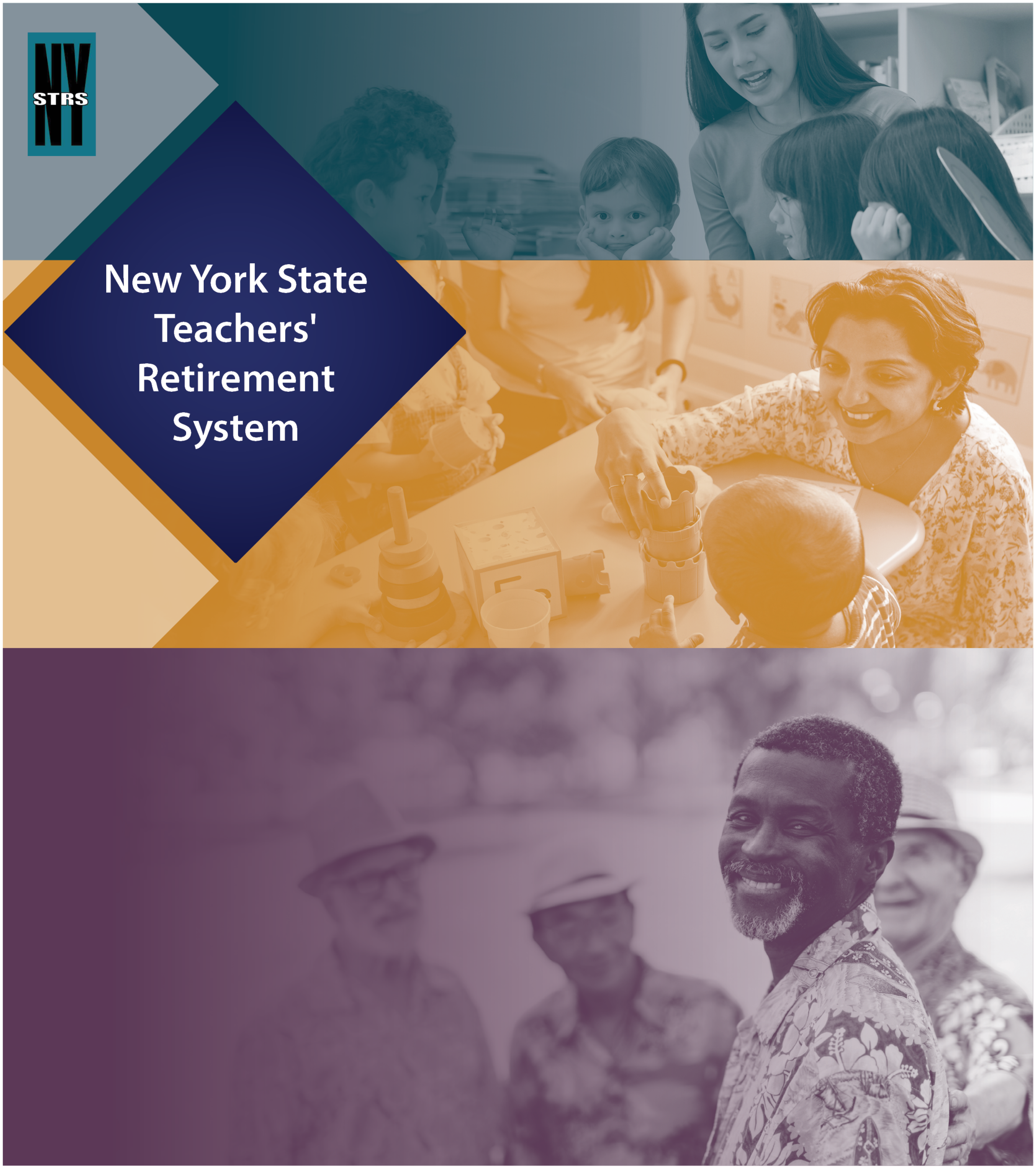


# New York State Teachers' Retirement System

*Over a century of providing retirement security*

**Annual Comprehensive Financial Report**

Fiscal Years Ended
June 30, 2022 and 2021

*Over a century of providing retirement security*

## Our Strategic Objectives

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

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

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

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

**Quality Workforce:** Ensure a quality workforce.

## Committed to the Highest Ethical Standards of Conduct

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

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

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

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

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

**Guard the privacy** of stakeholder information.

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


## Acknowledgments

The following departments have assisted with the preparation of this report:

Actuary ◆ Education & Outreach ◆ Finance ◆ Fixed Income ◆ Internal Audit ◆ Investment Operations ◆ Member Relations ◆ Private Equity ◆ Public Equities ◆ Real Estate



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

New York State Teachers' Retirement System

# ANNUAL COMPREHENSIVE FINANCIAL REPORT

Fiscal Years Ended June 30, 2022 and 2021

**Mission:**

To provide our members with a secure pension.

**Vision:**

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

**Values:**

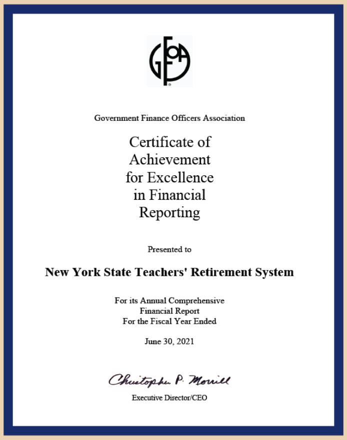
Integrity, Excellence
Respect, Resourcefulness
Diversity, Diligence
and Balance

# TABLE OF CONTENTS

# GFOA Triple Crown Award

GFOA's Triple Crown recognizes governments that have received GFOA's Certificate of Achievement for Excellence in Financial Reporting, the Distinguished Budget Presentation, and the Popular Annual Financial Reporting Award.

NYSTRS first received this award for the 2019-2020 fiscal year. Subsequent awards have been applied for.



Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

New York State Teachers' Retirement System

For its Annual Comprehensive Financial Report For the Fiscal Year Ended

June 30, 2021

Christopher P. Morrill

Executive Director/CEO

## GFOA Certificate of Achievement for Excellence in Financial Reporting

GOVERNMENT FINANCE OFFICERS ASSOCIATION

Distinguished Budget Presentation Award

PRESENTED TO

New York State Teachers' Retirement System
New York

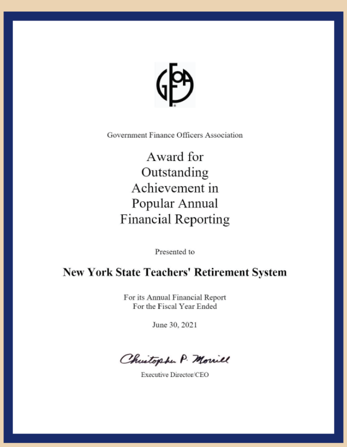
For the Fiscal Year Beginning

July 01, 2021

Christopher P. Morrill

Executive Director

## GFOA Distinguished Budget Presentation Award



Government Finance Officers Association

Award for Outstanding Achievement in Popular Annual Financial Reporting

Presented to

New York State Teachers' Retirement System

For its Annual Financial Report For the Fiscal Year Ended

June 30, 2021

Christopher P. Morrill

Executive Director/CEO

## GFOA Popular Annual Financial Reporting Award

Public Pension Coordinating Council

***Public Pension Standards Award***
***For Funding and Administration***
***2021***

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

*Over a century of providing retirement security*

# INTRODUCTION

## BOARD OF TRUSTEES — as of June 30, 2022

## ORGANIZATIONAL STRUCTURE — as of June 30, 2022

NY STRS

**Retirement Board**
David P. Keefe, President

**Office of the General Counsel**
Don Ampansiri,
Deputy General Counsel

- Advise on Fiduciary Matters
- Member of the Ethics Committee

- Investment Matters
- Legal Matters
- Legislation
- Litigation
- Member Benefit Matters

**Executive Director & Chief Investment Officer**
Thomas K. Lee

**Internal Audit**
Kenneth R. Kasper, Director
Kathy Ebert, Managing Director

- Assurance Services
- Consulting Services

**Senior Advisor to the Executive Director & Chief Investment Officer - Stewardship**
Han Yik

- Corporate Governance
- ESG Initiatives

### Retirement Administration

**Actuary**
Richard A. Young, Chief Actuary

- Actuarial Valuations
- Fiscal Notes

**Administration**
Miriam Dixon, Managing Director

- Budget & Analytics
- Facilities Services
- Human Resources
- Project Management

**Office of the CFO**
Margaret Andriola, Chief Financial Officer

- Finance
- Investment Operations

**Diversity, Equity & Inclusion (DEI)**
Danny Malavé, Managing Director

- DEI Training & Programming
- DEI Strategy
- Diversity Analytics

**Information Technology**
Michael J. Gregoire, Chief Technology Officer

- IT Business Solutions
- IT Technical Services

**Member Relations**
Edward Rezny, Chief Customer Officer

- Education & Outreach
- Information & Communication Center
- Member Benefits
- Member & Employer Services
- Quality Assurance

**Risk Management**
Matthew Albano, Risk Officer

- Enterprise Risk
- Information Security
- Investment Risk

### Investments

**Fixed Income**
Michael Federici, Managing Director

- Global Bonds
- High-Yield Bonds
- Long/Short-Term Fixed Income Securities

**Private Equity**
Gerald J. Yahoudy II, Managing Director

- Private Debt Opportunities
- Private Equity Investments

**Public Equities**
Paul Cummins, Managing Director

- Domestic, International & Global Equity Investments

**Real Estate**
David C. Gillan, Managing Director

- Commercial Lending
- Debt Investments
- Equity Investments

** A listing of external investment professionals and consultants used by NYSTRS is found on pages 111-116. A schedule of fees and expenses paid to them is on page 110.*

## **EXECUTIVE STAFF** — as of June 30, 2022

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

**Matthew Albano**
*Risk Officer*

**Don Ampansiri**
*Deputy General Counsel*

**Margaret Andriola**
*Chief Financial Officer*

**Paul Cummins**
*Managing Director of Public Equities*

**Miriam Dixon**
*Managing Director of Administration*

**Kathy Ebert**
*Managing Director of Internal Audit*

**Michael Federici**
*Managing Director of Fixed Income*

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

**Michael J. Gregoire**
*Chief Technology Officer*

**Kenneth R. Kasper**
*Director of Internal Audit*

**Danny Malavé**
*Managing Director of Diversity, Equity & Inclusion*

**Edward Rezny**
*Chief Customer Officer*

**Gerald J. Yahoudy II**
*Managing Director of Private Equity*

**Han Yik**
*Senior Advisor to the Executive Director & CIO - Stewardship*

**Richard A. Young**
*Chief 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 21, 2022

Trustees of the Retirement System Board:

On behalf of System staff, I present you with the Annual Comprehensive Financial Report of the New York State Teachers' Retirement System (NYSTRS or the System) for the fiscal years ended June 30, 2022 and 2021. This report complies with all requirements governing the preparation and contents of annual reports.

### History and Overview

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

The System is governed by a 10-member Board of Trustees, which sets policy and oversees operations consistent with its fiduciary obligations under applicable law. A staff of approximately 380 is responsible for the day-to-day administration. NYSTRS serves 822 employers – including public school districts, BOCES, institutions of higher education and charter schools that elect to participate. NYSTRS has 442,044 active and retired members, including beneficiaries *(see chart below)*.

**Membership Figures — as of June 30, 2022**

| | |
|---|---|
| Active Members: | 263,475 |
| Retired Members: | 171,616 |
| Beneficiaries: | 6,953 |
| Total Membership: | 442,044 |

*See page 129 for additional membership information.*

LETTER OF TRANSMITTAL *(continued)*

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.

## 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 2021 Annual Comprehensive Financial Report, the award certifies the report was prepared in conformity with the highest standards in government accounting and financial reporting.

***Award for Outstanding Achievement in Popular Annual Financial Reporting***, also awarded by GFOA. The System's 2021 Popular Annual Financial Report was recognized for its high quality and for successfully presenting data from the 2021 Annual Comprehensive Financial Report in a manner easily understandable to the general public.

***Distinguished Budget Presentation Award*** for the fiscal year July 1, 2021 through June 30, 2022, also awarded by GFOA. To be eligible for this recognition, the budget document must meet established criteria as a policy document, operations guide, financial plan and communications device.

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

In addition, the System was recognized by GFOA this past year as a ***Triple Crown*** award winner for receiving all three of the GFOA's major awards, listed above, in one year. NYSTRS was one of only four public pension plans honored for fiscal year 2019 reporting, the most recent year covered.

## Legislation

Chapter 329 of the Laws of 2021 allows NYSTRS to accept alternate methods of postal mail for the submittal of forms, applications and/or payments.

Chapter 370 of the Laws of 2021 limits the maximum amount Tier 6 members joining NYSTRS on or after July 1, 2022 may borrow to 50% of the member's total contribution balance or $50,000, whichever is less, and makes technical corrections to the law related thereto.

Chapter 376 of the Laws of 2021 removes the age 60 qualifier and provides NYSTRS retirees to be eligible for the post-retirement death benefit in the third and subsequent years following retirement at the rate of 10% of the benefit in force at the time of retirement. The law applies to deaths on or after August 2, 2021.

Chapter 424 of the Laws of 2021 extends coverage for certain public employees who worked during the World Trade Center rescue, recovery, or cleanup and became members of a state retirement system at a later date.

Chapter 541 of the Laws of 2021 extends the minimum retirement benefit to members of NYSTRS who retired prior to July 1, 1980 and increases said allowance to $550 per year of service up to a 35-year maximum of $19,250.

Chapter 56 (Part HH) of the Laws of 2022 allows a NYSTRS retiree to be employed and earn compensation in a position at a school district or Board of Cooperative Educational Services (BOCES) without suspension or diminution of their retirement allowance. This provision expires June 30, 2023.

Chapter 56 (Part SS) of the Laws of 2022 permits the employee contribution rate for Tier 6 members to be determined using a member's annual base wages for contributions to be made during the fiscal years ending June 30, 2023 and June 30, 2024.

LETTER OF TRANSMITTAL *(continued)*

Compensation earned for extracurricular programs or any other pensionable earnings paid in addition to the annual base wages will not be included in the employee contribution rate determination.

Chapter 56 (Part TT) of the Laws of 2022 reduces the 10-year vesting requirement for Tier 5 and Tier 6 members to five-year vesting for purposes of eligibility for a service retirement benefit or a deferred-vested retirement benefit.

## Noteworthy Actions

***Continued Operational Flexibility During the Pandemic***
Our workforce remained flexible as we adapted policy as needed to match fluctuating COVID conditions in our region. Our Information Technology division was able to adapt to the needs of a remote workforce and is currently supporting a fully hybrid work environment. We are testing a Flexible Work Pilot program for the 2022-2023 fiscal year where employees are granted a bank of telecommuting time which varies based on job duties. We have been able to maintain our high standards of customer service to members, and the System has continued to provide benefits without interruption.

***Diversity, Equity & Inclusion in the Workplace***
NYSTRS continues to expand its efforts toward development of a more diverse and inclusive organization with the appointment of an executive level managing director of Diversity, Equity and Inclusion (DEI). We have also enhanced our diversity recruitment strategy by implementing search panel DEI training, expanding recruitment outreach, and establishing inclusive interviewing and onboarding practices.

Our commitment to DEI extends to our external partners as well. Managers and consultants must provide diversity and inclusion information about their firms or general partners as part of the System's due diligence review process. NYSTRS also holds an annual Minority- and Women-Owned Business Enterprises (MWBE) investments and professional services conference to provide emerging businesses and managers the opportunity to partner with us. In 2022, this event was held virtually.

***System Governance***
The Retirement Board undertook a thoughtful and deliberative process to analyze climate risks and opportunities related to NYSTRS' investment portfolio. In December 2021, the Board unanimously adopted an initial climate change action plan as an important first step to mitigate such risks to the portfolio. The plan — which called for the System to cease further investment in 20 oil and gas holdings and thermal coal reserves holdings worth an estimated $1 billion and to divest $66 million worth of other thermal coal holdings — is consistent with the Board's fiduciary duties to provide retirement security to the System's more than 442,000 members.

In June 2022, NYSTRS announced the appointment of Han Yik to the newly created position senior advisor for stewardship. Mr. Yik advises on regulatory, public policy, global initiatives and corporate governance. In addition, he is building and leading NYSTRS' initiatives on investor stewardship and sustainability.

NYSTRS also welcomed Juliet C. Benaquisto, a teacher in the Schenectady City School District, to the Board as one of our three active teacher Board members. Ms. Benaquisto was elected by NYSTRS delegates at the Oct. 29, 2021 Annual Delegates Meeting to fill the remainder of the term vacated by Sheila Sullivan Buck, who resigned from the Board to accept a position with New York State United Teachers.

## Significant Litigation

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

## Financial Information

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

LETTER OF TRANSMITTAL *(continued)*

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

Major System expenses result from retirement benefit payments, death benefits and refunds of contributions to certain eligible members and beneficiaries. The increase in retirement benefit payments from 2021 to 2022 is attributable to a net increase of 2,779 retirees and beneficiaries (details are found on page 30 in the *Notes to Financial Statements-Plan Description*). Also see the *Benefits and Return of Contributions by Type* chart on pages 144-145 for more information.

For an overview of NYSTRS' financial activities for the fiscal year ended June 30, 2022, see *Management's Discussion and Analysis* beginning on page 24. 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 29 for more information.

The employer contribution rate (ECR) — expressed as a uniform percentage of member payroll — is set annually at the level necessary to properly fund benefits. The rate is established in accordance with an actuarial valuation of System assets and liabilities. The most recently adopted ECR of 10.29% will apply to 2022-2023 school year salaries. The payments associated with this rate will be collected in the fall of 2023. 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 $132.0 billion. During the same period, benefits paid to retirees and beneficiaries were approximately $8.0 billion.

The plan's funded ratio as of June 30, 2021, the date of the most-recent annual actuarial valuation and calculated using the Actuarial Value of Assets, was 99.3%. Details of our funding progress may be obtained by turning to page 123.

## 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.

Market volatility led to a total portfolio return of negative 7.1%, net of fees, for the fiscal year ended June 30, 2022. Given market and economic conditions of the last fiscal year, this was not an unexpected result, and the percentage decline was similar to most major market indices, such as the S&P 500 which returned negative 10.62% for the fiscal year. Our 30-year rate of return is 8.5%, net of fees.

## LETTER OF TRANSMITTAL *(continued)*

Refer to pages 83-116 for further information on NYSTRS' investments. A listing of our equity and fixed income holdings can be viewed on our website at NYSTRS.org.

### Acknowledgments

The content of this Annual Comprehensive Financial Report is the responsibility of System management and is prepared by NYSTRS staff. The System's external auditor audits financial statements within prior to publication. The intent of the publication is to provide complete and reliable information for making management decisions, determining compliance with legal provisions and determining responsible stewardship of System assets.

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

As this annual report demonstrates, the NYSTRS Board and staff are committed to fulfilling our mission of providing our members with a secure pension. Our retirement plan was solidly built to endure the up and down cycles of the economy. Required member and employer contributions are consistently collected in full and without fail. Those contributions are then prudently invested in a diversified and risk-controlled portfolio with a focus on long-term returns.

On behalf of all of us at NYSTRS, I am proud to say that our members can rest assured that their pension benefits are safe and will cover them for life. We remain dedicated to being the model for pension fund excellence and exceptional customer service.

Respectfully submitted,

Thomas K. Lee
Executive Director & Chief Investment Officer

## PRESIDENT'S MESSAGE

**David P. Keefe**

Dear NYSTRS Members, Administrators and Trustees,

The Greek philosopher Heraclitus has been quoted as saying "change is the only constant in life." Certainly we have all seen plenty of change over the past several years — from the pandemic to global conflicts, to supply shortages and rising prices. Fortunately, there is one "constant" that New York state's public educators can count on: our defined benefit pension plan.

Despite the recent volatility in our economy, public school teachers can rest assured that our pension plan is secure and will provide them with guaranteed retirement security for life. When NYSTRS was founded in 1921, it was built to endure the up-and-down cycles of the economy. No matter what is happening in the world, our members can have peace of mind knowing our pension plan remains strong and stable.

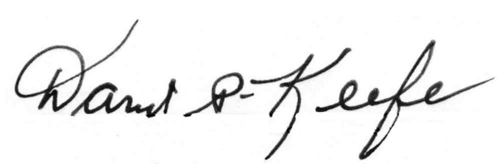
Our Retirement System has long been one of the best-funded public pension plans in the country and it is well-positioned to provide retirement security to our more than 442,000 active and retired members and beneficiaries now and in the future. As of June 30, 2022, the System's net assets are $132 billion, and our 30-year rate of investment return, net of fees, is 8.5%. Our five-and 10-year rates of investment return, net of fees, are 7.7% and 8.9%, respectively.

The Retirement System's success is due to its solid foundation. The plan is designed for long-term stability with a sound, shared funding structure in which contributions are provided by both participating employers and members. We also follow a prudent, disciplined, and risk-controlled investment approach with a well-diversified portfolio. Over the past 30 years, 85% of NYSTRS' income has come from investment earnings, while 13% came from employer contributions and 2% came from member contributions. During the same time period, NYSTRS paid out $138.4 billion in benefits.

NYSTRS's investment strategy is focused not on the next fiscal quarter, but on the long haul to cover the pensions of both current retired teachers and those planning to retire decades from now. Assets are invested across a broad spectrum of capital market segments, and management costs are kept as low as possible with most investments managed internally by NYSTRS' highly qualified investment staff.

In addition, this past fiscal year the Retirement Board adopted a climate action plan to begin mitigating climate change risks related to the System's investment portfolio. The plan was developed with a methodical and deliberative process consistent with our fiduciary duty to provide retirement security to our members.

As your Board president and a retired teacher myself, I am grateful to be part of such an exemplary team at NYSTRS. Our Board and the NYSTRS staff take their fiduciary responsibility very seriously and are dedicated to serving the state's public educators.



David P. Keefe
President

# SUMMARY OF BENEFITS

## Types of Benefits

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

## Membership Tiers

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

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

## Service Retirement Benefit

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

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

A Tier 4 member, and a Tier 3 member retiring under Tier 4, may retire at age 55 without a reduction in benefits if credited with at least 30 years of service. The pension for 30 years of service is 60% of final average salary. Each year beyond 30 years increases the pension 1.5% of final average salary.

A Tier 5 member may retire at age 57 without a reduction in benefits if credited with at least 30 years of service. The pension for 30 years of service is 60% of final average salary. Each year beyond 30 years increases the pension 1.5% of final average salary.

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

## Vested Retirement Benefit

NYSTRS members in Tiers 1-6 who cease employment with five or more years of credited service are eligible for a vested retirement. (Prior to April 9, 2022, Tier 5 and 6 members needed to attain 10 years of state service credit to be vested.) The vested benefit is payable in most cases at age 55 and is calculated using the same factors as a service retirement benefit. Vested Tier 6 members with an inactive membership must be at least 63 to retire.

## Death Benefits

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

SUMMARY OF BENEFITS *(continued)*

## Disability Retirement Benefit

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

The members of the Medical Board are:

**STEVEN D. KRONICK, M.D.**

Board Certified Psychiatrist; Additional Qualifications in Geriatric Psychiatry

Psychiatrist
Pine Bush Mental Health, LLP

Psychiatric Consultant
Albany County Community
Mental Health Center

Clinical Assistant Professor of Psychiatry
Albany Medical College

Diplomate of the National
Board of Medical Examiners

Member of the American Board
of Psychiatry and Neurology

Member of the American
Psychiatric Association

**RICHARD T. MACDOWELL, M.D.**

Attending Surgeon and Professor (Retired)
at Albany Medical College

Fellow of the American
College of Surgeons

Member of the American
Board of Surgery

Board Certified in Internal Medicine General

**LAURA E. PICA, M.D.**

Board Certified in
Internal Medicine General

Diplomate of the American
Board of Internal Medicine

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

## Member Contributions

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

## Transfer and Prior Service

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

## Retirement Options

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

## Cost-of-Living Adjustment (COLA)

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

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# FINANCIAL

*Over a century of providing retirement security*

# FINANCIAL

Page

Plante Moran, PC
P.O. Box 307
3000 Town Center, Suite 100
Southfield, MI 48075
Tel: 248.352.2500
Fax: 248.352.0018
plantemoran.com

To the Retirement Board
New York State Teachers' Retirement System

***Opinion***

We have audited the accompanying financial statements of New York State Teachers' Retirement System (the "System") as of and for the year ended June 30, 2022 and the related notes to the financial statements, which collectively comprise the System's basic financial statements, as listed in the table of contents.

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of New York State Teachers' Retirement System as of June 30, 2022 and the changes in its financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

***Basis for Opinion***

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the System and to meet our other ethical responsibilities in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

***Report on Prior Year Financial Statements***

The basic financial statements of New York State Teachers' Retirement System as of and for the year ended June 30, 2021 were audited by other auditors, who expressed an unmodified opinion on those basic financial statements on October 28, 2021.

***Responsibilities of Management for the Financial Statements***

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America and for 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.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the System's ability to continue as a going concern for 12 months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

***Auditor's Responsibilities for the Audit of the Financial Statements***

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and, therefore, is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances but not for the purpose of expressing an opinion on the effectiveness of the System's internal control. Accordingly, no such opinion is expressed.

- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.

- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the System's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

***Required Supplementary Information***

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and other required supplementary schedules, as identified in the table of contents, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, which 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 an assurance.

plante moran

***Supplemental Schedules***

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise New York State Teachers' Retirement System's basic financial statements. The other supplemental schedules, as identified in the table of contents, are presented for the purpose of additional analysis and are not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The 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 other supplemental schedules are fairly stated in all material respects in relation to the basic financial statements as a whole.

***Other Information***

Management is responsible for the other information included in the Annual Comprehensive Financial Report. The other information comprises the introduction, investments, actuarial, and statistical sections, as identified in the table of contents, but does not include the basic financial statements and our auditor's report thereon. Our opinion on the basic financial statements does not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements or whether the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Plante Moran, PC

October 27, 2022, except for the other supplemental schedules, as identified in the table of contents, and introduction, investments, actuarial, and statistical sections, as identified in the table of contents of our report, as to which the date is November 21, 2022

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# MANAGEMENT'S DISCUSSION AND ANALYSIS

June 30, 2022 and 2021

(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, 2022 and 2021. Its purpose is to provide explanations and insights into the information presented in the financial statements, notes to the financial statements, and required supplementary information.

## Financial Highlights

- The net position of the System represents funds available to pay current and future benefits. Net position was $132.0 billion as of the fiscal year ended 2022, and $148.1 billion and $120.5 billion as of the fiscal years ended 2021 and 2020, respectively. The change for the fiscal year ended 2022 was negative $16.1 billion, or negative 10.9%, and the change for the fiscal year ended 2021 was positive $27.6 billion, or 23.0%.

- The System's investments experienced depreciation of $12.4 billion in 2022 and appreciation of $31.5 billion and $1.6 billion in 2021 and 2020, respectively.

- Contributions from employers were $1.7 billion in 2022, $1.6 billion in 2021, and $1.5 billion in 2020, consistent with the change in the employer contribution rate.

- While the number of active members has declined only slightly in the past five years, the number of retired members and beneficiaries receiving benefits has been steadily increasing, leading to an increase in the retirement benefits paid. Retirement benefits paid in 2022, 2021, and 2020 were $8.0 billion, $7.7 billion, and $7.5 billion, respectively.

- The System's funded ratio, a comparison of the actuarial value of assets to the accrued pension benefit liability, was 99.3% as of the 2021 valuation. Valuations in 2020 and 2019 resulted in the System's funded ratio of 98.9% and 99.6%, respectively.

## Overview of Financial Statements

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

1. The Statements of Fiduciary Net Position present NYSTRS' assets and deferred outflows of resources and liabilities and deferred inflows of resources by major categories and may serve over time as a useful indicator of the System's financial position. The difference between assets and deferred outflows of resources and liabilities and deferred inflows of resources represents the net position restricted for pensions. The statements also compare assets and deferred outflows of resources and liabilities and deferred inflows of resources by class to the previous year, which offers the reader the opportunity to note changes in each class from year to year.

2. The Statements of Changes in Fiduciary Net Position provide information on the change in the System's net position during the current year. The majority of additions are normally derived from net investment income, primarily in the form of changes in the fair value of assets from the prior year. Deductions include retirement benefit payments, beneficiary payments, return of contributions, and administrative expenses. For comparison purposes, information pertaining to the previous year's Statement of Changes in Fiduciary Net Position is also provided.

3. The Notes to the Basic Financial Statements are an essential part of the basic financial statements. They provide important background and detailed information about NYSTRS, the plan and the basic financial statements themselves.

4. The Required Supplementary Information (RSI) consists of information pertaining to NYSTRS' actuarial methods and assumptions and provides data on changes in the school districts' net pension liability, the composition of the school districts' net pension liability, and the school districts' contributions. Also included is information on NYSTRS' proportionate share of their pension liability to ERS as well as a schedule of their contributions to that plan. Lastly, the RSI includes a schedule of changes in the other post-employment benefits (OPEB) liability and NYSTRS' contributions toward that plan.

MANAGEMENT'S DISCUSSION AND ANALYSIS *(continued)*
June 30, 2022 and 2021
(Unaudited)

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

## Financial Analysis

Tables 1 and 2 summarize and compare the System's financial results for the years 2022 and 2021. Investments comprise the overwhelming majority of assets of the System. Investment performance, contributions and benefit payments are the primary drivers of changes in net fiduciary position.

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

| | June 30 | | | Amount increase (decrease) | Percentage change of total |
|---|---|---|---|---|---|
| | 2022 | 2021 | 2020 | 2021 to 2022 | 2021 to 2022 |
| Investments at fair value | $ 129,860,183 | $ 146,219,128 | $ 118,603,921 | $ (16,358,945) | (11.0)% |
| Receivables | 2,311,013 | 2,302,028 | 2,070,049 | 8,985 | 0.0 |
| Securities lending collateral — invested | 709,827 | 481,018 | 486,845 | 228,809 | 0.2 |
| Member Loans | 232,473 | 236,944 | 256,935 | (4,471) | 0.0 |
| Other Assets | 31,956 | 41,308 | 60,140 | (9,352) | 0.0 |
| Total Assets | 133,145,452 | 149,280,426 | 121,477,890 | (16,134,974) | (10.9) |
| Total Deferred Outflows of Resources | 28,756 | 32,671 | 25,261 | (3,915) | 0.0 |
| Securities lending collateral — due to borrowers | 707,887 | 479,186 | 484,150 | 228,701 | 0.2 |
| Investment Purchases Payable | 278,472 | 450,377 | 314,679 | (171,905) | (0.1) |
| Other Liabilities | 176,269 | 198,526 | 217,360 | (22,257) | 0.0 |
| Total Liabilities | 1,162,628 | 1,128,089 | 1,016,189 | 34,539 | 0.0 |
| Total Deferred Inflows of Resources | 46,998 | 36,551 | 7,457 | 10,447 | 0.0 |
| **Net position restricted for pensions** | **$131,964,582** | **$148,148,457** | **$120,479,505** | **$ (16,183,875)** | **(10.9)%** |

The decrease in the investment value as of June 30, 2022 attributable to depreciation of the investment portfolio due to particularly weak market performance. The portfolio earned a time-weighted rate of return of negative 7.15%, compared to an assumed rate of return of 6.95%.

