate sensitivity, U.S. Treasuries and corporate bonds, had -0.65% and -0.83% returns, respectively. Further down in credit quality, non-investment grade fixed income securities (a.k.a. high-yield), had a positive total return of 2.53% during the fiscal year. Unlike investment grade fixed income, where investors were penalized for owning investments with poorer credit quality, the greater the credit risk taken in high yield, the greater the return. For instance, high yield bonds rated CCC and lower returned a little over 6.80% during the fiscal year, far greater than Ba rated bonds which had marginally positive returns of 0.65%.

In the global bond universe measured by the Bloomberg Barclays Global Aggregate Float Adjusted Bond Index, returns were slightly better for investors with securities hedged to the U.S. dollar and by investors who took on higher levels of interest rate risk along with owning securities with higher (but not the highest) credit quality. The unhedged Bloomberg Barclays Global Aggregate Float Adjusted Index returned 1.31%, underperforming the 1.60% return earned by the hedged version of the benchmark. Hedged global bonds with maturities greater than 10 years vastly outperformed with a return of 3.02%, while from a credit quality standpoint Aa rated bonds did best, outperforming with a 3.26% return during the fiscal year. A geographically diverse portfolio can exhibit an array of market results, as the hedged European and Asian portions of the global benchmark fared considerably better than the negative return of the U.S. bond market, with returns of 3.76% and 2.89%, respectively.

As of June 30, 2018, approximately 15.9% of System investments were represented by the internally managed domestic fixed income portfolio. For the one- and three-year periods ended June 30, 2018, the System's long-term bond portfolio's annual return was -0.31% and 1.22%, respectively, versus the benchmark return of -0.45% and 1.74% for the comparable periods. The one-year outperformance is attributable to assuming less interest rate or duration risk for U.S. Treasuries as well as less spread duration risk in corporate bonds as compared to the benchmark.

The externally managed bond portfolios, as of June 30, 2018, had approximately 2.2% of System assets invested in global bonds significantly hedged to U.S. dollars. Net of fees, for the one- and three-year periods, global bonds returned 1.81% and 3.08%, respectively, compared to 1.60% and 2.82% for the respective benchmarks. Security selection, yield curve and sector positioning were the primary factors for outperforming the benchmark over the past fiscal year. Long term, NYSTRS expects these managers will continue to add investment diversification and help generate greater risk-adjusted fixed income returns than the benchmark.

NYSTRS made two initial investments in high-yield fixed income during the fiscal year, but neither manager had a full year of performance by fiscal year-end.

Short-Term (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, 2018, the portfolio represented 2.3% of total invested System assets, within the allowable range of 0.0 to 4.0%. Also as of that date, the portfolio's weighted average maturity and weighted average life were 39 and 44 days, respectively. For the 12 months ended June 30, 2018, the short-term portfolio returned 1.50%, versus the iMoneyNet Money Fund Averages/All-Taxable Index benchmark of 0.96%.

Report on Investment Activity for Fiscal Year Ending June 30, 2018 *(continued)*

Real Estate Equity

Commercial real estate markets continued to benefit from investors' search for yield among accommodative monetary policies throughout the world. Sovereign wealth funds and other large institutional investors continue to focus on properties in global gateway cities with reliable income streams and stable currencies. As pricing for these core assets remain at historical levels, investors are increasingly drawn to value-add opportunities and secondary markets as a means to seek or create higher-yielding assets, although with higher associated risk.

U.S. asset pricing has continued its steady rise, now 6.0% higher on average than the pre-recession peak in 2008. However, appreciation appears to have peaked as investors pause to absorb the impact of the Federal Reserve's tightening stance; tepid sales and negative sentiment around brick and mortar retail; changed office use through companies like WeWork; and, increased multifamily supply. Going forward, returns are expected to be more driven by earnings and earnings growth rather than multiple expansion.

Globally, capital controls in China, intensifying trade war rhetoric, geopolitical threats in Europe and Asia, and immigration debates have overshadowed ongoing economic expansion and contributed to a slowdown in transactions as sellers appear to be unwilling to capitulate on pricing. The slower transaction volume coupled with investors' desire for income-producing hard assets has resulted in $266.0 billion of committed capital available for investment through private, closed-end funds. The amount of available capital seeking investments may help sustain property values in the near term.

Over the past three years, NYSTRS has been a net seller of commercial assets, taking advantage of elevated pricing levels. Due to these sales and the slow deployment of capital in what appears to be a fully priced market, the equity real estate portfolio is below its allocation target at fiscal year-end. Redeployed capital has focused on quality, well-located assets acquired at a discount to "perfected" core pricing, with value derived through repositioning, renovation, and leasing to strong-credit tenants. NYSTRS' primary focus will continue to be in and around densely populated metropolitan areas, which include hubs of world-class education, transportation and health care centers.

Overall, our main focus continues to be disciplined underwriting in order to acquire assets at reasonable pricing and selling assets when the pricing and go-forward return is not attractive. This means not chasing bids and pricing to unrealistic levels, while taking advantage of elevated pricing in the current market to exit at what we believe to be historically high pricing.

From an earnings standpoint, property market fundamentals remain healthy but rent growth has flattened in most property sectors with the exception of warehouse space, which continues to benefit from retail inventories moving from more expensive shop space to port, intermodal and local distribution centers. From these locations product is delivered directly to consumer homes. The continued growth of online shopping has driven this change.

Demand for multifamily product has been consistently strong, due in large part to the 80 million millennials who have been more transient than previous generations. Millennials tend to favor leasing versus buying, are waiting longer to start families and prefer urban locations over suburban. This has caused increased supply of new Class A apartments in many urban areas, causing rent growth to slow or even decline as the market tries to absorb the added product. Demand is also shifting to secondary urban locations and dense suburban locations where the amount of new product has been measured, allowing for some (although tepid) rent growth.

The System has a globally diversified portfolio of public and private commercial real estate investments, including both invested and committed capital. At fiscal year-end, the portfolio (including commitments) was valued at approximately $22.0 billion.

The System's real estate portfolio is generally broken down into equity and debt components. The latter will be accounted for in a different subsection of this Report on Investment Activity.

NYSTRS' $14.8 billion global commercial equity portfolio consists of high-quality assets primarily located in major U.S. coastal markets and global metro areas throughout Europe and Asia. For the fiscal year ended June 30, 2018, NYSTRS'

Report on Investment Activity for Fiscal Year Ending June 30, 2018 *(continued)*

commercial real estate equity portfolio returned 8.5% on a net basis. Since inception, the portfolio has also returned 8.5%. The portfolio has outperformed its benchmark by 150 basis points (bps) over the past year and 190 bps, or 1.9%, on an annualized basis since the program's 1985 inception.

The System's focus on global gateway markets in the U.S. and throughout the world has driven the performance of the portfolio as there has been consistent demand from multinational tenants for space in these markets, as well as strong demand from institutional and sovereign wealth investors seeking stable yield opportunities.

Private Debt

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

Institutional interest in private debt has grown significantly over the last five years due to the attractive yields attainable in the sector on both an absolute and relative basis. As more capital has entered this market, the availability of debt has increased and returns have generally begun to trend down. This is particularly true as it relates to large-cap direct lending, which is predominantly comprised of private equity sponsor-led transactions. Recognizing these trends, NYSTRS' current strategic focus is on small- to middle-market lenders who seek outsized returns through highly negotiated situations and non-sponsor led transactions. In addition, given the risk return characteristics available in the marketplace, NYSTRS will generally avoid non-U.S. dollar denominated investment strategies to avoid taking currency risk.

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

Although the private debt asset class is early in its development, the historic commitments made through the System's private equity allocation provided for instant diversification across both investment strategy and geographic focus. Diversification is expected to increase as the portfolio is built out over time. Since formal adoption of the program in 2017, the System has made a number of commitments in line with its strategic objectives.

By fiscal year-end, the System had active commitments of $1.6 billion across 12 fund sponsors. The private debt portfolio was valued at $493.5 million, representing 0.4% of the System's total assets. Unfunded commitments totaled $625.0 million. Over the last full fiscal year, the private debt program has returned 13.7%, versus the stated benchmark of 7.4%.

Real Estate Debt

Basel III and Dodd-Frank regulations continue to constrain commercial banks from financing non-conventional loans due to increased reserve requirements. This has provided non-bank lenders, including NYSTRS, opportunities to fill this void. Over the past year, NYSTRS has increased its exposure to this strategy by $460.0 million with an additional $1.1 billion committed to this space. This strategy has provided the System with yields in excess of 5.0% and an all-in return of 9.7% over the past five years.

NYSTRS' $7.1 billion commercial debt portfolio consists primarily of conventional fixed-rate, first-mortgage loans on core, high-quality assets. Market yields for this product have increased as a result of the recent moves in the Federal Funds Rate and are now above a 4.0% yield for 10 year financings.

To supplement these yields, NYSTRS has focused on bridge/transitional and senior mezzanine loans which focus on increased proceed financings (up to 75% loan to value). These have produced higher floating rate yields, benefiting from

Report of Investment Activity for Fiscal Year Ending June 30, 2018 *(continued)*

LIBOR rate increases which have generally moved in line with the Federal Funds rate increases. Over the past fiscal year this strategy has provided a 7.0% return to the System on a net basis.

Finally, the System has a $1.2 billion commercial mortgage-backed securities (CMBS) program comprised of investment-grade securities currently providing the System with a yield above 4.0%.

For the fiscal year ended June 30, 2018, NYSTRS' overall commercial real estate debt portfolio returned, on a net basis, 2.0%, as the portfolio was marked down in the wake of interest rate increases across the broader markets. Since inception, the portfolio has returned 8.3%. The portfolio outperformed its benchmark by 80 bps over the past year and underperformed its benchmark by 20 bps since inception.

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.

On average, cash loan balances were relatively stable throughout the year as equity borrowers continued to lack conviction for shorts, due to prolonged risk-on periods coupled with their preference to shift the collateral they pledge from cash to securities for regulatory capital relief purposes. Net earnings from securities lending declined year over year as the increase in broker rebates outpaced the rise in gross earnings.

As of June 30, 2018, 2.4% of the System's assets available to lend were on loan, collateralized at 102.5%. The utilization percentage was up from 2.2% on June 30, 2017. Borrower demand continued to generate the majority of securities lending income, which totaled $12.3 million for the fiscal year, compared to $13.5 million for the fiscal year ended June 30, 2017. The prior fiscal year's unrealized gain on investments in the System's cash collateral reinvestment portfolio improved during the 2018 fiscal year, settling at $3.4 million (including unpaid income) as of June 30, 2018.

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

Prepared by the following NYSTRS Executive Staff members:

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Asset Allocation — as of June 30, 2018

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%	37.2%
International Equity	16%	12-20%	18.8%
Global Equity	4%	0-8%	0.9%
Real Estate Equity	11%	6-16%	10.0%
Private Equity	8%	3-13%	7.1%
Total Equity	*72%*		*74.0%*
Debt			
Domestic Fixed Income	16%	12-20%	15.9%
High Yield Bonds	1%	0-3%	0.1%
Global Bonds	2%	0-3%	2.2%
Real Estate Debt	7%	3-11%	5.1%
Private Debt	1%	0-5%	0.4%
Cash Equivalents	1%	0-4%	2.3%
Total Debt	*28%*		*26.0%*

Changes in Net Asset Value

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

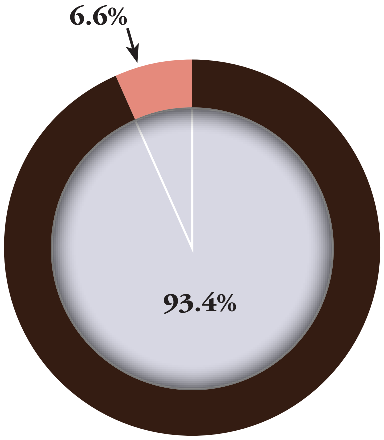
Asset Class	Net Asset Value 6/30/2017	Net Income	Net Appreciation (Depreciation)	Net Cash Inflows (Outflows)	Net Asset Value 6/30/2018
Equity					
Domestic Equity	$ 42,166,156,011	$ 850,311,467	$ 5,054,734,795	($4,117,396,636)	$ 43,953,805,637
International Equity	21,698,164,656	379,463,209	1,336,621,472	(1,165,991,374)	22,248,257,963
Global Equity	--	5,344,159	(14,542,734)	1,008,448,735	999,250,160
Real Estate Equity	11,465,755,536	429,227,062	417,437,425	(474,781,480)	11,837,638,543
Private Equity	8,408,856,495	(107,228,490)	1,283,114,757	(1,190,121,594)	8,394,621,168
Total Equity	**83,738,932,698**	**1,557,117,407**	**8,077,365,715**	**(5,939,842,349)**	**87,433,573,471**
Debt					
Domestic Fixed Income	17,430,863,946	474,871,878	(533,889,972)	1,420,945,892	18,792,791,744
High Yield Bonds	--	2,129,705	(2,393,051)	100,000,000	99,736,654
Global Bonds	2,461,345,970	56,439,394	(7,079,047)	125,000,000	2,635,706,318
Real Estate Debt	5,142,435,614	248,414,182	(144,052,780)	736,446,714	5,983,243,730
Private Debt	--	(11,793,832)	248,796,120	256,478,528	493,480,816
Cash Equivalents	4,564,569,335	53,792,629	3,264,735	(1,951,184,603)	2,670,442,095
Total Debt	**29,599,214,865**	**823,853,956**	**(435,353,995)**	**687,686,531**	**30,675,401,357**
Total	**$113,338,147,563**	**$2,380,971,363**	**$7,642,011,720**	**($5,252,155,818)**	**$118,108,974,828**

Diversification of Investments
June 30, 2018
(dollars in thousands)

Asset Class	Net Asset Value	Percent
Equity:		
Public Equity (Domestic Equity, International Equity and Global Equity)		
Consumer Discretionary	$ 8,426,588	
Consumer Staples	4,986,844	
Energy	4,300,406	
Financials	10,923,010	
Health Care	7,921,105	
Industrials	7,445,819	
Information Technology	13,892,677	
Materials	3,292,249	
Other	485,044	
Real Estate	2,053,956	
Telecommunication Services	1,581,546	
Utilities	1,892,070	
Total Public Equity	67,201,314	56.9%
Real Estate Equity		
Core Funds	1,617,088	
Direct Properties/Other Real Estate Owned	5,039,768	
Opportunistic Funds	1,556,454	
Real Estate Investment Trusts (REITs)	2,502,468	
Timber	306,840	
Value Added Funds	815,020	
Total Real Estate Equity	11,837,638	10.0
Private Equity		
Co-Investments	783,116	
Fund of Funds	1,000,076	
LBO/MBO	5,156,724	
Other	4,186	
Secondary Funds	502,737	
Turnaround	289,474	
Venture Capital	658,308	
Total Private Equity	8,394,621	7.1
Total Equity	**87,433,573**	**74.0%**
Debt:		
Fixed Income (Domestic Fixed Income, High Yield Bonds, Global Bonds)		
Corporate	6,354,765	
Global Treasuries	9,819,269	
Government Related	1,145,050	
Other	69,711	
Securitized	4,139,440	
Total Fixed Income	21,528,235	18.2
Real Estate Debt		
Commercial Mortgage Backed (CMBS)	1,090,717	
Core Plus	933,694	
Direct Mortgages	3,764,533	
Opportunistic	194,300	
Total Real Estate Debt	5,983,244	5.1
Private Debt		
Direct Lending	53,697	
Distressed	127,115	
Mezzanine	164,695	
Special Situation	147,974	
Total Private Debt	493,481	0.4
Short Term (Cash Equivalents)		
Corporate	1,590,369	
Global Treasuries	294,267	
Government Related	307,101	
Other	718	
Securitized	477,987	
Total Short Term	2,670,442	2.3
Total Debt	**30,675,402**	**26.0%**
Total	**$118,108,975**	**100.0%**

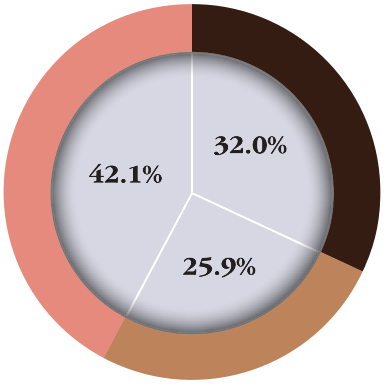
The above schedule is presented at net asset value based on asset allocation, which differs from the financial statement presentation.

Domestic Equity Distribution — as of June 30, 2018



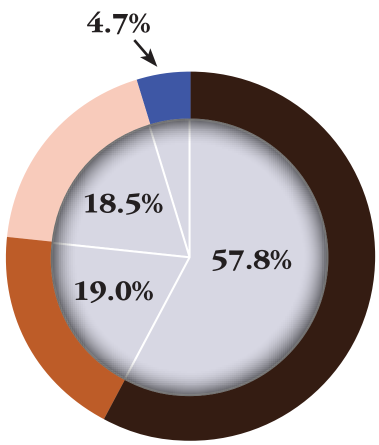
Internal	**93.4%**
S&P 1500 Index2	79.0%
S&P 100 Index	3.3%
S&P 1500 Value Tilt2	2.8%
S&P 1500 Growth Tilt2	2.8%
S&P 500 Index	3.3%
S&P 600 Index	0.8%
All Cap Disciplined Equity	1.4%
External	**6.6%**
Large Cap	3.7%
Mid Cap	2.4%
Small Cap	0.5%

Domestic Equity Externally Managed Style Distribution — as of June 30, 2018



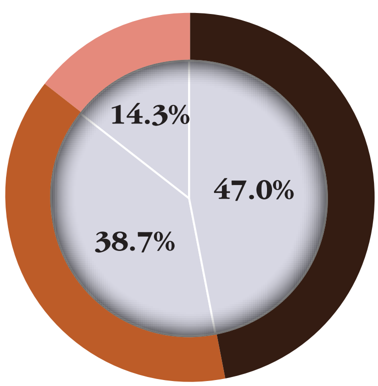
Mid Cap	**32.0%**
Large Cap Enhanced	**25.9%**
Fund of Funds	**42.1%**
Growth	7.2%
Value	11.0%
Core	23.9%

International Equity Style Distribution — as of June 30, 2018



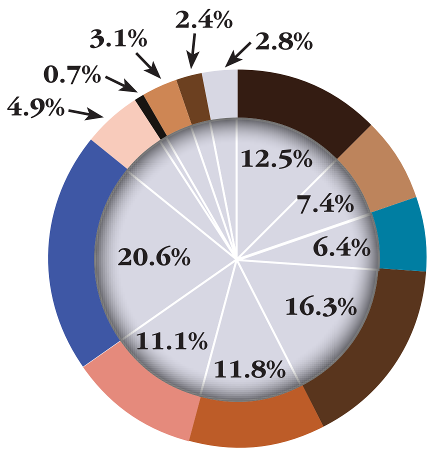
- Developed Markets - Passive 57.8%
- Developed Markets - Active 19.0%
- Emerging Markets - Passive 18.5%
- Emerging & Frontier Markets - Active 4.7%

Global Equity Style Distribution — as of June 30, 2018



- U.S. Markets - Active 47.0%
- International Developed - Active 38.7%
- International Emerging - Active 14.3%

Public Equity Holdings by Industry Distribution — as of June 30, 2018



Consumer Discretionary	12.5%
Consumer Staples	7.4%
Energy	6.4%
Financials	16.3%
Health Care	11.8%
Industrials	11.1%
Information Technology	20.6%
Materials	4.9%
Other	0.7%
Real Estate	3.1%
Telecommunication Services	2.4%
Utilities	2.8%

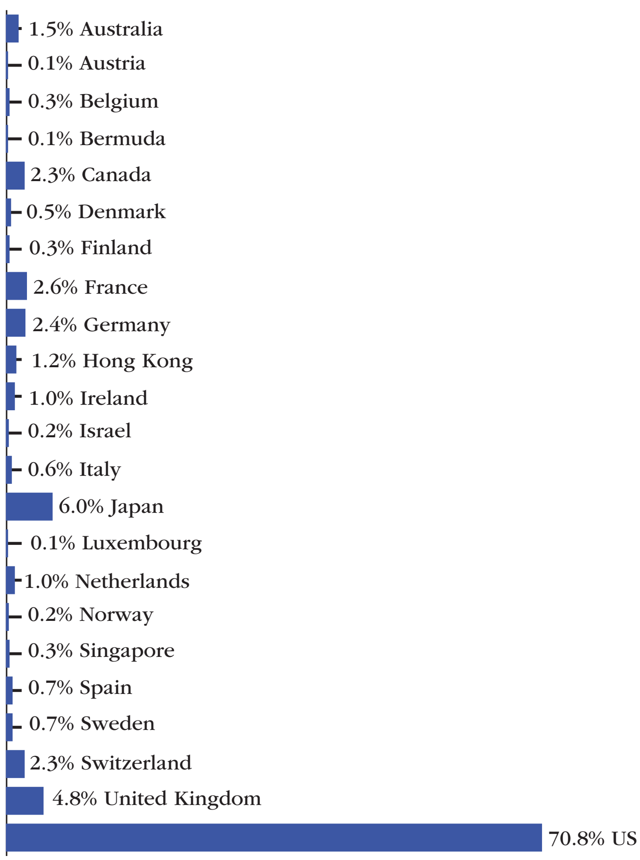
Ten Largest Public Equity Holdings — as of June 30, 2018

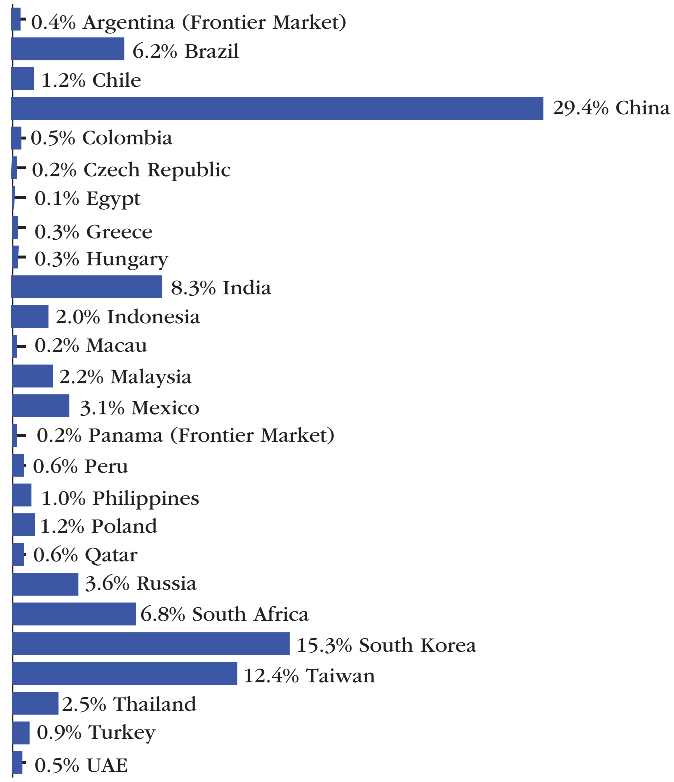
Rank	Company	Cost	Market Value	Percent of Equities
1	Apple Inc.	$ 85,960,355	$ 1,563,544,016	2.3%
2	Microsoft Corp.	266,671,647	1,292,847,211	1.9
3	Amazon.com Inc.	75,922,782	1,168,428,922	1.7
4	Alphabet Inc. (formerly Google)	263,787,493	1,152,226,850	1.7
5	Facebook Inc.	275,405,724	804,248,313	1.3
6	JPMorgan & Co.	116,388,371	602,600,062	0.9
7	Exxon Mobil Corp.	138,217,275	601,694,380	0.9
8	Berkshire Hathaway Inc.	259,421,830	595,855,114	0.9
9	Johnson & Johnson	107,544,701	558,797,152	0.8
10	Bank of America Corp.	248,411,303	465,389,979	0.7
Total		**$1,837,731,481**	**$8,805,631,999**	**13.1%**

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

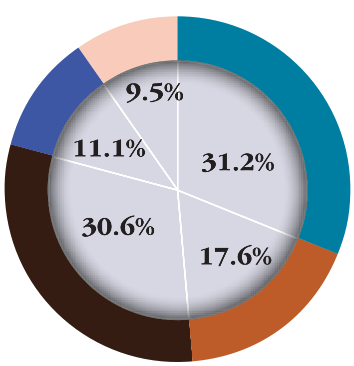
Public Equity Country Exposure Distribution — as of June 30, 2018

Percentage of Portfolio for Developed Countries $61,888,038,778	Percentage of Portfolio for Emerging & Frontier Markets $5,313,274,982



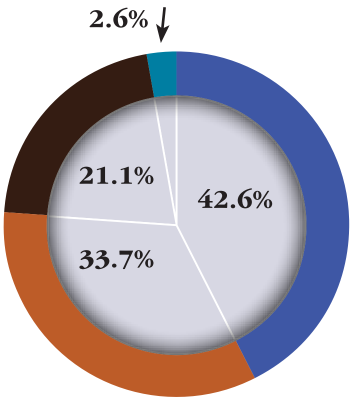


Real Estate Equity by Property Type — as of June 30, 2018



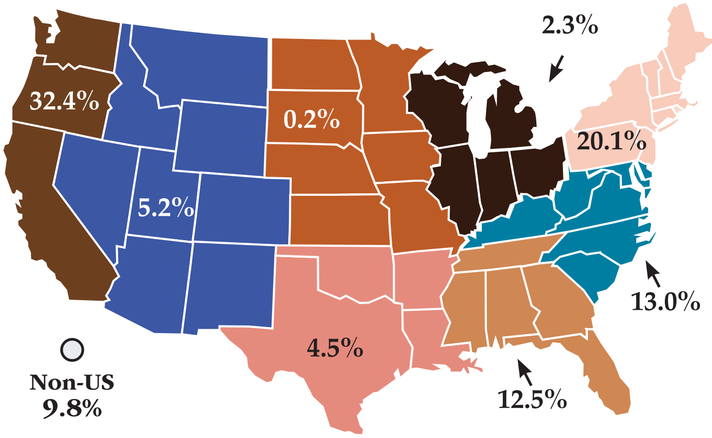
Office	31.2%
Residential	17.6%
Retail	30.6%
Hotel/Other	11.1%
Industrial/R&D	9.5%

Breakdown of Real Estate Equity Portfolio — as of June 30, 2018



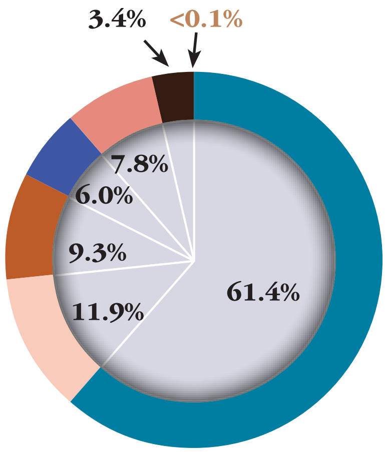
Direct Investments	42.6%
Private Securities	33.7%
Public Securities	21.1%
Timber Investments	2.6%

Geographic Distribution of the Real Estate Equity Portfolio — as of June 30, 2018



Pacific	32.4%
Mountain	5.2%
West North Central	0.2%
East North Central	2.3%
Northeast	20.1%
Mideast	13.0%
Southeast	12.5%
Southwest	4.5%
Non-U.S.	9.8%

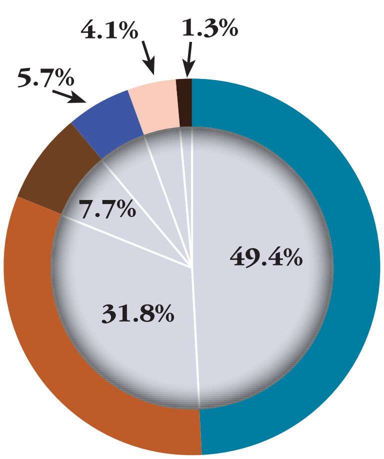
Private Equity Net Asset Value by Investment Type* — as of June 30, 2018



LBO/MBO	61.4%
Fund of Funds	11.9%
Co-Investments	9.3%
Secondary Funds	6.0%
Venture Capital	7.8%
Turnaround	3.4%
Other	<0.1%

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

Private Equity Net Asset Value by Geography* — as of June 30, 2018

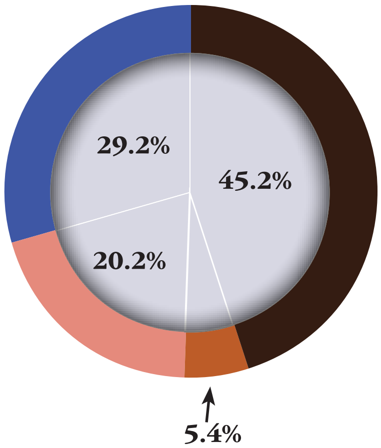


North America	49.4%
Multi-National	31.8%
Western Europe	7.7%
United Kingdom	5.7%
Asia	4.1%
Rest of World	1.3%

*Excluding fund of funds and secondary funds.

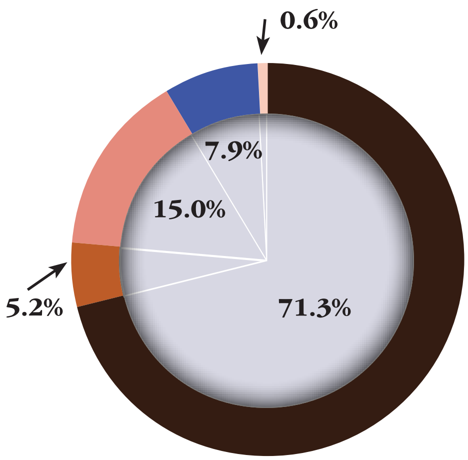
Domestic Fixed Income and High Yield Bonds Distribution — as of June 30, 2018

Yield to Maturity 3.0%



●	U.S. Treasury Yield to Maturity - 2.56%	**45.2%**
●	Federal Agency, Notes/Debentures Yield to Maturity - 2.73%	**5.4%**
●	Federal Agency, Mortgage Backed & Asset Backed Yield to Maturity - 3.42%	**20.2%**
●	Corporate Yield to Maturity - 3.51%	**29.2%**

Domestic Fixed Income and High Yield Bonds Quality Distribution — as of June 30, 2018

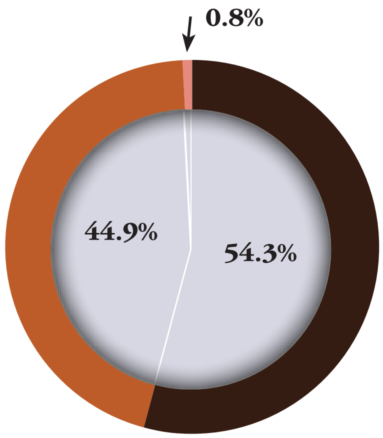


●	Aaa*	**71.3%**
●	Aa	**5.2%**
●	A	**15.0%**
●	Baa	**7.9%**
●	Other**	**0.6%**

**Includes explicitly and implicitly guaranteed debt issued by the U.S. government and its agencies.*
***Includes cash (U.S. dollar equivalents) and State Street Government Short-Term Investment Fund.*

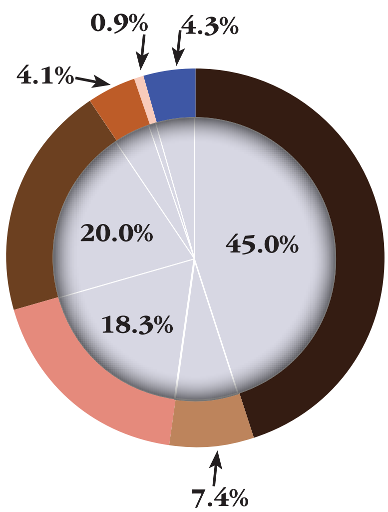
Domestic Fixed Income Average Maturity — as of June 30, 2018

Effective Duration 4.05 Years



Less than 5 Years Duration - 2.26 Years	54.3%
5-10 Years Duration - 6.13 Years	44.9%
10+ Years Duration - 8.30 Years	0.8%

Global Bonds Quality Distribution — as of June 30, 2018

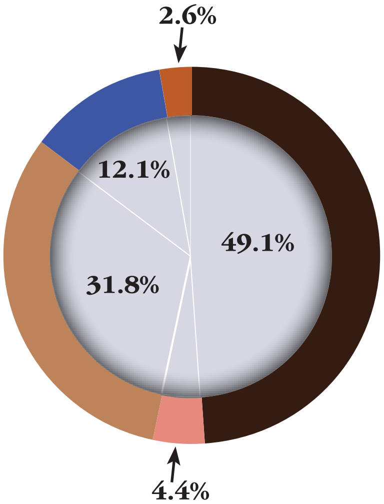


Aaa	45.0%
Aa	7.4%
A	18.3%
Baa	20.0%
Ba	4.1%
B/Caa*	0.9%
Not Rated**	4.3%

**Caa exposure is less than 0.1%.*

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

Global Bonds Sector Distribution — as of June 30, 2018



●	Global Treasuries	49.1%
●	Government Related	4.4%
●	Corporate	31.8%
●	Securitized	12.1%
●	Other*	2.6%

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

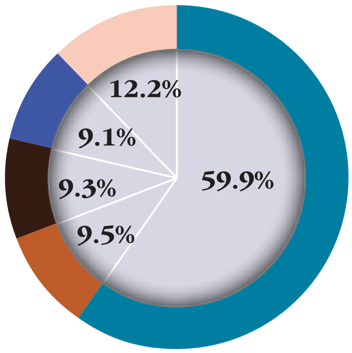
Ten Largest Fixed Income Holdings* — as of June 30, 2018

Rank	Issue	Market Value	Percent Total Fixed Income Market Value
1	US Treasury Note 1.25% Due 4/30/2019	$ 123,901,368	0.6%
2	AID-Israel 5.50% Due 4/26/2024	113,623,791	0.5%
3	US Treasury Note 1.25% Due 8/31/2019	110,503,749	0.5%
4	US Treasury Note 3.625% Due 2/15/2020	101,765,625	0.5%
5	US Treasury Note 1.25% Due 6/30/2019	98,906,250	0.5%
6	US Treasury Note 1.375% Due 9/30/2019	98,699,219	0.5%
7	US Treasury Note 2.125% Due 12/31/2022	97,488,281	0.5%
8	US Treasury Note 2.25% Due 10/31/2024	96,800,781	0.4%
9	Fannie Mae Pool 3.00% Due 10/01/2046	92,501,540	0.4%
10	US Treasury Note 2.125% Due 7/31/2024	84,405,050	0.4%
Total		**$1,018,595,654**	**4.8%**

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

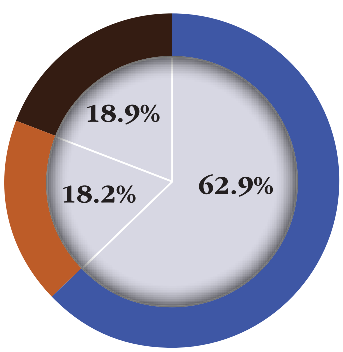
A complete list of the System's fixed income holdings (excluding short-term) is available on our website (see About Us > Investments) or through the Public Information Office.