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

## MANAGEMENT'S DISCUSSION AND ANALYSIS *(continued)*
## June 30, 2022 and 2021
(Unaudited)

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

| | Years ended June 30 | | | Amount increase (decrease) | Percentage change of total 2021 |
|---|---|---|---|---|---|
| | 2022 | 2021 | 2020 | 2021 to 2022 | to 2022 |
| Net (depreciation) appreciation in fair value of investments | $ (12,446,619) | $ 31,499,853 | $ 1,643,319 | $ (43,946,472) | (29.7)% |
| Other investment income | 2,367,805 | 2,168,155 | 2,280,314 | 199,650 | 0.1 |
| Contributions- Employer and Member | 1,934,793 | 1,788,336 | 1,653,677 | 146,457 | 0.1 |
| Total (Deductions) Additions | (8,144,021) | 35,456,344 | 5,577,310 | (43,600,365) | (29.4) |
| | | | | | |
| Retirement benefits | (7,961,870) | (7,717,521) | (7,484,462) | (244,349) | (0.2) |
| Other deductions | (77,984) | (69,871) | (90,824) | (8,113) | 0.0 |
| Total Deductions | (8,039,854) | (7,787,392) | (7,575,286) | (252,462) | (0.2) |
| Net (decrease) increase in net position | (16,183,875) | 27,668,952 | (1,997,976) | (43,852,827) | (29.6) |
| | | | | | |
| Net position, beginning of year | 148,148,457 | 120,479,505 | 122,477,481 | 27,668,952 | 18.7 |
| **Net position, end of year** | **$131,964,582** | **$148,148,457** | **$120,479,505** | **$(16,183,875)** | **(10.9)%** |

### *Net Investment Income*

For the year ended June 30, 2022, NYSTRS reported net investment loss of $10.1 billion compared to net investment income of $33.7 billion in 2021 and $3.9 billion in 2020. The loss in 2022 was due to diminished market returns, primarily in the equity segments. The net appreciation (depreciation) by asset class and year is shown in the table below:

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

| | Years ended June 30 | | | Amount increase (decrease) |
|---|---|---|---|---|
| | 2022 | 2021 | 2020 | 2021 to 2022 |
| Domestic equity | $ (5,876,449) | $ 15,646,731 | $ 1,751,965 | $ (21,523,180) |
| International equity | (5,203,533) | 6,762,617 | (1,016,484) | (11,966,150) |
| Global equity | (947,017) | 1,527,191 | 46,357 | (2,474,208) |
| Real estate equity | 1,780,335 | 1,947,403 | (21,446) | (167,068) |
| Private equity | 917,693 | 5,679,894 | 534,144 | (4,762,201) |
| Domestic fixed income | (2,128,080) | (452,552) | 870,989 | (1,675,528) |
| High-yield bonds | (178,770) | 55,978 | (8,969) | (234,748) |
| Global bonds | (391,260) | (22,191) | 135,675 | (369,069) |
| Real estate debt | (534,179) | 130,075 | (698,772) | (664,254) |
| Private debt | 117,213 | 221,004 | (6,908) | (103,791) |
| Cash equivalents | 3,942 | 2,492 | 56,538 | 1,450 |
| Other | (6,514) | 1,211 | 230 | (7,725) |
| **Totals** | **$ (12,446,619)** | **$ 31,499,853** | **$ 1,643,319** | **$ (43,946,472)** |

*net of purchases, sales and maturities

MANAGEMENT'S DISCUSSION AND ANALYSIS *(continued)*
June 30, 2022 and 2021
(Unaudited)

### *Economic Factors*

The economic factor that is of primary significance to NYSTRS is the investment rate of return earned in the capital markets. Legislative, demographic, and actuarial assumption changes can also have a significant impact on the net pension liability and funded status of the plan. All of these factors are incorporated into the annual actuarial valuation, which determines the rate at which participating employers must contribute in order to appropriately fund member benefits. In terms of demographics, the System will likely continue to experience a shift toward a greater proportion of retirees relative to active members. This year the System experienced a depreciation on investments due to particularly weak market performance. 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. Industry forecasts of a decrease in expected future investment returns contributed to an increase in the employer contribution rate, from 9.53% on 2020-21 member salaries to 9.80% on 2021-22 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, 2022 and 2021

(dollars in thousands)

| Assets: | 2022 | 2021 |
|---|---|---|
| Investments — at fair value (notes 4, 5 and 6): | | |
| Domestic equity | **$ 41,961,629** | $ 50,050,654 |
| International equity | **19,509,375** | 24,795,559 |
| Global equity | **4,218,623** | 5,097,105 |
| Real estate equity | **16,491,592** | 14,844,615 |
| Private equity | **14,073,681** | 14,783,219 |
| Domestic fixed income | **18,271,844** | 18,815,502 |
| High-yield bonds | **958,586** | 941,987 |
| Global bonds | **2,950,256** | 3,305,959 |
| Real estate debt | **7,730,876** | 7,460,772 |
| Private debt | **1,424,443** | 1,163,794 |
| Cash equivalents | **2,269,278** | 4,959,962 |
| Total investments | **129,860,183** | 146,219,128 |
| Receivables: | | |
| Employer | **1,695,040** | 1,581,828 |
| Member contributions | **167,254** | 135,357 |
| Investment income | **291,344** | 264,854 |
| Investment sales | **157,375** | 319,989 |
| Total receivables | **2,311,013** | 2,302,028 |
| Other assets: | | |
| Securities lending collateral — invested (note 5) | **709,827** | 481,018 |
| Member loans | **232,473** | 236,944 |
| Capital assets, net of depreciation | **20,722** | 22,962 |
| Miscellaneous assets | **11,234** | 18,346 |
| Total other assets | **974,256** | 759,270 |
| Total assets | **133,145,452** | 149,280,426 |
| **Deferred outflows of resources:** | | |
| Changes in net OPEB liability (note 10) | **10,703** | 10,904 |
| Changes in net pension liability (note 9) | **18,053** | 21,767 |
| Total deferred outflows of resources | **28,756** | 32,671 |
| **Liabilities:** | | |
| Securities lending collateral — due to borrowers (note 5) | **707,887** | 479,186 |
| Investment purchases payable | **278,472** | 450,377 |
| Mortgage escrows and deposits — net of investments | **12,895** | 6,755 |
| Net OPEB liability (note 10) | **34,792** | 47,187 |
| Other liabilities (notes 5 and 9) | **128,582** | 144,584 |
| Total liabilities | **1,162,628** | 1,128,089 |
| **Deferred inflows of resources:** | | |
| Changes in net OPEB liability (note 10) | **13,230** | 4,276 |
| Changes in net pension liability (note 9) | **33,768** | 32,275 |
| Total deferred inflows of resources | **46,998** | 36,551 |
| Net position restricted for pensions (note 3) | **$ 131,964,582** | $ 148,148,457 |

*See accompanying notes to financial statements.*

## STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION

### Fiscal Years Ended June 30, 2022 and 2021

(dollars in thousands)

| Additions: | 2022 | 2021 |
|---|---|---|
| Investment income: | | |
| Net (decrease) increase in fair value of investments | **$ (12,446,619)** | $ 31,499,853 |
| Interest income | **785,225** | 762,391 |
| Dividend income | **1,442,149** | 1,306,813 |
| Real estate — net operating income | **525,001** | 416,860 |
| Securities lending — gross earnings | **4,007** | 3,456 |
| Other — net | **10,969** | 17,060 |
| | **(9,679,268)** | 34,006,433 |
| Less: | | |
| Investment expenses | **399,564** | 339,540 |
| Securities lending: | | |
| Broker rebates | **(523)** | (2,849) |
| Management fees | **613** | 871 |
| (Appreciation) depreciation on collateral | **(108)** | 863 |
| Net investment (loss) income | **(10,078,814)** | 33,668,008 |
| Contributions: | | |
| Employer (note 1) | **1,735,255** | 1,618,437 |
| Member contributions | **190,853** | 159,874 |
| Transfers (to)/from other systems | **8,685** | 10,025 |
| Total contributions | **1,934,793** | 1,788,336 |
| Net (deductions) additions | **(8,144,021)** | 35,456,344 |
| **Deductions:** | | |
| Retirement benefit payments — periodic | **7,895,257** | 7,659,950 |
| Beneficiary payments | **66,613** | 57,571 |
| Return of contributions | **16,754** | 14,379 |
| Administrative expenses | **61,230** | 55,492 |
| Total deductions | **8,039,854** | 7,787,392 |
| Net (decrease) increase in net position | **(16,183,875)** | 27,668,952 |
| | | |
| Net position restricted for pensions, beginning of year | **148,148,457** | 120,479,505 |
| Net position restricted for pensions, end of year | **$ 131,964,582** | $ 148,148,457 |

*See accompanying notes to financial statements.*

# NOTES TO FINANCIAL STATEMENTS

June 30, 2022 and 2021

(dollars in thousands)

## (1) Plan Description

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

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

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

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

| | 2022 | 2021 |
|---|---|---|
| Public school districts | 679 | 679 |
| Boards of Cooperative Educational Services (BOCES) | 37 | 37 |
| SUNY | 31 | 31 |
| Community colleges | 30 | 30 |
| Charter schools | 27 | 26 |
| Special act districts | 9 | 9 |
| Other | 9 | 9 |
| Total | 822 | 821 |

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

| | 2022 | 2021 |
|---|---|---|
| Retired members and beneficiaries currently receiving benefits | 178,569 | 175,790 |
| Members: | | |
| Active members | 253,258 | 249,355 |
| Terminated members entitled to but not yet receiving benefits | 10,217 | 9,803 |
| Subtotal | 263,475 | 259,158 |
| Total | 442,044 | 434,948 |

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
(dollars in thousands)

### *(a) Benefits*

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

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

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

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

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

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

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

### *(b) Service Retirements*

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

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

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

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

Tier 6 members are generally eligible for a service retirement benefit of 1.67% per year of credited service times FAS for less than 20 years of service, 1.75% per year for 20 years of service, and 35% of FAS plus 2% per year for service beyond 20 years. Tier 6 members may retire as early as age 55 with five years of state service credit. An age factor applies for Tier 6 members who retire before age 63. In addition, vested Tier 6 members with an inactive membership must be at least 63 to retire.

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
(dollars in thousands)

*(c) Vested Benefits*

Retirement benefits for Tiers 1-6 are now vested after five years of credited service. Prior to April 9, 2022, Tier 5 and 6 members needed to attain 10 years of state service credit to be vested. Benefits are payable at age 55 or greater with the limitations noted for service retirements above.

*(d) Disability Retirement*

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

*(e) Death Benefits*

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

*(f) Prior and Military Service*

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

*(g) Tier Reinstatement*

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

*(h) Employer Contributions*

Pursuant to Article 11 of the New York State Education Law, employers are required to contribute at an actuarially determined rate adopted annually by the Retirement Board. The actuarially determined employer contribution rate applied to 2021-22 and 2020-21 member salaries is 9.80% and 9.53%, 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 2022 and 2021 is as follows:

| | June 30 | |
|---|---|---|
| | 2022 | 2021 |
| Total required employer contributions | $ 1,736,097 | $ 1,617,547 |
| Miscellaneous billing adjustments | (842) | 890 |
| Additions from employer contributions | $ 1,735,255 | $ 1,618,437 |

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 2021-22 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

NOTES TO FINANCIAL STATEMENTS *(continued)*
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in full or have opted to repay the System over five years. The SCO receivable balances at June 30, 2022 and 2021 were $0 and $2,722, respectively.

*(i) Member Contributions*

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

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

Section 532-a of the Education Law provides a permanent cost-of-living benefit to both current and future retired members. This benefit will be paid commencing September of each year to retired members who have attained age 62 and have been retired for five years or attained age 55 and have been retired for 10 years. Disability retirees must have been retired for five years, regardless of age, to be eligible. The annual COLA percentage is equal to 50.0% of the increase in the Consumer Price Index (CPI), not to exceed 3.0% nor be lower than 1.0%. It is applied to the first $18,000 dollars of the maximum annual benefit. The applicable percentage payable beginning September 2022 and 2021 is 3.0% and 1.4%, respectively.

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

## (2) Summary of Significant Accounting Policies

*(a) Basis of Accounting*

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

*(b) Investments*

Plan investments are reported at fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Where plan investments do not have a readily determinable fair market value, fair value of the plan investments has been established using the net asset value per share (or its equivalent) of the investment to establish fair value where applicable. Refer to note 6 for more detail regarding the methods used to measure the fair value of investments.

NOTES TO FINANCIAL STATEMENTS *(continued)*
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*(c) System Employees' Pension Plan and Other Postemployment Benefits*

The System offers a defined benefit pension plan to its employees. The System records a net pension liability for the difference between the total pension liability calculated by the actuary and the pension plan's fiduciary net position. 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).

The System offers a defined benefit other postemployment benefits (OPEB) plan to its employees. The System records a net OPEB liability for the difference between the total OPEB liability calculated by the actuary and the OPEB plan's fiduciary net position. For purposes of measuring the net 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.

In addition to assets, the statement of fiduciary net position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element represents a consumption of net position that applies to a future period and will not be recognized as an outflow of resources (expense/expenditure) until then.

In addition to liabilities, the statement of fiduciary net position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element represents an acquisition of net position that applies to a future period and will not be recognized as an inflow of resources (revenue) until that time.

The System reports deferred outflows of resources and deferred inflows of resources related to their employee's participation in separate pension and OPEB plans.

*(d) Capital Assets*

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

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

*(e) Federal Tax Status*

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

*(f) Use of Estimates*

Management of the System has made a number of estimates and assumptions relating to the reporting of assets and liabilities and in the disclosure of contingencies to prepare these financial statements in conformity with U.S. generally

NOTES TO FINANCIAL STATEMENTS *(continued)*
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accepted accounting principles. The System's most significant estimates relate to assumptions made about future events as part of the annual actuarial valuation process and the valuation of investments. Due to the inherent nature of these estimates, actual results could differ from those estimates.

*(g) Reclassification*

Certain amounts in the 2021 basic financial statements have been reclassified to conform to 2022 presentation.

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

Governmental Accounting Standards Board (GASB) Statement No. 96 Subscription Based Information Technology Arrangements provides guidance on the accounting and financial reporting for subscription-based information technology arrangements (SBITAs) for government end users (governments). The requirements of this Statement are effective for fiscal years beginning after June 15, 2022, and all reporting periods thereafter. 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.

*(a) Annuity Savings Fund*

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

*(b) Annuity Reserve Fund*

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

*(c) Pension Accumulation Fund*

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

*(d) Pension Reserve Fund*

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

*(e) Group Life Insurance Fund*

Pursuant to Article 4-B of the RSSL, the Retirement Board established a Group Life Insurance Fund. The Group Life Insurance Fund provides a group term death benefit not to exceed fifty thousand dollars, payable upon the death of eligible members. Group term death benefits paid for the years ended June 30, 2022 and 2021 were $25,209 and $19,836, respectively. For reporting purposes below, this fund is combined with the Pension Accumulation Fund.

NOTES TO FINANCIAL STATEMENTS *(continued)*
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*(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 $144,019 and $126,946 for the years ended June 30, 2022 and 2021, respectively. For reporting purposes below, this fund is combined with the Pension Accumulation Fund.

*(g) Administrative Fund*

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

*(h) Summary of Fund Balances*

Net position restricted for pensions at June 30, 2022 and 2021 consist of the following:

| | 2022 | 2021 |
|---|---|---|
| Administrative fund | $ 62,053 | $ 62,807 |
| Annuity savings and reserve funds | 63,454 | 72,002 |
| Pension accumulation, group life insurance and CO-ESC funds | 58,826,877 | 76,692,887 |
| Pension reserve fund | 73,012,198 | 71,320,761 |
| Total | $ 131,964,582 | $ 148,148,457 |

## (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, 2022 and 2021
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*(b) Asset Allocation*

The System's asset allocation policy as of June 30, 2022 and 2021, as adopted by the Retirement Board is as follows:

| Asset Class | Target June 30, 2022 | Target June 30, 2021 | Range June 30, 2022 | Range June 30, 2021 |
|---|---|---|---|---|
| Domestic equity | 33% | 33% | 29-37% | 29-37% |
| International equity | 16 | 16 | 12-20 | 12-20 |
| Global equity | 4 | 4 | 0-8 | 0-8 |
| Real estate equity | 11 | 11 | 6-16 | 6-16 |
| Private equity | 8 | 8 | 3-13 | 3-13 |
| Total equity | 72 | 72 | | |
| Domestic fixed income | 16 | 16 | 12-20 | 12-20 |
| High-yield bonds | 1 | 1 | 0-3 | 0-3 |
| Global bonds | 2 | 2 | 0-4 | 0-3 |
| Real estate debt | 6 | 7 | 2-10 | 3-11 |
| Private debt | 2 | 1 | 0.5-5 | 0-5 |
| Cash equivalents | 1 | 1 | 1-4 | 0-4 |
| Total debt | 28 | 28 | | |
| Total | 100% | 100% | | |

*(c) Rate of Return*

The annual money-weighted rate of return on System investments, net of pension plan investment expense, was 28.97% for the year ended June 30, 2021, but was negative 7.12% for the year ended June 30, 2022. 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, 2022 and 2021
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## (5) Deposit and Investment Risk Disclosure

*(a) Credit Risk*

The quality ratings of investments in fixed income securities as described by nationally recognized statistical rating organizations at June 30, 2022 and 2021 are as follows:

| | 2022 | | 2021 | |
|---|---|---|---|---|
| Quality rating | Fair value | Percentage of portfolio | Fair value | Percentage of portfolio |
| Short-term: | | | | |
| P-1 | $ 1,899,118 | 7.2 % | $ 3,659,642 | 12.4 % |
| Long-term: | | | | |
| Aaa | 5,750,836 | 21.7 | 5,831,554 | 19.7 |
| Aa | 1,634,395 | 6.2 | 1,769,281 | 6.0 |
| A | 4,139,237 | 15.6 | 4,301,876 | 14.5 |
| Baa | 2,993,038 | 11.3 | 3,214,781 | 10.9 |
| Ba | 663,043 | 2.5 | 705,347 | 2.4 |
| B | 588,177 | 2.2 | 516,285 | 1.7 |
| Other | 17,223 | 0.1 | 33,722 | 0.1 |
| Total credit risk debt securities | 17,685,067 | 66.8 | 20,032,488 | 67.7 |
| U.S. government fixed income securities* | 8,807,561 | 33.2 | 9,550,305 | 32.3 |
| Total fixed income securities** | $ 26,492,628 | 100.0 % | $ 29,582,793 | 100.0 % |

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

*** Cash equivalents, real estate debt, high-yield and global bond on the Statements of Fiduciary Net Position at June 30, 2022 and 2021 include $229,059 and $290,919, respectively, in cash and commingled commercial mortgage backed securities.*

Additionally, as of June 30, 2022 and 2021, the System held mortgages, secured by a lien of the properties, valued at $3.2 billion and $3.7 billion, respectively, that are not publicly traded assets and are not rated by the rating agencies.

*(b) Custodial Credit Risk*

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

The head of the Division of the Treasury in the New York State Department of Taxation and Finance (the Treasurer) is the statutory custodian of the funds of the System and, in this capacity, has arranged to have bank accounts collateralized. Collateral is held in the name of the Treasurer, as custodian for the System, by a bank that does not act as an agent for the System. The System's bank accounts were fully collateralized during the year. At June 30, 2022 and 2021, the System's bank balance was a negative $3,600 and a negative $3,128, 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.

## NOTES TO FINANCIAL STATEMENTS *(continued)*
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*(c) Concentration of Investment and Credit Risk*

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

As of June 30, 2022 and 2021, the System did not hold investments in any one issuer that would represent 5.0% or more of fiduciary net position. Obligations issued or explicitly guaranteed by the U.S. government and pooled investments are not considered subject to concentration of credit risk.

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

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

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

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

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

NOTES TO FINANCIAL STATEMENTS *(continued)*
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- Mortgage pass-through certificates, provided the certificates evidence ownership of undivided interests in pools or mortgage loans secured by first mortgages on real property located in New York state improved by one-to-four family residential dwellings, which meet all applicable statutes. The aggregate unpaid principal on conventional mortgages securing mortgage pass-through certificates cannot exceed 10.0% of the assets of the System nor can the total unpaid principal on any single pool of conventional mortgages securing mortgage pass-through certificates exceed 1.0% of the assets of the System.

- Collateralized Mortgage Obligations, which meet the requirements of applicable statutes.

- Private placements, where the purchase of unrated obligations is authorized by the Banking Law or the RSSL governing fixed income obligations; if not so provided, private placements as well as other domestic fixed income not otherwise provided for may be purchased under the Leeway Clause.

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

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

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

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

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

## NOTES TO FINANCIAL STATEMENTS *(continued)*
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*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, 2022 and 2021 as follows:

| | 2022 | | 2021 | |
|---|---|---|---|---|
| **Investment type** | **Fair value** | **Duration (in years)** | **Fair value** | **Duration (in years)** |
| Mortgages | $ 3,200,577 | 1.840 | $ 3,707,599 | 3.017 |
| | | | | |
| Cash equivalents* | 2,269,278 | 0.068 | 4,959,962 | 0.118 |
| Domestic fixed income | 18,271,844 | 4.334 | 18,815,502 | 3.979 |
| CMBS | 2,271,723 | 0.496 | 1,850,302 | 0.428 |
| High-yield bonds | 958,586 | 0.207 | 941,987 | 0.177 |
| Global bonds | 2,950,256 | 6.810 | 3,305,959 | 7.540 |
| Total fair value | $ 26,721,687 | | $ 29,873,712 | |
| Cash equivalents and fixed income portfolio modified duration | | 4.810 | | 4.170 |

*Commercial paper, negotiable certificates of deposit and U.S. Treasury, agency, supranational and floating debt issues.

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

NOTES TO FINANCIAL STATEMENTS *(continued)*
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*(d) Foreign Currency Risk*

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit. The System has exposure through global and international holdings in commingled investment trust funds and separate accounts, global real estate investment trusts (REITs), global bonds, and alternatives. The "alternatives" represent private equity and real estate investments denominated in foreign currency. With respect to global bond investments, the majority of currency risk inherent in non-U.S. dollar denominated bonds owned by the System in a separate account is hedged away by the managers through currency forwards. The System has an exposure to foreign currency fluctuation at June 30, 2022 and 2021 as follows:

| | 2022 | | 2021 | |
|---|---|---|---|---|
| | Equity Securities and REITs | Alternatives, Cash, and Global Bonds | Equity Securities and REITs | Alternatives, Cash, and Global Bonds |
| Currency: | | | | |
| Euro | $ 4,405,253 | $ 1,963,947 | $ 5,693,619 | $ 2,794,323 |
| Japanese Yen | 3,217,012 | 242,259 | 4,108,954 | 273,212 |
| British Pound Sterling | 2,100,950 | 685,158 | 2,432,008 | 801,998 |
| Canadian Dollar | 1,536,996 | 85,709 | 1,697,618 | 110,929 |
| Hong Kong Dollar | 1,369,233 | 84 | 1,803,830 | — |
| Swiss Franc | 1,230,812 | 6,720 | 1,484,802 | 9,311 |
| Australian Dollar | 959,661 | 213,899 | 1,082,800 | 146,540 |
| China Renminbi | 1,176,177 | — | 1,533,140 | (21) |
| New Taiwan Dollar | 831,925 | 23 | 1,106,896 | (21) |
| South Korean Won | 689,169 | 40,792 | 1,137,216 | 45,698 |
| Indian Rupee | 606,821 | 9 | 652,103 | (1) |
| Swedish Krona | 525,244 | 6,657 | 744,941 | 17,840 |
| Danish Krone | 404,039 | 2,059 | 475,474 | 13,990 |
| Brazilian Real | 308,605 | 7,139 | 451,539 | 4,771 |
| South African Rand | 212,651 | 16,724 | 274,992 | 12,442 |
| Other | 1,423,659 | 93,522 | 1,465,696 | 95,802 |
| Totals | $ 20,998,207 | $ 3,364,701 | $ 26,145,628 | $ 4,326,813 |

*(e) Securities Lending Transactions*

The Retirement and Social Security Law authorizes the System to enter into agreements to loan securities. Agreements to lend a security must be with a broker dealer or with New York State or nationally chartered banks and must not exceed a period of one year. The market value of securities loaned may not exceed 20% of the market value of the System's invested assets. The System lends domestic and international bonds and equities. Initial collateral of at least 102% of the market value of loaned securities is received from the borrower for domestic securities and 105% for international securities. Securities on loan are marked to market daily and collateral for the loan is required not to fall below 100%. The fair value of invested cash collateral is reported as an asset and cash collateral due to borrowers is reported as a liability on the Statement of Fiduciary Net Position. The fair value of the cash collateral invested exceeded the amount the System owed borrowers by approximately $1.9 million as of June 30, 2022 and $1.8 million as of June 30, 2021. Non-cash collateral is not reported on the Statement of Fiduciary Net Position as the System does not have the ability to pledge or sell collateral securities without a borrower default. For each year-end, the System had limited credit risk exposure to borrowers because

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the amounts the System owes the borrowers (the collateral) exceeds the amounts the borrowers owe the System (the loaned securities).

As of June 30, 2022 and 2021, JPMorgan Chase Bank, N.A. (JP Morgan) acted as agent for the domestic equity and fixed income securities lending program while Bank of New York Mellon (BNY Mellon) acted as agent for the international equity, global bond, and global equity securities lending program. Under the terms of the contracts with the lending agents, the System is fully indemnified against losses resulting from the failure of the borrowers to return the loaned securities (to the extent the collateral is inadequate to replace the loaned securities) or failure to pay the System for income distributions by the securities' issuers while the securities are on loan. There were no significant violations of legal or contractual provisions, no borrower or lending agent defaults, and no material recoveries of prior period losses during the year. The majority of securities on loan can be recalled by the System on demand or returned by the borrower at any time. Cash collateral is invested by the System's lending agents in short-term investment funds managed by the agent lenders pursuant to System approved investment guidelines. There is no direct match of the maturities of the collateral investments with the maturities of the securities loans. Investments are restricted to issuers with a short-term credit rating issued by Standard & Poor's and Moody's Investors Service, not lower than A- 1/P -1 or long-term ratings not lower than A/A2, respectively, or the equivalent thereof. Non-cash collateral received is limited to high-quality U.S. Treasuries, agency securities and agency mortgage-backed securities. At June 30, 2022 and 2021, the average effective duration of the funds managed by JP Morgan was four and 21 days respectively and of those managed by BNY Mellon and State Street was four days compared to three days, respectively. Securities loans and related collateral investments are monitored on a daily basis to ensure compliance with collateral requirements, limitations and cash collateral investment guidelines.

| Securities Lending Program | | 2022 | | 2021 |
|---|---|---|---|---|
| Fair value of securities on loan — cash collateral | $ | 688,474 | $ | 459,107 |
| Fair value of securities on loan — non-cash collateral | | 853,622 | | 941,509 |
| Total fair value of securities on loan | $ | 1,542,096 | $ | 1,400,616 |
| | | | | |
| Fair value of liabilities to borrowers — cash collateral | $ | 707,887 | $ | 479,186 |
| Fair value of liabilities to borrowers — non-cash collateral | | 876,174 | | 962,850 |
| Total collateral due to borrowers | $ | 1,584,061 | $ | 1,442,036 |
| | | | | |
| Fair value of cash collateral invested by System | $ | 709,827 | $ | 481,018 |
| Fair value of non-cash collateral held by System | | 876,174 | | 962,850 |
| Total collateral invested and held by the System | $ | 1,586,001 | $ | 1,443,868 |

## (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.

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
(dollars in thousands)

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

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

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
(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, 2022 and 2021, respectively:

| Investments by Fair Value Level | June 30, 2022 | Fair Value Measurements Using: Quoted Prices in Active Markets for Identical Assets (Level 1) | Significant Other Observable Inputs (Level 2) | Significant Unobservable Inputs (Level 3) |
|---|---|---|---|---|
| **Domestic equity** | $ 41,961,610 | $ 41,958,863 | $ 2,646 | $ 101 |
| **International equity** | 18,598,195 | 18,438,864 | 157,797 | 1,534 |
| **Global equity** | 4,264,158 | 4,129,267 | 134,852 | 39 |
| **Real estate equity:** | | | | |
| Direct equity real estate and joint venture investments | 4,639,383 | — | — | 4,639,383 |
| Real estate alternative investments | 283,439 | — | — | 283,439 |
| Domestic REIT | 2,681,606 | 2,470,522 | 211,084 | — |
| International REIT | — | — | — | — |
| Global REIT | 1,341,873 | 1,327,542 | 13,802 | 529 |
| **Total real estate equity** | $ 8,946,301 | $ 3,798,064 | $ 224,886 | $ 4,923,351 |
| **Domestic fixed income** | 18,271,844 | 100,966 | 18,170,878 | — |
| **High-yield bonds** | 958,564 | 1,213 | 956,433 | 918 |
| **Global bonds** | 2,920,498 | 39,718 | 2,880,780 | — |
| **Real estate debt:** | | | | |
| Domestic commercial mortgage backed securities | 2,271,723 | 28,674 | 2,243,049 | — |
| Real estate alternative investments | 559,903 | — | — | 559,903 |
| Mortgages | 3,200,577 | — | — | 3,200,577 |
| **Total real estate debt** | $ 6,032,203 | $ 28,674 | $ 2,243,049 | $ 3,760,480 |
| **Cash Equivalents*** | 2,257,952 | — | 2,257,952 | — |
| **Securities Lending Collateral, Invested** | 709,827 | — | 708,364 | 1,463 |
| **Total investments by fair value level** | $ 104,921,152 | $ 68,495,629 | $ 27,737,637 | $ 8,687,886 |

*Commercial paper, negotiable certificates of deposit and U.S. Treasury, agency, supranational and floating debt issues.

## NOTES TO FINANCIAL STATEMENTS *(continued)*

## June 30, 2022 and 2021

(dollars in thousands)

| Investments Measured at the NAV | June 30, 2022 | Unfunded Commitments | Redemption Frequency | Redemption Notice Period |
|---|---|---|---|---|
| Commingled international equity funds (1) | 813,333 | — | Daily or Monthly | 5-30 days |
| Privately held real estate investment trusts (2) | 1,524,520 | 85,000 | NA | NA |
| Real estate equity funds (3) | | | | |
| Closed-end funds | 4,687,493 | 4,242,949 | | |
| Open-end funds | 1,331,798 | 86,707 | Quarterly | 30-120 days |
| Private equity closed-end funds (4) | 14,073,681 | 6,449,962 | | |
| Real estate debt funds (5) | | | | |
| Closed-end funds | 1,584,217 | 2,051,393 | | |
| Open-end funds | 114,456 | — | Quarterly | 90 days |
| Private debt closed-end funds (6) | 1,424,443 | 1,539,290 | | |
| Total investments measured at the NAV | $ 25,553,941 | $ 14,455,301 | | |
| | | | | |
| Investment related cash, receivables and payables not included in above | 94,917 | | | |
| **Total investments and securities lending collateral reinvested** | $ 130,570,010 | | | |

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
(dollars in thousands)

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

*Commercial paper, negotiable certificates of deposit and U.S. Treasury, agency, supranational and floating debt issues.

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
(dollars in thousands)

| Investments Measured at the NAV | June 30, 2021 | Unfunded Commitments | Redemption Frequency | Redemption Notice Period |
|---|---|---|---|---|
| Commingled international equity funds (1) | 1,185,388 | — | Daily or Monthly | 5-30 days |
| Privately held real estate investment trusts (2) | 1,785,335 | 135,000 | NA | NA |
| Real estate equity funds (3) | | | | |
| Closed-end funds | 3,818,185 | 3,208,548 | | |
| Open-end funds | 1,050,544 | 74,981 | Quarterly | 30-120 days |
| Private equity closed-end funds (4) | 14,780,950 | 7,139,617 | | |
| Real estate debt funds (5) | | | | |
| Closed-end funds | 1,242,091 | 1,741,723 | | |
| Open-end funds | 111,177 | — | Quarterly | 90 days |
| Private debt closed-end funds (6) | 1,163,794 | 1,333,484 | | |
| Total investments measured at the NAV | $ 25,137,464 | $ 13,633,353 | | |
| Investment related cash, receivables and payables not included in above | 151,659 | | | |
| **Total investments and securities lending collateral reinvested** | $ 146,700,146 | | | |

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

(2) Privately held real estate investment trusts consist of two trusts which primarily invest in U.S. commercial real estate. The fair values of the investments in this group have been determined using the net asset value of units held at the end of the period based upon the property appraisals of the underlying assets. The trusts are perpetual in nature, making periodic operating distributions to shareholders. Capital calls and redemptions are determined by a unanimous vote of the trust board members.

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

(4) Private equity funds include buyout, growth equity, venture capital, co-investment, and turnaround/restructuring strategies. These investments are accessed through primary commitments to commingled funds, secondary funds, fund of funds and separately managed accounts. The fair values have been determined using the NAV per share (or its equivalent) of the Plan's ownership interest in partners' capital.

(5) Real estate debt funds invest primarily in transitional first mortgage, mezzanine, and subordinate debt positions. The fair values of the investments in this group have been determined using the NAV per share (or its equivalent) of the Plan's ownership, interest in partners' capital. Open-end funds may be redeemed on a quarterly basis with notice.