Real Estate Debt by Property Type — as of June 30, 2018



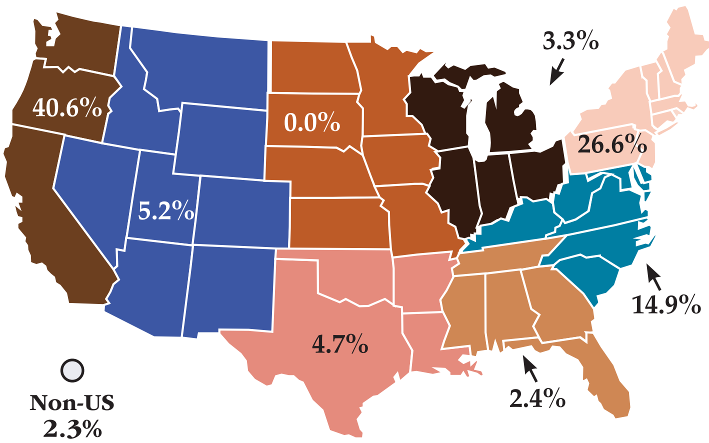
Office	59.9%
Residential	9.5%
Retail	9.3%
Mixed Use/Other	9.1%
Industrial/R&D	12.2%

Breakdown of Real Estate Debt Portfolio — as of June 30, 2018



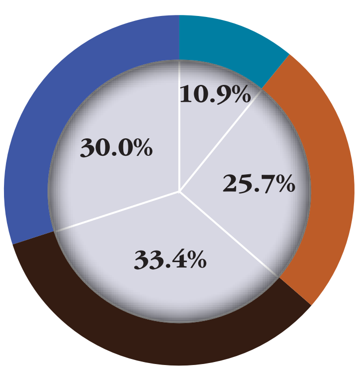
Conventional Mortgages	62.9%
CMBS	18.2%
Mezzanine Debt	18.9%

Geographic Distribution of the Real Estate Debt Portfolio — as of June 30, 2018



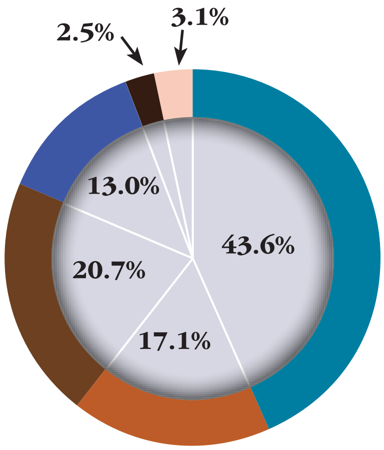
Pacific	40.6%
Mountain	5.2%
West North Central	0.0%
East North Central	3.3%
Northeast	26.6%
Mideast	14.9%
Southeast	2.4%
Southwest	4.7%
Non-U.S.	2.3%

Private Debt Net Asset Value by Investment Type — as of June 30, 2018



Direct Lending	10.9%
Distressed	25.7%
Mezzanine	33.4%
Special Situation	30.0%

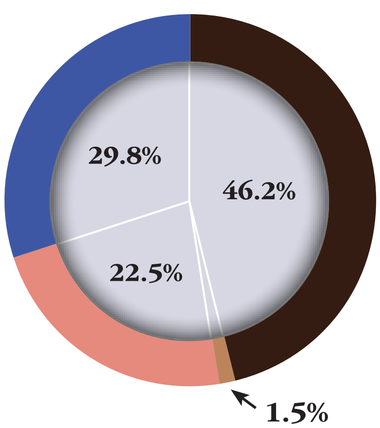
Private Debt Net Asset Value by Geography* — as of June 30, 2018



North America	43.6%
Multi-National	17.1%
Western Europe	20.7%
United Kingdom	13.0%
Asia	2.5%
Rest of World	3.1%

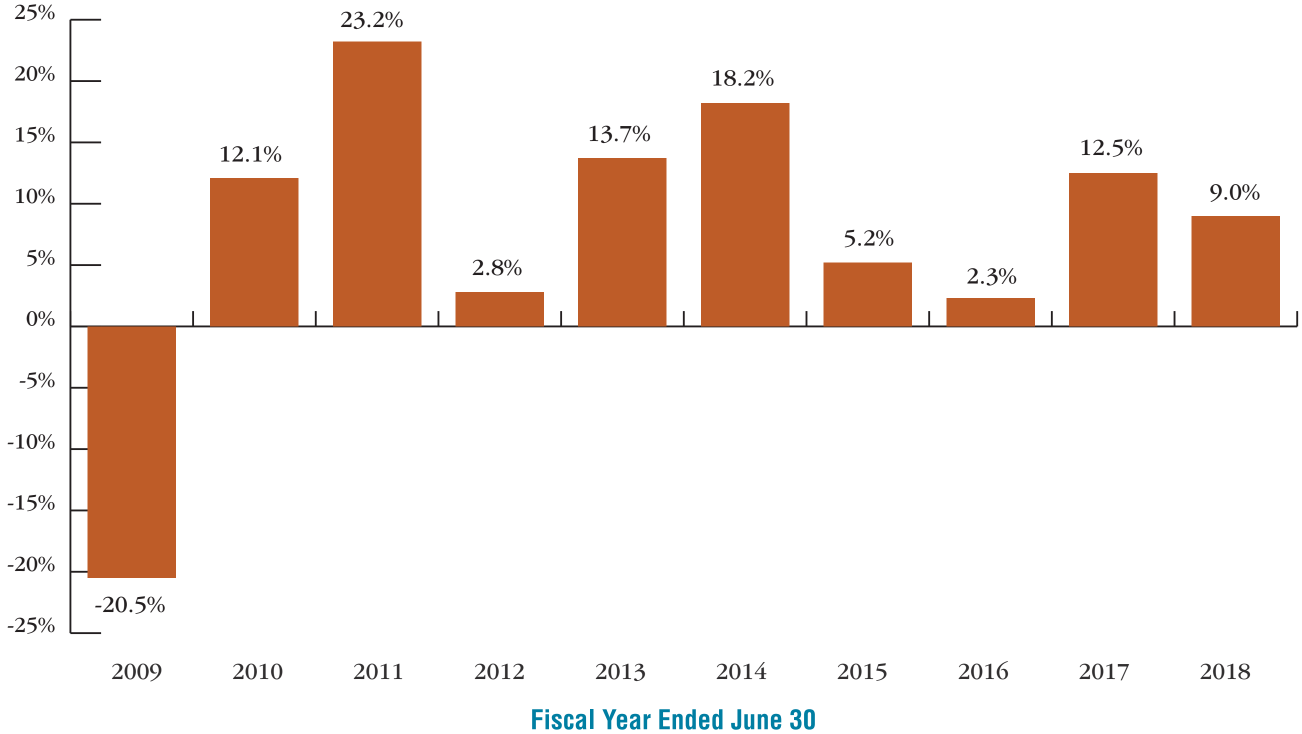
**Excluding fund of funds and secondary funds.*

Short Term Sector Distribution — as of June 30, 2018



Industrial	46.2%
Utilities	1.5%
Governmental/Agency/Supranational	22.5%
Banks & Finance	29.8%

Annual Performance History



Investment Performance Results — as of June 30, 2018

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.

	Annualized Rates of Return				
	1-YR	3-YR	5-YR	10-YR	30-YR
Domestic Equity	14.3%	11.7%	13.3%	10.4%	10.5%
Benchmark: Blended S&P/Russell[1]	14.5	11.9	13.4	10.4	10.5
International Equity	7.5	5.5	6.4	2.7	-
Benchmark: Blended MSCI ACWI (Ex-US)/EAFE[1]	7.3	5.1	6.0	2.2	-
Global Equity[2]	-	-	-	-	-
Benchmark: MSCI ACWI	-	-	-	-	-
Real Estate Equity	8.5	8.6	11.2	6.2	8.7
Benchmark: Blended NCREIF/REIT[1]	7.0	8.1	9.8	5.1	6.6
Private Equity	18.2	14.7	16.3	10.5	-
Benchmark: S&P 500 plus 5%	19.4	16.9	18.4	15.2	-
Domestic Fixed Income	-0.3	1.2	1.7	3.3	6.2
Benchmark: Bloomberg Barclays U.S. Aggregate Float Adj[1,3]	-0.4	1.7	2.3	3.7	6.2
High Yield Bonds[2]	-	-	-	-	-
Benchmark: ICE BofA Merrill Lynch BB-B Constr.[3]	1.9	-	-	-	-
Global Bonds	1.8	3.1	3.3	-	-
Benchmark: Bloomberg Barclays Global Agg. Hedged (Flt. Adj.)[3]	1.6	2.8	3.3	-	-
Real Estate Debt	2.0	3.8	4.5	5.0	7.7
Benchmark: Blended GLCMP/Barclays[3]	1.2	3.1	3.8	5.0	7.9
Private Debt	13.7	-	-	-	-
Benchmark: S&P/LSTA plus 3%	7.4	-	-	-	-
Short-Term	1.5	0.8	0.5	0.5	3.5
Benchmark: iMoneyNet Money Fund Avg/Taxable (All)	1.0	0.4	0.3	0.2	3.0
Total Fund	**9.0**	**7.9**	**9.3**	**7.2**	**9.2**
Benchmark: Blended Benchmark	**8.8%**	**8.0%**	**9.1%**	**7.3%**	**9.0%**

[1] In a dynamic market, strategies and objectives evolve over time. Consequently, these benchmarks are blended due to historical investment strategy decisions.

[2] These asset classes were incepted during the 2017-2018 fiscal year and, therefore, do not have at least one full year of performance results.

[3] See footnote on the Investments divider page.

Manager Investment Performance Results — as of June 30, 2018

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	$ 932.5	10.5%	6.1%		Apr-99
Leading Edge Investment Advisors	406.8	11.1	13.7		Dec-10
Progress Investment Management Co.	817.0	11.9	13.9		Nov-10
T. Rowe Price Associates Inc.	753.3	16.1	15.6		Jan-09
International Equity					
Managers					
Aberdeen Asset Management Inc.	592.4	3.9	4.3		Dec-10
AQR Capital Management LLC	695.3	7.7	6.5		Feb-12
Ariel Investments LLC	134.4	6.2	9.4		Apr-17
Arrowstreet Capital LP	602.5	5.0	3.5		Jul-17
Baillie Gifford Overseas Ltd.	776.8	9.8	6.9		Sep-11
BlackRock Institutional Trust Co. NA	8,485.3	7.9	7.6		Dec-11
Dimensional Fund Advisors	179.6	2.8	2.7		Feb-13
FIS Group Inc.	270.0	5.2	4.6		May-13
LSV Asset Management	699.5	5.1	4.0		Jul-11
Marathon Asset Management LLP	575.2	9.1	7.4		Jan-12
State Street Global Advisors	8,440.0	7.4	7.1		Jul-12
William Blair & Company	742.4	7.4	4.6		Oct-10
Global Equity					
Managers					
Harding Loevner LP	508.1	-1.4	-2.2		May-18
LSV Asset Management	490.9	-4.7	-2.2		May-18
Real Estate Equity					
Advisors					
Bentall Kennedy	123.1	10.1	8.2		Apr-95
Clarion Partners	362.4	9.3	6.4		Jun-90
Forest Investment Associates	306.8	4.0	5.5		Dec-98
Invesco Advisors Inc. - Industrial	247.1	9.3	8.2		Nov-94
Invesco Advisors Inc. - Multifamily	118.0	11.7	7.6		Dec-98
JPMorgan Asset Management	3,751.7	10.8	6.6		Oct-90
Sentinel Real Estate Corporation	$ 432.5	11.7%	8.3%		Mar-96

[1] Returns for periods over 1 year are annualized.
[2] Return is an IRR (Internal Rate of Return), not time-weighted.
[3] Equity multiples are only shown for aggregates where returns are calculated as an IRR.

Manager Investment Performance Results — as of June 30, 2018 *(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	$ 358.0	10.2%	9.7%		Aug-98
AEW Capital Management LP	219.3	3.5	3.8		Oct-17
Brookfield Investment Management	218.5	2.9	3.1		Sep-17
Cohen & Steers Capital Management Inc.	1,270.2	9.5	9.1		Feb-18
Dimensional Fund Advisors	218.4	2.3	3.0		Nov-17
Heitman Real Estate Securities LLC	217.6	2.9	3.1		Sep-17
Fund Investments					
Real Estate Equity Core Funds	1,617.1	7.2[2]	-	2.4	Jul-85
Real Estate Equity Opportunistic Funds	1,556.5	11.4[2]	-	1.4	Mar-99
Real Estate Equity Value-Added Funds	815.0	11.6[2]	-	1.4	Dec-89
Private Equity					
Fund Investments	$8,392.3	12.3[2]	-	1.6	Oct-92
High Yield Bonds					
Managers					
JPM Investment Management	49.8	0.1	0.1		Apr-18
Nomura Corp Research and Asset Mgt Inc.	50.0	-0.2	-0.5		Dec-17
Global Bonds					
Managers					
Goldman Sachs Asset Management LP	633.0	0.2	0.3		Aug-16
Loomis, Sayles & Company	1,004.7	2.8	2.8		Nov-12
Wellington Management Company LLP	997.9	3.4	3.5		Aug-13
Real Estate Debt					
Managers					
BlackRock Financial Management Inc.	537.6	5.1	5.1		Apr-01
Prima Capital Advisors LLC	553.1	5.3	4.5		Nov-03
Fund Investments					
Real Estate Debt Core Plus Funds	933.7	7.8[2]	-	1.1	Dec-04
Real Estate Debt Opportunistic Funds	194.3	-2.3[2]	-	0.9	Jun-98
Private Debt					
Fund Investments	$ 493.5	14.2%[2]	-%	1.1	Jul-17

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

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

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

Corporate Governance

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

For the 2017 calendar year, a total of 22,106 proposals were voted on, representing 2,113 meetings for the companies it owns in the System's equity portfolio. Many of the proxies focused on auditors/CPA and board-related issues, and executive compensation. System policies generally support management if the position is reasonable, is not detrimental to the long-term economic prospects of the company, and does not tend to diminish the rights of shareholders.

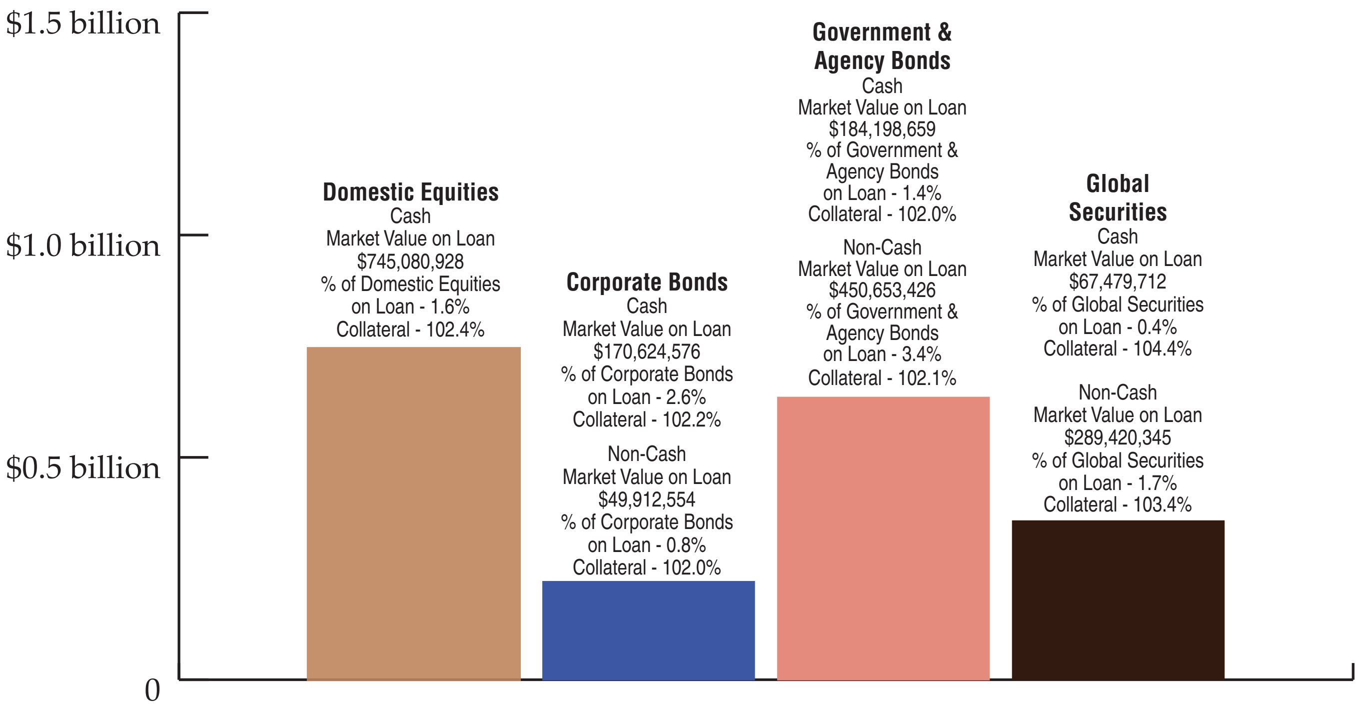
Management Proposals (21,575)		
Position	Number of Proposals	Percentage of Position
For	19,547	90.6%
Against	2,000	9.3%
Abstain	28	0.1%

Shareholder Proposals (531)		
Position	Number of Proposals	Percentage of Position
For	249	46.9%
Against	275	51.8%
Abstain	7	1.3%

Securities Lending Program - as of June 30, 2018

Market Value on Loan

Cash: $1,167,383,875 - Non Cash: $789,986,325 - Total: $1,957,370,200



Schedule of Investment Fees and Expenses — Year ended June 30, 2018*

(dollars in thousands)

Portfolio Manager	Investment Management Expenses 2017-2018
Domestic Equity:	
Iridian Asset Management LLC	$ 5,668
Leading Edge Investment Advisors	2,908
Progress Investment Management Co.	4,162
T. Rowe Price Associates Inc.	1,731
Total Domestic Equity:	$ 14,469
International Equity:	
Aberdeen Asset Management Inc.	$ 3,164
AQR Capital Management LLC	3,410
Ariel Investments LLC	836
Arrowstreet Capital LP	1,579
Baillie Gifford Overseas LTD	2,875
BlackRock Institutional Trust Co. N.A.	2,801
Dimensional Fund Advisors	894
FIS Group Inc.	1,622
LSV Asset Management	3,588
Marathon Asset Management LLP	3,163
State Street Global Advisors	2,464
William Blair & Company	2,641
Total International Equity:	$ 29,037
Global Equity:	
Harding Loevner LP	$ 272
LSV Asset Management	193
Total Global Equity:	$ 465
Real Estate Equity:	
Adelante Capital Management LLC	$ 1,072
AEW Capital Management LP	733
Bentall Kennedy	430
Brookfield Investment Management	1,075
Clarion Partners	2,201
Cohen & Steers Capital Management Inc.	2,929
Deutsche Asset & Wealth Management**	568
Dimensional Fund Advisors	204
Forest Investment Associates	1,656
Heitman Real Estate Securities LLC	1,019
Invesco Advisors Inc.	1,319
JPMorgan Asset Management	8,604
LaSalle Investment Management**	173
Real Estate Equity Core Funds	12,775
Real Estate Equity Opportunistic Funds	35,626
Real Estate Equity Value Added Funds	18,001
Sentinel Real Estate Corporation	2,450
Total Real Estate Equity:	$ 90,835
Private Equity:	$107,228

Portfolio Manager	Investment Management Expenses 2017-2018
High Yield Bonds:	
Nomura Corp Research and Asset Mgt Inc.	$ 131
Total High Yield Bonds:	$ 131
Global Bonds:	
Goldman Sachs Asset Management LP	$ 1,162
Loomis, Sayles & Company	1,394
Wellington Management Company LLP	1,890
Total Global Bonds:	$ 4,446
Real Estate Debt:	
BlackRock Financial Management Inc.	$ 963
NY Life	46
PGIM Real Estate Finance	13
Prima Capital Advisors LLC	1,013
Real Estate Debt Core Plus Funds	3,630
Real Estate Debt Opportunistic Funds	3,307
Torchlight Investors**	23
Total Real Estate Debt:	$ 8,995
Private Debt:	$ 11,794
Legal Expenses:	
Hirschler Fleischer	$ 47
Jackson Walker	99
K&L Gates	203
Morgan, Lewis & Bockius	151
Nixon Peabody	129
Nossman LLP	137
Robinson Bradshaw	189
Seward & Kissel	58
Teigland Hunt	175
Total Legal Expenses:	$ 1,188
General Expenses:	
Advisory Committee - Investment	$ 49
Advisory Committee - Real Estate	68
Callan Associates	642
Aon Hewitt Investment Consulting Inc.	520
International Equity - Market Fees	45
Investment Information Services	4,408
JPMorgan Chase	7
Real Estate Origination Costs	209
Real Estate Professional Fees	65
Real Estate Service Costs	26
State Street Corporation	1,260
Stockbridge Risk Management	21
TorreyCove	861
Total General Expenses:	$ 8,181
Total Investment Fees and Expenses:	$276,769

**The above schedule is presented based on asset allocation, which differs from financial statement presentation.*
***Indicates Portfolio manager was terminated during fiscal year.*

Investment Advisory Committee

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

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

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

Johanna Fink
Chief Operating Officer
Leducq Corporation
Boston, Massachusetts

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

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

Real Estate Advisory Committee

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

Herman Bulls
President & Chief Executive Officer
Bulls Advisory Group LLC
McLean, Virginia

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

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

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

Maureen A. Ehrenberg
Executive Managing Director
Jones Lang LaSalle
Chicago, Illinois

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

Investment Consultants

Aon Hewitt Investment Consulting Inc.
Chicago, Illinois

Callan LLC
San Francisco, California

Abel Noser Solutions, LLC
New York, New York

TorreyCove Capital Partners
San Diego, California

Master Custodian

State Street Bank & Trust Co.
Boston, Massachusetts

Securities Lending

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

State Street Bank & Trust Co.
Boston, Massachusetts

External Investment Managers & Advisors

Domestic Equity:
Iridian Asset Management LLC
Leading Edge Investment Advisors (Manager of Managers)
Progress Investment Management Co. (Manager of Managers)
T. Rowe Price Associates Inc.

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

Global Equity:
Harding Loevner LP
LSV Asset Management

Real Estate Equity:
Advisors:
Bentall Kennedy
CBRE Global Investors
Clarion Partners
Federal Capital Partners
Forest Investment Associates
Invesco Advisers Inc.
JPMorgan Asset Management
Sentinel Real Estate Corporation

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

Fund Investments:
Abacus Multi-Family Partners II LP
Abacus Multi-Family Partners III LP
Abacus Multi-Family Partners IV LP
AG Core Plus Realty Fund IV LP
AG Realty Fund VI LP
AG Realty Fund VII LP
AG Realty Fund VIII LP
AG Realty Fund IX LP

External Investment Managers & Advisors *(continued)*

Real Estate Equity: *(continued)*

Fund Investments: *(continued)*

Artemis Real Estate Partners Fund I LP
Artemis Real Estate Partners Fund II LP
BlackRock Asia Property Fund II LP
BlackRock Asia Property Fund III LP
BlackRock Europe Parallel Property Fund II LP
BlackRock Europe Property Fund III LP
Blackstone Real Estate Partners Asia LP
Blackstone Real Estate Partners Asia II LP
Blackstone Real Estate Partners Europe IV LP
Blackstone Real Estate Partners Europe V LP
Blackstone Real Estate Partners V TE2 LP
Blackstone Real Estate Partners VI TE2 LP
Blackstone Real Estate Partners VII TE1 LP
Blackstone Real Estate Partners VIII LP
Brockton Capital Fund III LP
Brookfield DC Office Partners LP
Brookfield DTLA Holdings LLC
Brookfield Properties Office Partners Inc.
Cabot Industrial Core Fund LP
Cabot Industrial Value Fund II LP
Cabot Industrial Value Fund IV LP
Cabot Industrial Value Fund V LP
California Select Industrial Partners LP
CBRE Strategic Partners U.S. Opportunity 5 LP
CBRE Strategic Partners Europe III LP
CBRE Strategic Partners UK Fund III LP
CBRE Strategic Partners U.S. Value Fund 6 LP
CBRE Strategic Partners U.S. Value Fund 7 LP
Cerberus Institutional Real Estate Partners LP
Cerberus Institutional Real Estate Partners LP - Series Two
Cerberus Institutional Real Estate Partners III LP
Clarion Development Ventures III LP
Cornerstone Apartment Ventures III LP
CPI Capital Partners North America LP
DLJ Real Estate Capital Partners III LP
DLJ Real Estate Capital Partners IV LP
Excelsior II LLC
Exeter Industrial Value Fund LP
Exeter Industrial Value Fund II LP
Exeter Industrial Value Fund III LP
Exeter Industrial Value Fund IV LP
FCP Fund II LP
FCP Fund III LP
Gateway Real Estate Fund IV LP
Gateway Real Estate Fund V LP
GCM Grosvenor - NYSTRS Real Estate Investment Partners LP
GCM Grosvenor - NYSTRS Real Estate Investment Partners LP 2016-1
GreenOak US III LP
Heritage Fields LLC
Hines Emerging Markets Fund
Hines U.S. Office Value Added Fund II LP
Landmark Real Estate Trust IV
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 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
Penwood Select Industrial Partners II LP
Penwood Select Industrial Partners III LP
Penwood Select Industrial Partners IV LP
Penwood Select Industrial Partners V LP
Perella Weinberg Real Estate Fund I LP
Perella Weinberg Real Estate Fund II LP
PLA Residential Fund III LP
PRISA I
PRISA II
PRISA III
PW Real Estate Fund III LP
Rockpoint Finance Fund I LP
Rockpoint Growth and Income Real Estate Fund I LP
Rockpoint Growth and Income Real Estate Fund II LP
Rockpoint Real Estate Fund II LP
Rockpoint Real Estate Fund III LP
Rockpoint Real Estate Fund IV LP
Rockpoint Real Estate Fund V LP
Rockwood Capital Real Estate Partners Fund V LP
Rockwood Capital Real Estate Partners Fund VI LP
Rockwood Capital Real Estate Partners Fund VII LP
Rockwood Capital Real Estate Partners Fund VIII LP
Starwood Distressed Opportunity Fund IX LP
Starwood Global Opportunity Fund VII-A LP
Starwood Opportunity Fund IV LP
Starwood Opportunity Fund X Global LP
Starwood Opportunity Fund XI Global LP
UBS Trumbull Property Fund
Walton Street Real Estate Fund VI LP
Westbrook Real Estate Fund VI LP
Westbrook Real Estate Fund VII LP
Westbrook Real Estate Fund VIII LP
Westbrook Real Estate Fund IX LP
Westbrook Real Estate Fund X LP
Westbrook Real Estate Partners LP (Fund V)

External Investment Managers & Advisors *(continued)*

Private Equity:

Fund Investments:

Abbott Select Buyout Fund II
Abbott Select Buyouts Fund
ABRY Partners Fund V
ABRY Partners Fund VI
ABRY Partners Fund VII
ABRY Partners Fund VIII
ADV Opportunities Fund II LP
Aisling Capital II LP
Aisling Capital III LP
Alchemy Plan
Amulet Capital Fund I LP
Apex V
Apex V Secondary
Apex VI
Apollo Real Estate Fund IV
Ares Corporate Opportunities Fund II LP
Ares Corporate Opportunities Fund III
Ares Corporate Opportunities Fund IV LP
Ares Corporate Opportunities Fund V LP
BGH Capital Fund I LP
Blackstone Capital Partners Fund IV
Blackstone Capital Partners Fund V
CapStreet IV LP
Capvis Equity V LP
Carlyle Asia Partners IV LP
Carlyle Asia Partners V LP
Carlyle European Partners III LP
Carlyle Partners IV LP
Carlyle Partners V LP
Carlyle/Riverstone Global Energy & Power Fund III
Charterhouse Capital Partners VII
Charterhouse Capital Partners VIII
Charterhouse Capital Partners IX
Chisholm Partners III
Cinven III
Cinven IV
Cinven V
Cinven VI
Clayton Dubilier & Rice VI
Clearlake Capital Partners III LP
Clearlake Capital Partners IV LP
Clearlake Capital Partners V LP
Close Brothers Private Equity Fund VII
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
Cressey & Co. V LP
CVC Capital Partners Asia Pacific IV LP
CVC Capital Partners VI LP
CVC European Equity Partners V LP
Doughty Hanson & Co. V
EIV Capital III LP
Energy Capital Partners II LP
Energy Capital Partners III LP
Fairview Ventures Fund II
Fairview Ventures Fund III
FirstMark Capital II LP
FirstMark Capital III LP
GCM Grosvenor Cleantech
GCM Grosvenor Seasoned Primaries
GCM Grosvenor Seasoned Primaries II
GCM Grosvenor Seasoned Primaries III
General Catalyst Group VII LP
Gilde Buy-Out Fund V CV
Green Equity Investors V
GTCR Fund VIII
GTCR Fund IX
GTCR Fund X
GTCR Fund XI
GTCR Fund XII
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 N1)
HarbourVest/The Maple Fund (Tranche N2)
HarbourVest/NYSTRS Co-Investment Fund
HarbourVest/NYSTRS Co-Investment Fund II
Hellman & Friedman Capital Partners VIII LP
Hellman & Friedman V
Hellman & Friedman VI
Hellman & Friedman VII
Highland Capital Partners IX LP
HIPEP Select Asia Fund LP
HIPEP Select Asia II LP
Horsley Bridge VII
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 Partnership Capital Fund LP

External Investment Managers & Advisors *(continued)*

Private Equity: *(continued)*

Fund Investments: *(continued)*

Inflexion Partnership Capital Fund II LP
Inflexion Supplemental Fund IV LP
Institutional Venture Partners XIV LP
Institutional Venture Partners XV LP
JC Flowers II LP
JLL Partners Fund V LP
JLL Partners Fund VI LP
Kelso Investment Associates VII
Kelso Investment Associates VIII
KKR Asian Fund II LP
KRG Capital Fund III
KRG Capital Fund IV
Lexington Capital Partners V
Lexington Capital Partners VI
Lexington Capital Partners VII
Lexington Emerging Partners LP
Lexington Middle Market Investors
Lexington Middle Market Investors II
Lightspeed Venture Partners Select LP
Lightspeed Venture Partners IX LP
Lightspeed Venture Partners X LP
Linden Capital Partners Fund IV LP
LS Power Equity Partners IV LP
Lyceum Capital Fund III LP
Madison Dearborn Capital Partners IV
Madison Dearborn Capital Partners V
Madison Dearborn Capital Partners VI
MBK Partners Fund IV LP
Metalmark Capital Partners LP
Monomoy Capital Partners III LP
Nautic V
Nautic VI
Nautic VII
Nautic Partners VIII LP
NMS Fund III LP
Olympus Growth Fund V
Olympus Growth Fund VI
One Rock Capital Partners II LP
P123 Ltd
Pacific Equity Partners Fund V LP
Patria - Brazilian Private Equity Fund V LP
Patria - Private Equity Fund VI LP
PEG Pooled Venture Capital Institutional Investors II LLC
PEG Pooled Venture Capital Institutional Investors III LLC
Permira IV
Phoenix Equity Partners 2010 Fund
Phoenix Equity Partners 2016 Fund
Pine Brook Capital Partners LP
Pine Brook Capital Partners II LP
Rhone Partners IV LP
Rhone Partners V LP
Riverstone/Carlyle Global Energy and Power Fund IV
Silver Lake Partners II
Silver Lake Partners III
Silver Lake Partners IV LP
Silver Lake Partners V LP
Siris Partners III LP
Siris Partners IV LP
Spark Capital Growth Fund II LP
Spark Capital Partners IV LP
Spark Capital Partners V LP
StepStone Pioneer Capital Buyout Fund I
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
Strategic Partners II
Strategic Partners III - Venture
Strategic Partners III LP
Strategic Partners IV - VC LP
Strategic Partners IV LP
Strategic Partners V LP
Sun Capital Partners V LP
Sycamore Partners III LP
Tailwater Energy Fund III LP
TCV IX LP
TDR Capital IV LP
Technology Crossover Ventures IV
Technology Crossover Ventures V
Technology Crossover Ventures VI
Technology Crossover Ventures VII
Tenex Capital Partners II LP
The First Capital Access Fund LP
The Resolute Fund II LP
The Resolute Fund III LP
Thoma Bravo Discover Fund LP
Thoma Bravo Discover Fund II LP
Thoma Bravo Fund X
Thoma Bravo Fund XI LP
Thoma Bravo Fund XII 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
TSG4
TSG5