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
(dollars in thousands)

Closed-end funds are not redeemable; however, distributions will be received as the underlying investments of the funds are liquidated, which on average can occur over the span of eight to ten years after final closing.

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

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

The components of the net pension liability (asset) of the NYSTRS participating school districts at June 30, 2022 and 2021 were as follows:

| | 2022 | 2021 |
|---|---|---|
| Total pension liability | $ 133,883,474 | $ 130,819,415 |
| Plan fiduciary net position | 131,964,582 | 148,148,457 |
| School districts' net pension liability (asset) | $ 1,918,892 | $ (17,329,042) |
| Plan fiduciary net position as a percentage of total pension liability | 98.6% | 113.2% |

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
(dollars in thousands)

### *(a) Actuarial Methods and Assumptions*

The total pension liability at June 30, 2022 was determined using an actuarial valuation as of June 30, 2021, with update procedures used to roll forward the total pension liability to June 30, 2022. The total pension liability at June 30, 2021 was determined using an actuarial valuation as of June 30, 2020, with update procedures used to roll forward the total pension liability to June 30, 2021. These actuarial valuations applied the following actuarial methods and assumptions:

| | |
|---|---|
| Actuarial cost method | Entry age normal |
| Inflation | 2.40% for June 30, 2022 and June 20, 2021 |
| Projected salary increases | Rates of increase differ based on service<br>They have been calculated based upon recent NYSTRS member experience. |

| **Service** | **Rate** |
|---|---|
| 5 | 5.18% |
| 15 | 3.64 |
| 25 | 2.50 |
| 35 | 1.95 |

| | |
|---|---|
| Projected COLAs | 1.3% for June 30, 2022 and June 30, 2021 |
| Investment rate of return | 6.95% for June 30, 2022 and June 30, 2021 measurement of total pension liability. The rates are compounded annually, net of pension plan investment expense, including inflation. |
| Mortality | Annuitant and active mortality rates are based on plan member experience, with adjustments for mortality improvements based on Society of Actuaries Scale MP2021 for June 30, 2022 and Scale MP2020 for June 30, 2021, applied on a generational basis. |
| Experience Period | The demographic actuarial assumptions and the salary scale are based on the results of an actuarial experience study for the period July 1, 2015 to June 30, 2020. NYSTRS runs one-year and five-year experience studies annually in order to gauge the appropriateness of the assumptions and has updated the mortality improvement assumption as of June 30, 2022. |

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* and generally accepted accounting principles. 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, 2022 and 2021
(dollars in thousands)

The Long-Term Expected Real Rates of Return are presented by asset allocation classification. Best estimates of arithmetic real rates of return for each major asset class included in the System's target asset allocation as of the measurement date of June 30, 2022 and June 30, 2021 (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** | **2022** | **2021** |
| Domestic equity | 6.5% | 6.8% |
| International equity | 7.2 | 7.6 |
| Global equity | 6.9 | 7.1 |
| Real estate equity | 6.2 | 6.5 |
| Private equity | 9.9 | 10.0 |
| Domestic fixed income | 1.1 | 1.3 |
| Global bonds | 0.6 | 0.8 |
| Private debt | 5.3 | 5.9 |
| Real estate debt | 2.4 | 3.3 |
| High-yield bonds | 3.3 | 3.8 |
| Cash equivalents | (0.3) | (0.2) |

**Real rates of return are net of the long-term inflation assumption of 2.4% for 2022 and 2.4% for 2021.*

### (b) Discount Rate

The discount rate used to measure the total pension liability was 6.95% as of June 30, 2022 and 6.95% as of June 30, 2021. The projection of cash flows used to determine the discount rate assumed that contributions from plan members will be made at the current member contribution rates and that contributions from school districts will be made at statutorily required rates, actuarially determined. Based on those assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

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

The following presents the net pension liability (asset) of the NYSTRS participating school districts calculated using the discount rate of 6.95% for June 30, 2022 and 6.95% for June 30, 2021, as well as what the school districts' net pension liability (asset) would be if it were calculated using a discount rate that is one percentage point lower or one percentage point higher than the current rate:

| System's Net Pension Liability (Asset) | | | | | | |
|---|---|---|---|---|---|---|
| | | 1% Decrease (5.95%) | | Current Discount Rate (6.95%) | | 1% Increase (7.95%) |
| June 30, 2022 | $ | $17,693,081 | $ | $1,918,892 | $ | $(11,347,098) |
| June 30, 2021 | $ | $(1,818,430) | $ | $(17,329,042) | $ | $(30,364,586) |

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
(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, 2022 and 2021, respectively, were: real estate and real estate alternative investments of $4.5 billion and $3.6 billion; mortgages and real estate debt funds of $2.2 billion and $1.8 billion; CMBS $123.9 million and $0.0 million; private equity $6.4 billion and $7.1 billion; and private debt investments of $1.5 billion and $1.3 billion.

## (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. NYSLRS issues a publicly available financial report that contains financial statements and required supplementary information for ERS. The report may be obtained on the Comptroller's website at www.osc.state.ny.us/pension.

*(b) Benefits*

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

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

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

*(c) Funding Policy*

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

Plan members are required to contribute between 0% and 6% throughout active service. Employers are required to contribute at an actuarially determined rate. An average employer contribution rate for the tiers of 16.1% and 14.5% was applicable to the annual covered payroll for the years ended March 31, 2022 and March 31, 2021, respectively. The

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
(dollars in thousands)

contributions paid to ERS during the System's years ended June 30, 2022 and 2021 were $5.4 million and $4.5 million, respectively, and were 100% of the contributions required.

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

At June 30, 2022 and 2021, the System reported a liability of negative $9.9 million and $0.1 million, respectively, for its proportionate share of the ERS net pension liability measured as of March 31, 2022 and 2021, respectively. The balance is reported within "other liabilities."

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, 2022, the System's proportion was 0.1207750% and was 0.1108277% at March 31, 2021.

For the years ended June 30, 2022 and 2021, the System recognized pension expense of $0.6 million and $2.5 million, respectively.

Deferred outflows of resources were $18.1 million and $21.8 million at June 30, 2022 and 2021, respectively. Deferred inflows of resources were $33.8 million and $32.3 million at June 30, 2022 and 2021, respectively.

The following presents a summary of deferred outflows of resources and deferred inflows of resources at June 30, 2022 and 2021:

| | 2022 | 2021 |
|---|---|---|
| Deferred outflows of resources: | | |
| Difference between expected and actual experience | $ 748 | $ 1,348 |
| Changes of assumptions | 16,477 | 20,291 |
| Changes in proportion and differences between employer contributions and proportionate share of contributions | 828 | 128 |
| | $ 18,053 | $ 21,767 |
| Deferred inflows of resources: | | |
| Difference between expected and actual experience | $ 970 | $ — |
| Net differences between projected and actual investment earnings on pension plan investments | 32,329 | 31,700 |
| Changes of assumptions | 278 | 383 |
| Changes in proportion and differences between employer contributions and proportionate share of contributions | 191 | 192 |
| | $ 33,768 | $ 32,275 |

Amounts reported as deferred outflows of resources and deferred inflows of resources at June 30, 2022 related to pensions will be recognized in pension expense as follows:

| Year Ended June 30: | |
|---|---|
| 2023 | $ (2,355) |
| 2024 | (3,490) |
| 2025 | (8,282) |
| 2026 | (1,588) |

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
(dollars in thousands)

### (e) *Actuarial Assumptions*

The total pension liability for the March 31, 2022 measurement date was determined by using an actuarial valuation as of April 1, 2021, with update procedures used to roll forward the total pension liability to March 31, 2022. The total pension liability for the March 31, 2021 measurement date was determined by using an actuarial valuation as of April 1, 2020, with update procedures used to roll forward the total pension liability to March 31, 2021. These actuarial valuations applied the following actuarial assumptions

| | |
|---|---|
| Inflation | 2.7% |
| Salary scale | 4.4%, indexed by service |
| Investment rate of return, including inflation | 5.9% compounded annually, net of investment expenses |
| Cost of living adjustments | 1.4% annually |
| Decrements | Developed from the Plan's experience study of the period April 1, 2015 through March 31, 2020 |
| Mortality improvement | Society of Actuaries Scale MP-2020 |

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected return, net of investment expenses and inflation) are developed for each major asset class. These ranges 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. The target allocation and best estimates of arithmetic real rates of return for each major asset class for the measurement period March 31, 2022 and 2021 are summarized in the following table:

| | 2022 | | 2021 | |
|---|---|---|---|---|
| Asset class | Target allocation | Long-term expected real rate of return | Target allocation | Long-term expected real rate of return |
| Domestic equity | 32 % | 3.30 % | 32 % | 4.05 % |
| International equity | 15 | 5.85 | 15 | 6.30 |
| Private equity | 10 | 6.50 | 10 | 6.75 |
| Real estate | 9 | 5.00 | 9 | 4.95 |
| Opportunistic/ARS portfolio | 3 | 4.10 | 3 | 4.50 |
| Credit | 4 | 3.78 | 4 | 3.63 |
| Real assets | 3 | 5.58 | 3 | 5.95 |
| Fixed income | 23 | — | 23 | — |
| Cash | 1 | (1.00) | 1 | 0.50 |
| | 100 % | | 100 % | |

### (f) *Discount Rate*

The discount rate used to calculate the total pension liability was 5.9% for years ending March 31, 2022 and 2021. The projection of cash flows used to determine the discount rate assumes that contributions from plan members will be made at the current contribution rates and that contributions from employers will be made at statutorily required rates, actuarially determined. Based upon those assumptions, the ERS's fiduciary net position was projected to be available to

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
(dollars in thousands)

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.

*(g) Sensitivity of the System's Proportionate Share of the ERS Net Pension Liability*

The following presents the System's proportionate share of the ERS net pension liability calculated using the discount rate of 5.9% for the years ending June 30, 2022 and 2021, as well as what the System's proportionate share of the ERS net pension liability 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 (4.9%) | Current discount rate (5.9%) | 1% Increase (6.9%) |
| June 30, 2022 | $ 25,413 | $ (9,873) | $ (39,387) |
| June 30, 2021 | $ 30,630 | $ 110 | $ (28,036) |

## (10) System Employees' Other Post-Employment Benefits

*(a) Plan Description*

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

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

*(b) Benefits*

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

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

System retirees are required to contribute toward the cost of their coverage. Employees who retire on or after July 1, 1985 contribute an amount equal to 14.0% of the premium up to the premium of the Empire Plan option. If more expensive coverage is elected, the retiree pays 14.0% of the Empire Plan option and 100% of the difference between the two.

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.

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
(dollars in thousands)

As of June 30, 2022, 676 participants including 365 current employees and 311 retired and/or spouses of retired employees participated in the healthcare plan. As of June 30, 2021, 673 participants including 374 current employees and 299 retired and/or spouses of retired employees participated in the healthcare plan.

### *(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, 2022 and 2021, the Trust recognized contributions of $6.0 million and $6.3 million, respectively, which were approximately 112.4% and 107.5% of the ADC or 18.1% and 19.5% of covered payroll, respectively.

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

At June 30, 2022 and 2021, the System reported a net OPEB liability of $34.8 million and $47.2 million, respectively. The June 30, 2022 OPEB liability was determined using an actuarial valuation as of July 1, 2020, with update procedures used to roll forward the total OPEB liability to the measurement date of June 30, 2021. The total OPEB liability at June 30, 2021 was determined using an actuarial valuation as of July 1, 2019, with update procedures used to roll forward the total OPEB liability to June 30, 2020.

For the years ended June 30, 2022 and 2021, the System recognized OPEB expense of $2.8 million and negative $4.4 million, respectively.

Deferred outflows of resources were $10.7 million for June 30, 2022 and $10.9 million for June 30, 2021. Deferred inflows of resources were $13.2 million at June 30, 2022 and $4.3 million at June 30, 2021.

The following presents a summary of deferred outflows of resources and deferred inflows of resources at June 30, 2022 and 2021:

| | 2022 | 2021 |
|---|---|---|
| Deferred outflows of resources: | | |
| Difference between expected and actual experience | $ 1,459 | $ 542 |
| Changes in assumptions | 3,244 | 4,101 |
| Contributions subsequent to the measurement date | 6,000 | 6,261 |
| | $ 10,703 | $ 10,904 |
| Deferred inflows of resources: | | |
| Difference between expected and actual experience | $ 724 | $ 1,208 |
| Changes in assumptions | 3,500 | 2,540 |
| Net difference between projected and actual earnings | 9,006 | 528 |
| | $ 13,230 | $ 4,276 |

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
(dollars in thousands)

Amounts reported as deferred outflows and deferred inflows of resources will be recognized in OPEB expense as follows:

**Year ended June 30:**

| | | |
|---|---|---|
| 2023 | $ | (3,136) |
| 2024 | $ | (2,004) |
| 2025 | $ | (1,426) |
| 2026 | $ | (1,763) |
| 2027 | $ | (198) |
| Thereafter | $ | — |

*(e) Actuarial Assumptions*

| | 2022 | 2021 |
|---|---|---|
| Valuation date | July 1, 2020 | July 1, 2019 |
| Investment rate of return | 6.50% | 6.75% |
| Payroll increase rate | 3.00% | 3.00% |
| Salary increase rate | Varies by service from 3.00%-8.00% | Varies by service from 3.00%-8.00% |
| Maximum retiree contribution based on salary at retirement | Increase $100 per year after 2025 | Increase $100 per year after 2024 |
| Healthcare cost and premium trend rates: | | |
| Non-Medicare | 7.70% graded to 4.34% over 20 years | 6.70% graded to 4.25% over 14 years |
| Medicare | 8.80% graded to 4.34% over 20 years | 7.65% graded to 4.50% over 14 years |
| Medicare Part B | 3.50% | 3.50% |
| Blended Medicare | 7.69% graded to 4.16% over 20 years | 6.78% graded to 4.29% over 14 years |
| Pre-retirement mortality | The Pub-2010 General Employee Headcount-Weighted Mortality table (PubG.H-2010 Employee) as published by the Society of Actuaries (SOA) with an 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020. All pre-retirement deaths are assumed ordinary deaths | Mortality rates are based on those used in the NYS/SUNY "Development of Recommended Actuarial Assumptions Participating Agency Version" dated December 2017. |

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
(dollars in thousands)

| | | |
|---|---|---|
| Post-retirement mortality | • **Healthy Retirees:** The Pub-2010 General Healthy Retiree Headcount-Weighted Mortality table (PubG.H-2010 Healthy Retiree) as published by the SOA with a 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020.<br>• **Beneficiaries:** Pub-2010 General Contingent Survivors Headcount-Weighted Mortality (PubG.H-2010 Contingent Survivors) as published by the SOA with a 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020.<br>• **Disabled Retirees:** The Pub-2010 General Disabled Retiree Headcount-Weighted Mortality table (PubG.H-2010 Disabled Retiree) as published by the SOA with a 98.75% adjustment for both males and females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2020. | Mortality rates are based on SOA RP-2014 with White Collar for Healthy Annuitants, which is derived using base year 2006 and then is projected generationally from 2006 to 2014 with Scale MP-2014. These 2014 rates are then projected generationally using Scale MP-2019 with base year 2014. |
| Banked sick leave | Participants are assumed to accrue 4.74 days of unused sick leave per year and use 100% of accumulated leave at retirement for the sick leave offset. | Participants are assumed to accrue 4.74 days of unused sick leave per year and use 100% of accumulated leave at retirement for the sick leave offset. |

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.

Best estimates of arithmetic real rates of return for each major asset class included in the System's target asset allocation as of June 30, 2021 and June 30, 2020 are summarized in the following table:

## NOTES TO FINANCIAL STATEMENTS *(continued)*
## June 30, 2022 and 2021
(dollars in thousands)

| Long-Term Expected Real Rate of Return* | | |
|---|---|---|
| Asset Class | 2021 | 2020 |
| Domestic equity | 6.06 % | 5.84 % |
| International equity | 6.83 | 7.16 |
| Domestic fixed income | 0.12 | 0.99 |
| Cash equivalents | -0.32 | 0.57 |

* Real rates of return are net of the long-term inflation assumption of 2.60% and 2.50% for 2020 and 2019, respectively.

*(f) 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 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 | | |
|---|---|---|---|
| Reporting Date | 1% Decrease | Current Healthcare Cost Trend Rates | 1% Increase |
| June 30, 2022 | $ 22,218 | $ 34,792 | $ 50,200 |
| June 30, 2021 | 34,469 | 47,187 | 62,936 |

*(g) Discount Rate*

The discount rate used to measure the total pension liability as of June 30, 2022 and 2021 was 6.50%. 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 participants. Therefore, the long-term expected rate of return on plan investments was applied to all periods of projected benefit payments to determine the total OPEB liability.

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

The following presents the net OPEB liability of the System 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 | | |
|---|---|---|---|
| Reporting Date | 1% Decrease | Current Discount Rate | 1% Increase |
| June 30, 2022 | $ 48,613 | $ 34,792 | $ 23,387 |
| June 30, 2021 | 61,175 | 47,187 | 35,761 |

NOTES TO FINANCIAL STATEMENTS *(continued)*
June 30, 2022 and 2021
(dollars in thousands)

## (11) Risk Management

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

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## REQUIRED SUPPLEMENTARY INFORMATION

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

(Last Ten Fiscal Years)

(dollars in thousands)

| | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| **Total pension liability** | | | | | |
| Service cost | $ 1,751,453 | $ 1,755,405 | $ 1,563,222 | $ 1,528,402 | $ 1,319,513 |
| Interest | 8,959,475 | 8,752,345 | 8,418,885 | 8,189,405 | 8,224,221 |
| Changes of benefit terms | 10,091 | — | 678 | 815 | — |
| Differences between expected and actual experience | 251,733 | 558,905 | 1,169,842 | 753,802 | 964,258 |
| Changes of assumptions | 69,931 | 4,241,884 | (285,424) | (1,392,886) | — |
| Benefit payments, incl. refunds of member contributions | (7,978,624) | (7,731,900) | (7,503,901) | (7,307,318) | (7,108,999) |
| **Net change in total pension liability** | 3,064,059 | 7,576,639 | 3,363,302 | 1,772,220 | 3,398,993 |
| **Total pension liability — beginning** | 130,819,415 | 123,242,776 | 119,879,474 | 118,107,254 | 114,708,261 |
| **Total pension liability — ending (a)** | $ 133,883,474 | $ 130,819,415 | $ 123,242,776 | $ 119,879,474 | $ 118,107,254 |
| **Plan fiduciary net position** | | | | | |
| Contributions — employer | $ 1,735,255 | $ 1,618,437 | $ 1,504,688 | $ 1,774,646 | $ 1,597,139 |
| Contributions — member | 190,853 | 159,874 | 145,034 | 136,610 | 131,595 |
| Net investment income | (10,078,814) | 33,668,008 | 3,923,633 | 8,023,180 | 9,928,011 |
| Benefit payments, incl. refunds of member contributions | (7,978,624) | (7,731,900) | (7,503,901) | (7,307,318) | (7,108,999) |
| Administrative expenses | (61,230) | (55,492) | (71,385) | (74,242) | (60,610) |
| Other | 8,685 | 10,025 | 3,955 | 9,087 | 9,278 |
| **Net change in plan fiduciary net position** | (16,183,875) | 27,668,952 | (1,997,976) | 2,561,963 | 4,496,414 |
| **Plan fiduciary net position — beginning** | 148,148,457 | 120,479,505 | 122,477,481 | 119,915,518 | 115,468,360 |
| Cumulative effect of change in accounting principle | — | — | — | — | (49,256) |
| Beginning balance as restated | 148,148,457 | 120,479,505 | 122,477,481 | 119,915,518 | 115,419,104 |
| **Plan fiduciary net position — ending (b)** | $ 131,964,582 | $ 148,148,457 | $ 120,479,505 | $ 122,477,481 | $ 119,915,518 |
| **School districts' net pension liability (asset) — ending (a) — (b)** | $ 1,918,892 | $ (17,329,042) | $ 2,763,271 | $ (2,598,007) | $ (1,808,264) |

*See accompanying independent auditors' report.*

## REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

### SCHEDULE OF CHANGES IN THE SCHOOL DISTRICTS' NET PENSION LIABILITY (ASSET) (UNAUDITED) *(continued)*
### (Last Ten Fiscal Years)
(dollars in thousands)

| | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|
| **Total pension liability** | | | | | |
| Service cost | $ 1,292,143 | $ 1,181,609 | $ 1,396,824 | $ 1,397,547 | $ 1,406,084 |
| Interest | 7,988,167 | 7,809,566 | 7,611,757 | 7,434,764 | 7,252,357 |
| Changes of benefit terms | — | — | — | — | — |
| Differences between expected and actual | 727,895 | (111,652) | (161,043) | (181,834) | (128,194) |
| Changes of assumptions | 3,045,909 | 7,085,423 | — | — | — |
| Benefit payments, incl. refunds of member contributions | (6,923,037) | (6,719,866) | (6,531,140) | (6,343,538) | (6,139,718) |
| **Net change in total pension liability** | 6,131,077 | 9,245,080 | 2,316,398 | 2,306,939 | 2,390,529 |
| **Total pension liability — beginning** | 108,577,184 | 99,332,104 | 97,015,706 | 94,708,767 | 92,318,238 |
| **Total pension liability — ending (a)** | $ 114,708,261 | $ 108,577,184 | $ 99,332,104 | $ 97,015,706 | $ 94,708,767 |
| **Plan fiduciary net position** | | | | | |
| Contributions — employer | $ 1,857,359 | $ 2,046,562 | $ 2,633,682 | $ 2,400,386 | $ 1,734,908 |
| Contributions — member | 129,770 | 124,587 | 119,411 | 120,762 | 128,903 |
| Net investment income | 12,951,892 | 2,392,354 | 5,400,265 | 16,664,703 | 11,636,480 |
| Benefit payments, incl. refunds of member contributions | (6,923,037) | (6,719,866) | (6,531,140) | (6,343,538) | (6,139,718) |
| Administrative expenses | (61,611) | (60,426) | (56,948) | (55,616) | (54,338) |
| Other | 7,845 | 4,014 | 3,213 | 1,365 | 4,522 |
| **Net change in plan fiduciary net position** | 7,962,218 | (2,212,775) | 1,568,483 | 12,788,062 | 7,310,757 |
| **Plan fiduciary net position — beginning** | 107,506,142 | 109,718,917 | 108,155,083 | 95,367,021 | 88,056,264 |
| Cumulative effect of change in accounting principle | — | — | (4,649) | — | — |
| Beginning balance as restated | 107,506,142 | 109,718,917 | 108,150,434 | 95,367,021 | 88,056,264 |
| **Plan fiduciary net position — ending (b)** | $ 115,468,360 | $ 107,506,142 | $ 109,718,917 | $ 108,155,083 | $ 95,367,021 |
| **School districts' net pension liability (asset) — ending (a) — (b)** | $ (760,099) | $ 1,071,042 | $ (10,386,813) | $ (11,139,377) | $ (658,254) |

*See accompanying independent auditors' report.*

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

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

(Last Ten Fiscal Years)

(dollars in thousands)

| | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| Total pension liability | $ 133,883,474 | $ 130,819,415 | $ 123,242,776 | $ 119,879,474 | $ 118,107,254 |
| Plan fiduciary net position | 131,964,582 | 148,148,457 | 120,479,505 | 122,477,481 | 119,915,518 |
| School districts' net pension liability (asset) | $ 1,918,892 | $ (17,329,042) | $ 2,763,271 | $ (2,598,007) | $ (1,808,264) |
| Plan fiduciary net position as a percentage of the total pension liability | 98.6% | 113.2% | 97.8% | 102.2% | 101.5% |
| Covered payroll | $ 17,715,273 | $ 16,973,207 | $ 16,973,171 | $ 16,691,626 | $ 16,288,884 |
| School districts' net pension liability (asset) as a percentage of covered payroll | 10.8% | (102.1)% | 16.3% | (15.6)% | (11.1)% |

## SCHEDULE OF THE SCHOOL DISTRICTS' CONTRIBUTIONS (UNAUDITED)

(Last Ten Fiscal Years)

(dollars in thousands)

| | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| Actuarially determined contribution | $ 1,736,097 | $ 1,617,547 | $ 1,503,823 | $ 1,772,651 | $ 1,596,311 |
| Contributions in relation to the actuarially determined contribution | 1,736,097 | 1,617,547 | 1,503,823 | 1,772,651 | 1,596,311 |
| Contribution deficiency | $ — | $ — | $ — | $ — | $ — |
| Covered payroll | $ 17,715,273 | $ 16,973,207 | $ 16,973,171 | $ 16,691,626 | $ 16,288,884 |
| Contributions as a percentage of covered payroll | 9.80 % | 9.53 % | 8.86 % | 10.62 % | 9.80 % |

*See accompanying independent auditors' report.*

## REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

### SCHEDULE OF THE SCHOOL DISTRICTS' NET PENSION LIABILITY (ASSET) (UNAUDITED) *(continued)* (Last Ten Fiscal Years)

(dollars in thousands)

| | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|
| Total pension liability | $ 114,708,261 | $ 108,577,184 | $ 99,332,104 | $ 97,015,706 | $ 94,708,767 |
| Plan fiduciary net position | 115,468,360 | 107,506,142 | 109,718,917 | 108,155,083 | 95,367,021 |
| School districts' net pension liability (asset) | $ (760,099) | $ 1,071,042 | $ (10,386,813) | $ (11,139,377) | $ (658,254) |
| Plan fiduciary net position as a percentage of the total pension liability | 100.7% | 99.0% | 110.5% | 111.5% | 100.7% |
| Covered payroll | $ 15,846,705 | $ 15,431,009 | $ 15,021,357 | $ 14,771,301 | $ 14,647,830 |
| School districts' net pension liability (asset) as a percentage of covered payroll | (4.8)% | 6.9% | (69.1)% | (75.4)% | (4.5)% |

### SCHEDULE OF THE SCHOOL DISTRICTS' CONTRIBUTIONS (UNAUDITED) *(continued)* (Last Ten Fiscal Years)

(dollars in thousands)

| | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|
| Actuarially determined contribution | $ 1,857,234 | $ 2,046,152 | $ 2,633,244 | $ 2,400,378 | $ 1,734,303 |
| Contributions in relation to the actuarially determined contribution | 1,857,234 | 2,046,152 | 2,608,266 | 2,383,145 | 1,734,303 |
| Contribution deficiency | $ — | $ — | $ 24,978 | $ 17,233 | $ — |
| Covered payroll | $ 15,846,705 | $ 15,431,009 | $ 15,021,357 | $ 14,771,301 | $ 14,647,830 |
| Contributions as a percentage of covered payroll | 11.72 % | 13.26 % | 17.36 % | 16.13 % | 11.84 % |

*See accompanying independent auditors' report.*

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF INVESTMENT RETURNS (UNAUDITED)
(Last Ten Fiscal Years)

| | 2022 | 2021 | 2020 | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|
| Annual money-weighted rate of return, net of investment expense | (7.12)% | 28.97% | 3.32% | 6.93% | 8.95% | 13.05% | 2.28% | 5.18% | 18.16% | 13.73% |

*See accompanying independent auditors' report.*

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REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF NYSTRS' PROPORTIONATE SHARE OF THE NET PENSION LIABILITY NEW YORK STATE AND LOCAL EMPLOYEES' RETIREMENT SYSTEM (ERS)

(Last Nine Fiscal Years)

(dollars in thousands)

| | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| System's proportion of the net pension liability | 0.1207750 % | 0.1108277 % | 0.1120455 % | 0.1095732 % | 0.1115115 % |
| System's proportionate share of the net pension (asset) liability | $ (9,873) | $ 110 | $ 29,670 | $ 7,764 | $ 3,599 |
| System's covered payroll | 34,055 | 33,718 | 31,466 | 30,546 | 29,728 |
| System's proportionate share of the net pension liability as a percentage of covered payroll | (29.0)% | — % | 94.3 % | 25.4 % | 12.1 % |
| ERS fiduciary net position as a percentage of the total pension liability | 103.65 % | 99.95 % | 86.39 % | 96.27 % | 98.24 % |

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' PROPORTIONATE SHARE OF THE NET PENSION LIABILITY NEW YORK STATE AND LOCAL EMPLOYEES' RETIREMENT SYSTEM (ERS) *(continued)* (Last Nine Fiscal Years)

(dollars in thousands)

| | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|
| System's proportion of the net pension liability | 0.1098533 % | 0.1095719 % | 0.1028788 % | 0.1028788 % |
| System's proportionate share of the net pension (asset) liability | $ 10,322 | $ 17,587 | $ 3,475 | $ 4,649 |
| System's covered payroll | 28,994 | 28,251 | 28,067 | 26,188 |
| System's proportionate share of the net pension liability as a percentage of covered payroll | 35.6 % | 62.3 % | 12.4 % | 17.8 % |
| ERS fiduciary net position as a percentage of the total pension liability | 94.70 % | 90.70 % | 97.90 % | 97.20 % |

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' CONTRIBUTIONS (UNAUDITED)
## NEW YORK STATE AND LOCAL EMPLOYEES' RETIREMENT SYSTEM (ERS)
(Last Ten Fiscal Years)

(dollars in thousands)

| | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| Actuarially determined contribution | $ 5,377 | $ 4,499 | $ 4,360 | $ 4,308 | $ 4,310 |
| Contributions in relation to the actuarially determined contribution | 5,377 | 4,499 | 4,360 | 4,308 | 4,310 |
| Contribution deficiency | $ — | $ — | $ — | $ — | $ — |
| Covered payroll | $ 34,055 | $ 33,718 | $ 31,466 | $ 30,546 | $ 29,728 |
| Contributions as a percentage of covered payroll | 15.79 % | 13.34 % | 13.86 % | 14.10 % | 14.50 % |

*See accompanying independent auditors' report.*

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF NYSTRS' CONTRIBUTIONS (UNAUDITED)
### NEW YORK STATE AND LOCAL EMPLOYEES' RETIREMENT SYSTEM (ERS) *(continued)*
### (Last Ten Fiscal Years)

(dollars in thousands)

| | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|
| Actuarially determined contribution | $ 4,318 | $ 5,289 | $ 5,131 | $ 5,250 | $ 4,807 |
| Contributions in relation to the actuarially determined contribution | 4,318 | 5,289 | 5,131 | 5,250 | 4,807 |
| Contribution deficiency | $ — | $ — | $ — | $ — | $ — |
| Covered payroll | $ 28,994 | $ 28,251 | $ 28,067 | $ 26,188 | $ 26,259 |
| Contributions as a percentage of covered payroll | 14.89 % | 18.72 % | 18.28 % | 20.05 % | 18.31 % |

*See accompanying independent auditors' report.*

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF CHANGES IN THE SYSTEM'S NET OPEB LIABILITY AND RELATED RATIOS (UNAUDITED)
(Last Six Fiscal Years)

(dollars in thousands)

Total OPEB liability:

| Reporting Date: | 2022 | 2021 | 2020 | 2019 |
|---|---|---|---|---|
| Measurement Date: | 2021 | 2020 | 2019 | 2018 |
| Service cost | $ 2,985 | $ 2,915 | $ 2,907 | $ 2,604 |
| Interest | 6,586 | 6,622 | 6,169 | 5,747 |
| Changes of benefit terms | — | (9,789) | — | 6,211 |
| Differences between expected and actual experience | 1,259 | 79 | 714 | (842) |
| Changes of assumptions | (2,450) | 4,039 | 1,102 | (878) |
| Benefit payments | (4,527) | (4,413) | (3,965) | (3,757) |
| Net change in total OPEB liability | 3,853 | (547) | 6,927 | 9,085 |
| Total OPEB liability - beginning | 96,810 | 97,357 | 90,430 | 81,344 |
| Total OPEB liability - ending (a) | $ 100,663 | $ 96,810 | $ 97,357 | $ 90,430 |
| Plan fiduciary net position: | | | | |
| Contributions - employer | $ 6,261 | $ 6,004 | $ 5,500 | $ 5,500 |
| Net investment income | 14,535 | 2,673 | 3,155 | 3,213 |
| Benefit payments | (4,527) | (4,413) | (3,965) | (3,757) |
| Professional fees and services | (20) | (66) | (19) | (53) |
| Net change in plan fiduciary net position | 16,248 | 4,199 | 4,671 | 4,902 |
| Plan fiduciary net position - beginning | 49,622 | 45,424 | 40,752 | 35,850 |
| Plan fiduciary net position - ending (b) | $ 65,871 | $ 49,622 | $ 45,424 | $ 40,752 |
| System's net OPEB liability - ending (a) - (b) | $ 34,792 | $ 47,187 | $ 51,933 | $ 49,677 |
| Plan fiduciary net position as a percentage of the total OPEB liability | 65.44 % | 51.26 % | 46.66 % | 45.07 % |
| Covered payroll | $ 33,142 | $ 32,125 | $ 31,189 | $ 30,683 |
| System's net OPEB liability as a percentage of covered payroll | 104.98 % | 146.89 % | 166.51 % | 161.90 % |