External Investment Managers & Advisors *(continued)*

Private Equity: *(continued)*

Fund Investments: *(continued)*

TSG6 LP
TSG7 A LP
TSG7 B LP
Valhalla Partners II LP
Valor Equity Partners IV LP
VantagePoint NY Venture Partners
VantagePoint Venture Partners 2006
VantagePoint Venture Partners IV
VCFA Private Equity Partners IV
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
Welsh, Carson, Anderson, & Stowe X
Welsh, Carson, Anderson, & Stowe XI
Wynnchurch Capital Partners III LP

High Yield Bonds:

Nomura Corp. Research and Asset Mgt. Inc.
JPM Investment Management

Global Bonds:

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

Real Estate Debt:

Managers:

BlackRock Financial Management Inc.
Prima Capital Advisors LLC

Fund Investments:

Barings Real Estate Credit Strategies Account-NY LP
Blackstone Real Estate Debt Strategies II LP
Blackstone Real Estate Debt Strategies High-Grade LP
Brookfield Real Estate Finance Fund IV LP
Brookfield Real Estate Finance Fund V LP
Brookfield Senior Real Estate Finance Account (N) LP
Capri Select Income II
Cornerstone Enhanced Mortgage Fund I LP
GCM Grosvenor - NYSTRS Debt Investment Partners LP
Latitude Management Real Estate Investors II Inc.
Madison Realty Capital Debt Fund III LP
PCCP First Mortgage Fund II LP
PCCP Mezzanine Recovery Partners I LP
PCCP Mezzanine Recovery Partners II LP
Pramerica Real Estate Capital IV LP
Prima Capital Advisors LLC
Sullivan Debt Fund LP
TCI Real Estate Partners Fund II LP
Torchlight Debt Opportunity Fund II LLC

Private Debt:

Fund Investments:

ABRY Advanced Securities Fund II
ABRY Advanced Securities Fund III
ABRY Mezzanine Partners
ABRY Senior Equity Fund II
ABRY Senior Equity Fund III
ABRY Senior Equity Fund IV
ABRY Senior Equity Fund V
AG Capital Recovery Partners VII LP
Avenue Special Situations Fund V LP
Caltius Partners IV LP
Clearlake Opportunities Partners LP
Hutton Collins Capital Partners II LP
Hutton Collins Capital Partners III LP
ICG Europe Fund V
ICG Europe Fund VI
MGG SF Evergreen Fund LP
Oaktree European Principal Fund III LP
Orion Energy Credit Opportunities Fund II LP
Peninsula Fund V
WCAS Capital Partners IV

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ACTUARIAL

Shared Accountability

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

ACTUARIAL

Page

Actuarial Certification Letter

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

October 26, 2018

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

Dear Members of the Board:

The financial objective of the New York State Teachers' Retirement System is to properly fund the retirement and ancillary benefits of members in order to ensure sufficient assets are being accumulated in order to pay benefits as they become due. 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, 2017. 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.

Actuarial assumptions, as adopted by the Retirement Board, are reviewed each year against experience on both an annual and quinquennial basis and changes are recommended when warranted. Assumptions are typically revised every five years. The current actuarial assumptions, other than the valuation rate of interest, were adopted by the Retirement Board in October 2015 and first effective with the June 30, 2015 actuarial valuation. A new valuation rate of interest was adopted by the Retirement Board in October 2017, lowering the rate from 7.50% to 7.25% effective with the June 30, 2017 actuarial valuation. The 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. 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 System's market value rate of return on assets for the fiscal year ending June 30, 2017 was 12.5%. The System's five-year annualized rate of return stood at 10.2%. The June 30, 2017 actuarial valuation produced a required employer contribution rate of 10.62% of payroll, representing an increase of approximately 8% over the prior year's rate of 9.80%. This was the first increase in the rate following three years of decreases. The lowering of the System's assumed rate of return led to the increase in the employer contribution rate.

Actuarial Certification Letter *(continued)*

Looking ahead to next year, the capital markets produced a good return during the fiscal year ending June 30, 2018, and the System achieved a net rate of return of 9.0% for the fiscal year. This will bring the System's five-year annualized rate of return to 9.3%. The actuarial value of assets smoothing process recognizes gains and losses gradually over a five-year period thereby moderating their impact on the employer contribution rate. No changes in actuarial assumptions are anticipated for this valuation.

The plan's funded ratio as of June 30, 2017, calculated using the Actuarial Value of Assets (AVA) was 97.7% and calculated using the Market Value of Assets (MVA) was 99.8%. The primary reason for this healthy funded ratio is that the System has collected the actuarially-required contribution annually from employers. The significance of this cannot be overstated. Various exhibits in this section provide further information on the actuarial assets, liabilities, and the funding level.

All actuarial calculations have been prepared 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, A.S.A., E.A., M.A.A.A., F.C.A.
Actuary

cc: T. Lee

Summary of Actuarial Methods and Assumptions - as of June 30, 2017

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.

Economic

Valuation Rate of Interest (10/2017)

7.25% compounded annually.
The valuation rate of interest contains a 2.25% 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 (10/2015)

1.5% annually

Demographic

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

Actuarial Present Value of Future Benefits — as of June 30, 2017 and June 30, 2016
(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.

	2017	2016
Present Value of Benefits Currently Being Paid:		
Service Retirement Benefits	$ 61,860,357	$ 59,300,507
Disability Retirement Benefits	348,674	331,309
Death Benefits	1,892	1,866
Survivor Benefits	1,006,708	932,669
Cost-of-Living Allowance	5,190,639	5,013,195
Total Present Value of Benefits Currently Being Paid	68,408,270	65,579,546
Present Value of Benefits Payable in the Future to Current Active Members:		
Service Retirement Benefits	54,353,782	50,051,245
Disability Retirement Benefits	225,220	209,350
Termination Benefits	2,142,148	2,001,472
Death and Survivor Benefits	379,665	362,916
Cost-of-Living Allowance	1,393,242	1,276,730
Total Active Member Liabilities	58,494,057	53,901,713
Present Value of Benefits Payable in the Future to Current Inactive (Vested) Members:		
Retirement Benefits	368,451	338,520
Death Benefits	317	311
Cost-of-Living Allowance	31,411	28,275
Total Vested Liabilities	400,179	367,106
Unclaimed Funds	16,617	15,082
Total Actuarial Present Value of Future Benefits	**$127,319,123**	**$119,863,447**

Note: Totals may not sum due to rounding.

Funding Progress

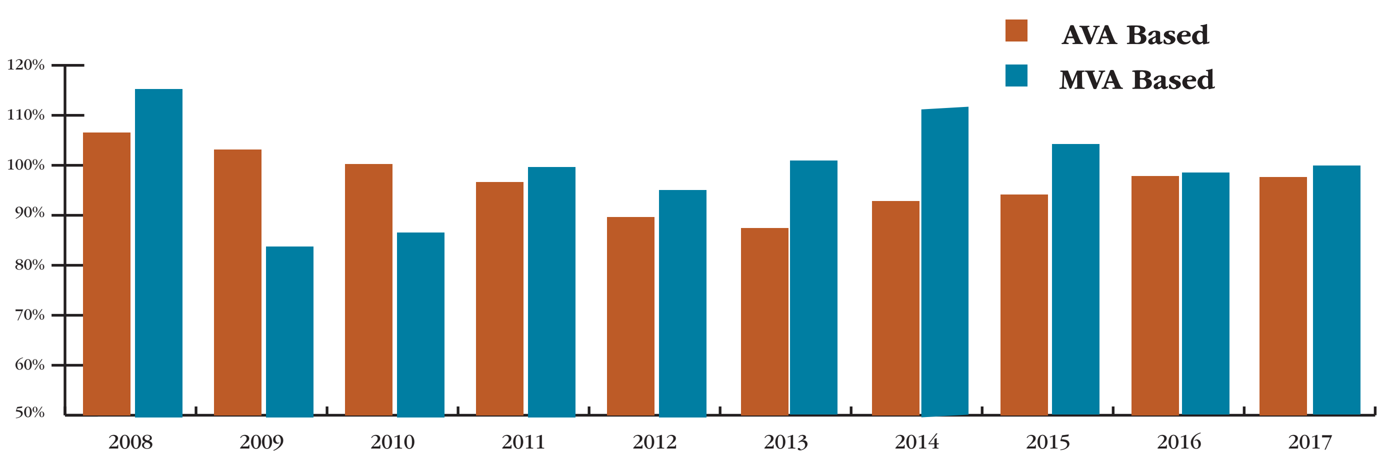
The portion of the actuarial present value of future benefits that is attributed to service rendered as of the valuation date is known as the actuarial accrued liability. In order to effectively assess the funding progress of a retirement system, it is necessary to compare the ratio of plan assets to the actuarial accrued liability over a period of time. Plan assets can be expressed as the market value of assets or as the actuarial value of assets. The market value of assets represents the market value of investments as of a particular date. The actuarial value of assets smoothes 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)	Actuarial Accrued Liability[1]	Percent Funded Based On MVA	Percent Funded Based On AVA
2008	$95,769.3	$88,254.7	$82,777.5	115.7%	106.6%
2009	72,471.8	88,805.5	86,062.0	84.2	103.2
2010	76,844.9	88,544.4	88,318.8	87.0	100.3
2011	89,889.7	86,892.2	89,824.9	100.1	96.7
2012	88,056.3	82,871.4	92,250.9	95.5	89.8
2013	95,367.0	82,742.5	94,583.8	100.8	87.5
2014	108,155.1	90,007.1	96,904.5	111.6	92.9
2015	109,718.9	99,301.8	105,401.8	104.1	94.2
2016	107,506.1	107,039.2	109,305.1	98.4	97.9
2017	115,468.4	113,059.7	115,672.5	99.8	97.7

Percent Funded



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

Solvency Test

(in millions)

Fiscal Year Ended	Aggregate Accrued Liabilities* for: Active Member Accumulated Contributions	Current Retired Members and Beneficiaries	Service Rendered by Active Members (Employer-Financed Portion)	Actuarial Value of Assets	Percentage of Aggregate Accrued Liabilities Covered by Actuarial Value of Assets		
	(A)	(B)	(C)	(D)	(A)	(B)	(C)
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%

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

Analysis of Financial Experience

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

Experience Source	Change in the Employer Contribution Rate During Fiscal Year Ended June 30, 2017
Revised Actuarial Assumptions:	+3.38%
Salary/Service:	+0.16
Net Investment Gain:	-2.38
New Entrants:	-0.08
Withdrawal:	-0.03
Mortality:	+0.03
Retirement:	-0.15
Pension Payments:	-0.02
Cost-of-Living Adjustment:	-0.08
Total Change in Employer Contribution Rate	**+0.83%**

History of Member Payroll and the Employer Contribution Rate

Fiscal Year Ended	Active Members	Annual Member Payroll (in millions)	Percent Increase In Annual Member Payroll	Average Full-Time Member Salary	Employer Contribution Rate (Percent of Payroll)
2009	280,338	$14,366.4	4.9%	$68,737	7.63%
2010	285,774	14,792.1	3.0	71,225	6.19
2011	280,435	14,732.9	-0.4	72,947	8.62
2012	277,273	14,640.8	-0.6	74,922	11.11
2013	273,328	14,647.8	0.0	76,348	11.84
2014	270,039	14,771.3	0.8	77,585	16.25
2015	267,715	15,021.4	1.7	78,695	17.53
2016	266,350	15,431.0	2.7	79,813	13.26
2017	264,761	15,846.7	2.7	80,951	11.72
2018	264,590	16,288.9	2.8	82,071	9.80

Schedule of Retired Members and Beneficiaries Added to and Removed from the Benefit Payroll*

	Number of Retired Members and Beneficiaries		Annual Benefit of Retired Members and Beneficiaries					
Fiscal Year Ended	Added During the Year	Removed During the Year	Added During the Year	Removed During the Year	Total Number of Retired Members and Beneficiaries	Total Annual Benefit	Percentage Increase in Total Annual Benefit	Average Annual Benefit
2009	6,047	3,456	$308,528,053	$ 85,339,178	139,297	$5,256,135,434	4.43%	$37,733
2010	5,879	3,460	287,886,459	88,868,015	141,716	5,455,153,878	3.79	38,494
2011	8,873	3,746	469,318,353	97,889,187	146,843	5,826,583,044	6.81	39,679
2012	6,463	3,494	319,324,379	96,522,713	149,812	6,049,384,710	3.82	40,380
2013	6,776	3,766	327,889,400	104,595,554	152,822	6,272,678,556	3.69	41,046
2014	7,003	3,894	332,495,800	110,681,561	155,931	6,494,492,795	3.54	41,650
2015	6,679	4,152	314,972,220	123,973,317	158,458	6,685,491,698	2.94	42,191
2016	6,719	4,029	318,693,576	122,540,821	161,148	6,881,644,453	2.93	42,704
2017	6,880	4,210	332,625,259	131,259,139	163,818	7,083,010,573	2.93	43,237
2018	6,951	4,484	342,878,955	144,338,778	166,285	7,281,550,750	2.80	43,790

**Computed on the Maximum annual benefit including supplementation and COLA.*

Independent Actuarial Review

KPMG LLP
515 Broadway
Albany, NY 12207-2974

Retirement Board
New York State Teachers' Retirement System:

As part of our audit of the financial statements of the New York State Teachers' Retirement System (the System) as of and for the year ended June 30, 2018, 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, 2018 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, 2016, used to derive the resultant employer contribution rate of 9.80% applied to employer payroll for the fiscal year ended June 30, 2018.

- The methodology used to estimate the payroll as of June 30, 2018, from which the employer contributions for the fiscal year ended June 30, 2018 and the related employer contribution receivable as of June 30, 2018 are derived.

- The System's Experience Studies as of June 30, 2016, 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 2018 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

November 1, 2018

STATISTICAL

Customer Service

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

STATISTICAL

The objective of the statistical section is to provide financial statement users with historical perspective, context and detail to assist in using the information in the financial statements, notes to financial statements, and required supplementary information to better understand and assess the economic condition of NYSTRS.

Demographic & Economic Information

The schedules on pages 121-134 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

Financial Trends Information

The schedules on pages 136-139 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

Operating Information

The schedules on pages 141-145 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

Demographic & Economic Information

Active Members:

	Male	Female	Total
June 30, 2017	62,609	202,152	**264,761**
Changes During Year:			
Added	2,699	9,901	**12,600**
Withdrawn	1,594	4,584	**6,178**
Retired	1,393	5,023	**6,416**
Died	69	108	**177**
June 30, 2018	62,252	202,338	**264,590**

Members Retired for:

	Service*			Disability			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
June 30, 2017	49,788	105,809	155,597	459	1,647	2,106	50,247	107,456	**157,703**
Changes During Year:									
Retired	1,369	4,932	6,301	24	91	115	1,393	5,023	**6,416**
Died	1,535	2,246	3,781	25	77	102	1,560	2,323	**3,883**
Lump Sum	61	123	184	0	0	0	61	123	**184**
Restored to Active Membership	0	0	0	0	3	3	0	3	**3**
June 30, 2018	49,561	108,372	157,933	458	1,658	2,116**	50,019	110,030	**160,049**

Beneficiaries of Deceased:

	Service Annuitants			Disability Annuitants			Active Members			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
June 30, 2017	1,290	4,436	**5,726**	102	164	**266**	25	98	**123**	1,417	4,698	**6,115**
Changes During Year:												
Added	166	356	**522**	9	4	**13**	0	0	**0**	175	360	**535**
Died	106	288	**394**	4	7	**11**	0	9	**9**	110	304	**414**
June 30, 2018	1,350	4,504	**5,854**	107	161	**268**	25	89	**114**	1,482	4,754	**6,236**

Summary:

	Male	Female	Total
Active Members	62,252	202,338	**264,590**
Retired Members	50,019	110,030	**160,049**
Beneficiaries	1,482	4,754	**6,236**
Total	113,753	317,122	**430,875**

**Also includes vested retirees.*

***Includes 19 males and 45 females retired for disability who receive a service benefit.*

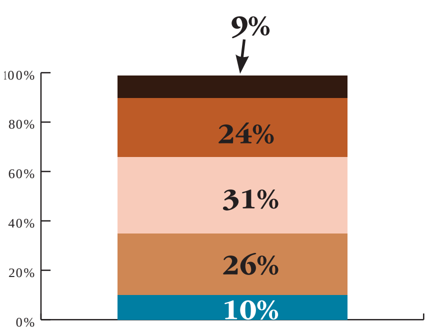
Distribution of Active Members by Age and Years of Service* — as of June 30, 2018

Age		Years of Credited Service 0-5	6-10	11-15	16-20	21-25
20-24	**Number of Members**	**5,451**	**0**	**0**	**0**	**0**
	Average Salary	*$40,321*	*$0*	*$0*	*$0*	*$0*
25-29	**Number of Members**	**20,968**	**1,226**	**1**	**0**	**0**
	Average Salary	*$51,654*	*$62,476*	*$51,289*	*$0*	*$0*
30-34	**Number of Members**	**18,527**	**10,836**	**2,301**	**0**	**0**
	Average Salary	*$55,287*	*$66,269*	*$76,305*	*$0*	*$0*
35-39	**Number of Members**	**10,807**	**7,829**	**15,674**	**2,937**	**1**
	Average Salary	*$54,974*	*$67,189*	*$81,475*	*$91,824*	*$70,864*
40-44	**Number of Members**	**7,335**	**5,124**	**9,296**	**16,206**	**1,504**
	Average Salary	*$50,435*	*$65,725*	*$84,600*	*$96,383*	*$105,531*
45-49	**Number of Members**	**6,668**	**4,924**	**5,966**	**11,563**	**11,078**
	Average Salary	*$46,930*	*$60,476*	*$79,188*	*$96,734*	*$104,789*
50-54	**Number of Members**	**5,304**	**4,135**	**5,021**	**6,205**	**6,910**
	Average Salary	*$43,896*	*$54,698*	*$70,912*	*$88,950*	*$104,093*
55-59	**Number of Members**	**3,628**	**2,678**	**3,868**	**5,154**	**3,991**
	Average Salary	*$43,326*	*$50,784*	*$64,999*	*$79,891*	*$94,351*
60-64	**Number of Members**	**2,126**	**1,346**	**1,956**	**3,485**	**2,982**
	Average Salary	*$43,478*	*$52,363*	*$65,318*	*$77,893*	*$90,622*
65-69	**Number of Members**	**915**	**578**	**622**	**1,076**	**944**
	Average Salary	*$47,952*	*$56,388*	*$65,219*	*$80,107*	*$90,059*
70+	**Number of Members**	**437**	**144**	**163**	**206**	**182**
	Average Salary	*$33,320*	*$45,078*	*$58,667*	*$68,135*	*$78,999*
Total	**Number of Members**	**82,166**	**38,820**	**44,868**	**46,832**	**27,592**
	Average Salary	*$51,253*	*$63,747*	*$78,376*	*$91,629*	*$100,979*

**Average salary data is for the 190,989 members who earned a full year of service.*

The average salary for all active members, full-time and part-time, is $73,487.

Distribution of Active Members by Age — as of June 30, 2018



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

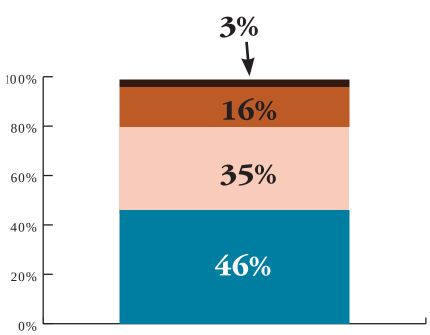
Averages — as of June 30, 2018

Gender	Age	Years of Service
Female	44	12
Male	44	13

Distribution of Active Members by Age and Years of Service* — as of June 30, 2018 *(continued)*

Years of Credited Service						
26-30	31-35	36-40	41-45	46-50	51+	Total
0	**0**	**0**	**0**	**0**	**0**	**5,451**
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$40,321*
0	**0**	**0**	**0**	**0**	**0**	**22,195**
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$52,709*
0	**0**	**0**	**0**	**0**	**0**	**31,664**
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$63,222*
0	**0**	**0**	**0**	**0**	**0**	**37,248**
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$75,798*
1	**0**	**0**	**0**	**0**	**0**	**39,466**
$136,245	*$0*	*$0*	*$0*	*$0*	*$0*	*$87,105*
1,058	**0**	**0**	**0**	**0**	**0**	**41,257**
$106,984	*$0*	*$0*	*$0*	*$0*	*$0*	*$91,191*
7,239	**1,105**	**2**	**0**	**0**	**0**	**35,921**
$107,724	*$109,590*	*$178,563*	*$0*	*$0*	*$0*	*$91,387*
4,474	**3,741**	**245**	**1**	**0**	**0**	**27,780**
$106,193	*$112,395*	*$111,055*	*$130,276*	*$0*	*$0*	*$88,533*
2,468	**1,303**	**724**	**75**	**0**	**0**	**16,465**
$101,644	*$111,288*	*$117,136*	*$128,699*	*$0*	*$0*	*$87,312*
691	**377**	**196**	**154**	**25**	**0**	**5,578**
$98,172	*$110,172*	*$119,816*	*$128,775*	*$128,551*	*$0*	*$88,538*
121	**130**	**67**	**36**	**55**	**24**	**1,565**
$88,350	*$83,160*	*$110,479*	*$124,611*	*$136,130*	*$128,511*	*$82,344*
16,052	**6,656**	**1,234**	**266**	**80**	**24**	**264,590**
$105,770	*$111,038*	*$116,094*	*$128,196*	*$133,762*	*$128,511*	*$82,071*

Distribution of Active Members by Service — as of June 30, 2018



Service Group	Percent
31+ Years of Service	3%
21-30 Years of Service	16%
11-20 Years of Service	35%
0-10 Years of Service	46%

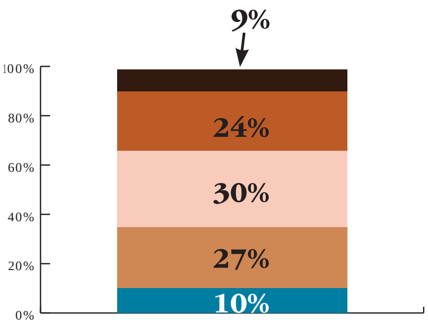
Distribution of Active Members by Age and Years of Service* — as of June 30, 2017

		Years of Credited Service				
Age		**0-5**	**6-10**	**11-15**	**16-20**	**21-25**
20-24	**Number of Members**	**4,900**	**1**	**0**	**0**	**0**
	Average Salary	*$38,965*	*$18,934*	*$0*	*$0*	*$0*
25-29	**Number of Members**	**21,717**	**1,194**	**1**	**0**	**0**
	Average Salary	*$50,271*	*$62,227*	*$19,863*	*$0*	*$0*
30-34	**Number of Members**	**18,829**	**12,065**	**2,227**	**2**	**0**
	Average Salary	*$54,186*	*$65,686*	*$76,524*	*$88,072*	*$0*
35-39	**Number of Members**	**10,311**	**8,523**	**16,391**	**2,718**	**1**
	Average Salary	*$53,914*	*$67,370*	*$81,750*	*$90,468*	*$113,024*
40-44	**Number of Members**	**6,967**	**5,431**	**9,691**	**15,402**	**1,217**
	Average Salary	*$49,234*	*$65,105*	*$84,335*	*$95,369*	*$103,587*
45-49	**Number of Members**	**6,625**	**5,337**	**6,405**	**11,577**	**10,075**
	Average Salary	*$45,898*	*$60,739*	*$78,601*	*$95,091*	*$102,760*
50-54	**Number of Members**	**5,166**	**4,360**	**5,260**	**6,013**	**6,202**
	Average Salary	*$42,753*	*$53,577*	*$71,148*	*$87,401*	*$101,592*
55-59	**Number of Members**	**3,587**	**2,810**	**4,105**	**5,095**	**3,746**
	Average Salary	*$42,336*	*$50,172*	*$65,633*	*$78,839*	*$91,430*
60-64	**Number of Members**	**2,096**	**1,390**	**2,096**	**3,439**	**2,993**
	Average Salary	*$45,984*	*$55,291*	*$65,934*	*$79,025*	*$89,950*
65-69	**Number of Members**	**891**	**549**	**623**	**982**	**830**
	Average Salary	*$44,941*	*$53,675*	*$63,132*	*$79,445*	*$88,702*
70+	**Number of Members**	**433**	**146**	**139**	**186**	**141**
	Average Salary	*$28,029*	*$49,657*	*$59,414*	*$70,286*	*$82,808*
Total	**Number of Members**	**81,522**	**41,806**	**46,938**	**45,414**	**25,205**
	Average Salary	*$50,124*	*$63,423*	*$78,397*	*$90,521*	*$98,773*

**Average salary data is for the 188,239 members who earned a full year of service.*

The average salary for all active members, full-time and part-time, is $72,373.

Distribution of Active Members by Age — as of June 30, 2017



Age Group	Percent
60+ Years of Age	**9%**
50-59 Years of Age	**24%**
40-49 Years of Age	**30%**
30-39 Years of Age	**27%**
20-29 Years of Age	**10%**

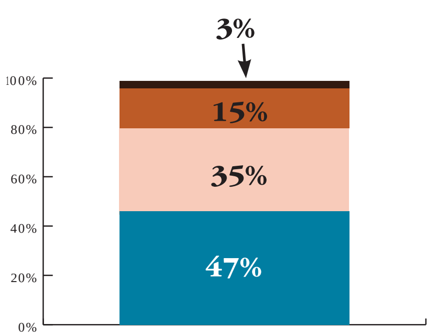
Averages — as of June 30, 2017

Gender	Age	Years of Service
Female	44	12
Male	44	13

Distribution of Active Members by Age and Years of Service* — as of June 30, 2017 *(continued)*

Years of Credited Service						
26-30	**31-35**	**36-40**	**41-45**	**46-50**	**51+**	**Total**
0	**0**	**0**	**0**	**0**	**0**	**4,901**
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$38,949*
0	**0**	**0**	**0**	**0**	**0**	**22,912**
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$51,427*
0	**0**	**0**	**0**	**0**	**0**	**33,123**
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$62,984*
0	**0**	**0**	**0**	**0**	**0**	**37,944**
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$76,012*
2	**0**	**0**	**0**	**0**	**0**	**38,710**
$83,874	*$0*	*$0*	*$0*	*$0*	*$0*	*$86,242*
898	**1**	**0**	**0**	**0**	**0**	**40,918**
$103,043	*$129,230*	*$0*	*$0*	*$0*	*$0*	*$89,243*
7,098	**1,152**	**0**	**0**	**0**	**0**	**35,251**
$105,525	*$105,816*	*$0*	*$0*	*$0*	*$0*	*$89,116*
4,543	**3,492**	**252**	**0**	**0**	**0**	**27,630**
$104,066	*$110,550*	*$110,395*	*$0*	*$0*	*$0*	*$86,594*
2,484	**1,267**	**802**	**65**	**0**	**0**	**16,632**
$101,255	*$111,589*	*$116,660*	*$122,766*	*$0*	*$0*	*$87,557*
679	**355**	**187**	**163**	**27**	**0**	**5,286**
$96,152	*$108,298*	*$121,867*	*$131,430*	*$132,797*	*$0*	*$87,754*
126	**111**	**59**	**40**	**52**	**21**	**1,454**
$85,097	*$89,283*	*$109,837*	*$118,454*	*$129,130*	*$127,061*	*$84,000*
15,830	**6,378**	**1,300**	**268**	**79**	**21**	**264,761**
$103,737	*$109,426*	*$115,888*	*$127,392*	*$130,383*	*$127,061*	*$80,951*

Distribution of Active Members by Service — as of June 30, 2017

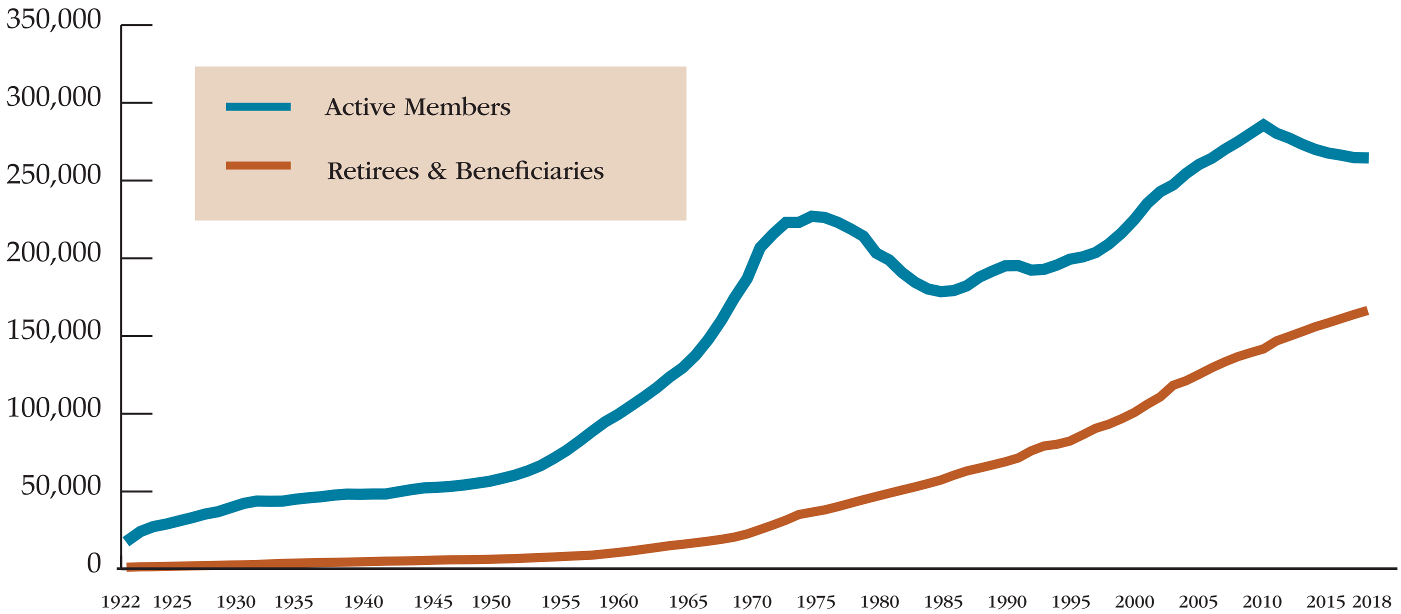


Service Group	Percent
31+ Years of Service	**3%**
21-30 Years of Service	**15%**
11-20 Years of Service	**35%**
0-10 Years of Service	**47%**

Active Members and Annuitants 1922-2018

As of June 30	Active Members	Retirees & Beneficiaries	As of June 30	Active Members	Retirees & Beneficiaries
1922	18,412	1,296	1970	186,914	22,700
1925	29,057	1,815	1975	227,038	35,252
1930	39,663	2,732	1980	203,330	46,812
1935	45,031	3,919	1985	178,516	57,366
1940	48,193	4,771	1990	195,194	69,127
1945	52,359	5,637	1995	199,398	82,459
1950	56,504	6,374	2000	224,986	100,839
1955	71,273	7,897	2005	260,356	125,325
1960	99,555	10,796	2010	285,774	141,716
1965	129,543	16,043	2015	267,715	158,458
			2018	264,590	166,285

See related graph below.