*See accompanying independent auditors' report.*

## REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF CHANGES IN THE SYSTEM'S NET OPEB LIABILITY AND RELATED RATIOS (UNAUDITED)

*(continued)*

### (Last Six Fiscal Years)

(dollars in thousands)

| Reporting Date: | | 2018 | | 2017 |
|---|---|---|---|---|
| Measurement Date: | | 2017 | | 2016 |
| Total OPEB liability: | | | | |
| Service cost | $ | 2,491 | $ | 2,579 |
| Interest | | 5,959 | | 5,589 |
| Changes of benefit terms | | — | | — |
| Differences between expected and actual experience | | (2,166) | | 400 |
| Changes of assumptions | | (5,849) | | — |
| Benefit payments | | (3,412) | | (2,980) |
| Net change in total OPEB liability | | (2,977) | | 5,589 |
| Total OPEB liability - beginning | | 84,321 | | 78,732 |
| Total OPEB liability - ending (a) | $ | 81,344 | $ | 84,321 |
| Plan fiduciary net position: | | | | |
| Contributions - employer | $ | 5,500 | $ | 5,500 |
| Net investment income | | 4,212 | | 382 |
| Benefit payments | | (3,412) | | (2,980) |
| Professional fees and services | | (15) | | (13) |
| Net change in plan fiduciary net position | | 6,285 | | 2,890 |
| Plan fiduciary net position - beginning | | 29,565 | | 26,675 |
| Plan fiduciary net position - ending (b) | $ | 35,850 | $ | 29,565 |
| System's net OPEB liability - ending (a) - (b) | $ | 45,494 | $ | 54,756 |
| Plan fiduciary net position as a percentage of the total OPEB liability | | 44.07 % | | 35.06 % |
| Covered payroll | $ | 29,753 | $ | 29,087 |
| System's net OPEB liability as a percentage of covered payroll | | 152.91 % | | 188.25 % |

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 SYSTEM AND OTHER CONTRIBUTING ENTITY CONTRIBUTIONS (UNAUDITED)

(Last Ten Fiscal Years)

(dollars in thousands)

| | 2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| Actuarially determined contribution | $ 5,340 | $ 5,822 | $ 5,958 | $ 5,349 | $ 5,279 |
| Contributions in relation to the actuarially determined contribution: | | | | | |
| System | 6,000 | 6,261 | 6,004 | 5,500 | 5,500 |
| Other contributing entity | — | — | — | — | — |
| Total contributions | 6,000 | 6,261 | 6,004 | 5,500 | 5,500 |
| Contribution deficiency (excess) | $ (660) | $ (439) | $ (46) | $ (151) | $ (221) |
| Covered payroll | $ 35,423 | $ 33,142 | $ 32,125 | $ 31,189 | $ 30,683 |
| Contributions as a percentage of covered payroll | 16.94 % | 18.89 % | 18.69 % | 17.63 % | 17.93 % |

*See accompanying independent auditors' report.*

## REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

## SCHEDULE OF SYSTEM AND OTHER CONTRIBUTING ENTITY CONTRIBUTIONS (UNAUDITED)

*(continued)*

### (Last Ten Fiscal Years)

(dollars in thousands)

| | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|---|---|---|---|---|
| Actuarially determined contribution | $ 5,374 | $ 4,782 | $ 4,542 | $ 4,767 | $ 5,240 |
| Contributions in relation to the actuarially determined contribution: | | | | | |
| System | 5,500 | 5,500 | 5,500 | 5,500 | 5,240 |
| Other contributing entity | — | — | — | 1 | 95 |
| Total contributions | 5,500 | 5,500 | 5,500 | 5,501 | 5,335 |
| Contribution deficiency (excess) | $ (126) | $ (718) | $ (958) | $ (734) | $ (95) |
| Covered payroll | $ 29,753 | $ 29,087 | $ 26,507 | $ 25,556 | $ 26,500 |
| Contributions as a percentage of covered payroll | 18.49 % | 18.91 % | 20.75 % | 21.53 % | 20.13 % |

*See accompanying independent auditors' report.*

REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

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

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

*Changes of benefit terms*. Effective with the 2022 actuarial valuation, the following plan change was effective: The number of years of credited service required for vesting changed from ten years to five years for Tier 5 and 6 members for purposes of eligibility for a service retirement benefit or a deferred-vested benefit.

*Changes of assumptions*. Actuarial assumptions are revised periodically to more closely reflect actual, as well as anticipated future experience. The actuarial assumptions were revised and adopted by the Retirement Board on October 28, 2021 and first used in the 2021 determination of the Total Pension Liability.

The System's long-term rate of return assumption for purposes of the NPL is 6.95%, effective with the 2021 actuarial valuation. For the 2020 and 2019 actuarial valuations, the System's long-term rate of return assumption was 7.10%.  For the 2018 and 2017 actuarial valuations, the System's long-term rate of return assumption was 7.25%. For the 2016 actuarial valuation, the System's long-term rate of return assumption was 7.50%. Prior to the 2016 actuarial valuation, the System's long-term rate of return was 8.00%.

The System's assumed annual inflation rate is 2.40% for 2021 and 2022 and 2.20% for 2019 and 2020. For the 2018 and 2017 actuarial valuations, the System's annual inflation assumption was 2.25%. For the 2016 actuarial valuation, the System's annual inflation assumption was 2.5%. Prior to the 2016 actuarial valuation, the System's annual inflation assumption was 3.00%.

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

Effective with the 2022 actuarial valuation, the assumed scale for mortality improvement was changed from MP2020 to MP2021. Effective with the 2021 actuarial valuation, the assumed scale for mortality improvement was changed from MP2019 to MP2020. Effective with the 2020 actuarial valuation, the assumed scale for mortality improvement was changed from MP2018 to MP2019. Effective with the 2019 actuarial valuation, the assumed scale for mortality improvement was changed from MP2014 to MP2018.

*See accompanying independent auditors' report.*

## REQUIRED SUPPLEMENTARY INFORMATION *(continued)*

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

*Method and assumptions used in calculations of school districts' actuarially determined contributions.* The actuarially determined contribution rates in the schedule of school districts' contributions are calculated as of June 30, two years prior to the end of the fiscal year in which contributions are reported. The following actuarial methods and assumptions were used to determine school districts' contributions in 2022. For assumptions and plan provisions used in contributions reported for years prior to 2022, refer to the Annual Actuarial Report for two years prior to the end of the fiscal year in which contributions are reported.

| | |
|---|---|
| Valuation Date | June 30, 2020 |
| Actuarial cost method | Aggregate (level percent of payroll)* |
| Amortization method | n/a* |
| Remaining amortization period | n/a* |
| Asset valuation method | Five-year phased-in deferred recognition of each year's net investment income/loss in excess of (or less than) the assumed valuation rate of interest at a rate of 20.0% per year, until fully recognized after 5 years. |
| Inflation | 2.20% |
| Projected salary increases | Rates of increase differ based on service.<br>They have been calculated based upon recent NYSTRS member experience. |

| Service | Rate |
|---|---|
| 5 | 4.72% |
| 15 | 3.46 |
| 25 | 2.37 |
| 35 | 1.90 |

| | |
|---|---|
| Projected COLAs | 1.3% compounded annually |
| Valuation rate of interest | 7.10% compounded annually, net of pension plan investment expense. |

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

*Key Methods and Assumptions Used to Determine OPEB Contribution Rates:*

| | |
|---|---|
| Asset Valuation Method: | Market Value |
| Amortization Method: | 30-Year Closed Amortization, level percentage of payroll |
| Remaining Amortization Period: | 25 years as of July 1, 2021 |
| Discount Rate: | 6.50% per annum |
| Expected Return on Assets: | 6.50% per annum |
| Salary Increases: | Varies by service from 3.00% - 8.00% |
| Healthcare cost and premium trend rates: | |
| Non-Medicare | 7.70% graded to 4.34% over 20 years |
| Medicare | 8.80% graded to 4.34% over 20 years |
| Medicare Part B | 3.50% |
| Blended Medicare | 7.69% graded to 4.16% over 20 years |
| Pre-Retirement Mortality: | SOA Pub-2010 General Employees Headcount-Weighted Mortality Table, base year 2010 and on a generational Improvement Scale MP-2020, with a 98.75% adjustment to base rates. |
| Healthy Retirees Mortality: | SOA Pub-2010 General Healthy Retiree Headcount-Weighted Mortality Table, base year 2010 and on a generational Improvement Scale MP-2020, with a 98.75% adjustment to base rates. |
| Beneficiaries: | SOA Pub-2010 General Contingent Survivors Headcount-Weighted Mortality Table, base year 2010 and on a generational Improvement Scale MP-2020, with a 98.75% adjustment to base rates. |
| Disabled Retirees: | SOA Pub-2010 General Disabled Retiree Headcount-Weighted Mortality Table, base year 2010 and on a generational Improvement Scale MP-2020, with a 98.75% adjustment to base rates. |

*See accompanying independent auditors' report.*

## OTHER SUPPLEMENTAL SCHEDULES

## SCHEDULES OF ADMINISTRATIVE EXPENSES

### Years ended June 30, 2022 and 2021

(dollars in thousands)

| | 2022 | 2021 |
|---|---|---|
| **Salaries and benefits:** | | |
| Salaries | $ 36,038 | $ 35,141 |
| Civil service | 57 | 50 |
| Employees retirement | 4,451 | 4,383 |
| Health and dental insurance | 12,019 | 12,679 |
| Overtime salaries | 28 | 12 |
| Social Security | 2,511 | 2,461 |
| Total salaries and benefits | 55,104 | 54,726 |
| **Building occupancy expenses:** | | |
| Building, grounds and equipment | $ 1,815 | $ 1,680 |
| Depreciation - building and improvements | 1,950 | 1,996 |
| Depreciation - Equipment | 146 | 189 |
| Office supplies and expenses | 164 | 114 |
| Utilities and municipal assessments | 1,127 | 911 |
| Total building occupancy expenses | 5,202 | 4,890 |
| **Computer expenses:** | | |
| Amortization/depreciation - computer equipment | $ 1,108 | $ 1,379 |
| Computer hardware and software | 4,027 | 4,350 |
| Computer maintenance and supplies | 44 | 65 |
| Total computer expenses | 5,179 | 5,794 |
| **Personnel and meeting expenses:** | | |
| Board - meetings, travel and education | $ 72 | $ 28 |
| Delegates meeting | 5 | 3 |
| Pre-retirement seminars | (3) | — |
| Professional development | 636 | 561 |
| Travel and automobile expense | 68 | 3 |
| Other personnel expenses | 116 | 65 |
| Total personnel and meeting expenses | 894 | 660 |
| **Professional and governmental services:** | | |
| Auditors - financial* | $ 482 | $ 61 |
| Auditors - Department of Financial Services | — | 139 |
| Disability medical examinations | 96 | 94 |
| Postage and cartage | 804 | 780 |
| Professional fees and services | 1,218 | 688 |
| Publications | 130 | 152 |
| Statutory custodian charges | 136 | 130 |
| Total professional and governmental services | 2,866 | 2,044 |
| Total administrative fund expenses | 69,245 | 68,114 |
| Reconciliation of contribution expense to pension and OPEB expense | (8,015) | (12,622) |
| **Total Administrative Expenses** | $ 61,230 | $ 55,492 |

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

*See accompanying independent auditors' report.*

OTHER SUPPLEMENTAL SCHEDULES *(continued)*

## SCHEDULES OF INVESTMENT EXPENSES

### Years ended June 30, 2022 and 2021

(dollars in thousands)

| Investment Category | 2022 Fair Value of Assets Serviced or Under Management | 2022 Expenses | 2021 Fair Value of Assets Serviced or Under Management | 2021 Expenses |
|---|---|---|---|---|
| **Externally managed/serviced assets:** | | | | |
| International equity | $ 19,449,286 | $ 30,362 | $ 24,720,161 | $ 29,958 |
| Real estate equity | 16,486,742 | 134,387 | 14,839,765 | 94,632 |
| Private equity | 14,073,681 | 149,217 | 14,780,950 | 137,707 |
| Real estate debt | 5,756,791 | 17,590 | 5,083,135 | 15,713 |
| Global equity | 1,147,137 | 4,418 | 5,097,105 | 17,702 |
| Global bonds | 4,218,623 | 19,896 | 3,305,959 | 5,834 |
| Domestic equity | 2,950,256 | 5,589 | 2,162,554 | 5,729 |
| Private debt | 1,424,443 | 22,272 | 1,163,794 | 17,491 |
| High-yield bonds | 958,586 | 3,992 | 941,987 | 2,806 |
| Sub-total | 66,465,545 | 387,723 | 72,095,410 | 327,572 |
| **General expenses** | — | 11,841 | — | 11,968 |
| **Totals** | **$ 66,465,545** | **$ 399,564** | **$ 72,095,410** | **$ 339,540** |

*See accompanying independent auditors' report.*

OTHER SUPPLEMENTAL SCHEDULES *(continued)*

## SCHEDULE OF CONSULTING FEES
### Year ended June 30, 2022

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

| Name | Amount | Nature |
|---|---|---|
| Stepstone Group LP | $ 1,444,800 | Investment Consulting |
| Callan LLC | 652,303 | Investment Consulting |
| Turner Construction | 496,004 | Construction Management |
| KPMG LLP | 421,576 | Accounting Services |
| Graybar Electric Company Inc | 401,008 | Engineering Services |
| WCGS Architects, P.C. | 286,341 | Architectural & Engineering Services |
| Seward & Kissel LLP | 221,287 | Investment Consulting |
| Sidley Austin LLP | 171,615 | Legal Services |
| Nixon Peabody LLP | 164,727 | Legal Services |
| Cheiron Inc. | 126,627 | Actuarial Consulting |
| Mercer Investments LLC | 117,500 | Investment Consulting |
| Linea Secure LLC | 115,970 | IT Professional Services |
| Nossaman LLP | 88,750 | Legal Services |
| DLA Piper LLP (US) | 85,353 | Legal Services |
| Hirschler Fleischer | 76,501 | Legal Services |
| Grant Thornton Public Sector LLC | 75,000 | Accounting Services |
| Katten Muchin Rosenman LLP | 65,979 | Legal Services |
| Sheppard Mullin Richter & Hampton LLP | 64,497 | Legal Services |
| Plante Moran PC | 64,320 | Accounting Services |
| Charles Law PLCC | 60,637 | Legal Services |
| JP Morgan Asset Management | 59,492 | Legal Services |
| Lisa Mari Bergqvist | 57,300 | MWBE Consulting |
| Robinson Bradshaw | 54,027 | Legal Services |

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# INVESTMENTS

*Over a century of providing retirement security*

# INVESTMENTS

Page



## Disclaimers

# REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING JUNE 30, 2022

## Overall Objectives and Performance

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

Our net position at fiscal year-end was $132.0 billion, and our funded ratio was 99.3% based on the June 30, 2021 actuarial value of assets.

The System's total fund return, net of fees, for the fiscal year ended June 30, 2022 was negative 7.1%, compared to the assumed rate of return of 6.95%. Our 10-year and 30-year annualized net rates of return were 8.9% and 8.5%, respectively.

## Fiscal Year in Review

Volatility returned across global markets during fiscal year 2022 after declining during the second half of fiscal year 2021. Concerns in markets shifted from uncertainty about unemployment, growth prospects, and low inflation to higher, more persistent inflation and the response by central banks. Growth continued to rebound from the pandemic-induced contraction as personal consumption offset declining fiscal expenditures. Inflation increased due to supply chain disruptions, labor shortages, excess demand from high household savings, and supportive monetary policy at the onset of the fiscal year. More recently, global inflation further spiked due to increasing commodity prices arising from Russia's invasion of Ukraine.

The U.S. Federal Reserve's "dual mandate" of maximum employment and stable prices guides policy undertaken by the Federal Open Market Committee (FOMC). The U.S. unemployment rate declined to near its lowest level in over 50 years. As of June 2022, the FOMC's median expectation for their preferred measure of inflation, which excludes food and energy, in late 2022 was 4.3%, an increase of 2.2 percentage points from its expectation in June 2021 and well above its target level of 2.0%. Other measures of inflation which include the more volatile food and energy components have risen faster.

To address elevated readings of inflation and prevent higher inflation expectations from becoming entrenched, the FOMC embarked on a rate hiking cycle in March 2022. By fiscal year-end, the federal funds target rate was raised by a cumulative 150 basis points to a range of 1.50%-1.75%, with additional increases signaled throughout the remainder of the calendar year and beyond. In addition to raising the federal funds target rate, the FOMC began to reduce the size of its balance sheet (quantitative tightening) which had been used to provide additional monetary policy stimulus in response to the COVID-19 pandemic.

The majority of other global central banks were in a similar position as the Federal Reserve in terms of increasing policy rates in an effort to contain inflation within their respective economies. Select central banks have moved away from negative interest rate policies. With the about-face of global central bank monetary policy, negative yielding debt as measured by Bloomberg ended the fiscal year at $2.1 trillion after peaking at $18.4 trillion in December 2020.

Looking ahead, the pace and magnitude of global central bank rate increases will be dictated by the projected path of inflation and the impact these hikes have on economic growth and financial markets.

***Basis of Presentation***

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

## Public Equities

Fiscal 2022 was a turbulent year for global equity markets. In the United States, high inflation and rising interest rates increased fears of a recession, resulting in sharp market declines for the period. The System's policy benchmark for domestic equities, the S&P 1500, fell 11.0%, with consumer discretionary and technology stocks among the worst performers. In stark contrast, energy stocks soared on rising oil prices.

International markets also posted negative returns for the fiscal year with the System's policy benchmark, the MSCI All Country World Ex-U.S. Index, falling 19.4% over the period. Declines were widespread, notably in China where COVID restrictions continued to impact global supply chains. Russia's invasion of Ukraine and resulting sanctions negatively impacted European markets, while U.S. dollar appreciation relative to international currencies also lowered returns for U.S.-based investors.

To minimize the impact from volatile markets, the System's public equity investments are broadly diversified across countries and industries. A significant portion of the System's domestic and international public equity investments are passively managed in strategies that, as expected, generated returns in line with the System's policy benchmarks. The remaining assets, including the allocation to global equities, are invested in actively managed strategies that produced mixed results for the period but have performed well over the long term. At the end of the period, the portfolio's domestic, international, and global allocations were modestly below their respective targets but remained well within their specified ranges.

The domestic equities portfolio, which represented 32.2% of System assets at the end of the fiscal year, declined 11.1%. The international equities portfolio, which represented 15.1% of System assets, declined 19.7%. The global equities portfolio, which represented 3.3% of System assets and is entirely comprised of active strategies, declined 16.8%, underperforming the MSCI All Country World Index by 1.0%.

Overall, NYSTRS' public equity investments declined 14.2% for the period. Despite posting a negative return for the 2022 fiscal year, over the past five years the System's public equity investments have generated an average return of 8.1% per year.

## Private Equity

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

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

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

By fiscal year-end, the System had active commitments of $21.7 billion across 68 fund sponsors. The private equity portfolio was valued at $14.1 billion, representing 10.8% of the System's total assets. Unfunded commitments totaled $6.4 billion. Over the last fiscal year, the private equity program returned 4.6%, versus the stated benchmark of negative 5.6%. Over the last 20 years, the private equity program returned 14.6%, versus the stated benchmark of 14.1%.

REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING JUNE 30, 2022 *(continued)*

## Real Estate Equity

The target allocation for equity real estate is 11.0% with a range of 6.0% to 16.0%. The System invests in equity real estate through directly owned properties, investments in commingled funds, and public real estate securities. The portfolio is diversified by geography, property type and investment structure. At the end of the fiscal year, the actual amount of System assets invested was 12.7% which increases to 15.7% when including unfunded commitments. The equity real estate portfolio returned 15.0% for the fiscal year compared to the policy benchmark of 28.3%.

The unlevered NCREIF Property Index (NPI) of privately owned core diversified properties returned 21.45% for the fiscal year. Similar to last year, the returns varied widely by property type. Industrial properties continue to be the best performing property type driven by higher rental rates due to increased demand for space to support distribution, last-mile delivery of online goods, and inventory build-up to avoid supply chain disruptions. Multifamily properties continued to be supported by tenant demand as home affordability is challenged by higher house prices and rising interest rates. Retail property values overall remained relatively stable for grocery-anchored and necessity-based shopping centers. Office returns significantly lagged the other sectors, given the uncertainty surrounding office demand due to employers continuing to offer hybrid work environments and the most recent announcements of staffing cuts.

The System's direct property portfolio generated an overall net return of 26.1% for the period, aided by strong returns in our industrial and multifamily properties. There was a stark contrast in performance between private real estate and public real estate securities during the fiscal year. The System's public real estate securities returned negative 8.46% during the fiscal year, outperforming the broader global equity markets but significantly underperforming the private real estate market. The public real estate returns are often a leading indicator of the future direction of private real estate returns; therefore, we remain focused on leasing to credit tenants and managing expenses in our directly owned properties and partnering with best-in-class investment managers in our commingled funds.

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

## Fixed Income

NYSTRS manages its fixed income investments with a focus on preserving capital and generating cash flow to meet the System's current and growing $8.0 billion annual retirement benefit obligation. These goals are accomplished by seeking returns with appropriate levels of risk. To mitigate risk, the System's internally and externally managed fixed income portfolios are well-diversified by sector, issuer and interest rate exposure. In addition, the System's internal and external portfolio managers actively monitor and manage risk while striving to generate excess returns and taking advantage of market opportunities as they arise.

The domestic, investment grade fixed income market as measured by the Bloomberg U.S. Aggregate Float Adjusted Index generated returns of negative 10.4% during the fiscal year. This performance reflected the Federal Reserve's commitment to remove accommodative monetary policy at a faster pace than previously expected in the face of persistent and elevated inflation and a continued strong labor market. The worst performing securities were those with longer maturities and lower credit quality. Among sectors, corporate bonds were hit the hardest on a combination of higher interest rates and credit spreads.

As of June 30, 2022, the internally managed domestic fixed income portfolio represented approximately 14.1% of System investments. The System's long-term bond portfolio's investment return was negative 8.3% for the one-year period ended June 30, 2022, and was 0.9% for the five-year period ended June 30, 2022. This compares to benchmark returns of negative 10.4% for the one-year period and 0.9% for the five-year period. Our portfolio's lower interest rate risk in U.S. Treasuries and corporate bonds contributed to the System's one-year return performing better than the benchmark.

In the global bond universe measured by the Bloomberg Global Aggregate Float Adjusted Ex-CNY in USD hedged to USD Bond Index, returns were negative 10.4% for the fiscal year ended June 30, 2022. The corporate and Treasuries sectors and longer maturities performed the worst. On a regional basis, European securities fared the worst on elevated and rising inflation and recession concerns, which were exacerbated by the war in Ukraine.

As of June 30, 2022, approximately 2.2% of System assets were invested in externally managed global bond portfolios significantly hedged to U.S. dollars. Global bonds' net return was negative 10.4% for the one-year period ended June 30, 2022, and was 1.5% for the five-year period ended June 30, 2022. This compares to benchmark returns of negative 10.4% for the one-year period and 1.0% for the five-year period. For fiscal year 2022, the portfolio's outperformance from lower interest rate risk was offset by underperformance driven by greater credit risk and currency positioning.

In the high-yield space, returns as measured by the ICE BofAML BB-B U.S. High-Yield Constrained Index were negative 12.2%. The worst performers tended to be issues with longer maturities or lower credit quality. Among sectors, financial issuers lagged industrials and utilities.

As of June 30, 2022, approximately 0.8% of System assets were invested in externally managed high-yield portfolios. Net of fees, for the one-year period, high-yield portfolios returned negative 11.8%, compared to negative 12.2% for the benchmark. Sector and security selection were the key drivers to the portfolio performing better than the benchmark during the fiscal year.

## Private Debt

As of fiscal year-end, the target allocation for private debt was 2.0% with a range of 0.5% to 5.0% of total plan assets. Partnership structures typically cover periods of 10 years or more, with the objective of achieving a higher current yield than available through core/investment grade fixed income and high-yield securities. The program seeks to outperform the S&P/LSTA U.S. Leveraged Loan Index by 3.0% over the long term.

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

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

By fiscal year-end, the System had active commitments of $3.2 billion across 9 fund sponsors. The private debt portfolio was valued at $1.4 billion, representing 1.1% of the System's total assets. Unfunded commitments totaled $1.5 billion. Over the last fiscal year, the private debt program returned a time-weighted one-year return of 8.0% versus the stated benchmark time-weighted one-year return of 0.2%. Over the last five years, the private debt program returned 10.1% versus the stated benchmark of 5.9%.

## Real Estate Debt

As of fiscal year-end, the target allocation for real estate debt was 6.0% with a range of 2.0% to 10.0%. The System invests in real estate debt through directly held first mortgages, subordinate/mezzanine debt (through commingled funds and separately managed accounts), and public real estate debt securities. The portfolio is diversified by geography, property type and investment structure. At the end of the fiscal year, actual invested was 5.9% which increases to 7.5% when including unfunded commitments. The debt real estate portfolio returned negative 2.8% for the fiscal year compared to the policy benchmark of negative 5.8%.

The System's directly held mortgage portfolio consists of a diverse group of first mortgage investments collateralized by high-quality, core, stabilized properties. Due to increases in interest rates during the year, all-in market yields for similar quality mortgages were in the range of 4.5%-4.75% on June 30, 2022. The System's existing mortgage portfolio was valued at a discount, due to our lower in-place weighted average coupon of 3.9% relative to market rates. While existing mortgages are valued at a discount due to higher current interest rates, the System is actively pursuing new mortgage originations which will benefit from these higher rates.

The public commercial mortgage-backed securities (CMBS) market continued to be volatile throughout the fiscal year, though far more prominent in the second half. Volatility was driven by a variety of factors, including geopolitical risk with a focus on the

REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING JUNE 30, 2022 *(continued)*

Russia—Ukraine conflict, recession concerns, uncontrolled inflation, and the aggressiveness around the FOMC's path to raising the federal funds rate, as well as quantitative tightening to combat inflation, continued supply chain dislocation, and the yield curve inversion, among others. New issuance was relatively strong in the second half of 2021 but trailed off quickly in the first half of 2022. While reference rates and spreads stayed flat during the first half of the fiscal year, they shot up very quickly in the second half with the one-month term Secured Overnight Financing Rate (SOFR) moving from 0.05% to 1.69% and the 10-year U.S. Treasury yield (UST) going from 1.63% to 3.02%. At the same time, credit spreads also widened, creating a meaningful increase in all-in yield and buying opportunities.

The Real Estate department focuses on higher yielding single-asset/single-borrower securities and risk retention bonds. Given the elevated volatility, an additional focus was placed on higher rated AA and A securities, as well as securities that were rated below those levels but had a significant amount of credit enhancement and equity subordinate to our positions. The focus on these securities is underlying collateral/properties that are very high quality with a low loan to value of last dollar exposure. The public debt security portfolio returned negative 8.6% for the fiscal year.

To supplement the direct first mortgage and CMBS investments, the System continues to invest in senior mezzanine and bridge first mortgage loans on transitional assets with experienced, well-capitalized borrowers. These shorter-term investments can generate yields at a 250-300 basis points (bps) premium to the direct first mortgage and CMBS markets. The Real Estate department committed $800 million to these strategies during the fiscal year.

## 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.

The System’s short-term portfolio has an asset allocation target of 1.0%. As of June 30, 2022, the portfolio represented 1.8% of total invested System assets, within the allowable range of 1.0% to 4.0%. At fiscal year-end, both the portfolio’s weighted average maturity and weighted average life were 25 days. For the one- and five-year periods ended June 30, 2022, the System’s short-term portfolio’s annual return was 0.3% and 1.2%, respectively. This compares to the iMoneyNet Money Fund Averages/All-Taxable Index benchmark returns of 0.1% and 0.8% for the comparable periods.

## Other Programs

### *Securities Lending*

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

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

## REPORT ON INVESTMENT ACTIVITY FOR FISCAL YEAR ENDING JUNE 30, 2022 *(continued)*

As of June 30, 2022, 1.9% of the System's assets available to lend were on loan and collateralized at 102.7%. Utilization increased slightly from 1.5% on June 30, 2021, driven primarily by the decline in the fair value of securities available to lend. Borrower demand continues to generate the majority of securities lending income, which totaled $3.9 million for the 2022 fiscal year, compared to $5.4 million for the fiscal year ended June 30, 2021. The unrealized gain on investments in the System's cash collateral reinvestment portfolio increased from the 2021 fiscal year, settling at $1.9 million (including unpaid income) as of June 30, 2022.

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:

**Paul Cummins**
*Managing Director of Public Equities*

**Michael Federici**
*Managing Director of Fixed Income*

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

**Gerald J. Yahoudy II**
*Managing Director of Private Equity*

## ASSET ALLOCATION — as of June 30, 2022

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% | 32.2 % |
| International Equity | 16 % | 12-20% | 15.1 % |
| Global Equity | 4 % | 0-8% | 3.3 % |
| Real Estate Equity | 11 % | 6-16% | 12.7 % |
| Private Equity | 8 % | 3-13% | 10.8 % |
| ***Total Equity*** | ***72 %*** | | ***74.1 %*** |
| **Debt** | | | |
| Domestic Fixed Income | 16 % | 12-20% | 14.1 % |
| High-Yield Bonds | 1 % | 0-3% | 0.8 % |
| Global Bonds | 2 % | 0-4% | 2.2 % |
| Real Estate Debt | 6 % | 2-10% | 5.9 % |
| Private Debt | 2 % | 0.5-5% | 1.1 % |
| Cash Equivalents | 1 % | 1-4% | 1.8 % |
| ***Total Debt*** | ***28 %*** | | ***25.9 %*** |

## CHANGES IN NET ASSET VALUE

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

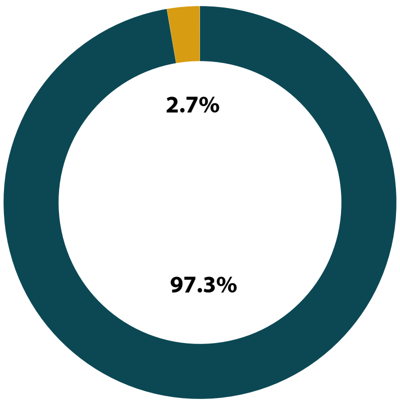
| Asset Class | Net Asset Value 6/30/2021 | Net Income | Net Appreciation (Depreciation) | Net Cash Inflows (Outflows) | Net Asset Value 6/30/2022 |
|---|---|---|---|---|---|
| **Equity** | | | | | |
| Domestic Equity | $ 50,079,208,958 | $ 730,374,428 | $ (5,876,449,021) | $ (2,936,265,877) | $ 41,996,868,488 |
| International Equity | 24,874,433,199 | 442,518,185 | (5,210,713,701) | (510,731,864) | 19,595,505,819 |
| Global Equity | 5,109,716,234 | 114,163,964 | (947,572,066) | (50,000,000) | 4,226,308,132 |
| Real Estate Equity | 14,863,611,464 | 489,816,739 | 1,780,254,814 | (632,610,041) | 16,501,072,976 |
| Private Equity | 14,783,218,541 | (149,216,633) | 917,692,857 | (1,478,013,813) | 14,073,680,952 |
| **Total Equity** | **109,710,188,396** | **1,627,656,683** | **(9,336,787,117)** | **(5,607,621,595)** | **96,393,436,367** |
| **Debt** | | | | | |
| Domestic Fixed Income | 18,895,982,168 | 469,945,516 | (2,142,240,353) | 1,138,167,695 | 18,361,855,026 |
| High-Yield Bonds | 950,049,466 | 51,649,853 | (177,478,160) | 150,000,000 | 974,221,159 |
| Global Bonds | 3,218,722,937 | 51,812,098 | (381,363,187) | — | 2,889,171,848 |
| Real Estate Debt | 7,442,475,864 | 312,687,478 | (535,379,065) | 488,586,639 | 7,708,370,916 |
| Private Debt | 1,163,794,312 | (22,272,133) | 117,213,045 | 165,707,857 | 1,424,443,081 |
| Cash Equivalents | 4,962,393,934 | 17,135,126 | (107,951) | (2,709,929,157) | 2,269,491,952 |
| **Total Debt** | **36,633,418,681** | **880,957,938** | **(3,119,355,671)** | **(767,466,966)** | **33,627,553,982** |
| **Total** | **$ 146,343,607,077** | **$ 2,508,614,621** | **$ (12,456,142,788)** | **$ (6,375,088,561)** | **$ 130,020,990,349** |

## DIVERSIFICATION OF INVESTMENTS — June 30, 2022

| Asset Class | Net Asset Value 6/30/2022 | Percent | Net Asset Value 6/30/2021 | Percent |
|---|---|---|---|---|
| **Equity:** | | | | |
| **Public Equity (Domestic Equity, International Equity and Global Equity)** | | | | |
| Communications Services | $5,013,917 | | $7,166,850 | |
| Consumer Discretionary | 7,081,510 | | 10,406,382 | |
| Consumer Staples | 4,763,774 | | 5,086,795 | |
| Energy | 3,217,122 | | 2,633,612 | |
| Financials | 9,230,881 | | 10,922,458 | |
| Health Care | 8,847,607 | | 9,383,360 | |
| Industrials | 6,526,245 | | 8,454,558 | |
| Information Technology | 13,825,353 | | 17,720,765 | |
| Materials | 2,918,490 | | 3,763,602 | |
| Other | 623,574 | | 560,843 | |
| Real Estate | 1,833,313 | | 2,043,170 | |
| Utilities | 1,936,896 | | 1,920,963 | |
| Total Public Equity | 65,818,682 | 50.6% | 80,063,358 | 54.7% |
| **Real Estate Equity** | | | | |
| Core Funds | 1,972,753 | | 1,548,534 | |
| Direct Properties/Other Real Estate Owned | 6,163,903 | | 5,058,802 | |
| Opportunistic Funds | 2,598,609 | | 2,005,041 | |
| Real Estate Investment Trusts (REITs) | 4,034,440 | | 4,635,364 | |
| Timber | 283,439 | | 300,716 | |
| Value Added Funds | 1,447,929 | | 1,315,154 | |
| Total Real Estate Equity | 16,501,073 | 12.7 | 14,863,611 | 10.2 |
| **Private Equity** | | | | |
| Co-Investments | 1,337,717 | | 1,131,653 | |
| Fund of Funds | 720,000 | | 931,472 | |
| LBO/MBO | 9,351,261 | | 9,766,804 | |
| Other | — | | 2,269 | |
| Secondary Funds | 178,663 | | 335,633 | |
| Turnaround | 1,026,080 | | 782,984 | |
| Venture Capital | 1,459,960 | | 1,832,404 | |
| Total Private Equity | 14,073,681 | 10.8 | 14,783,219 | 10.1 |
| **Total Equity** | 96,393,436 | 74.1% | 109,710,188 | 75.0% |
| **Debt:** | | | | |
| **Fixed Income (Domestic Fixed Income, High-Yield Bonds, Global Bonds)** | | | | |
| Corporate | 7,700,712 | | 8,149,328 | |
| Global Treasuries | 9,399,300 | | 9,512,577 | |
| Government Related | 1,192,765 | | 1,258,046 | |
| Other | 135,833 | | 200,413 | |
| Securitized | 3,796,638 | | 3,944,391 | |
| Total Fixed Income | 22,225,248 | 17.1 | 23,064,755 | 15.7 |
| **Real Estate Debt** | | | | |
| Commercial Mortgage Backed (CMBS) | 2,249,218 | | 1,832,006 | |
| Core Plus | 1,706,663 | | 1,413,324 | |
| Direct Mortgages | 3,200,577 | | 3,707,598 | |
| Opportunistic | 551,913 | | 489,548 | |
| Total Real Estate Debt | 7,708,371 | 5.9 | 7,442,476 | 5.1 |
| **Private Debt** | | | | |
| Direct Lending | 674,778 | | 388,530 | |
| Distressed | — | | 85,840 | |
| Mezzanine | 249,091 | | 307,595 | |
| Special Situation | 500,574 | | 381,829 | |
| Total Private Debt | 1,424,443 | 1.1 | 1,163,794 | 0.8 |
| **Cash Equivalents** | | | | |
| Corporate | 1,167,659 | | 1,763,389 | |
| Global Treasuries | 99,952 | | 1,037,818 | |
| Government Related | 436,329 | | 1,067,429 | |
| Other | 11,326 | | 18,826 | |
| Securitized | 554,226 | | 1,074,932 | |
| Total Cash Equivalents | 2,269,492 | 1.8 | 4,962,394 | 3.4 |
| **Total Debt** | **33,627,554** | **25.9%** | **36,633,419** | **25.0%** |
| **Total** | **$ 130,020,990** | **100.0%** | **$ 146,343,607** | **100.0%** |

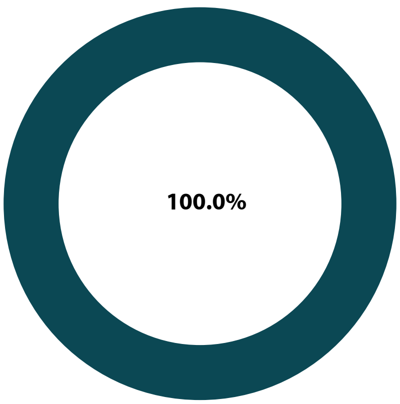
*The above schedule is presented at net asset value, which differs from the financial statement presentation.*

## DOMESTIC EQUITY DISTRIBUTION — as of June 30, 2022



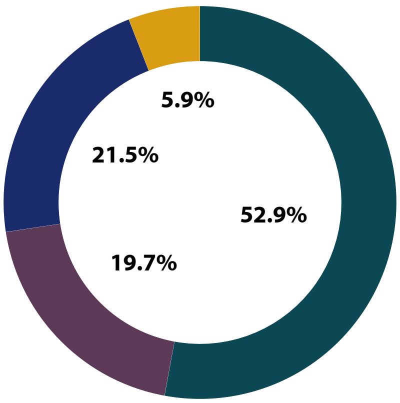

| | |
|---|---|
| **Internal** | 97.3% |
| S&P 1500 Index2 | 79.8% |
| S&P 100 Index | 3.2% |
| S&P 1500 Value Tilt2 | 2.9% |
| S&P 1500 Growth Tilt2 | 2.9% |
| S&P 500 Index | 5.1% |
| S&P 600 Index | 0.6% |
| All Cap Disciplined Equity | 2.0% |
| S&P 400 Index | 0.8% |
| **External** | 2.7% |
| Large Cap | 2.7% |

## DOMESTIC EQUITY EXTERNALLY MANAGED STYLE DISTRIBUTION — as of June 30, 2022



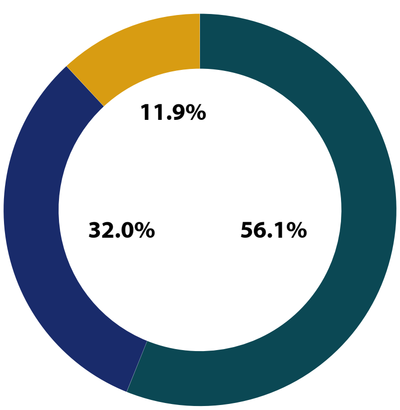

| | |
|---|---|
| Large Cap Enhanced | 100.0% |

## INTERNATIONAL EQUITY STYLE DISTRIBUTION — as of June 30, 2022



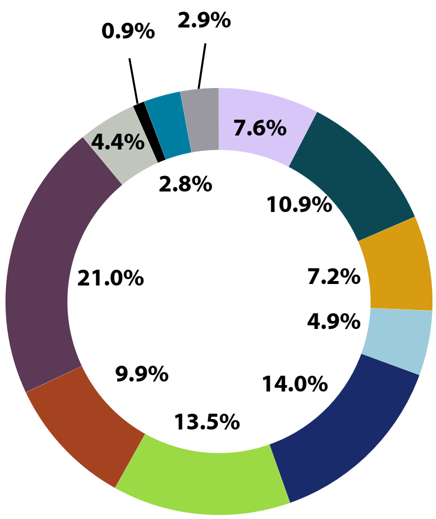

| | |
|---|---|
| Developed Markets - Passive | 52.9% |
| Developed Markets - Active | 19.7% |
| Emerging, Frontier & Stand Alone Markets-Passive | 21.5% |
| Emerging, Frontier & Stand Alone Markets - Active | 5.9% |

## GLOBAL EQUITY STYLE DISTRIBUTION — as of June 30, 2022




| | |
|---|---|
| U.S. Markets - Active | 56.1% |
| International Developed - Active | 32.0% |
| International Emerging, Frontier & Stand Alone- Active | 11.9% |

## PUBLIC EQUITY HOLDINGS BY INDUSTRY DISTRIBUTION — as of June 30, 2022




| | |
|---|---|
| Communications Services | 7.6% |
| Consumer Discretionary | 10.9% |
| Consumer Staples | 7.2% |
| Energy | 4.9% |
| Financials | 14.0% |
| Health Care | 13.5% |
| Industrials | 9.9% |
| Information Technology | 21.0% |
| Materials | 4.4% |
| Other | 0.9% |
| Real Estate | 2.8% |
| Utilities | 2.9% |

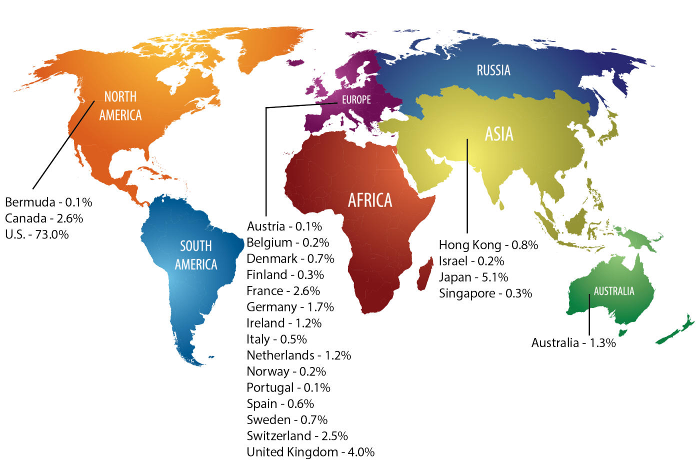
## TEN LARGEST PUBLIC EQUITY HOLDINGS — as of June 30, 2022

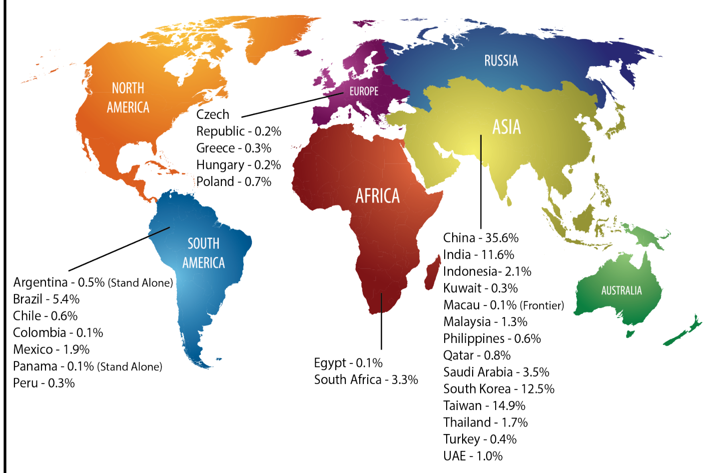
| Rank | Company | Cost | Fair Value | Percent of Equities |
|---|---|---|---|---|
| 1 | Apple Inc. | $ 107,145,561 | $ 2,627,098,453 | 4.0 % |
| 2 | Microsoft Corp. | 310,942,697 | 2,484,231,322 | 3.8 |
| 3 | Alphabet Inc. | 297,947,330 | 1,677,430,342 | 2.5 |
| 4 | Amazon.com Inc. | 160,952,291 | 1,167,380,238 | 1.8 |
| 5 | Tesla Inc. | 727,294,361 | 693,149,859 | 1.1 |
| 6 | UnitedHealth Group Inc. | 95,776,349 | 663,850,852 | 1.0 |
| 7 | Berkshire Hathaway Inc. | 220,546,084 | 631,268,380 | 1.0 |
| 8 | Johnson & Johnson | 89,473,663 | 569,272,795 | 0.9 |
| 9 | Meta Platforms Inc. | 231,961,452 | 492,348,173 | 0.7 |
| 10 | Nvidia Corp | 55,273,394 | 471,538,886 | 0.7 |
| **Total** | | **$ 2,297,313,182** | **$ 11,477,569,300** | **17.5 %** |

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

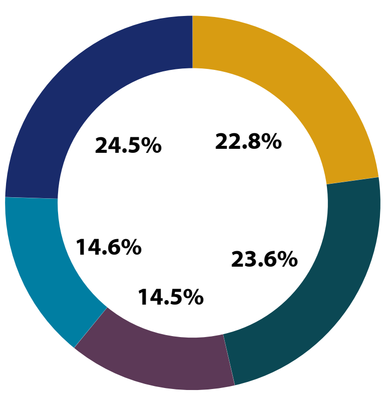
## PUBLIC EQUITY COUNTRY EXPOSURE DISTRIBUTION — as of June 30, 2022

| Percentage of Portfolio for Developed Countries | Percentage of Portfolio for Emerging, Frontier & Stand Alone Markets |
|---|---|
| $59,939,711,305 | $5,878,971,134 |



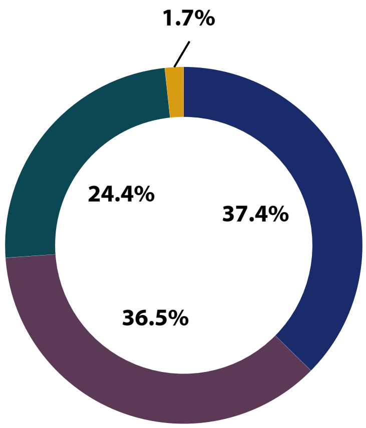




## REAL ESTATE EQUITY BY PROPERTY TYPE — as of June 30, 2022



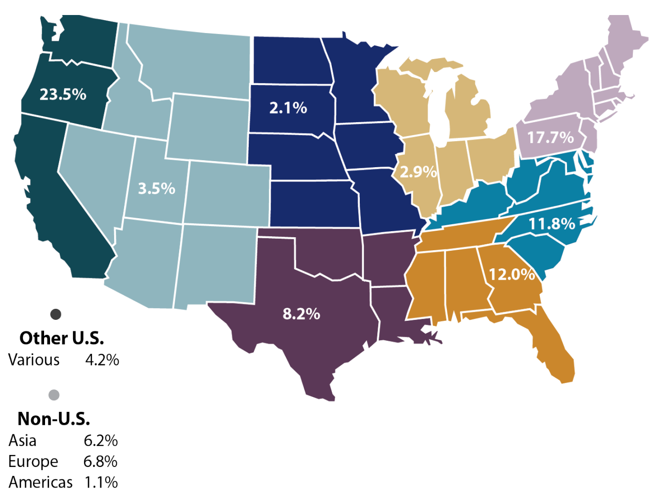

| | |
|---|---|
| Office | **22.8%** |
| Residential | **23.6%** |
| Retail | **14.5%** |
| Hotel/Other | **14.6%** |
| Industrial/R&D | **24.5%** |

## BREAKDOWN OF REAL ESTATE EQUITY PORTFOLIO — as of June 30, 2022



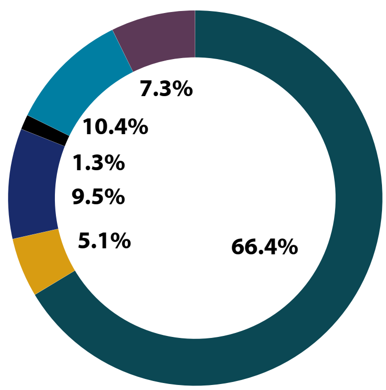

| | |
|---|---|
| Direct Investments | 37.4% |
| Private Securities | 36.5% |
| Public Securities | 24.4% |
| Timber Investments | 1.7% |

## GEOGRAPHICAL DISTRIBUTION OF THE REAL ESTATE EQUITY PORTFOLIO — as of June 30, 2022




| | |
|---|---|
| Pacific | 23.5% |
| Mountain | 3.5% |
| West North Central | 2.1% |
| East North Central | 2.9% |
| Northeast | 17.7% |
| Mideast | 11.8% |
| Southeast | 12.0% |
| Southwest | 8.2% |
| Non-U.S. | 14.1% |
| Other U.S. | 4.2% |

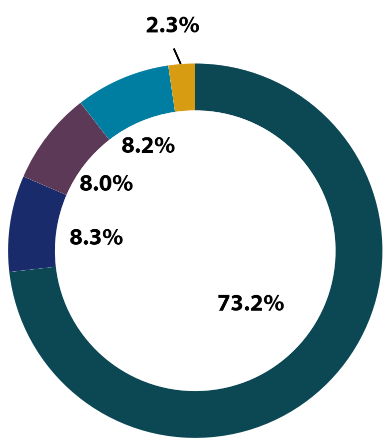
## PRIVATE EQUITY NET ASSET VALUE BY INVESTMENT TYPE* — as of June 30, 2022




| | |
|---|---|
| LBO/MBO | **66.4%** |
| Fund of Funds | **5.1%** |
| Co-Investments | **9.5%** |
| Secondary Funds | **1.3%** |
| Venture Capital | **10.4%** |
| Turnaround | **7.3%** |

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

## PRIVATE EQUITY NET ASSET VALUE BY GEOGRAPHY* — as of June 30, 2022

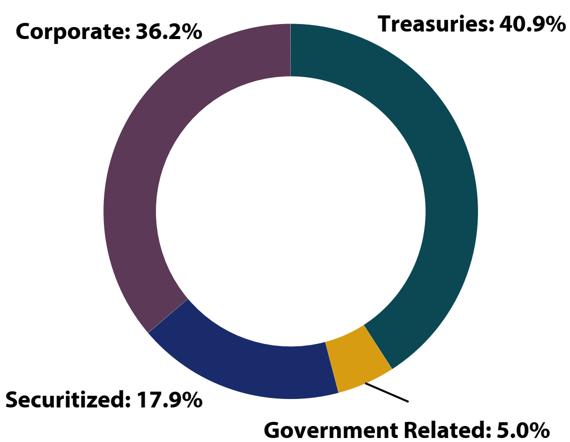



| | |
|---|---|
| North America | **73.2 %** |
| Western Europe | **8.3 %** |
| United Kingdom | **8.0 %** |
| Asia | **8.2 %** |
| Rest of World | **2.3 %** |

**Excluding fund of funds and secondary funds.*

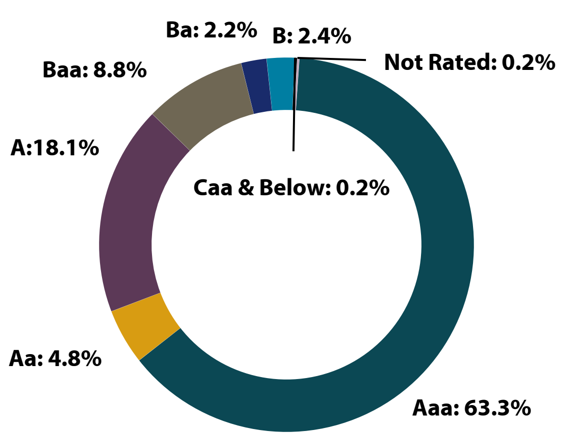
## DOMESTIC FIXED INCOME AND HIGH-YIELD BONDS DISTRIBUTION
— as of June 30, 2022

Yield to Maturity 3.8%




| | Weight | Yield to Maturity |
|---|---|---|
| Treasuries | **40.9%** | **2.98%** |
| Government Related | **5.0%** | **3.14%** |
| Securitized | **17.9%** | **3.79%** |
| Corporate | **36.2%** | **4.71%** |

## DOMESTIC FIXED INCOME AND HIGH-YIELD BONDS QUALITY DISTRIBUTION*
— as of June 30, 2022




| | | |
|---|---|---|
| ** | Aaa | **63.3 %** |
| | Aa | **4.8 %** |
| | A | **18.1 %** |
| | Baa | **8.8 %** |
| | Ba | **2.2 %** |
| | B | **2.4 %** |
| | Caa & Below | **0.2 %** |
| *** | Not Rated | **0.2 %** |

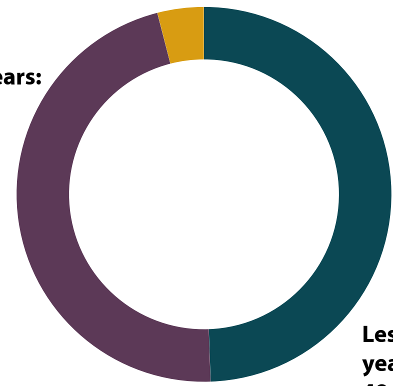
**Percentages may not sum to 100% due to rounding.*

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

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

## DOMESTIC FIXED INCOME AVERAGE MATURITY* — as of June 30, 2022

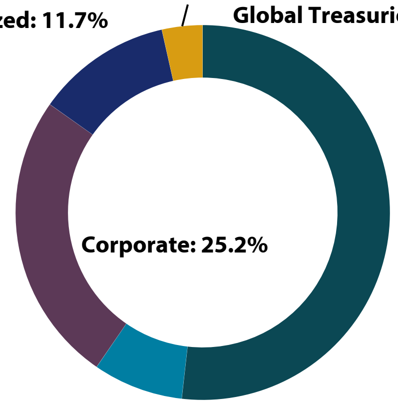
Effective Duration 5 Years




| | | Weight | Effective Duration in Years |
|---|---|---|---|
| ● | Less than 5 Years | **49.5%** | **2.69** |
| ● | 5-10 Years | **46.6%** | **6.53** |
| ● | 10+ Years | **4.0%** | **15.34** |

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

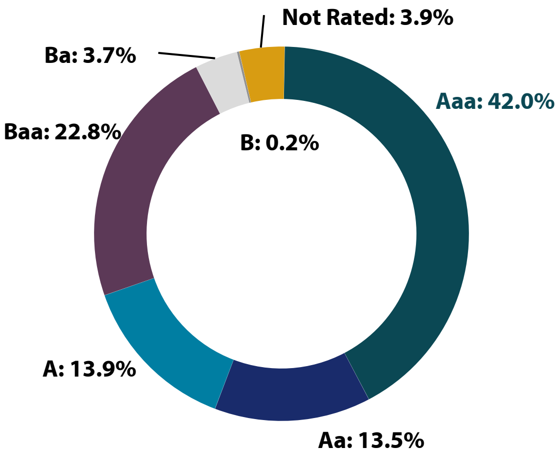
## GLOBAL BONDS SECTOR DISTRIBUTION — as of June 30, 2022




| | | | |
|---|---|---|---|
| ● | | Global Treasuries | **51.8%** |
| ● | | Government Related | **7.8%** |
| ● | | Corporate | **25.2%** |
| ● | | Securitized | **11.7%** |
| ● | * | Other | **3.5%** |

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

## GLOBAL BONDS QUALITY DISTRIBUTION — as of June 30, 2022




| | | |
|---|---|---|
| Aaa | | **42.0%** |
| Aa | | **13.5%** |
| A | | **13.9%** |
| Baa | | **22.8%** |
| Ba | | **3.7%** |
| B | | **0.2%** |
| Caa & Below | | **0.0%** |
| * | Not Rated | **3.9%** |

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

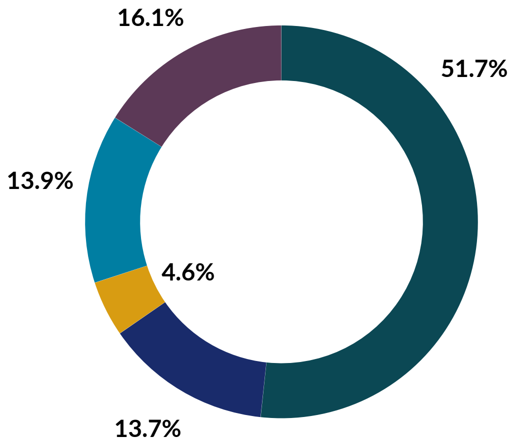
## TEN LARGEST FIXED INCOME HOLDINGS* — as of June 30, 2022

| Rank | Issue | Fair Value | Percent Total Fixed Income Fair Value |
|---|---|---|---|
| 1 | US Treasury Note 1.75% Due 11/15/2029 | $233,992,383 | 1.1% |
| 2 | US Treasury Note 1.125% Due 02/15/2031 | 178,467,369 | 0.8% |
| 3 | US Treasury Note 1.625% Due 05/15/2031 | 178,336,783 | 0.8% |
| 4 | US Treasury Note 1.25% Due 08/15/2031 | 138,186,009 | 0.6% |
| 5 | US Treasury Note 0.875% Due 11/15/2030 | 130,918,509 | 0.6% |
| 6 | US Treasury Note 0.625% Due 05/15/2030 | 127,746,637 | 0.6% |
| 7 | US Treasury Note 0.625% Due 08/15/2030 | 124,359,375 | 0.6% |
| 8 | US Treasury Note 2.00% Due 11/15/2041 | 120,308,256 | 0.5% |
| 9 | US Treasury Note 2.25% Due 05/15/2041 | 119,485,342 | 0.5% |
| 10 | US Treasury Note 1.75% Due 08/15/2041 | 113,167,035 | 0.5% |
| **Total** | | **$1,464,967,698** | **6.6%** |

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

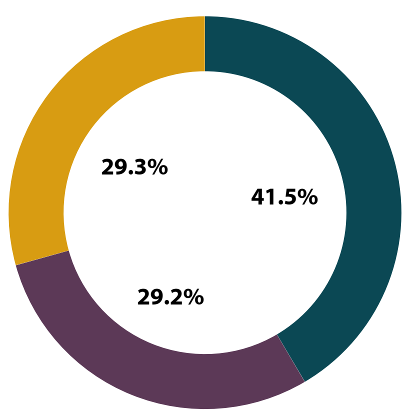
*A complete list of the System's fixed income holdings (excluding cash equivalents) is available on our website (see About Us > Investments) or through the Public Information Office.*

## REAL ESTATE DEBT BY PROPERTY TYPE — as of June 30, 2022



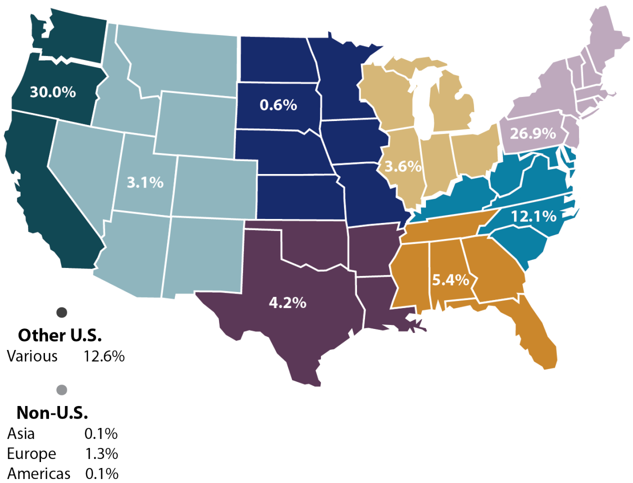

| | |
|---|---|
| Office | 51.7 % |
| Residential | 13.7 % |
| Retail | 4.6 % |
| Mixed Use/Other | 13.9 % |
| Industrial/R&D | 16.1 % |

## BREAKDOWN OF REAL ESTATE DEBT PORTFOLIO — as of June 30, 2022



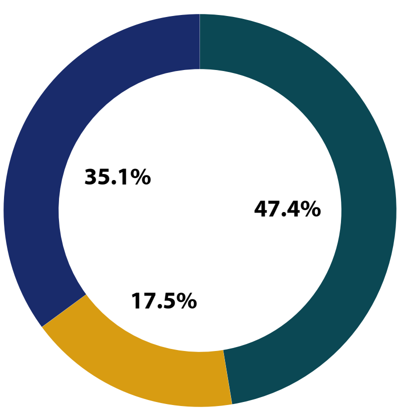

| | |
|---|---|
| Conventional Mortgages | 41.5 % |
| CMBS | 29.2 % |
| Mezzanine Debt | 29.3 % |

## GEOGRAPHICAL DISTRIBUTION OF THE REAL ESTATE DEBT PORTFOLIO
— as of June 30, 2022



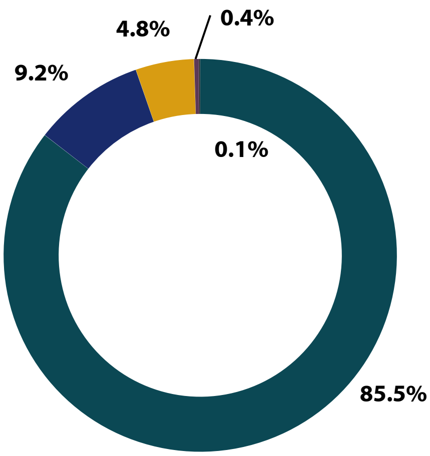

| | |
|---|---|
| Pacific | 30.0 % |
| Mountain | 3.1 % |
| West North Central | 0.6 % |
| East North Central | 3.6 % |
| Northeast | 26.9 % |
| Mideast | 12.1 % |
| Southeast | 5.4 % |
| Southwest | 4.2 % |
| Non-U.S. | 1.5 % |
| Other U.S. | 12.6 % |

## PRIVATE DEBT NET ASSET VALUE BY INVESTMENT TYPE — as of June 30, 2022




| | |
|---|---|
| Direct Lending | 47.4 % |
| Mezzanine | 17.5 % |
| Special Situation | 35.1 % |

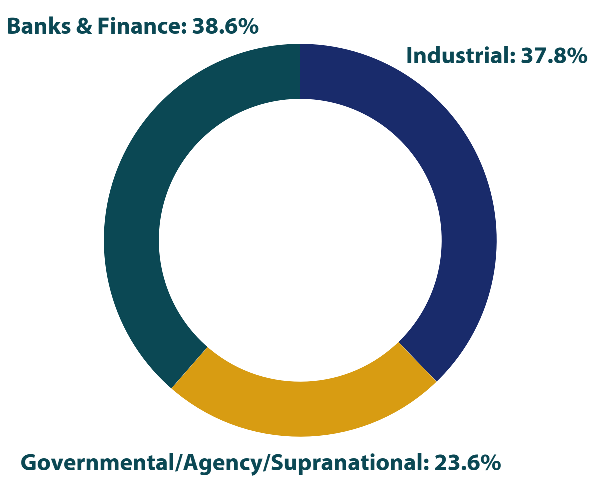
## PRIVATE DEBT NET ASSET VALUE BY GEOGRAPHY* — as of June 30, 2022




| | |
|---|---|
| North America | 85.5 % |
| Western Europe | 9.2 % |
| United Kingdom | 4.8 % |
| Asia | 0.4 % |
| Rest of World | 0.1 % |