Number of Active Members by Tier

As of June 30	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6	Total
1999	50,859	15,776	20,726	128,906	--	--	216,267
2000	47,234	15,700	20,159	141,893	--	--	224,986
2001	41,169	15,472	19,914	157,795	--	--	234,350
2002	35,601	15,121	19,674	172,438	--	--	242,834
2003	28,327	14,463	19,083	185,374	--	--	247,247
2004	22,986	13,947	18,835	198,747	--	--	254,515
2005	17,901	13,210	18,535	210,710	--	--	260,356
2006	13,621	12,084	18,173	220,532	--	--	264,410
2007	10,838	10,178	17,743	231,286	--	--	270,045
2008	8,630	8,171	17,007	241,093	--	--	274,901
2009	6,943	6,752	16,111	250,532	--	--	280,338
2010	5,582	5,706	14,942	255,966	3,578	--	285,774
2011	3,814	4,137	12,690	247,530	12,264	--	280,435
2012	2,756	3,253	11,180	239,199	19,969	916	277,273
2013	1,968	2,447	9,450	231,258	19,452	8,753	273,328
2014	1,439	1,810	7,753	222,545	19,124	17,368	270,039
2015	1,116	1,348	6,222	214,020	18,878	26,131	267,715
2016	832	974	4,920	204,912	18,540	36,172	266,350
2017	607	720	3,881	195,226	17,722	46,605	264,761
2018	446	546	2,993	186,581	16,499	57,525	264,590

Members Retired in 2017-2018 for:

	Service*	Disability
Number Retired	**6,301**	**115**
Age at Retirement:		
Average	61 yrs., 1 mo.	51 yrs., 1 mo.
Median	61 yrs., 3 mos.	51 yrs., 5 mos.
Years of Service:		
Average	25 yrs., 1 mo.	18 yrs., 6 mos.
Median	27 yrs., 0 mos.	17 yrs., 5 mos.
**Benefit:		
Average	$45,725	$28,241
Median	$47,455	$27,086
Final Average Salary (FAS):		
Average	$86,910	$78,641
Median	$86,529	$72,289
***Benefit as % of FAS:		
Average	47.26%	35.06%
Median	53.11%	33.33%

Members Retired in 2017-2018 for Service* With:

	Less Than 10 Yrs. Svc.	10 or More Yrs. and Less Than 20 Years Svc.	20 or More Yrs. and Less Than 30 Yrs. Svc.	30 or More Yrs. Svc.
Number Retired	**511**	**1,001**	**2,046**	**2,743**
Age at Retirement:				
Average	61 yrs., 3 mos.	61 yrs., 7 mos.	62 yrs., 8 mos.	59 yrs., 9 mos.
Median	60 yrs., 0 mos.	61 yrs., 11 mos.	62 yrs., 7 mos.	59 yrs., 2 mos.
Years of Service:				
Average	6 yrs., 8 mos.	14 yrs., 5 mos.	24 yrs., 1 mo.	33 yrs., 1 mo.
Median	7 yrs., 0 mos.	14 yrs., 4 mos.	24 yrs., 0 mos.	32 yrs., 0 mos.
**Benefit:				
Average	$3,580	$12,615	$41,289	$68,968
Median	$3,016	$9,841	$39,879	$65,167
Final Average Salary (FAS):				
Average	$35,302	$56,323	$88,585	$106,438
Median	$32,003	$50,459	$86,328	$100,034
***Benefit as % of FAS:				
Average	9.83%	21.73%	45.97%	64.52%
Median	9.63%	21.44%	45.56%	63.00%

*Also includes vested retirees.

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

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

All Retirees as of June 30, 2018 Retired for:

	Service*	Disability
Number Retired	**157,997**	**2,052**
Age at Retirement:		
Average	58 yrs., 9 mos.	49 yrs., 6 mos.
Median	57 yrs., 9 mos.	50 yrs., 4 mos.
Age Attained as of June 30, 2018:		
Average	72 yrs., 11 mos.	65 yrs., 4 mos.
Median	71 yrs., 7 mos.	66 yrs., 1 mo.
Years of Service:		
Average	28 yrs., 0 mos.	18 yrs., 4 mos.
Median	30 yrs., 2 mos.	17 yrs., 6 mos.
**Benefit:		
Average	$42,216	$20,780
Median	$42,438	$18,998
Final Average Salary (FAS):		
Average	$72,362	$57,221
Median	$70,944	$54,979
***Benefit as % of FAS:		
Average	54.08%	35.58%
Median	60.22%	33.33%

All Retirees as of June 30, 2018 Retired for Service* With:

	Less Than 10 Yrs. Svc.	10 or More Yrs. and Less Than 20 Years Svc.	20 or More Yrs. and Less Than 30 Yrs. Svc.	30 or More Yrs. Svc.
Number Retired	**4,429**	**22,512**	**46,592**	**84,464**
Age at Retirement:				
Average	60 yrs., 5 mos.	58 yrs., 11 mos.	59 yrs., 10 mos.	58 yrs., 1 mo.
Median	59 yrs., 7 mos.	57 yrs., 4 mos.	59 yrs., 9 mos.	57 yrs., 0 mos.
Years of Service:				
Average	7 yrs., 3 mos.	14 yrs., 5 mos.	24 yrs., 8 mos.	34 yrs., 4 mos.
Median	7 yrs., 4 mos.	14 yrs., 5 mos.	25 yrs., 0 mos.	34 yrs., 0 mos.
**Benefit:				
Average	$4,125	$9,316	$32,623	$58,274
Median	$3,485	$7,215	$30,258	$54,878
Final Average Salary (FAS):				
Average	$39,556	$41,436	$67,587	$84,959
Median	$35,899	$34,367	$63,905	$80,593
***Benefit as % of FAS:				
Average	10.45%	21.89%	47.99%	68.32%
Median	10.00%	20.93%	48.67%	68.00%

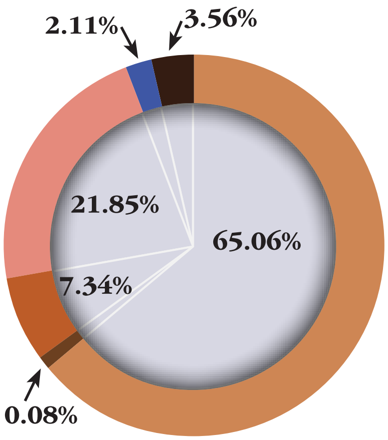
**Also includes vested retirees.*

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

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

Retirement Benefit Options and Percent of Election

2014-2018 Retirees



Option	Number Electing	Percent of Election
Maximum	20,666	65.06%
Annuity/Declining Reserve	26	0.08
Joint & Survivor	2,330	7.34
Pop-Up	6,942	21.85
Guarantee	669	2.11
Alternative	1,132	3.56
Total	**31,765**	**100.00%**

Percentages may not sum to 100% due to rounding.

Retired Members' Characteristics*

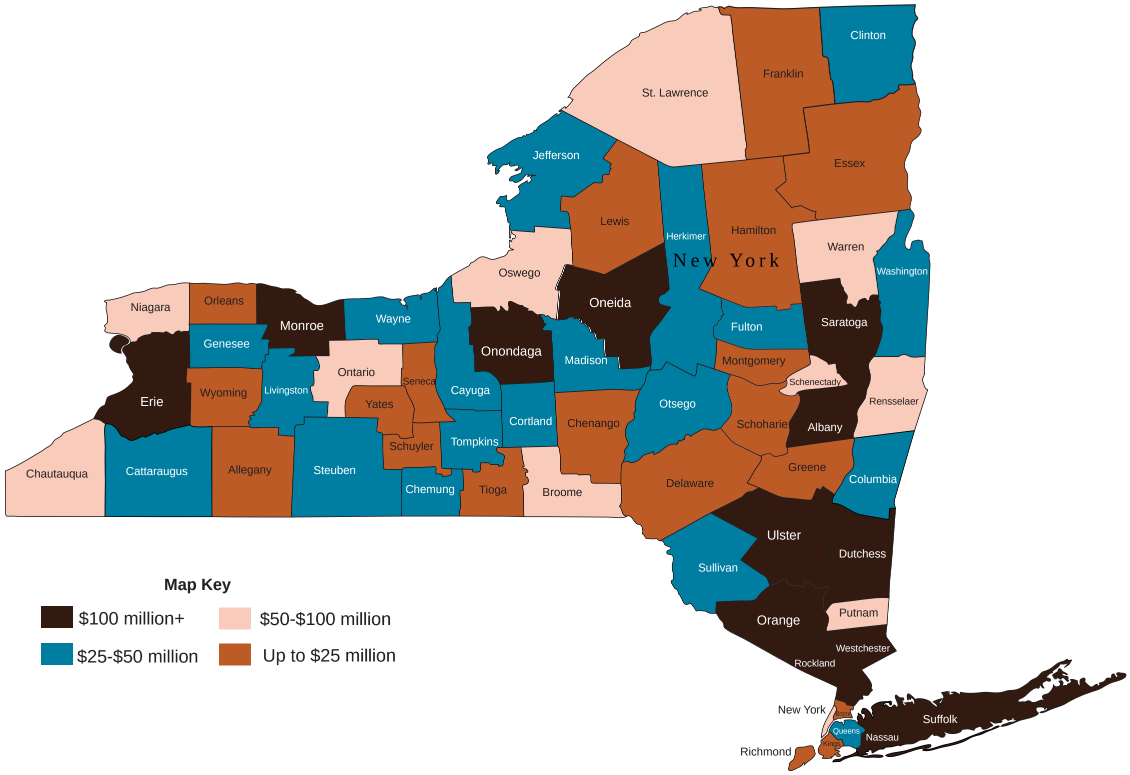
By Year of Retirement

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
2009	5,644	59-6	27-7	$78,050	$46,061
2010	5,501	60-0	27-5	79,615	46,489
2011	8,423	60-3	28-7	85,010	51,200
2012	6,033	60-9	26-3	82,461	45,759
2013	6,330	60-10	25-6	81,987	44,768
2014	6,547	61-0	25-4	84,545	44,978
2015	6,161	60-11	25-4	84,362	44,487
2016	6,245	61-2	25-0	84,308	44,215
2017	6,396	61-3	25-0	85,242	45,049
2018	6,416	61-1	25-1	86,910	45,725

**Averages are for service and vested retirees.*

Distribution of Benefits Paid by County* — as of June 30, 2018

Benefits Paid to NYS Residents



County	Retired Members and Beneficiaries	Annual Benefit Paid	County	Retired Members and Beneficiaries	Annual Benefit Paid	County	Retired Members and Beneficiaries	Annual Benefit Paid
Albany	3,056	$121,568,503	Jefferson	1,341	$49,996,222	St. Lawrence	1,688	$58,933,259
Allegany	645	$22,242,288	Kings	225	$9,920,065	Saratoga	3,481	$143,733,958
Bronx	260	$12,642,039	Lewis	361	$12,607,128	Schenectady	1,739	$67,668,366
Broome	2,323	$86,143,600	Livingston	946	$36,227,198	Schoharie	415	$14,853,898
Cattaraugus	928	$35,943,941	Madison	986	$36,819,156	Schuyler	255	$8,602,028
Cayuga	1,014	$37,000,809	Monroe	8,827	$350,993,699	Seneca	420	$15,358,733
Chautauqua	1,885	$74,874,640	Montgomery	527	$19,990,298	Steuben	1,385	$48,952,324
Chemung	1,095	$38,812,495	Nassau	9,417	$525,239,879	Suffolk	17,028	$989,194,371
Chenango	677	$23,241,023	New York	1,288	$60,442,498	Sullivan	825	$36,162,780
Clinton	1,211	$45,195,095	Niagara	2,264	$96,762,307	Tioga	551	$20,372,608
Columbia	739	$29,085,138	Oneida	3,139	$117,326,750	Tompkins	1,008	$32,822,874
Cortland	723	$26,352,978	Onondaga	6,747	$247,817,447	Ulster	2,696	$117,163,393
Delaware	610	$20,800,731	Ontario	1,905	$73,857,903	Warren	1,375	$54,215,974
Dutchess	3,249	$147,488,170	Orange	3,207	$149,681,976	Washington	752	$27,376,256
Erie	10,651	$454,153,852	Orleans	444	$18,692,293	Wayne	1,248	$46,275,419
Essex	615	$20,604,568	Oswego	1,664	$59,904,673	Westchester	6,633	$358,605,980
Franklin	700	$24,215,320	Otsego	1,080	$35,677,337	Wyoming	486	$18,089,899
Fulton	787	$29,946,231	Putnam	958	$52,064,405	Yates	402	$14,429,474
Genesee	773	$30,720,537	Queens	827	$43,459,566			
Greene	524	$19,498,743	Rensselaer	1,608	$62,152,381	Out of State	40,099	$1,419,025,441
Hamilton	144	$5,459,984	Richmond	52	$2,107,754			
Herkimer	1,033	$35,659,277	Rockland	2,344	$115,127,514	**Grand Total**	**166,285**	**$7,010,355,446**

**Computed on the optional annual benefit including supplementation and COLA.*

Distribution of Retired Members and Beneficiaries by Tier — as of June 30, 2018

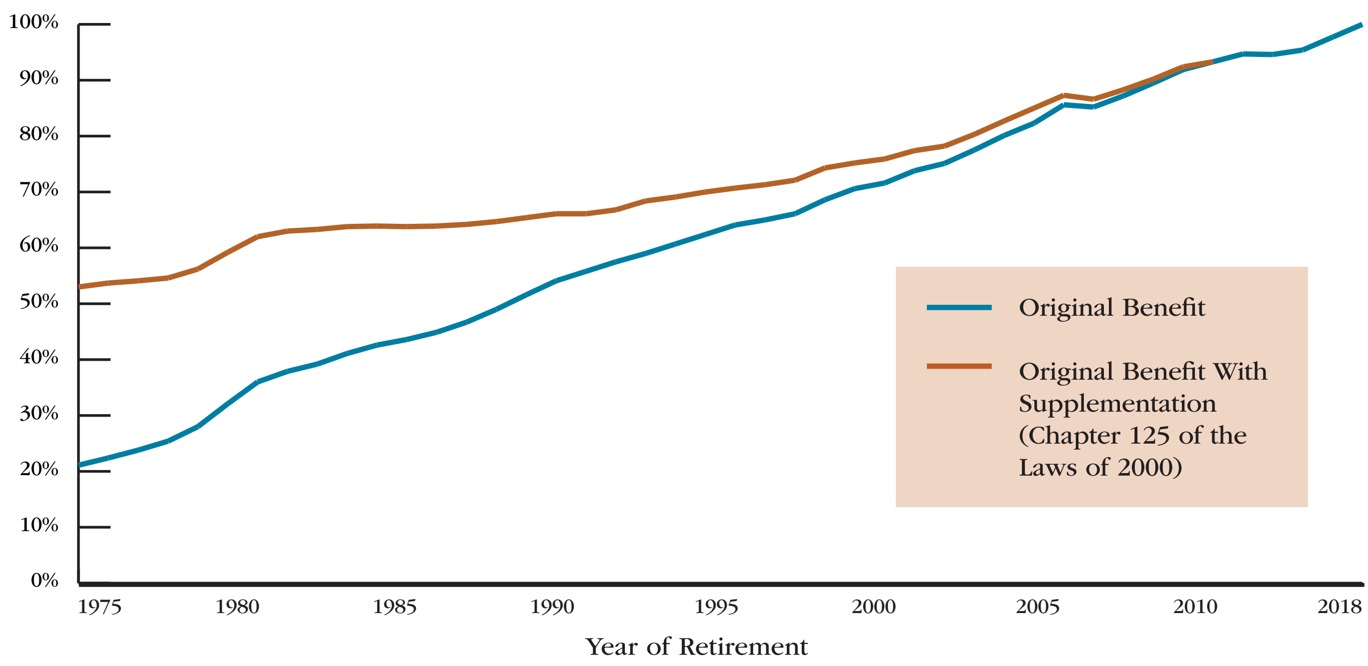
	Tier 1	Tier 2	Tier 3		Tier 4	Tier 5	Tier 6	Total
Members Retired for:								
Service*	87,477	16,855	18,806	(217)**	34,769	23	3	157,933
Disability	630	177	244	(30)**	1,065	0	0	2,116
Beneficiaries of Deceased:								
Service Annuitants	4,938	311	265	(5)**	339	1	0	5,854
Disability Annuitants	160	23	30	(5)**	55	0	0	268
Active Members	112	1	1	(0)**	0	0	0	114
Total	**93,317**	**17,367**	**19,346**	**(257)****	**36,228**	**24**	**3**	**166,285**

**Also includes vested retirees.*

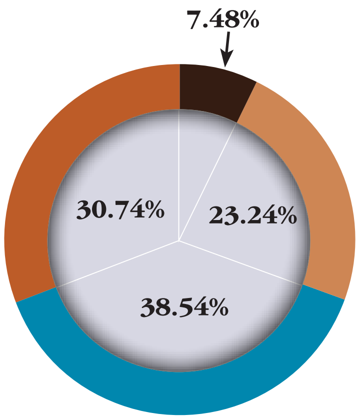
***Those receiving an Article 14 (Tier 3) benefit. The remainder are receiving an Article 15 (Tier 4) benefit. Tier 3 members receive the better of the two benefits.*

Retired Members — Remaining Purchasing Power Through 2018

Inflation annually erodes the purchasing power of our retired members' benefits. The chart below illustrates the percentage of purchasing power remaining of the original benefit, and the original benefit plus supplementation including the cost-of-living adjustment, payable beginning September 2018 in accordance with Chapter 125 of the Laws of 2000.