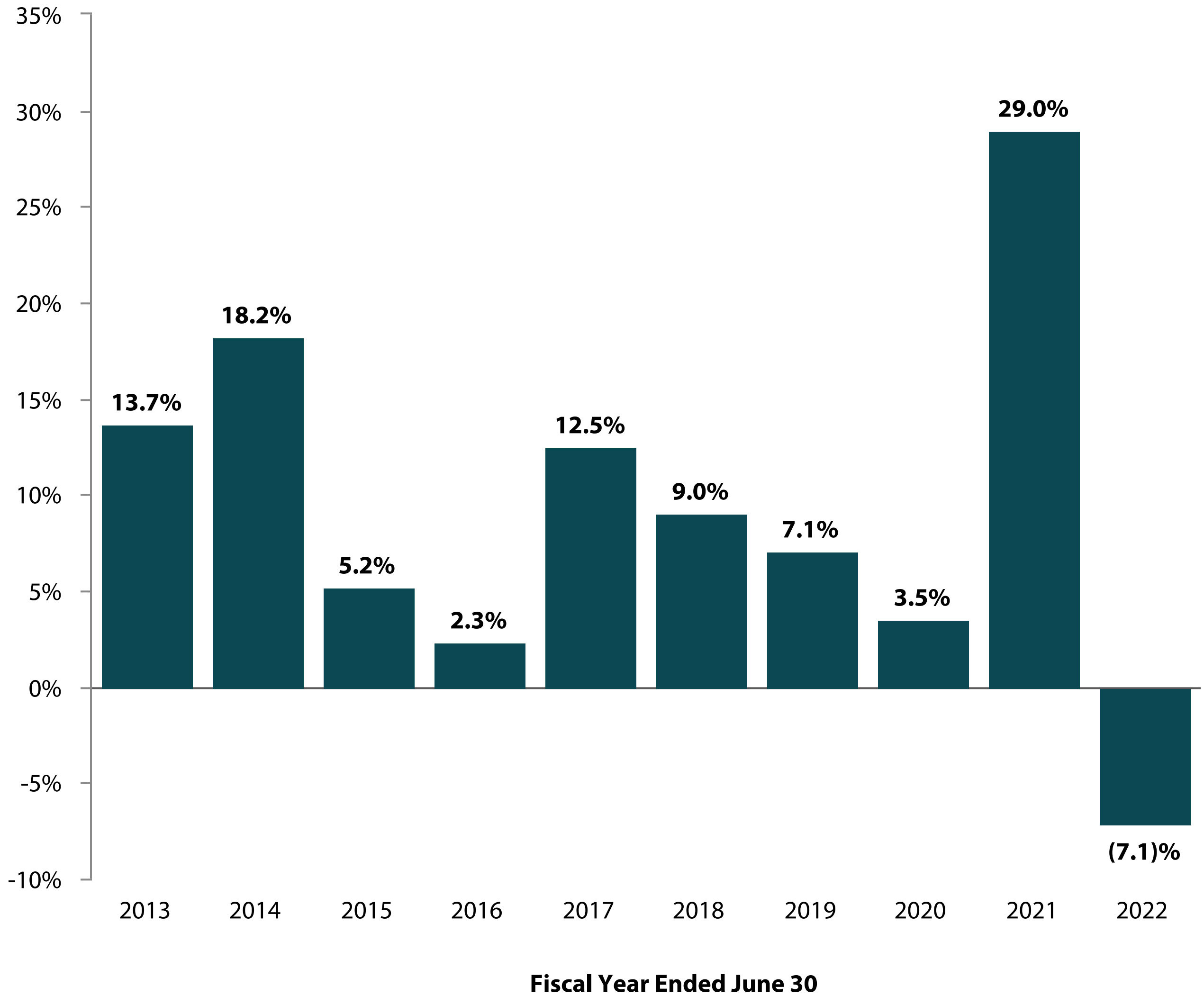
**Excluding fund of funds and secondary funds.*

## CASH EQUIVALENTS SECTOR DISTRIBUTION — as of June 30, 2022




| | |
|---|---|
| Industrial | 37.8% |
| Governmental/Agency/Supranational | 23.6% |
| Banks & Finance | 38.6% |

## ANNUAL PERFORMANCE HISTORY



## INVESTMENT PERFORMANCE RESULTS — as of June 30, 2022

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

| | Annualized Rates of Return | | | | |
|---|---|---|---|---|---|
| | **1-YR** | **3-YR** | **5-YR** | **10-YR** | **30-YR** |
| Domestic Equity | **(11.1)%** | **10.3 %** | **10.8 %** | **12.7 %** | **10.0 %** |
| Benchmark: S&P Composite 1500 Index | (11.0) | 10.3 | 10.9 | 12.8 | 10.0 |
| International Equity | **(19.7)** | **1.9** | **2.9** | **5.3** | **5.4** |
| Benchmark: MSCI ACWI Ex-U.S. Index | (19.4) | 1.4 | 2.5 | 4.9 | 5.1 |
| Global Equity | **(16.8)** | **7.4** | **—** | **—** | **—** |
| Benchmark: MSCI ACWI Index | (15.8) | 6.2 | — | — | — |
| Real Estate Equity | **15.0** | **10.0** | **9.3** | **10.7** | **9.8** |
| Benchmark: NCREIF - ODCE Index | 28.3 | 12.1 | 10.1 | 10.3 | 8.2 |
| Private Equity | **4.6** | **20.1** | **18.1** | **16.6** | **—** |
| Benchmark: S&P 500 Index plus 5% | (5.6) | 15.6 | 16.3 | 18.0 | — |
| Domestic Fixed Income | **(8.3)** | **(0.5)** | **0.9** | **1.4** | **4.9** |
| Benchmark: Bloomberg U.S. Aggregate Float Adjusted Bond Index[1] | (10.4) | (0.9) | 0.9 | 1.6 | 4.9 |
| High-Yield Bonds | **(11.8)** | **(0.2)** | **—** | **—** | **—** |
| Benchmark: ICE BofAML U.S. BB-B Constrained Index[1] | (12.2) | 0.0 | — | — | — |
| Global Bonds | **(10.4)** | **(0.9)** | **1.5** | **—** | **—** |
| Benchmark: Bloomberg Global Aggregate Float Adjusted Ex-CNY Bond Index (in USD hedged to USD)[1] | (10.4) | (1.5) | 1.0 | 2.2 | — |
| Real Estate Debt | **(2.8)** | **2.3** | **3.4** | **4.2** | **6.6** |
| Benchmark: Giliberto-Levy Custom Index | (5.8) | 1.4 | 2.9 | 3.6 | 6.9 |
| Private Debt | **8.0** | **9.0** | **10.1** | **—** | **—** |
| Benchmark: S&P/LSTA Leveraged Loan Index plus 3% | 0.2 | 5.1 | 5.9 | — | — |
| Cash Equivalents | **0.3** | **0.7** | **1.2** | **0.7** | **2.5** |
| Benchmark: iMoneyNet Money Fund Avg/Taxable (All) | 0.1 | 0.4 | 0.8 | 0.4 | 2.1 |
| Total Fund | **(7.1)** | **7.4** | **7.7** | **8.9** | **8.5** |
| Benchmark: Blended Benchmark | (7.4)% | 6.9 % | 7.6 % | 8.8 % | 8.2 % |

[1] *See footnote on the Investments divider page.*

## MANAGER INVESTMENT PERFORMANCE RESULTS — as of June 30, 2022

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** | | | | | |
| T. Rowe Price Associates Inc. | $1,149.3 | 14.5 % | 14.1 % | | Jan-09 |
| International Equity | | | | | |
| **Managers** | | | | | |
| AQR Capital Management LLC | 906.3 | 4.7 | 4.5 | | Feb-12 |
| Ariel Investments LLC | 298.1 | 3.5 | 3.1 | | Apr-17 |
| Arrowstreet Capital LP | 729.9 | 7.0 | 1.8 | | Jul-17 |
| Baillie Gifford Overseas Ltd. | 655.4 | 6.3 | 4.8 | | Sep-11 |
| BlackRock Institutional Trust Co. NA | 6,934.4 | 5.4 | 5.2 | | Dec-11 |
| Dimensional Fund Advisors | 197.1 | 2.6 | 1.9 | | Feb-13 |
| LSV Asset Management | 767.8 | 3.9 | 3.0 | | Jul-11 |
| Marathon Asset Management LLP | 436.8 | 5.8 | 4.9 | | Jan-12 |
| Rhumbline Advisors Limited Partnership | 852.8 | 5.2 | 5.0 | | Jun-20 |
| State Street Global Advisors | 6,794.9 | 5.0 | 4.7 | | Jul-12 |
| William Blair Investment Management LLC | 676.6 | 5.7 | 3.5 | | Oct-10 |
| Xponance Inc. | 284.8 | 3.2 | 3.2 | | May-13 |
| Global Equity | | | | | |
| **Managers** | | | | | |
| Arrowstreet Capital LP | 1,439.5 | 12.6 | 7.0 | | May-19 |
| Harding Loevner LP | 1,170.1 | 3.8 | 5.4 | | May-18 |
| Leading Edge Investment Advisors | 450.8 | 8.1 | 7.9 | | Jun-20 |
| LSV Asset Management | 1,165.9 | 2.1 | 5.4 | | May-18 |
| Real Estate Equity | | | | | |
| **Advisors** | | | | | |
| BentallGreenOak | 872.4 | 11.4 | 8.5 | | Apr-95 |
| Cabot Properties LP | 61.3 | 24.4 | 11.0 | | May-19 |
| CBRE Investment Management | 295.2 | 17.2 | 10.5 | | Nov-18 |
| Clarion Partners | 506.6 | 9.2 | 6.9 | | Jun-90 |
| Forest Investment Associates | 283.4 | 4.4 | 5.2 | | Dec-98 |
| Invesco Advisors Inc. - Industrial | 329.7 | 11.0 | 8.5 | | Nov-94 |
| Invesco Advisors Inc. - Multifamily | 175.7 | 12.9 | 8.0 | | Dec-98 |
| J.P. Morgan Asset Management | 3,234.7 | 10.3 | 7.0 | | Oct-90 |
| Sentinel Real Estate Corporation | $683.5 | 13.7 % | 8.6 % | | 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, 2022 *(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 | $371.6 | 9.7 % | 9.0 % | | Aug-98 |
| AEW Capital Management LP | 328.5 | 2.1 | 2.5 | | Oct-17 |
| Brookfield Public Securities Group LLC | 318.8 | 1.1 | 2.3 | | Sep-17 |
| Cohen & Steers Capital Management Inc. | 1,754.2 | 9.5 | 6.5 | | Feb-18 |
| Dimensional Fund Advisors | 354.9 | 4.2 | 2.3 | | Nov-17 |
| Heitman Real Estate Securities LLC | 345.9 | 3.3 | 2.3 | | Sep-17 |
| **Fund Investments** | | | | | |
| Real Estate Equity Core Funds | 1,972.8 | 7.0 | 6.7 | | Jul-85 |
| Real Estate Equity Opportunistic Funds | 2,598.6 | 11.5[2] | — | 1.4 | Mar-99 |
| Real Estate Equity Value-Added Funds | 1,447.9 | 12.5[2] | — | 1.5 | Dec-89 |
| Private Equity | | | | | |
| Fund Investments | 14,073.7 | 13.1[2] | — | 1.7 | Oct-92 |
| High-Yield Bonds | | | | | |
| **Managers** | | | | | |
| Columbia Management Investment Advisers, LLC | 328.3 | 1.6 | 2.1 | | Oct-18 |
| J.P. Morgan Investment Management Inc. | 320.1 | 2.2 | 2.1 | | Apr-18 |
| Nomura Corp. Research and Asset Mgt. Inc. | 325.8 | 1.2 | 1.8 | | Dec-17 |
| Global Bonds | | | | | |
| **Managers** | | | | | |
| Goldman Sachs Asset Management LP | 754.6 | 0.8 | 0.7 | | Aug-16 |
| Loomis, Sayles & Company LP | 1,094.1 | 2.5 | 2.0 | | Nov-12 |
| Wellington Management Company LLP | 1,040.5 | 2.2 | 2.3 | | Aug-13 |
| **Real Estate Debt** | | | | | |
| **Managers** | | | | | |
| BlackRock Financial Management Inc. | 1,470.2 | 4.5 | 4.5 | | Apr-01 |
| Prima Capital Advisors LLC | 734.0 | 4.6 | 4.1 | | Nov-03 |
| Raith Capital Partners LLC | 45.0 | 0.6 | 0.6 | | Mar-19 |
| **Fund Investments** | | | | | |
| Real Estate Debt Core Plus Funds | 1,706.7 | 4.7[2] | — | 1.1 | Dec-04 |
| Real Estate Debt Opportunistic Funds | 551.9 | 0.8[2] | — | 1.0 | Jun-98 |
| Private Debt | | | | | |
| Fund Investments | $1,424.4 | 10.8% [2] | — % | 1.2 | Jul-17 |

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

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

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

## CORPORATE GOVERNANCE

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

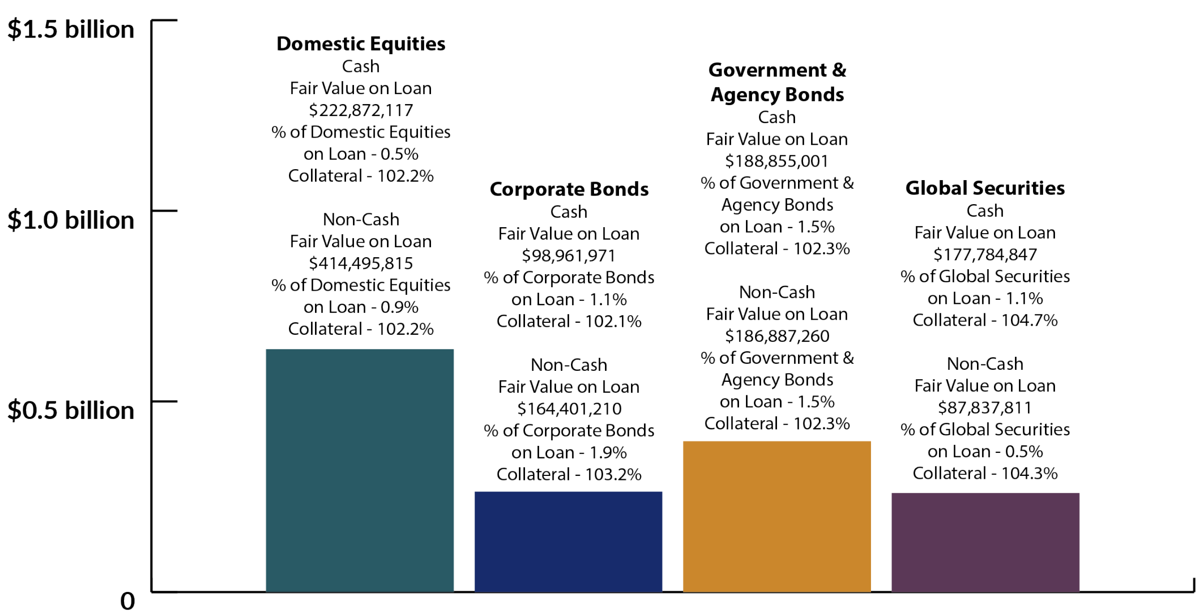
For the 2021 calendar year, a total of 136,090 proposals* were voted, many of which focused on board-related issues, ratification of auditors, and executive compensation. System policy generally supports management if the position is reasonable, not detrimental to the long-term economic prospects of the company, and does not tend to diminish the rights of shareholders.

| Domestic & Canadian Portfolios | | | International & Global Portfolios | | |
|---|---|---|---|---|---|
| **Position** | **Number of Proposals** | **Percentage of Position** | **Position** | **Number of Proposals** | **Percentage of Position** |
| For | 16,504 | 88.0% | For | 102,025 | 86.9% |
| Against | 2,193 | 11.7% | Against | 12,677 | 10.8% |
| Abstain | 47 | 0.3% | Abstain | 2,644 | 2.3% |
| **Total** | **18,744** | **100.0%** | **Total** | **117,346** | **100.0%** |

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

## SECURITIES LENDING PROGRAM — as of June 30, 2022

Cash: $688,473,936 - Non-Cash: $853,622,096 - Total: $1,542,096,032



## SCHEDULE OF INVESTMENT FEES AND EXPENSES — Year ended June 30, 2022*

**(dollars in thousands)**

| | Assets Managed ($ millions) | Investment Management Expenses 2021-2022 |
|---|---|---|
| **Domestic Equity:** | | |
| Managers | $ 1,149 | $ 4,418 |
| **International Equity:** | | |
| Managers | $ 19,535 | $ 30,362 |
| **Global Equity:** | | |
| Managers | $ 4,226 | $ 19,896 |
| **Real Estate Equity:** | | |
| Advisors | $ 6,442 | $ 21,746 |
| Managers | 4,034 | 13,252 |
| Fund Investments | 6,019 | 99,389 |
| Total Real Estate Equity: | $ 16,495 | $ 134,387 |
| **Private Equity:** | | |
| Fund Investments | $ 14,074 | $ 149,217 |
| **High-Yield:** | | |
| Managers | $ 974 | $ 3,992 |
| **Global Bonds:** | | |
| Managers | $ 2,889 | $ 5,589 |
| **Real Estate Debt:** | | |
| Managers | $ 2,249 | $ 3,356 |
| Servicers | 1,226 | 66 |
| Fund Investments | 2,259 | 14,168 |
| Total Real Estate Debt: | $ 5,734 | $ 17,590 |
| **Private Debt:** | | |
| Fund Investments | $ 1,424 | $ 22,272 |
| Total Investment Manager Fees: | | **$ 387,723** |

| | Investment Management Expenses 2021-2022 |
|---|---|
| **Legal Expenses:** | |
| Charles Law PLCC | $ 61 |
| DLA Piper LLP (US) | 85 |
| Hirschler Fleischer | 59 |
| Katten Muchin Rosenman LLP | 66 |
| Nixon Peabody LLP | 165 |
| Nossaman LLP | 89 |
| Robinson Bradshaw | 54 |
| Sheppard Mullin Richter & Hampton LLP | 64 |
| Sidley Austin LLP | 172 |
| Other Legal Expenses | 98 |
| Total Legal Expenses: | $ 913 |
| **General Expenses:** | |
| Advisory Committee - Investment | $ 56 |
| Advisory Committee - Real Estate | 93 |
| Abel Noser Solutions, LLC | 39 |
| Callan LLC | 851 |
| Callan Associates | 652 |
| Investment Information Services | 5,784 |
| JPMorgan Chase | 56 |
| Mercer Investments LLC | 50 |
| Real Estate Origination Costs | 359 |
| Real Estate Professional Fees | 140 |
| Real Estate Service Costs | 37 |
| State Street Corporation | 1,366 |
| StepStone Group LP | 1,445 |
| Total General Expenses: | $ 10,928 |
| **Total Investment Fees and Expenses:** | **$ 399,564** |

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

## INVESTMENT ADVISORY COMMITTEE

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

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

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

**Johanna Fink**
*President*
The Hovenden Group, LLC
Charlestown, Massachusetts

**Laura Hotaling**
*Portfolio Manager*
MLC Asset Management
New York, New York

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

**James W. O'Keefe**
*Managing Director (Retired)*
UBS Global Asset Management
Hartford, Connecticut

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

## REAL ESTATE ADVISORY COMMITTEE

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

**Herman Bulls**
*Vice Chairman, Americas*
JLL
Washington, DC

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

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

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

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

**Daniel J. Hogarty Jr.**
*President and CEO (Retired)*
Troy Savings Bank.
Albany, New York

**Laura Huntington, CFA**
*President*
Institutional Property Consultants
Lakewood, Washington

## INVESTMENT CONSULTANTS

### Abel Noser Solutions, LLC
New York, New York

### Callan LLC
San Francisco, California

### Mercer Investments LLC
Boston, Massachusetts

### StepStone Group LP
La Jolla, California

## MASTER CUSTODIAN

### State Street Bank & Trust Co.
Boston, Massachusetts

## SECURITIES LENDING

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

### The Bank of New York Mellon
New York, New York

## EXTERNAL INVESTMENT MANAGERS & ADVISORS

### Domestic Equity:
T. Rowe Price Associates Inc.

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

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

### Real Estate Equity:
**Advisors:**
Abacus Capital Group LLC
BentallGreenOak
Cabot Properties LP
CBRE Investment Management
Clarion Partners
Federal Capital Partners
Forest Investment Associates
Invesco Advisers Inc.
J.P. Morgan Asset Management
Sentinel Real Estate Corporation

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

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

## EXTERNAL INVESTMENT MANAGERS & ADVISORS *(continued)*

### Real Estate Equity: *(continued)*

**Fund Investments:** *(continued)*

AG Realty Fund VII LP
AG Realty Fund VIII LP
AG Realty Fund IX LP
AG Realty Value Fund X LP
Artemis Real Estate Partners Fund I LP
Artemis Real Estate Partners Fund II LP
Artemis Real Estate Partners Fund III LP
Artemis Real Estate Partners Fund IV LP
BentallGreenOak US Cold Storage LP
BlackRock Europe Parallel Property Fund II LP
BlackRock Europe Property Fund III LP
Blackstone BioMed Life Science Real Estate LP
Blackstone Real Estate Partners Asia LP
Blackstone Real Estate Partners Asia II LP
Blackstone Real Estate Partners Europe IV LP
Blackstone Real Estate Partners Europe V LP
Blackstone Real Estate Partners Europe Fund VI SCSp
Blackstone Real Estate Partners V TE2 LP
Blackstone Real Estate Partners VI TE2 LP
Blackstone Real Estate Partners VII TE1 LP
Blackstone Real Estate Partners VIII LP
Blackstone Real Estate Partners IX LP
Brockton Capital Fund III LP
Brookfield DC Office Partners LLC
Brookfield DTLA Holdings LLC
Brookfield Properties Office Partners Inc.
Brookfield Real Estate Secondaries Account (N) LP
Brookfield Strategic Real Estate Partners III LP
Cabot Industrial Core Fund LP
Cabot Industrial Core Fund II LP
Cabot Industrial Value Fund V LP
Cabot Industrial Value Fund VI LP
CBRE Strategic Partners Europe III LP
CBRE Strategic Partners U.S. Opportunity 5 LP
CBRE Strategic Partners U.S. Value Fund 7 LP
Cerberus Institutional Real Estate Partners LP - Series Two
Cerberus Institutional Real Estate Partners III LP
Clarion Development Ventures III LP
DLJ Real Estate Capital Partners III LP
DLJ Real Estate Capital Partners IV LP
Excelsior II LLC
Exeter Europe Industrial Core Fund SCSp
Exeter Europe Logistics Value Fund IV SCSp
Exeter Industrial Value Fund LP
Exeter Industrial Value Fund II LP
Exeter Industrial Value Fund III LP
Exeter Industrial Value Fund IV LP
Exeter Industrial Value Fund V LP
FCP Realty Fund II LP
FCP Realty Fund III LP
FCP Realty Fund IV LP
FCP Realty Fund V LP
Gateway Real Estate Fund IV LP
Gateway Real Estate Fund V LP
Gateway Real Estate Fund VI LP
GCM Grosvenor - NYSTRS RE Inv. Partners LP
GCM Grosvenor - NYSTRS RE Inv. Partners LP 2016-1
GCM Grosvenor - NYSTRS CRE Opportunity Partners LP
GCM Grosvenor - NYSTRS RE Inv. Partners LP 2018-1
GCM Grosvenor - NYSTRS RE Inv. Partners LP 2021-1
GreenOak US III LP
Harrison Real Estate Partners VIII LP
Heritage Fields LLC
LaSalle Asia Opportunity Fund III
Lone Star Fund III (U.S.) LP
Lone Star Fund IV (U.S.) LP
Lone Star Fund V (U.S.) LP
Lone Star Fund VI (U.S.) LP
Lone Star Fund VII (U.S.) LP
Lone Star Fund IX (U.S.) LP
Lone Star Fund X (U.S.) LP
Lone Star Fund XI LP
Lone Star Real Estate Fund II (U.S.) LP
Lone Star Real Estate Fund III (U.S.) LP
Northwood Real Estate Partners LP - Series VI
Northwood Real Estate Partners LP - Series VIII
NYSTRS/FCP Multifamily Preferred Equity and Mezzanine Program
O'Connor North America Property Partners LP
O'Connor North America Property Partners II LP
Pennybacker EIV LP
Pennybacker V LP
Penwood Select Industrial Partners IV LP
Penwood Select Industrial Partners V LP
Penwood Select Industrial Partners VI LP
Perella Weinberg Real Estate Fund II LP
PLA Residential Fund III LP
PRISA I
PRISA II
PRISA III
PW Real Estate Fund III LP
Rockpoint Finance Fund I LP
Rockpoint Growth and Income Real Estate Fund I LP
Rockpoint Growth and Income Real Estate Fund II LP
Rockpoint Growth and Income Real Estate Fund III LP
Rockpoint Real Estate Fund II LP
Rockpoint Real Estate Fund III LP
Rockpoint Real Estate Fund IV LP
Rockpoint Real Estate Fund V LP
Rockpoint Real Estate Fund VI LP
Rockwood Capital Real Estate Partners Fund VI LP
Rockwood Capital Real Estate Partners Fund VII LP
Starwood Distressed Opportunity Fund IX LP
Starwood Global Opportunity Fund VII-A LP
Starwood Opportunity Fund X Global LP
Starwood Opportunity Fund XI Global LP
TA Realty Logistics Fund LP
UBS Trumbull Property Fund
Walton Street Real Estate Fund VI LP
WB SJC Residential Site Partnership LP
Westbrook Real Estate Fund VI LP
Westbrook Real Estate Fund VII LP
Westbrook Real Estate Fund VIII LP
Westbrook Real Estate Fund IX LP

EXTERNAL INVESTMENT MANAGERS & ADVISORS *(continued)*

## Real Estate Equity: *(continued)*

**Fund Investments:** *(continued)*

Westbrook Real Estate Fund X LP
Westbrook Real Estate Fund XI LP
Westbrook Real Estate Partners LP (Fund V)

## Private Equity:

**Fund Investments:**

A&M Capital Partners II, LP
A&M Capital Partners III, LP
Abbott Select Buyouts Fund
Abbott Select Buyouts Fund II
Abbot Select EM Buyouts LP
ABRY Partners Fund V
ABRY Partners Fund VI
ABRY Partners Fund VII
ABRY Partners Fund VIII
ABRY Partners IX LP
ADV Opportunities Fund II LP
Advent GPE X
Aisling Capital II LP
Aisling Capital III LP
Amulet Capital Fund I LP
Amulet Capital Fund II LP
Amulet Capital Overage Fund I LP
Apex VI
Ares Corporate Opportunities Fund II LP
Ares Corporate Opportunities Fund III LP
Ares Corporate Opportunities Fund IV LP
Ares Corporate Opportunities Fund V LP
Astorg VII
BGH Capital Fund I LP
CapStreet IV LP
CapStreet V LP
Capvis Equity V LP
Carlyle Asia Partners IV LP
Carlyle Asia Partners V LP
Carlyle European Partners III LP
Carlyle Partners V LP
Carlyle/Riverstone Global Energy & Power Fund III
Chisholm Partners III
ChrysCapital VIII LP
Cinven III
Cinven IV
Cinven V
Cinven VI
Cinven VII
Cinven Strategic Financials Co-Investment Fund LP
Cinven Strategic Financials Fund LP
Clayton Dubilier & Rice VI
Clearlake Capital Partners III LP
Clearlake Capital Partners IV LP
Clearlake Capital Partners V LP
Clearlake Capital Partners VI LP
Clearlake Capital Partners VII, LP
Co-Investment Partners (NY) LP
Co-Investment Partners (NY) II LP
Co-Investment Partners (NY) III LP
Co-Investment Partners Europe LP
Cortec Group Fund V LP
Cortec Group Fund VI LP
Cortec Group Fund VII LP
Cressey & Co. V LP
Cressey & Co. Fund VI LP
Cressey & Co. Overage Fund VI LP
CVC Capital Partners Asia Pacific IV LP
CVC Capital Partners VI LP
CVC European Equity Partners V LP
DCP Capital Partners LP
DCP Capital Partners II LP
ECI 11 LP
EIV Capital III LP
EIV Capital Fund IV LP
EIV Capital IV Top-Up Fund LP
Energy Capital Partners II LP
Energy Capital Partners III LP
GCM Grosvenor Cleantech
GCM Grosvenor Seasoned Primaries
GCM Grosvenor Seasoned Primaries II
GCM Grosvenor Seasoned Primaries III
Gilde Buy-Out Fund V CV
Gilde Buy-Out Fund VI
GTCR Fund VIII
GTCR Fund X
GTCR Fund XI
GTCR Fund XII
GTCR Fund XIII
Hahn & Company III LP
Hahn & Company III-S LP
HarbourVest International PEP IV
HarbourVest International PEP V
HarbourVest International PEP VI - Asia Pacific Fund
HarbourVest Partners VII-Mezzanine Fund
HarbourVest Partners VII-Venture Fund
HarbourVest Partners VIII-Venture Fund
HarbourVest VI - Partnership Fund
HarbourVest/The Maple Fund (Tranche H1)
HarbourVest/The Maple Fund (Tranche H2)
HarbourVest/The Maple Fund (Tranche H3)
HarbourVest/The Maple Fund (Tranche N1)
HarbourVest/The Maple Fund (Tranche N2)
HarbourVest/The Maple Fund (Tranche N3)
HarbourVest/The Maple Fund (Tranche N4)
HarbourVest/The Maple Fund (Tranche N5)
HarbourVest/The Maple Fund (Tranche N6)
HarbourVest/NYSTRS Co-Investment Fund
HarbourVest/NYSTRS Co-Investment Fund II
HarbourVest/NYSTRS Co-Investment Fund III, LP
Hg Genesis 10 A LP
Hg Saturn 3 A LP

EXTERNAL INVESTMENT MANAGERS & ADVISORS *(continued)*

## Private Equity: *(continued)*

### Fund Investments: *(continued)*

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

EXTERNAL INVESTMENT MANAGERS & ADVISORS *(continued)*

## Private Equity: *(continued)*

**Fund Investments:** *(continued)*

Thoma Bravo Discover Fund II LP
Thoma Bravo Discover Fund III LP
Thoma Bravo Fund X
Thoma Bravo Fund XI LP
Thoma Bravo Fund XII LP
Thoma Bravo Fund XIII LP
Thoma Bravo Fund XIV LP
Thoma Bravo Special Opportunities Fund I LP
Thoma Bravo Special Opportunities Fund II LP
Thomas H. Lee VI
TPG Partners IV
TPG Partners V
TPG Partners VI
Trident VII LP
TSG6 LP
TSG7 A LP
TSG7 B LP
TSG8 LP
TSG9 LP
Valor Equity Partners Opportunity Fund I LP
Valor Equity Partners IV LP
Valor Equity Partners V LP
Valor Equity Partners VI LP
Veritas Capital Buyout Fund VI LP
Vista Equity Partners Fund IV
Waud Capital Partners III LP
Waud Capital Partners IV LP

## High-Yield Bonds:

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

## Global Bonds:

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

## Real Estate Debt:

**Managers:**

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

**Fund Investments:**

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

## Real Estate Debt: *(continued)*

**Fund Investments:** *(continued)*

Capri Select Income II
GCM Grosvenor - NYSTRS Debt Inv. Partners LP
GCM Grosvenor - NYSTRS Debt Inv. Partners LP 2018-1
GCM Grosvenor - NYSTRS Debt Inv. Partners LP 2021-1
Madison Realty Capital Debt Fund III LP
PCCP Mezzanine Recovery Partners I LP
Pramerica Real Estate Capital IV LP
Prima Capital Advisors LLC
Raith Real Estate Debt Separate Account
Sullivan Debt Fund LP
TCI Real Estate Partners Fund II LP

## Private Debt:

**Fund Investments:**

ABRY Advanced Securities Fund II
ABRY Advanced Securities Fund III
ABRY Advanced Securities Fund IV
ABRY Mezzanine Partners
ABRY Senior Equity Fund II
ABRY Senior Equity Fund III
ABRY Senior Equity Fund IV
ABRY Senior Equity Fund V
ABRY Senior Equity VI
AG Capital Recovery Partners VII LP
Blue Torch Credit Opportunities Fund II LP
Blue Torch Credit Opportunities Fund III LP
Caltius Partners IV LP
Clearlake Flagship Plus Partners LP
Clearlake Opportunities Partners LP
Clearlake Opportunities Partners II LP
Clearlake Opportunities Partners III LP
Comvest Credit Partners V LP
Comvest Credit Partners VI LP
H.I.G. Whitehorse Direct Lending 2020 Fund LP
H.I.G. Whitehorse Principal Lending Fund
ICG Europe Fund V
ICG Europe Fund VI
ICG Europe Fund VII
ICG North American Private Debt Fund II LP
MGG SF Evergreen Fund LP
MGG Special Opportunities Fund LP
Oaktree European Principal Fund III L
Orion Energy Credit Opportunities Fund II LP
Orion Energy Credit Opportunities Fund III LP
Peninsula Fund V
Peninsula Fund VII
WCAS Capital Partners IV

# ACTUARIAL

*Over a century of providing retirement security*

# 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 27, 2022

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

Dear Members of the Board:

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

The most recently completed actuarial valuation was made as of June 30, 2021. This valuation relies on member data provided by the participating employers to the Retirement System. The administrative and actuarial staffs review this data for reasonability as well as reconcile it against prior data. In addition, the valuation relies on financial data provided by the Retirement System's Finance Department. The Retirement System's independent auditors provide reasonable assurances of the data provided by the Finance Department as part of the annual audit. We believe the member and financial data to be reasonable and appropriate for purposes of this valuation. Plan provisions are summarized in both the introduction section and the financial section of this report.

Actuarial assumptions, as adopted by the Retirement Board, are reviewed each year against experience on both an annual and quinquennial basis and changes are recommended when warranted. Assumptions are typically revised every five years. The actuarial assumptions used in the June 30, 2021 valuation were adopted by the Retirement Board in October 2021 and first effective with the June 30, 2021 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. This method is an appropriate contribution allocation procedure for the purpose of ongoing plan funding and having sufficient assets to pay benefits as they become due. A summary of the actuarial methods and assumptions used in the actuarial valuation is included later in this section. More detail on the valuation and actuarial methods and assumptions is available in the System's Actuarial Valuation Report. The actuarial cost method for funding differs from that used for financial reporting purposes as required by the Governmental Accounting Standards Board.

## ACTUARIAL CERTIFICATION LETTER *(continued)*

The System's market value rate of return on assets for the fiscal year ending June 30, 2021 was 29.0%. The System's five-year annualized rate of return stood at 11.9%. The June 30, 2021 actuarial valuation produced a required employer contribution rate of 10.29% of payroll, representing an increase of 5% over the prior year's rate of 9.80%. The change in actuarial assumptions, offset by the investment gain related to the System's rate of return assumption was the primary reason for the increase in the employer contribution rate.

Looking ahead to next year, the capital markets produced returns significantly below expectations during the fiscal year ending June 30, 2022. The System's total fund net rate of return was negative 7.1% for the fiscal year. This will lower the System's five-year annualized rate of return  to 7.7%. The actuarial value of assets smoothing method recognizes gains and losses gradually over a five-year period, thereby moderating their impact on the employer contribution rate.

The plan's funded ratio, as of June 30, 2021, calculated using the Actuarial Value of Assets (AVA) was 99.3% and calculated using the Market Value of Assets (MVA) was 113.0%. While the funded ratios will fluctuate from year to year, a funded ratio of 100% is desirable and indicative of a well-funded System. The primary reason for this healthy funded ratio is that, in accordance with statute, the System has collected the actuarially required contribution annually from employers.  The significance of this cannot be overstated.  It does not, however, imply that future contributions will not be required.  A 10-year schedule of actuarially determined and actual contributions made are provided as required supplementary information in the financial section. Various exhibits in the actuarial section provide further information on the actuarial assets, liabilities, and the funding level. More detailed information can be found in the System's Actuarial Valuation Report.

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

Respectfully submitted,

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

cc:  T. Lee

# SUMMARY OF PLAN PROVISIONS AND ACTUARIAL METHODS AND ASSUMPTIONS — as of June 30, 2021

## Plan Provisions

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

## Methods

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

## Assumptions

Assumptions are computed by the Actuary and were adopted by the Retirement Board in October 2021. They are based upon recent NYSTRS member experience. Selected sample rates are shown below. Detailed assumption information may be found in NYSTRS' annual Actuarial Valuation Report.

| | |
|---|---|
| **Valuation Rate of Interest** | 6.95% compounded annually. The valuation rate of interest contains a 2.40% assumed annual rate of inflation. |
| **Projected COLA Rate** | 1.3% annually |

**Base Rates of Mortality***

| Active Members | | | Retired Members | | |
|---|---|---|---|---|---|
| Age | Male | Female | Age | Male | Female |
| 30 | 0.03% | 0.02% | 60 | 0.35% | 0.26% |
| 40 | 0.05 | 0.03 | 70 | 0.94 | 0.62 |
| 50 | 0.10 | 0.07 | 80 | 3.84 | 2.62 |
| 60 | 0.26 | 0.16 | 90 | 13.57 | 10.98 |
| **Disabled Members** | | | **Survivor and Beneficiaries** | | |
| Age | Male | Female | Age | Male | Female |
| 30 | 0.47% | 0.34% | 30 | 0.04% | 0.02% |
| 40 | 0.77 | 0.72 | 40 | 0.07 | 0.04 |
| 60 | 2.65 | 2.14 | 60 | 0.64 | 0.41 |
| 80 | 6.96 | 5.95 | 80 | 4.52 | 3.27 |

**Rates of Salary Increase Including Cost-of-Living, Merit and Productivity**

| Years of Service | Rate |
|---|---|
| 5 | 5.18% |
| 15 | 3.64 |
| 25 | 2.50 |
| 35 | 1.95 |

**Rates of Withdrawal**

| Years of Service | Male |
|---|---|
| 5 | 4.67% |
| 15 | 0.84 |
| 20 | 0.50 |
| 25 | 0.32 |
| **Years of Service** | **Female** |
| 5 | 4.86% |
| 15 | 0.98 |
| 20 | 0.43 |
| 25 | 0.25 |

**Rates of Service Retirement (By Years of Service)**

| Male Age | 5 - 20 Years | 20 - 30 Years | 30+ Years |
|---|---|---|---|
| 55 | 1.69% | 3.69% | 35.74% |
| 60 | 3.25 | 7.49 | 31.11 |
| 65 | 13.52 | 28.48 | 31.11 |
| 70 | 17.84 | 34.58 | 25.91 |
| **Female Age** | | | |
| 55 | 2.20% | 4.89% | 36.05% |
| 60 | 3.67 | 8.58 | 32.94 |
| 65 | 13.46 | 30.66 | 34.52 |
| 70 | 16.93 | 27.62 | 26.82 |

**Rates of Disability Retirement**

| Age | Male |
|---|---|
| 35 | 0.02% |
| 40 | 0.03 |
| 45 | 0.06 |
| 50 | 0.10 |
| **Age** | **Female** |
| 35 | 0.02% |
| 40 | 0.03 |
| 45 | 0.08 |
| 50 | 0.13 |

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

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

**Future annuitant mortality rates are the annuitant mortality base rates adjusted for mortality improvement using Society of Actuaries Scale MP-2020.*

## ACTUARIAL PRESENT VALUE OF FUTURE BENEFITS
— as of June 30, 2021 and June 30, 2020

(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.

| | 2021 | 2020 |
|---|---|---|
| Present Value of Benefits Currently Being Paid: | | |
| Service Retirement Benefits | $ 68,662,650 | $ 65,897,141 |
| Disability Retirement Benefits | 413,056 | 375,951 |
| Death Benefits | 2,523 | 2,083 |
| Survivor Benefits | 1,169,906 | 1,150,016 |
| Cost-of-Living Allowance | 5,052,489 | 4,889,298 |
| Total Present Value of Benefits Currently Being Paid | 75,300,623 | 72,314,489 |
| Present Value of Benefits Payable in the Future to Current Active Members: | | |
| Service Retirement Benefits | 65,619,677 | 60,165,966 |
| Disability Retirement Benefits | 632,570 | 238,303 |
| Termination Benefits | 1,735,183 | 2,298,335 |
| Death and Survivor Benefits | 501,731 | 439,006 |
| Cost-of-Living Allowance | 1,490,590 | 1,346,999 |
| Total Active Member Liabilities | 69,979,750 | 64,488,609 |
| Present Value of Benefits Payable in the Future to Current Inactive (Vested) Members: | | |
| Retirement Benefits | 492,184 | 426,494 |
| Death Benefits | 269 | 346 |
| Cost-of-Living Allowance | 41,246 | 35,125 |
| Total Vested Liabilities | 533,698 | 461,965 |
| Unclaimed Funds | 24,600 | 22,012 |
| **Total Actuarial Present Value of Future Benefits** | **$ 145,838,672** | **$ 137,287,075** |

*Note: Totals may not sum due to rounding.*

## FUNDING PROGRESS

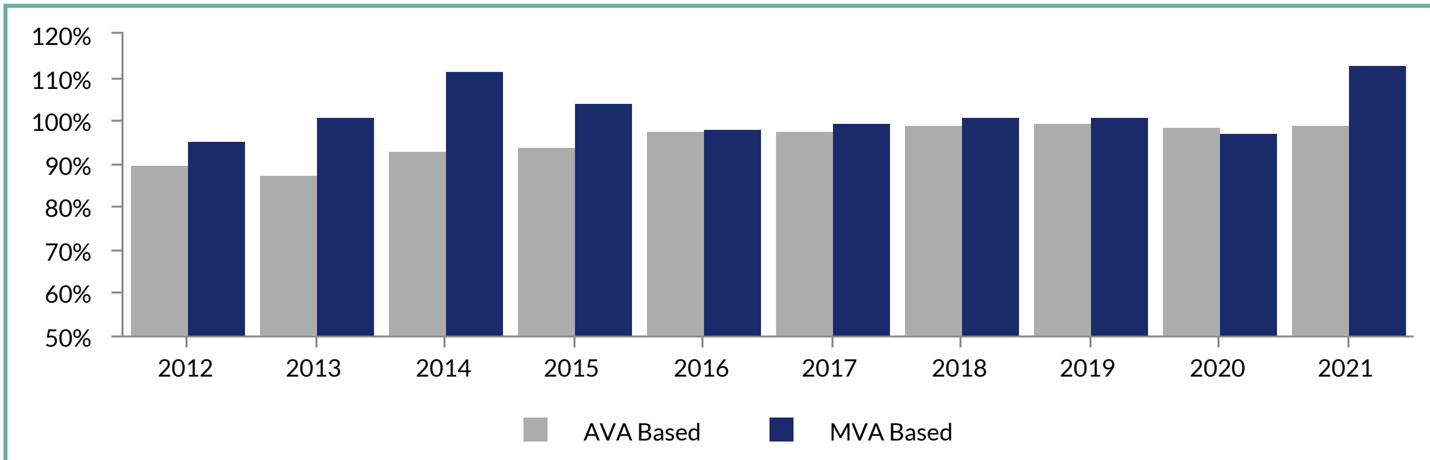
The portion of the actuarial present value of future benefits that is attributed to service rendered as of the valuation date is known as the actuarial accrued liability. In order to effectively assess the funding progress of a retirement system, it is necessary to compare the ratio of plan assets to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

## ANALYSIS OF FUNDING PROGRESS

(in millions)

| Fiscal Year Ended | Market Value of Assets (MVA) | Actuarial Value of Assets (AVA)[1] | Actuarial Accrued Liability[2] | Unfunded Actuarial Accrued Liability (Surplus) | Annual Member Payroll | Unfunded Actuarial Accrued Liability as a Percentage of Payroll | Percent Funded Based On | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | MVA | AVA |
| 2012 | $88,056.3 | $82,871.4 | $92,250.9 | $9,379.5 | $14,640.8 | 64.1 % | 95.5 % | 89.8 % |
| 2013 | 95,367.0 | 82,742.5 | 94,583.8 | 11,841.3 | 14,647.8 | 80.8 | 100.8 | 87.5 |
| 2014 | 108,155.1 | 90,007.1 | 96,904.5 | 6,897.4 | 14,771.3 | 46.7 | 111.6 | 92.9 |
| 2015 | 109,718.9 | 99,301.8 | 105,401.8 | 6,100.0 | 15,021.4 | 40.6 | 104.1 | 94.2 |
| 2016 | 107,506.1 | 107,039.2 | 109,305.1 | 2,265.9 | 15,431.0 | 14.7 | 98.4 | 97.9 |
| 2017 | 115,468.4 | 113,059.7 | 115,672.5 | 2,612.8 | 15,846.7 | 16.5 | 99.8 | 97.7 |
| 2018 | 119,915.5 | 117,859.5 | 118,861.1 | 1,001.6 | 16,288.9 | 6.1 | 100.9 | 99.2 |
| 2019 | 122,477.5 | 120,586.9 | 121,049.3 | 462.4 | 16,691.6 | 2.8 | 101.2 | 99.6 |
| 2020 | 120,479.5 | 122,400.4 | 123,801.7 | 1,401.3 | 16,973.2 | 8.3 | 97.3 | 98.9 |
| 2021 | 148,148.5 | 130,173.8 | 131,077.4 | 903.6 | 16,973.2 | 5.3 | 113.0 | 99.3 |

## PERCENT FUNDED




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

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

## SOLVENCY TEST

(in millions)

| Fiscal Year Ended | Aggregate Accrued Liabilities* for: Active Member Accumulated Contributions | 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 |
| 2018 | 4,844.9 | 70,128.9 | 43,887.3 | 117,859.5 | 100.0 | 100.0 | 97.7 |
| 2019 | 5,114.7 | 70,971.4 | 44,963.2 | 120,586.9 | 100.0 | 100.0 | 99.0 |
| 2020 | 5,397.7 | 72,839.6 | 45,564.4 | 122,400.4 | 100.0 | 100.0 | 96.9 |
| 2021 | 5,696.0 | 75,887.8 | 49,493.6 | 130,173.8 | 100.0 | 100.0 | 98.2 |

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

## ANALYSIS OF FINANCIAL EXPERIENCE

The table below shows, for each potentially significant experience source, the effect on the employer contribution rate due to the difference between actual experience and that predicted by the actuarial assumptions. A positive number (+) represents an actuarial loss and the negative numbers (-) represent an actuarial gain.

| Experience Source | Change in the Employer Contribution Rate during Fiscal Year Ended June 30, 2021 | June 30, 2020 |
|---|---|---|
| Revised Actuarial Assumptions: | +4.50% | -0.25% |
| Net Investment (Gain)/Loss: | -3.64 | +0.38 |
| Salary/Service: | -0.10 | -0.06 |
| New Entrants: | -0.08 | -0.07 |
| Withdrawal: | +0.02 | +0.03 |
| Mortality: | +0.04 | +0.05 |
| Retirement: | +0.13 | +0.11 |
| Pension Payments: | -0.07 | -0.07 |
| Cost-of-Living Adjustment: | +0.02 | -0.03 |
| Change in the Administrative Rate: | +0.01 | 0.00 |
| Miscellaneous: | -0.34 | +0.18 |
| **Total Change in Employer Contribution Rate** | **+0.49%** | **+0.27%** |
| Employer Contribution Rate at Prior Year-End | 9.80% | 9.53% |
| Employer Contribution Rate at Year-End | 10.29% | 9.80% |

## HISTORY OF MEMBER PAYROLL AND THE EMPLOYER CONTRIBUTION RATE*

| Fiscal Year Ended | Participating Employers | Active Members | Annual Member Payroll (in millions) | Percentage Increase in Annual Member Payroll | Average Full-Time Member Salary | Percentage Increase in Average Full-Time Member Salary | Employer Contribution Rate (Percent of Payroll) |
|---|---|---|---|---|---|---|---|
| 2013 | 827 | 273,328 | $14,647.8 | 0.0% | $76,348 | 1.9% | 11.84% |
| 2014 | 824 | 270,039 | 14,771.3 | 0.8 | 77,585 | 1.6 | 16.25 |
| 2015 | 822 | 267,715 | 15,021.4 | 1.7 | 78,695 | 1.4 | 17.53 |
| 2016 | 821 | 266,350 | 15,431.0 | 2.7 | 79,813 | 1.4 | 13.26 |
| 2017 | 822 | 264,761 | 15,846.7 | 2.7 | 80,951 | 1.4 | 11.72 |
| 2018 | 824 | 264,590 | 16,288.9 | 2.8 | 82,071 | 1.4 | 9.80 |
| 2019 | 823 | 263,517 | 16,691.6 | 2.5 | 84,078 | 2.4 | 10.62 |
| 2020 | 822 | 261,232 | 16,973.2 | 1.7 | 84,985 | 1.1 | 8.86 |
| 2021 | 821 | 259,158 | 16,973.2 | 0.0 | 86,307 | 1.6 | 9.53 |
| 2022 | 822 | 263,475 | 17,715.3 | 4.4 | 88,698 | 2.8 | 9.80 |

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

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

| | Number of Retired Members and Beneficiaries | | Annual Benefit of Retired Members and Beneficiaries | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Fiscal Year Ended | Added During the Year | Removed During the Year | Added During the Year | Removed During the Year | Total Number of Retired Members and Beneficiaries | Total Annual Benefit** | Percentage Increase in Total Annual Benefit | Average Annual Benefit | Percentage Increase in Average Annual Benefit |
| 2013 | 6,776 | 3,766 | $327,889,400 | $104,595,554 | 152,822 | $ 6,272,678,556 | 3.7% | $41,046 | 1.6% |
| 2014 | 7,003 | 3,894 | 332,495,800 | 110,681,561 | 155,931 | 6,494,492,795 | 3.5 | 41,650 | 1.5 |
| 2015 | 6,679 | 4,152 | 314,972,220 | 123,973,317 | 158,458 | 6,685,491,698 | 2.9 | 42,191 | 1.3 |
| 2016 | 6,719 | 4,029 | 318,693,576 | 122,540,821 | 161,148 | 6,881,644,453 | 2.9 | 42,704 | 1.2 |
| 2017 | 6,880 | 4,210 | 332,625,259 | 131,259,139 | 163,818 | 7,083,010,573 | 2.9 | 43,237 | 1.2 |
| 2018 | 6,951 | 4,484 | 342,878,955 | 144,338,778 | 166,285 | 7,281,550,750 | 2.8 | 43,790 | 1.3 |
| 2019 | 7,424 | 4,506 | 366,842,566 | 149,818,310 | 169,203 | 7,498,575,006 | 3.0 | 44,317 | 1.2 |
| 2020 | 8,205 | 4,839 | 417,236,881 | 163,825,172 | 172,569 | 7,751,986,715 | 3.4 | 44,921 | 1.4 |
| 2021 | 8,205 | 4,984 | 429,827,431 | 175,457,944 | 175,790 | 8,006,356,202 | 3.3 | 45,545 | 1.4 |
| 2022 | 7,812 | 5,033 | 421,461,528 | 185,748,482 | 178,569 | 8,242,069,248 | 2.9 | 46,156 | 1.3 |

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

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

plante moran

**Plante Moran, PC**
P.O. Box 307
3000 Town Center, Suite 100
Southfield, MI 48075
Tel: 248.352.2500
Fax: 248.352.0018
plantemoran.com

**To the Retirement Board**

**Re: 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") for the year ended June 30, 2022, we performed procedures on 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, 2022 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, 2020 used to derive the resultant employer contribution rate of 9.80 percent applied to employer payroll for the fiscal year ended June 30, 2022

- The System's experience studies incorporated in the System's actuarial report as of June 30, 2020 and the opinions of the System's actuary presented therein

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 2022 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.

Plante Moran, PC

**PLANTE MORAN, PC**

October 27, 2022

# STATISTICAL

*Over a century of providing retirement security*

# STATISTICAL

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

### Demographic & Economic Information

The schedules on pages 129-141 are intended to assist users in understanding the environment within which NYSTRS operates and to provide information that facilitates comparison of financial statement information over time and among similar entities. The demographic and economic information schedules presented are:



### Financial Trends Information

The schedules on pages 142-145 are intended to assist users in understanding and assessing how the financial position of NYSTRS has changed over time. The financial trend schedules presented are:



### Operating Information

The schedules on pages 146-151 are intended to provide contextual information about the operations and resources of NYSTRS to assist readers in using financial statement information. The operating information schedules are:

## Demographic & Economic Information

### ACTIVE MEMBERS:

| | Male | Female | Total |
|---|---|---|---|
| June 30, 2021 | 60,592 | 198,566 | **259,158** |
| Changes During Year: | | | |
| Added | 3,329 | 12,373 | **15,702** |
| Withdrawn | 1,031 | 3,039 | **4,070** |
| Retired | 1,453 | 5,682 | **7,135** |
| Died | 69 | 111 | **180** |
| June 30, 2022 | 61,368 | 202,107 | **263,475** |

### MEMBERS RETIRED FOR:

| | Service* | | | Disability | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| June 30, 2021 | 49,020 | 117,993 | **167,013** | 414 | 1,641 | **2,055** | 49,434 | 119,634 | **169,068** |
| Changes During Year: | | | | | | | | | |
| Retired | 1,432 | 5,593 | **7,025** | 21 | 89 | **110** | 1,453 | 5,682 | **7,135** |
| Died | 1,801 | 2,593 | **4,394** | 27 | 88 | **115** | 1,828 | 2,681 | **4,509** |
| Lump Sum | 14 | 62 | **76** | 0 | 0 | **0** | 14 | 62 | **76** |
| Restored to Active Membership | 0 | 0 | **0** | 0 | 2 | **2** | 0 | 2 | **2** |
| June 30, 2022 | 48,637 | 120,931 | **169,568** | 408 | 1,640 | **2,048** ** | 49,045 | 122,571 | **171,616** |

### BENEFICIARIES OF DECEASED:

| | Service Annuitants | | | Disability Annuitants | | | Active Members | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| June 30, 2021 | 1,539 | 4,807 | **6,346** | 113 | 161 | **274** | 21 | 81 | **102** | 1,673 | 5,049 | **6,722** |
| Changes During Year: | | | | | | | | | | | | |
| Added | 211 | 456 | **667** | 0 | 4 | **4** | 2 | 4 | **6** | 213 | 464 | **677** |
| Died | 102 | 325 | **427** | 4 | 8 | **12** | 1 | 6 | **7** | 107 | 339 | **446** |
| June 30, 2022 | 1,648 | 4,938 | **6,586** | 109 | 157 | **266** | 22 | 79 | **101** | 1,779 | 5,174 | **6,953** |

### SUMMARY:

| | Male | Female | Total |
|---|---|---|---|
| Active Members | 61,368 | 202,107 | **263,475** |
| Retired Members | 49,045 | 122,571 | **171,616** |
| Beneficiaries | 1,779 | 5,174 | **6,953** |
| Total | 112,192 | 329,852 | **442,044** |

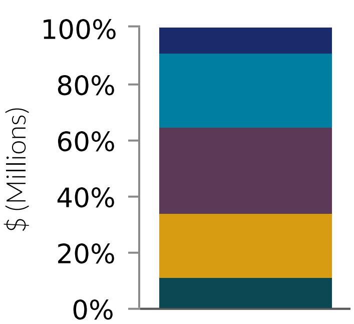
**Also includes vested retirees.*
***Includes 13 males and 32 females retired for disability who receive a service benefit.*

## DISTRIBUTION OF ACTIVE MEMBERS BY AGE AND YEARS OF SERVICE*
— as of June 30, 2022

| | | Years of Credited Service | | | | | |
|---|---|---|---|---|---|---|---|
| Age | | 0-5 | 6-10 | 11-15 | 16-20 | 21-25 | 26-30 |
| 20-24 | **Count of Members** | **8,850** | **0** | **0** | **0** | **0** | **0** |
| | *Average Salary* | *$44,964* | *$0* | *$0* | *$0* | *$0* | *$0* |
| 25-29 | **Count of Members** | **20,243** | **1,385** | **0** | **0** | **0** | **0** |
| | *Average Salary* | *$56,546* | *$66,949* | *$0* | *$0* | *$0* | *$0* |
| 30-34 | **Count of Members** | **15,993** | **11,154** | **1,140** | **0** | **0** | **0** |
| | *Average Salary* | *$61,093* | *$71,003* | *$81,680* | *$0* | *$0* | *$0* |
| 35-39 | **Count of Members** | **10,427** | **8,470** | **11,251** | **2,111** | **2** | **0** |
| | *Average Salary* | *$59,585* | *$72,193* | *$84,927* | *$96,036* | *$103,392* | *$0* |
| 40-44 | **Count of Members** | **8,345** | **5,940** | **7,371** | **15,757** | **2,704** | **1** |
| | *Average Salary* | *$57,161* | *$70,822* | *$86,359* | *$101,039* | *$109,757* | *$136,094* |
| 45-49 | **Count of Members** | **6,398** | **4,704** | **4,117** | **9,091** | **15,114** | **1,266** |
| | *Average Salary* | *$53,906* | *$65,332* | *$82,415* | *$103,126* | *$113,394* | *$121,013* |
| 50-54 | **Count of Members** | **5,605** | **4,733** | **3,932** | **5,668** | **11,075** | **10,085** |
| | *Average Salary* | *$49,011* | *$60,764* | *$76,634* | *$95,487* | *$112,207* | *$119,397* |
| 55-59 | **Count of Members** | **3,750** | **2,943** | **2,828** | **4,005** | **5,045** | **5,398** |
| | *Average Salary* | *$47,653* | *$55,623* | *$68,117* | *$87,596* | *$104,223* | *$117,625* |
| 60-64 | **Count of Members** | **2,327** | **1,479** | **1,520** | **2,743** | **3,185** | **2,153** |
| | *Average Salary* | *$47,397* | *$53,723* | *$61,883* | *$81,691* | *$95,372* | *$108,179* |
| 65-69 | **Count of Members** | **1,021** | **550** | **518** | **870** | **919** | **533** |
| | *Average Salary* | *$47,761* | *$53,217* | *$71,247* | *$84,087* | *$93,023* | *$100,773* |
| 70+ | **Count of Members** | **500** | **232** | **182** | **227** | **236** | **148** |
| | *Average Salary* | *$40,538* | *$51,533* | *$60,041* | *$72,680* | *$84,191* | *$90,210* |
| Total | **Count of Members** | **83,459** | **41,590** | **32,859** | **40,472** | **38,280** | **19,584** |
| | *Average Salary* | *$56,040* | *$68,613* | *$81,634* | *$97,456* | *$109,456* | *$117,080* |

**Average salary data is for the 192,198 members who earned a full year of service. The average salary for all active members, full-time and part-time, is $79,715.*

## DISTRIBUTION OF ACTIVE MEMBERS BY AGE
— as of June 30, 2022




| Age Group | Percent |
|---|---|
| 60+ Years of Age | **8%** |
| 50-59 Years of Age | **26%** |
| 40-49 Years of Age | **31%** |
| 30-39 Years of Age | **23%** |
| 20-29 Years of Age | **12%** |

## AVERAGES
— as of June 30, 2022

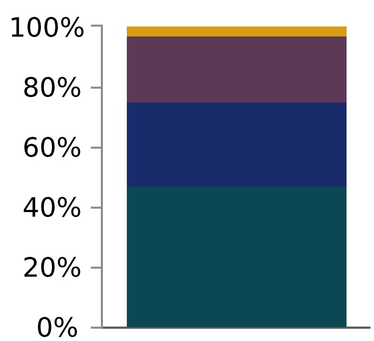
| Gender | Age | Years of Service |
|---|---|---|
| Female | 44 | 12 |
| Male | 44 | 14 |

## DISTRIBUTION OF ACTIVE MEMBERS BY AGE AND YEARS OF SERVICE* *(continued)* — as of June 30, 2022

| | | Years of Credited Service | | | | | |
|---|---|---|---|---|---|---|---|
| Age | | 31-35 | 36-40 | 41-45 | 46-50 | 51+ | Total |
| 20-24 | Count of Members | 0 | 0 | 0 | 0 | 0 | 8,850 |
| | *Average Salary* | $0 | $0 | $0 | $0 | $0 | $44,964 |
| 25-29 | Count of Members | 0 | 0 | 0 | 0 | 0 | 21,628 |
| | *Average Salary* | $0 | $0 | $0 | $0 | $0 | $57,632 |
| 30-34 | Count of Members | 0 | 0 | 0 | 0 | 0 | 28,287 |
| | *Average Salary* | $0 | $0 | $0 | $0 | $0 | $67,724 |
| 35-39 | Count of Members | 0 | 0 | 0 | 0 | 0 | 32,261 |
| | *Average Salary* | $0 | $0 | $0 | $0 | $0 | $77,634 |
| 40-44 | Count of Members | 0 | 0 | 0 | 0 | 0 | 40,118 |
| | *Average Salary* | $0 | $0 | $0 | $0 | $0 | $90,536 |
| 45-49 | Count of Members | 3 | 0 | 0 | 0 | 0 | 40,693 |
| | *Average Salary* | $102,988 | $0 | $0 | $0 | $0 | $100,113 |
| 50-54 | Count of Members | 983 | 1 | 0 | 0 | 0 | 42,082 |
| | *Average Salary* | $119,901 | $151,721 | $0 | $0 | $0 | $102,608 |
| 55-59 | Count of Members | 3,450 | 269 | 0 | 0 | 0 | 27,688 |
| | *Average Salary* | $122,525 | $121,639 | $0 | $0 | $0 | $99,173 |
| 60-64 | Count of Members | 1,036 | 629 | 46 | 0 | 0 | 15,118 |
| | *Average Salary* | $119,628 | $129,810 | $123,091 | $0 | $0 | $91,280 |
| 65-69 | Count of Members | 265 | 166 | 108 | 12 | 0 | 4,962 |
| | *Average Salary* | $112,235 | $126,622 | $132,264 | $118,191 | $0 | $90,048 |
| 70+ | Count of Members | 95 | 50 | 47 | 50 | 21 | 1,788 |
| | *Average Salary* | $95,200 | $112,814 | $122,914 | $147,852 | $181,129 | $86,613 |
| Total | Count of Members | 5,832 | 1,115 | 201 | 62 | 21 | 263,475 |
| | *Average Salary* | $120,664 | $126,640 | $127,978 | $142,017 | $181,129 | $88,698 |

**Average salary data is for the 192,198 members who earned a full year of service.*
*The average salary for all active members, full-time and part-time, is $79,715.*

## DISTRIBUTION OF ACTIVE MEMBERS BY SERVICE — as of June 30, 2022

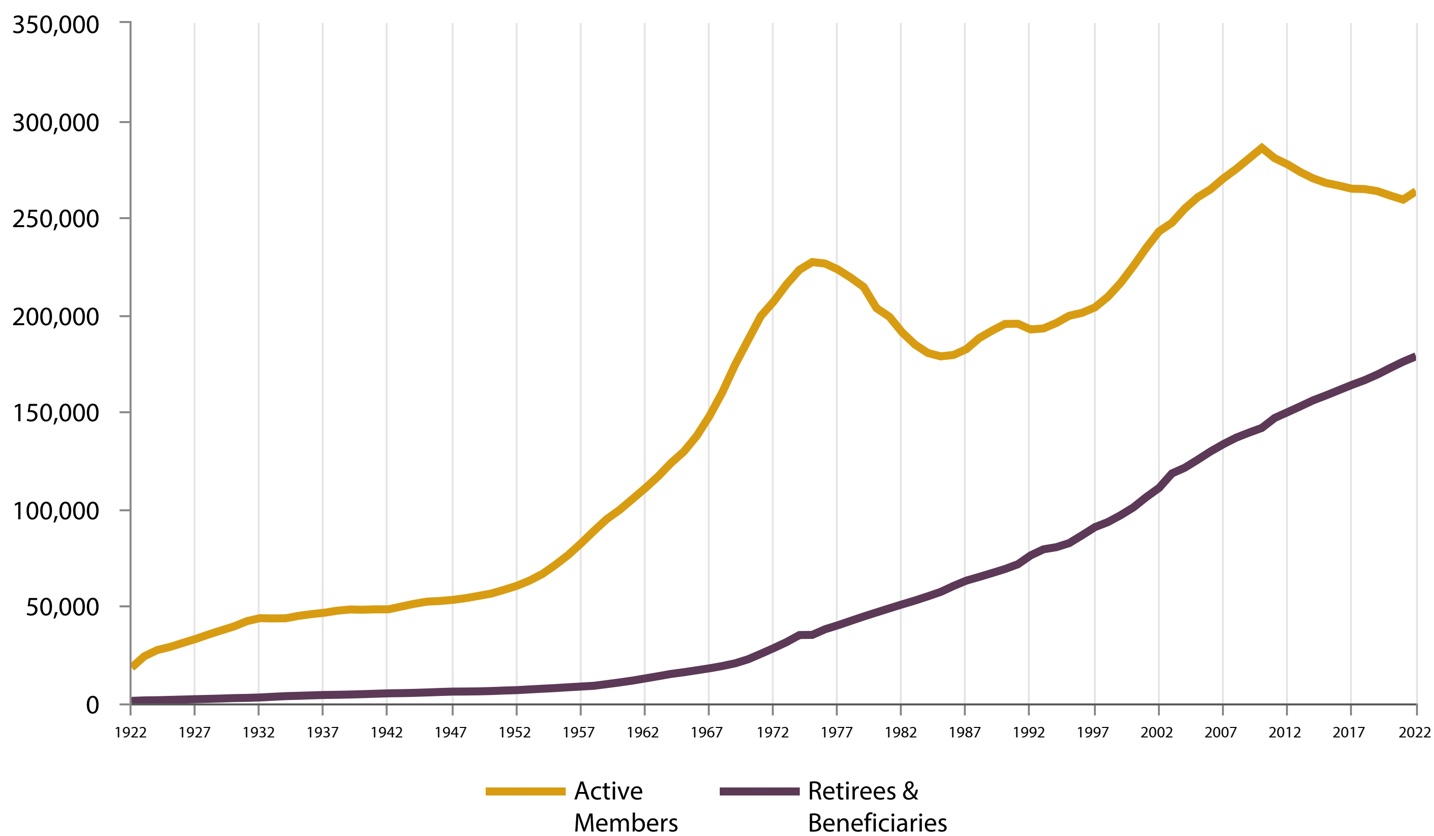



| Service Group | Percent |
|---|---|
| 31+ Years of Service | 3% |
| 21-30 Years of Service | 22% |
| 11-20 Years of Service | 28% |
| 0-10 Years of Service | 47% |