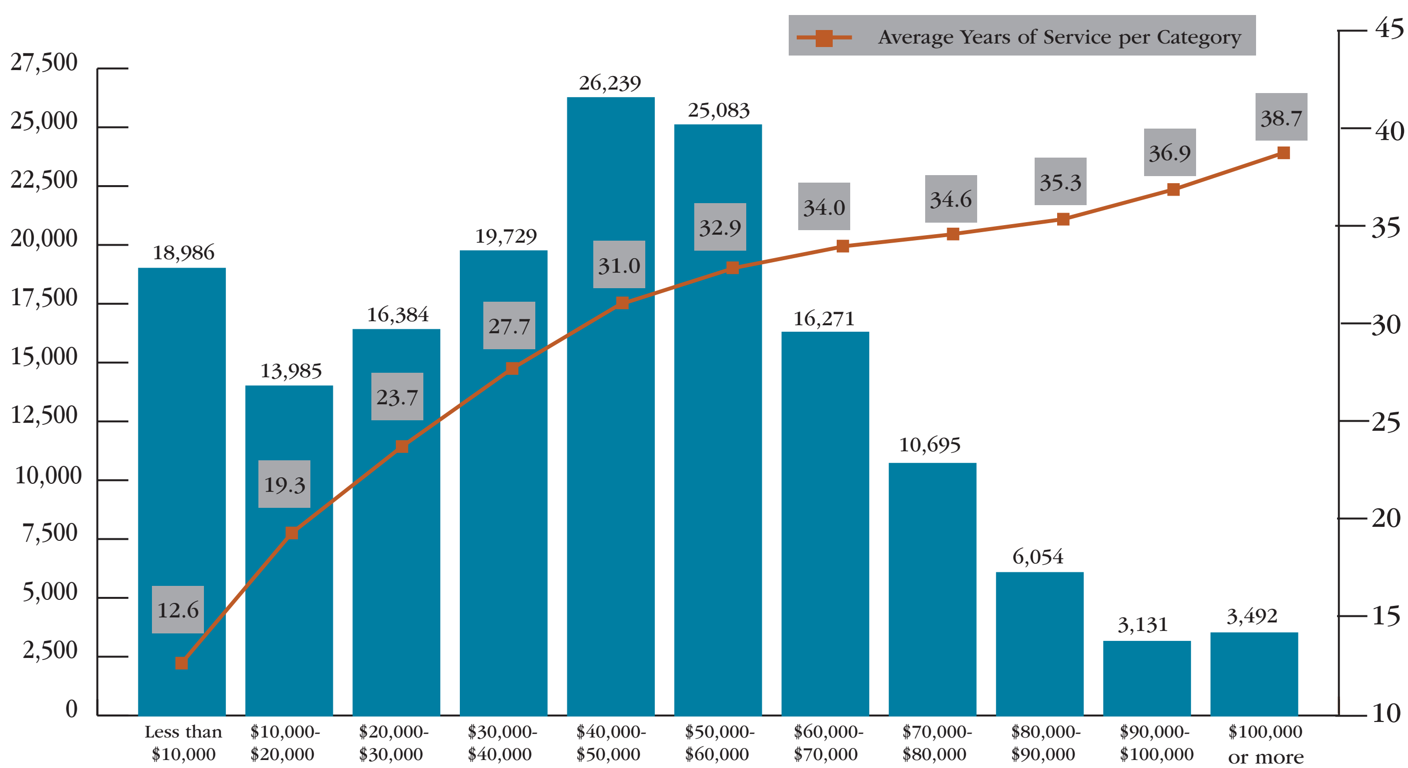
Retired Members and Beneficiaries* With Monthly Benefits by Decade of Retirement — as of June 30, 2018



Calendar Years	Number of People	Percentage	Average Monthly Maximum Benefit	Average Total Monthly Maximum Benefit**
1989 or earlier	12,435	7.48%	$1,444.42	$1,994.08
1990-1999	38,620	23.24%	$2,876.71	$3,190.26
2000-2009	64,035	38.54%	$3,876.01	$4,017.52
2010-2018	51,081	30.74%	$3,929.40	$3,944.68
Total	**166,171**			

** Excludes 114 beneficiaries of deceased active members.*
***Average total monthly Maximum benefit includes supplementation and COLA.*

Distribution of the Annual Benefit* of All Retired Members — as of June 30, 2018



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

Distribution of Monthly COLA Increase Commencing September 2018

Monthly COLA Increase	Number of Retired Members and Beneficiaries
$18.00	108,945
$15.00 - $17.99	3,130
$12.00 - $14.99	3,190
$9.00 - $11.99	8,314
$6.00 - $8.99	4,524
$3.00 - $5.99	6,481
$0.01 - $2.99	2,966
$0 (currently ineligible)	28,735
Total	**166,285**

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

Distribution of Cumulative Monthly COLA Commencing September 2018

Cumulative Monthly COLA	Number of Retired Members and Beneficiaries
$348.00	23,725
$290.00 - $347.99	9,481
$232.00 - $289.99	16,742
$174.00 - $231.99	16,972
$116.00 - $173.99	26,957
$58.00 - $115.99	23,185
$0.01 - $57.99	20,488
$0 (currently ineligible)	28,735
Total	**166,285**

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Financial Trends Information

Changes in Fiduciary Net Position
Last Ten Fiscal Years
(dollars in thousands)

Additions:	2009	2010	2011	2012
Net investment income (loss)	$(19,363,140)	$8,702,215	$17,250,415	$ 2,375,262
Employer contributions	1,096,117	925,506	1,389,415	1,628,491
Member contributions	181,723	139,369	154,327	138,583
Transfers	5,665	6,037	2,144	4,188
Total additions	(18,079,635)	9,773,127	18,796,301	4,146,524
Deductions: (See Benefits and Return of Contributions by Type on Pages 138-139)				
Benefit payments	5,151,463	5,333,788	5,681,007	5,907,795
Return of contributions	17,080	17,071	20,348	19,732
Administrative expenses	49,401	49,088	50,159	52,457
Total deductions	5,217,944	5,399,947	5,751,514	5,979,984
Change in fiduciary net position restricted for pensions	$(23,297,579)	$4,373,180	$13,044,787	$(1,833,460)

Changes in Fiduciary Net Position *(continued)*

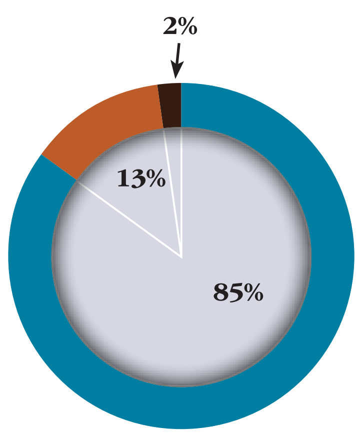
Last Ten Fiscal Years

(dollars in thousands)

2013	2014	2015	2016	2017	2018
$11,636,480	$16,664,703	$5,400,265	$2,392,354	$12,951,892	$ 9,928,009
1,734,908	2,400,386	2,633,682	2,046,562	1,857,359	1,597,139
128,903	120,762	119,411	124,587	129,770	131,595
4,522	1,365	3,213	4,014	7,845	9,278
13,504,813	19,187,216	8,156,571	4,567,517	14,946,866	11,666,021
6,118,849	6,324,546	6,513,931	6,701,637	6,903,361	7,088,949
20,869	18,992	17,209	18,229	19,676	20,049
54,338	55,616	56,948	60,426	61,611	60,610
6,194,056	6,399,154	6,588,088	6,780,292	6,984,648	7,169,608
$ 7,310,757	$12,788,062	$1,568,483	$(2,212,775)	$7,962,218	$ 4,496,413

Breakdown of Income Sources

Fiscal Years Ended 1989-2018



- Investment Income **85%**
- Employer Contributions **13%**
- Member Contributions **2%**

Benefits and Return of Contributions by Type

Last Ten Fiscal Years

(dollars in thousands)

Type of Benefit	2009	2010	2011	2012
Age and service benefits:				
Retirees	$5,045,738	$5,237,032	$5,593,968	$5,811,739
Survivors	27,674	38,516	28,237	29,153
Death in service benefits	38,119	20,244	22,852	29,266
Disability benefits:				
Ordinary	39,565	37,628	35,667	37,350
Accidental	367	368	283	287
Total benefits	$5,151,463	$5,333,788	$5,681,007	$5,907,795
Type of Return of Contributions				
Death	$ 1,905	$ 2,287	$ 2,240	$ 2,393
Separation from service	15,175	14,784	18,108	17,339
Total return of contributions	$ 17,080	$ 17,071	$ 20,348	$ 19,732

Benefits and Return of Contributions by Type *(continued)*

Last Ten Fiscal Years

(dollars in thousands)

2013	2014	2015	2016	2017	2018
$6,023,506	$6,233,619	$6,419,576	$6,601,664	$6,794,278	$6,978,694
32,879	28,918	31,888	34,051	41,662	35,234
23,666	21,634	20,730	22,801	23,606	29,845
38,507	39,871	41,251	42,591	43,469	44,828
291	504	486	530	346	348
$6,118,849	$6,324,546	$6,513,931	$6,701,637	$6,903,361	$7,088,949
$ 2,434	$ 2,325	$ 2,350	$ 3,011	$ 3,061	$ 3,211
18,435	16,667	14,859	15,218	16,615	16,838
$ 20,869	$ 18,992	$ 17,209	$ 18,229	$ 19,676	$ 20,049

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Operating Information

Average Benefit Payments — July 1, 2008 – June 30, 2018

	Years of Credited Service							
Retirement Effective Dates	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35+
Period 7/1/2008 to 6/30/2009								
Average monthly benefit	$153	$255	$654	$1,343	$2,427	$3,632	$4,780	$6,169
Average final average salary	$25,513	$29,713	$42,093	$56,606	$71,239	$81,388	$88,817	$98,228
Number of retired members	38	369	455	359	739	717	1,505	1,462
Period 7/1/2009 to 6/30/2010								
Average monthly benefit	$146	$298	$736	$1,419	$2,405	$3,839	$4,779	$6,361
Average final average salary	$29,089	$32,606	$46,779	$58,769	$69,544	$85,340	$90,489	$100,436
Number of retired members	46	377	438	360	770	752	1,351	1,407
Period 7/1/2010 to 6/30/2011								
Average monthly benefit	$166	$301	$710	$1,386	$2,571	$3,924	$5,017	$6,877
Average final average salary	$38,073	$33,593	$44,505	$58,067	$72,641	$86,710	$94,654	$106,004
Number of retired members	38	403	507	431	1,128	1,705	2,103	2,108
Period 7/1/2011 to 6/30/2012								
Average monthly benefit	$196	$371	$818	$1,402	$2,748	$3,807	$5,142	$6,992
Average final average salary	$43,570	$39,131	$50,185	$59,356	$77,772	$85,469	$96,934	$108,825
Number of retired members	44	431	571	444	1,079	840	1,604	1,020
Period 7/1/2012 to 6/30/2013								
Average monthly benefit	$201	$326	$782	$1,513	$2,721	$3,910	$5,285	$7,061
Average final average salary	$33,171	$34,780	$47,730	$62,797	$76,501	$89,200	$100,095	$110,455
Number of retired members	48	501	705	452	1,061	954	1,709	900
Period 7/1/2013 to 6/30/2014								
Average monthly benefit	$221	$367	$837	$1,571	$2,836	$4,140	$5,275	$7,305
Average final average salary	$41,966	$38,623	$51,493	$65,104	$80,215	$93,124	$100,079	$115,852
Number of retired members	47	484	649	562	1,133	1,161	1,778	733
Period 7/1/2014 to 6/30/2015								
Average monthly benefit	$255	$306	$842	$1,543	$2,879	$4,163	$5,277	$6,887
Average final average salary	$35,508	$33,815	$51,353	$64,139	$82,057	$92,745	$100,927	$110,667
Number of retired members	37	400	615	521	1,081	1,255	1,660	592
Period 7/1/2015 to 6/30/2016								
Average monthly benefit	$188	$321	$873	$1,532	$2,873	$4,280	$5,353	$6,907
Average final average salary	$35,355	$34,747	$51,987	$63,932	$81,515	$94,402	$102,221	$112,592
Number of retired members	32	491	589	582	1,079	1,223	1,676	573
Period 7/1/2016 to 6/30/2017								
Average monthly benefit	$120	$329	$868	$1,645	$2,871	$4,282	$5,452	$7,076
Average final average salary	$23,555	$35,957	$52,383	$66,494	$81,188	$94,415	$104,070	$115,549
Number of retired members	117	457	569	565	1,079	1,185	1,864	560
Period 7/1/2017 to 6/30/2018								
Average monthly benefit	$119	$335	$854	$1,665	$2,960	$4,499	$5,433	$7,112
Average final average salary	$29,014	$36,702	$51,465	$68,612	$83,811	$98,562	$103,842	$116,274
Number of retired members	51	493	567	581	1,173	1,088	1,921	542

Retired Members and Beneficiaries by Type of Benefit — as of June 30, 2018

Amount of Monthly Benefit	Number of Retired Members	Type of Retirement 1	2	3	4	5	6
$1 - $500	13,862	7,697	5,612	125	318	25	85
$501 - $1,000	12,309	6,578	4,798	397	454	71	11
$1,001 - $1,500	10,756	6,949	2,716	441	574	68	8
$1,501 - $2,000	10,463	7,177	2,279	410	553	42	2
$2,001 - $2,500	11,211	8,311	2,014	307	548	28	3
$2,501 - $3,000	11,724	9,255	1,663	200	588	14	4
$3,001 - $3,500	13,547	11,618	1,236	111	573	8	1
$3,501 - $4,000	15,978	14,481	912	64	518	3	0
$4,001 - $4,500	16,203	15,029	637	33	497	7	0
$4,501 - $5,000	13,165	12,368	394	13	390	0	0
over $5,000	37,067	35,632	577	15	841	2	0
Total	**166,285**	**135,095**	**22,838**	**2,116**	**5,854**	**268**	**114**

Type of retirement:

1 - Normal retirement for age and service

2 - Early retirement*

3 - Disability retirement

4 - Beneficiary payment, normal or early retirement

5 - Beneficiary payment, disability retirement

6 - Beneficiary payment, death in service

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

Retired Members and Beneficiaries by Type of Benefit — as of June 30, 2018 (continued)

Option Selected					
1	2	3	4	5	6
10,561	765	1,056	652	468	360
8,842	826	1,518	543	326	254
7,520	792	1,529	452	300	163
7,354	820	1,561	356	218	154
7,855	891	1,789	354	167	155
8,074	988	2,019	297	181	165
9,252	1,143	2,457	346	112	237
10,714	1,223	3,290	365	125	261
10,613	1,251	3,590	340	99	310
8,348	1,117	3,089	248	71	292
22,022	3,455	9,573	654	143	1,220
111,155	**13,271**	**31,471**	**4,607**	**2,210**	**3,571**

Option selected:

1 - Unmodified; Single life annuity (Maximum)

2 - Joint and survivor

3 - Joint and survivor with pop-up

4 - Guarantee period

5 - Declining reserve / Annuity reserve

6 - Alternative

Principal Participating Employers

Current Year and Nine Years Ago

Participating Employer 2018	Covered Employees+	Rank	Percentage of Total System**
Buffalo Public Schools	4,748	1	1.79%
Rochester City School District	4,163	2	1.57%
Syracuse City School District	2,871	3	1.09%
Yonkers Public Schools	2,159	4	0.82%
Brentwood Union Free Schools	1,860	5	0.70%
Greece Central Schools	1,393	6	0.53%
Newburgh City School District	1,337	7	0.51%
Sachem Central Schools	1,301	8	0.49%
Albany City School District	1,285	9	0.49%
Eastern Suffolk 1 BOCES	1,222	10	0.46%
All Other*	242,251		91.56%
Total	**264,590**		**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	671	221,149
BOCES	36	13,064
SUNY	31	2,417
Community Colleges	30	3,026
Charter Schools	27	1,614
Special Act Districts	10	626
Other	9	355
Total "All Other"	**814**	**242,251**

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

Principal Participating Employers (continued)

Current Year and Nine Years Ago

Participating Employer 2009	Covered Employees+	Rank	Percentage of Total System**
Buffalo Public Schools	5,145	1	1.84%
Rochester City School District	4,972	2	1.77%
Syracuse City School District	3,510	3	1.25%
Yonkers Public Schools	2,462	4	0.88%
Brentwood Union Free Schools	2,003	5	0.71%
Greece Central Schools	1,726	6	0.62%
Newburgh City School District	1,661	7	0.59%
Sachem Central Schools	1,638	8	0.58%
Eastern Suffolk 1 BOCES	1,569	9	0.56%
East Ramapo Central Schools	1,526	10	0.54%
All Other	254,126		90.65%
Total	**280,338**		**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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NEW YORK STATE TEACHERS' RETIREMENT SYSTEM

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