## ACTIVE MEMBERS AND ANNUITANTS 1922-2022

| As of June 30 | Active Members | Retirees & Beneficiaries | As of June 30 | Active Members | Retirees & Beneficiaries |
|---|---|---|---|---|---|
| 1922 | 18,412 | 1,296 | 1975 | 227,038 | 35,252 |
| 1925 | 29,057 | 1,815 | 1980 | 203,330 | 46,812 |
| 1930 | 39,663 | 2,732 | 1985 | 178,516 | 57,366 |
| 1935 | 45,031 | 3,919 | 1990 | 195,194 | 69,127 |
| 1940 | 48,193 | 4,771 | 1995 | 199,398 | 82,459 |
| 1945 | 52,359 | 5,637 | 2000 | 224,986 | 100,839 |
| 1950 | 56,504 | 6,374 | 2005 | 260,356 | 125,325 |
| 1955 | 71,273 | 7,897 | 2010 | 285,774 | 141,716 |
| 1960 | 99,555 | 10,796 | 2015 | 267,715 | 158,458 |
| 1965 | 129,543 | 16,043 | 2020 | 261,232 | 172,569 |
| 1970 | 186,914 | 22,700 | 2022 | 263,475 | 178,569 |

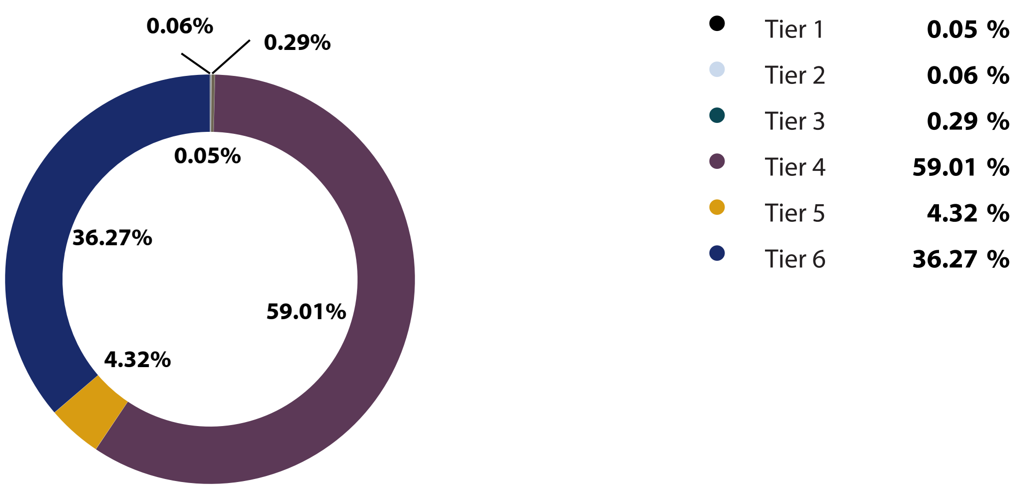
*See related graph below.*



## NUMBER OF ACTIVE MEMBERS BY TIER

| As of June 30 | Tier 1 | Tier 2 | Tier 3 | Tier 4 | Tier 5 | Tier 6 | Total |
|---|---|---|---|---|---|---|---|
| 2003 | 28,327 | 14,463 | 19,083 | 185,374 | — | — | 247,247 |
| 2004 | 22,986 | 13,947 | 18,835 | 198,747 | — | — | 254,515 |
| 2005 | 17,901 | 13,210 | 18,535 | 210,710 | — | — | 260,356 |
| 2006 | 13,621 | 12,084 | 18,173 | 220,532 | — | — | 264,410 |
| 2007 | 10,838 | 10,178 | 17,743 | 231,286 | — | — | 270,045 |
| 2008 | 8,630 | 8,171 | 17,007 | 241,093 | — | — | 274,901 |
| 2009 | 6,943 | 6,752 | 16,111 | 250,532 | — | — | 280,338 |
| 2010 | 5,582 | 5,706 | 14,942 | 255,966 | 3,578 | — | 285,774 |
| 2011 | 3,814 | 4,137 | 12,690 | 247,530 | 12,264 | — | 280,435 |
| 2012 | 2,756 | 3,253 | 11,180 | 239,199 | 19,969 | 916 | 277,273 |
| 2013 | 1,968 | 2,447 | 9,450 | 231,258 | 19,452 | 8,753 | 273,328 |
| 2014 | 1,439 | 1,810 | 7,753 | 222,545 | 19,124 | 17,368 | 270,039 |
| 2015 | 1,116 | 1,348 | 6,222 | 214,020 | 18,878 | 26,131 | 267,715 |
| 2016 | 832 | 974 | 4,920 | 204,912 | 18,540 | 36,172 | 266,350 |
| 2017 | 607 | 720 | 3,881 | 195,226 | 17,722 | 46,605 | 264,761 |
| 2018 | 446 | 546 | 2,993 | 186,581 | 16,499 | 57,525 | 264,590 |
| 2019 | 349 | 403 | 2,276 | 178,516 | 14,595 | 67,378 | 263,517 |
| 2020 | 249 | 282 | 1,638 | 170,306 | 13,040 | 75,717 | 261,232 |
| 2021 | 169 | 202 | 1,106 | 162,627 | 12,061 | 82,993 | 259,158 |
| 2022 | 121 | 160 | 771 | 155,480 | 11,369 | 95,574 | 263,475 |

## ACTIVE MEMBERS BY TIER



## MEMBERS RETIRED IN 2021-2022 FOR:

| | Service* | Disability |
|---|---|---|
| **Number Retired** | **7,025** | **110** |
| Age at Retirement: | | |
| Average | 61 yrs., 3 mos. | 51 yrs., 0 mos. |
| Median | 61 yrs., 2 mos. | 50 yrs., 6 mos. |
| Years of Service: | | |
| Average | 25 yrs., 7 mos. | 20 yrs., 4 mos. |
| Median | 27 yrs., 1 mo. | 19 yrs., 8 mos. |
| **Benefit: | | |
| Average | $48,724 | $34,430 |
| Median | $49,571 | $34,678 |
| Final Average Salary (FAS): | | |
| Average | $92,434 | $92,122 |
| Median | $92,494 | $92,410 |
| ***Benefit as % of FAS: | | |
| Average | 48.12% | 36.74% |
| Median | 51.56% | 33.33% |

## MEMBERS RETIRED IN 2021-2022 FOR SERVICE* WITH:

| | Less Than 10 Yrs. Svc. | 10 or More Yrs. and Less Than 20 Yrs. Svc. | 20 or More Yrs. and Less Than 30 Yrs. Svc. | 30 or More Yrs. Svc. |
|---|---|---|---|---|
| **Number Retired** | **388** | **994** | **2,574** | **3,069** |
| Age at Retirement: | | | | |
| Average | 62 yrs., 4 mos. | 62 yrs., 5 mos. | 63 yrs., 0 mos. | 59 yrs., 4 mos. |
| Median | 61 yrs., 11 mos. | 62 yrs., 3 mos. | 62 yrs., 7 mos. | 58 yrs., 4 mos. |
| Years of Service: | | | | |
| Average | 7 yrs., 2 mos. | 15 yrs., 1 mo. | 23 yrs., 8 mos. | 33 yrs., 1 mo. |
| Median | 7 yrs., 1 mo. | 15 yrs., 3 mos. | 23 yrs., 4 mos. | 32 yrs., 2 mos. |
| **Benefit: | | | | |
| Average | $3,909 | $13,516 | $40,285 | $72,871 |
| Median | $3,487 | $10,346 | $38,809 | $68,744 |
| Final Average Salary (FAS): | | | | |
| Average | $37,519 | $57,671 | $88,720 | $113,752 |
| Median | $35,069 | $49,931 | $86,822 | $106,789 |
| ***Benefit as % of FAS: | | | | |
| Average | 10.36% | 22.86% | 44.83% | 63.84% |
| Median | 10.19% | 22.68% | 44.33% | 63.17% |

**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, 2022 RETIRED FOR:

| | Service* | Disability |
|---|---|---|
| **Number Retired** | **169,613** | **2,003** |
| Age at Retirement: | | |
| Average | 59 yrs., 2 mos. | 49 yrs., 7 mos. |
| Median | 58 yrs., 2 mos. | 50 yrs., 4 mos. |
| Age Attained as of June 30, 2022: | | |
| Average | 73 yrs., 8 mos. | 66 yrs., 2 mos. |
| Median | 73 yrs., 5 mos. | 66 yrs., 8 mos. |
| Years of Service: | | |
| Average | 27 yrs., 7 mos. | 18 yrs., 4 mos. |
| Median | 30 yrs., 1 mo. | 17 yrs., 6 mos. |
| **Benefit: | | |
| Average | $44,484 | $22,491 |
| Median | $44,941 | $20,461 |
| Final Average Salary (FAS): | | |
| Average | $77,478 | $62,169 |
| Median | $75,373 | $58,823 |
| ***Benefit as % of FAS: | | |
| Average | 53.34% | 35.42% |
| Median | 60.00% | 33.33% |

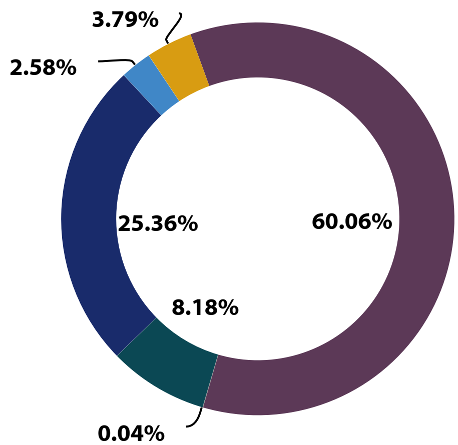
## ALL RETIREES AS OF JUNE 30, 2022 RETIRED FOR SERVICE* WITH:

| | Less Than 10 Yrs. Svc. | 10 or More Yrs. and Less Than 20 Yrs. Svc. | 20 or More Yrs. and Less Than 30 Yrs. Svc. | 30 or More Yrs. Svc. |
|---|---|---|---|---|
| **Number Retired** | **5,230** | **24,125** | **50,677** | **89,581** |
| Age at Retirement: | | | | |
| Average | 60 yrs., 5 mos. | 59 yrs., 5 mos. | 60 yrs., 6 mos. | 58 yrs., 3 mos. |
| Median | 59 yrs., 8 mos. | 58 yrs., 1 mo. | 60 yrs., 11 mos. | 57 yrs., 2 mos. |
| Years of Service: | | | | |
| Average | 7 yrs., 4 mos. | 14 yrs., 5 mos. | 24 yrs., 6 mos. | 34 yrs., 2 mos. |
| Median | 7 yrs., 5 mos. | 14 yrs., 5 mos. | 24 yrs., 8 mos. | 33 yrs., 8 mos. |
| **Benefit: | | | | |
| Average | $4,279 | $10,095 | $35,221 | $61,333 |
| Median | $3,687 | $7,825 | $32,726 | $57,454 |
| Final Average Salary (FAS): | | | | |
| Average | $40,839 | $44,965 | $73,882 | $90,407 |
| Median | $37,398 | $38,003 | $69,669 | $85,151 |
| ***Benefit as % of FAS: | | | | |
| Average | 10.54% | 21.79% | 47.37% | 67.72% |
| Median | 10.19% | 21.03% | 47.78% | 66.89% |

**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

**2018-2022 Retirees**




| Option | Number Electing | Percent of Election* |
|---|---|---|
| Maximum | 21,440 | 60.06 % |
| Annuity/Declining Reserve | 13 | 0.04 % |
| Joint & Survivor | 2,921 | 8.18 % |
| Pop-Up | 9,052 | 25.36 % |
| Guarantee | 922 | 2.58 % |
| Alternative | 1,352 | 3.79 % |
| **Total** | **35,700** | **100.00 %** |

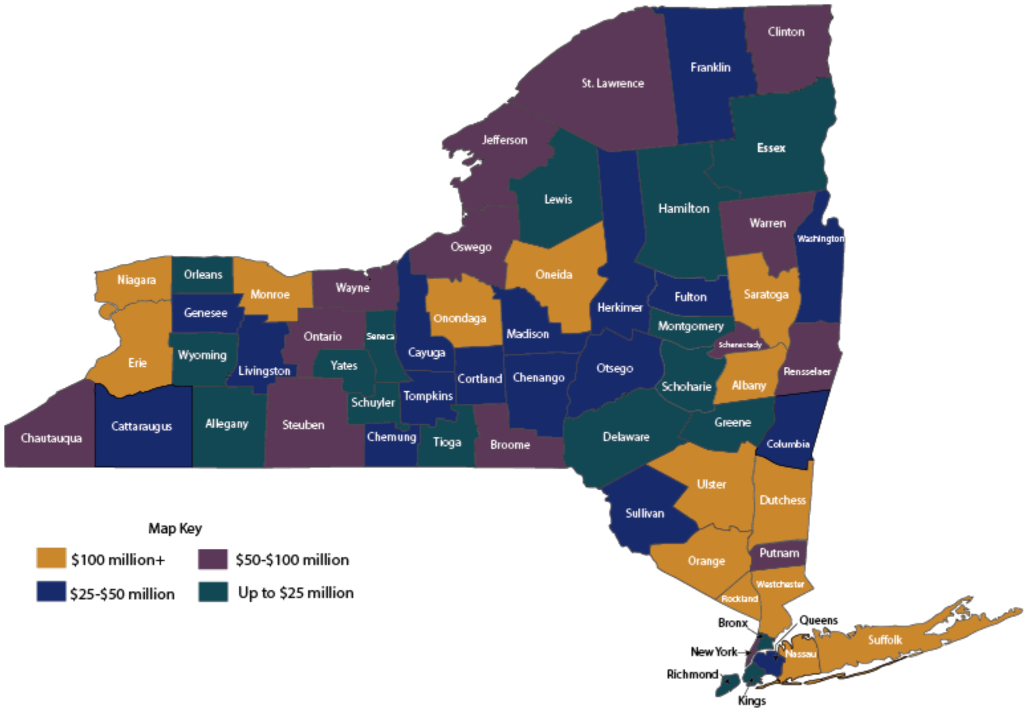
**Percentages may not sum to 100% due to rounding.*

## 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 |
|---|---|---|---|---|---|
| 2013 | 6,330 | 60-10 | 25-6 | $81,987 | $44,768 |
| 2014 | 6,547 | 61-0 | 25-4 | 84,545 | 44,978 |
| 2015 | 6,161 | 60-11 | 25-4 | 84,362 | 44,487 |
| 2016 | 6,245 | 61-2 | 25-0 | 84,308 | 44,215 |
| 2017 | 6,396 | 61-3 | 25-0 | 85,242 | 45,049 |
| 2018 | 6,416 | 61-1 | 25-1 | 86,910 | 45,725 |
| 2019 | 6,890 | 61-0 | 25-1 | 87,085 | 45,713 |
| 2020 | 7,642 | 61-4 | 25-8 | 90,228 | 48,273 |
| 2021 | 7,617 | 61-5 | 26-3 | 91,713 | 49,145 |
| 2022 | 7,135 | 61-3 | 25-7 | 92,434 | 48,724 |

**Averages are for service and vested retirees.*

## DISTRIBUTION OF BENEFITS PAID BY COUNTY* — as of June 30, 2022




| County | Retired Members and Beneficiaries | Annual Benefits Paid** | County | Retired Members and Beneficiaries | Annual Benefits Paid** | County | Retired Members and Beneficiaries | Annual Benefits Paid** |
|---|---|---|---|---|---|---|---|---|
| Albany | 3,261 | $136,597,650 | Jefferson | 1,485 | $58,086,361 | St. Lawrence | 1,809 | $65,843,896 |
| Allegany | 665 | $24,295,581 | Kings | 219 | $10,239,693 | Saratoga | 3,980 | $172,915,534 |
| Bronx | 274 | $14,070,175 | Lewis | 385 | $14,334,890 | Schenectady | 1,821 | $75,126,190 |
| Broome | 2,384 | $91,823,444 | Livingston | 1,053 | $42,371,422 | Schoharie | 486 | $17,824,257 |
| Cattaraugus | 963 | $39,261,540 | Madison | 1,049 | $40,698,553 | Schuyler | 286 | $10,392,795 |
| Cayuga | 1,085 | $41,549,371 | Monroe | 9,606 | $394,938,390 | Seneca | 457 | $17,247,014 |
| Chautauqua | 1,972 | $82,712,596 | Montgomery | 549 | $22,074,786 | Steuben | 1,421 | $51,490,937 |
| Chemung | 1,129 | $42,177,950 | Nassau | 10,015 | $587,622,985 | Suffolk | 18,319 | $1,108,987,561 |
| Chenango | 739 | $26,800,850 | New York | 1,168 | $59,007,571 | Sullivan | 864 | $40,873,176 |
| Clinton | 1,315 | $51,132,481 | Niagara | 2,375 | $107,343,283 | Tioga | 577 | $21,945,158 |
| Columbia | 768 | $31,883,393 | Oneida | 3,356 | $131,357,475 | Tompkins | 1,108 | $37,730,463 |
| Cortland | 811 | $30,588,361 | Onondaga | 7,360 | $281,168,828 | Ulster | 2,978 | $136,015,148 |
| Delaware | 648 | $23,459,728 | Ontario | 2,170 | $87,004,198 | Warren | 1,522 | $61,812,491 |
| Dutchess | 3,614 | $171,361,327 | Orange | 3,512 | $174,220,527 | Washington | 774 | $29,954,467 |
| Erie | 11,350 | $499,209,789 | Orleans | 478 | $21,220,717 | Wayne | 1,358 | $51,011,814 |
| Essex | 668 | $23,686,263 | Oswego | 1,786 | $65,542,113 | Westchester | 7,101 | $406,747,867 |
| Franklin | 761 | $27,563,766 | Otsego | 1,120 | $38,891,115 | Wyoming | 538 | $20,513,640 |
| Fulton | 790 | $32,124,564 | Putnam | 1,086 | $61,690,961 | Yates | 424 | $15,843,368 |
| Genesee | 797 | $32,397,458 | Queens | 827 | $46,832,014 | | | |
| Greene | 587 | $22,874,117 | Rensselaer | 1,775 | $70,850,490 | Out of State | 43,143 | $1,654,094,777 |
| Hamilton | 143 | $5,792,229 | Richmond | 38 | $1,433,514 | | | |
| Herkimer | 1,001 | $36,407,172 | Rockland | 2,466 | $124,700,886 | **Grand Total** | **178,569** | **$7,925,771,130** |

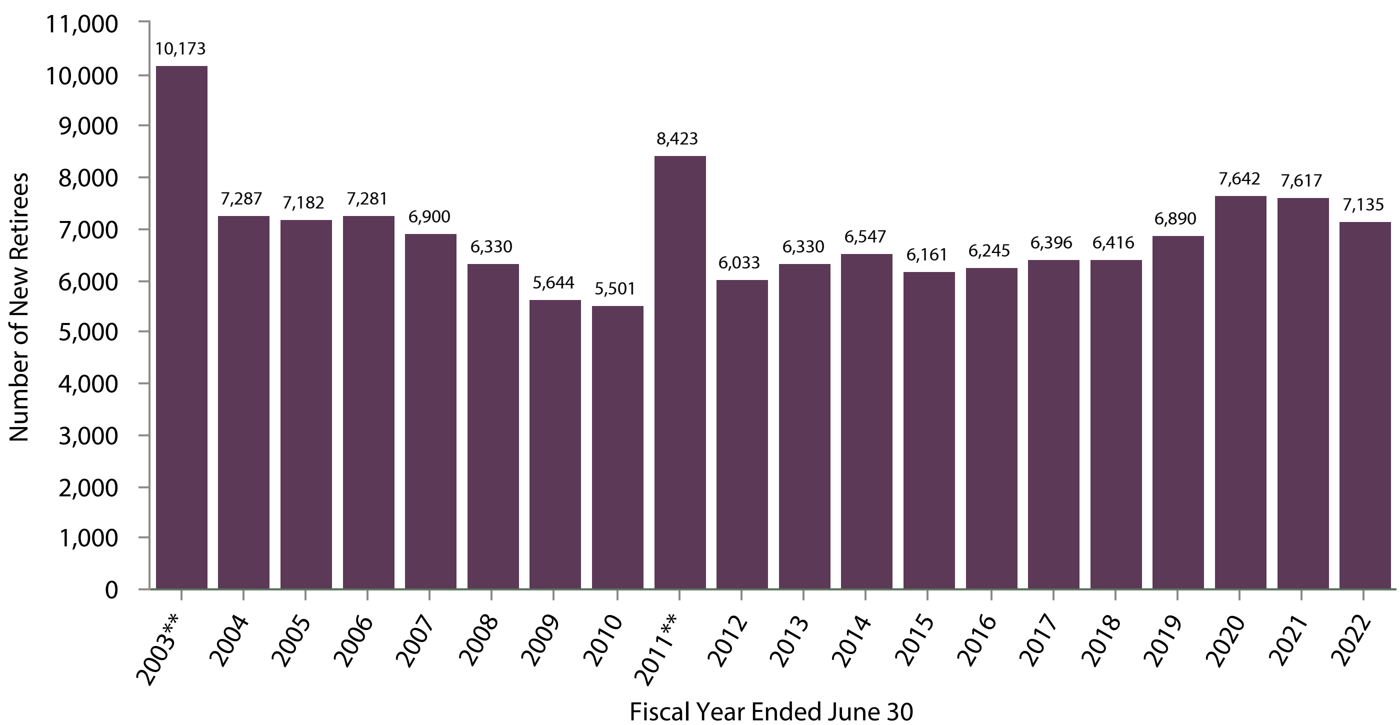
**Computed on the optional annual benefit including supplementation and COLA.*
***Annual benefits paid in this chart may differ from retirement benefit payments that appear elsewhere in this report because this chart reflects the rate of annual payment for retired members and their beneficiaries in pay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

## DISTRIBUTION OF RETIRED MEMBERS AND BENEFICIARIES BY TIER
— as of June 30, 2022

| | Tier 1 | Tier 2 | Tier 3 | | Tier 4 | Tier 5 | Tier 6 | Total |
|---|---|---|---|---|---|---|---|---|
| Members Retired for: | | | | | | | | |
| Service* | 74,405 | 16,308 | 20,292 | (182) ** | 58,371 | 134 | 58 | 169,568 |
| Disability | 455 | 158 | 224 | (27) ** | 1,211 | 0 | 0 | 2,048 |
| Beneficiaries of Deceased: | | | | | | | | |
| Service Annuitants | 5,134 | 437 | 379 | (7) ** | 635 | 1 | 0 | 6,586 |
| Disability Annuitants | 148 | 25 | 27 | (4) ** | 66 | 0 | 0 | 266 |
| Active Members | 90 | 1 | 2 | (0) ** | 7 | 0 | 1 | 101 |
| **Total** | **80,232** | **16,929** | **20,924** | **(220)**** | **60,290** | **135** | **59** | **178,569** |

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

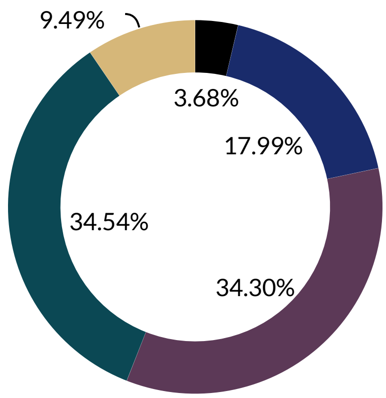
## HISTORY OF THE NUMBER OF NEW RETIREES*




*Includes service, vested and disability retirements.*

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

## RETIRED MEMBERS AND BENEFICIARIES* WITH MONTHLY BENEFITS BY DECADE OF RETIREMENT — as of June 30, 2022



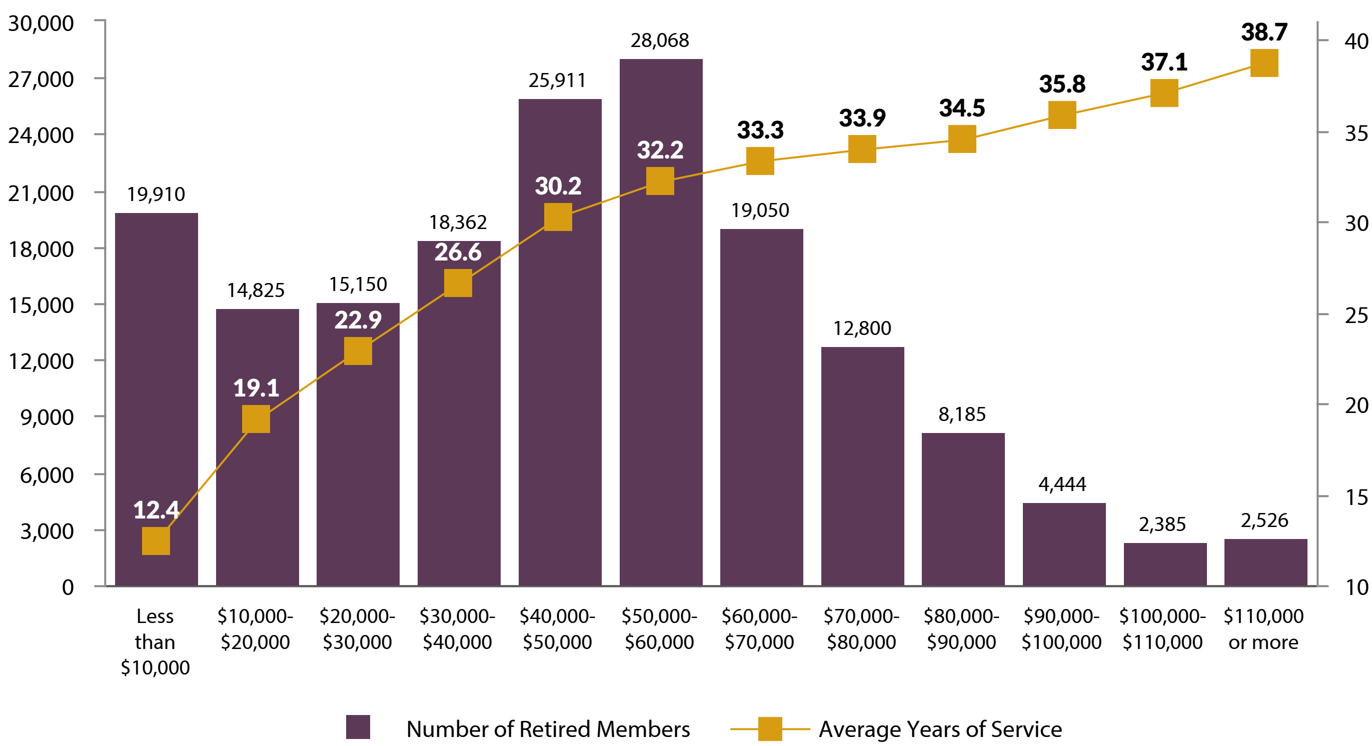

| Calendar Years | Number of People | Percentage** | Average Monthly Maximum Benefit | Average Total Monthly Maximum Benefit*** |
|---|---|---|---|---|
| 1989 or earlier | 6,575 | 3.68% | $1,475.01 | $2,043.74 |
| 1990-1999 | 32,108 | 17.99% | $2,898.85 | $3,261.24 |
| 2000-2009 | 61,207 | 34.30% | $3,895.68 | $4,097.47 |
| 2010-2019 | 61,643 | 34.54% | $3,977.01 | $4,026.56 |
| 2020-2022 | 16,935 | 9.49 % | $4,111.80 | $4,111.80 |
| **Total** | **178,468** | | | |

**Excludes 101 beneficiaries of deceased active members.*

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

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

## DISTRIBUTION OF THE ANNUAL BENEFIT* OF ALL RETIRED MEMBERS — as of June 30, 2022




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

## HISTORY OF THE MONTHLY COLA

| Commencing September | Year Ended March 31 CPI* Percentage Change | Applicable COLA Percentage | Maximum Annual Base Benefit Amount | Maximum Monthly COLA Increase | Cumulative Maximum Monthly COLA | Average Monthly COLA Increase | Cumulative Average Monthly COLA |
|---|---|---|---|---|---|---|---|
| 2001 | 2.92% | 1.5% | $18,000 | $22.50 | $22.50 | $18.80 | $18.80 |
| 2002 | 1.48% | 1.0% | $18,000 | $15.00 | $37.50 | $12.64 | $31.44 |
| 2003 | 3.02% | 1.6% | $18,000 | $24.00 | $61.50 | $20.32 | $51.76 |
| 2004 | 1.74% | 1.0% | $18,000 | $15.00 | $76.50 | $12.85 | $64.61 |
| 2005 | 3.15% | 1.6% | $18,000 | $24.00 | $100.50 | $20.68 | $85.29 |
| 2006 | 3.36% | 1.7% | $18,000 | $25.50 | $126.00 | $22.09 | $107.38 |
| 2007 | 2.78% | 1.4% | $18,000 | $21.00 | $147.00 | $18.29 | $125.67 |
| 2008 | 3.98% | 2.0% | $18,000 | $30.00 | $177.00 | $26.24 | $151.91 |
| 2009 | -0.38% | 1.0% | $18,000 | $15.00 | $192.00 | $13.17 | $165.08 |
| 2010 | 2.31% | 1.2% | $18,000 | $18.00 | $210.00 | $15.86 | $180.94 |
| 2011 | 2.68% | 1.4% | $18,000 | $21.00 | $231.00 | $18.55 | $199.49 |
| 2012 | 2.65% | 1.4% | $18,000 | $21.00 | $252.00 | $18.59 | $218.08 |
| 2013 | 1.47% | 1.0% | $18,000 | $15.00 | $267.00 | $13.30 | $231.38 |
| 2014 | 1.51% | 1.0% | $18,000 | $15.00 | $282.00 | $13.32 | $244.70 |
| 2015 | -0.07% | 1.0% | $18,000 | $15.00 | $297.00 | $13.36 | $258.06 |
| 2016 | 0.85% | 1.0% | $18,000 | $15.00 | $312.00 | $13.36 | $271.42 |
| 2017 | 2.38% | 1.2% | $18,000 | $18.00 | $330.00 | $16.03 | $287.45 |
| 2018 | 2.36% | 1.2% | $18,000 | $18.00 | $348.00 | $16.02 | $303.47 |
| 2019 | 1.86% | 1.0% | $18,000 | $15.00 | $363.00 | $13.35 | $316.82 |
| 2020 | 1.54% | 1.0% | $18,000 | $15.00 | $378.00 | $13.35 | $330.17 |
| 2021 | 2.62% | 1.4% | $18,000 | $21.00 | $399.00 | $18.69 | $348.86 |
| 2022 | 8.54% | 3.0% | $18,000 | $45.00 | $444.00 | $40.02 | $388.88 |

**Consumer Price Index*

## DISTRIBUTION OF MONTHLY COLA INCREASE COMMENCING SEPTEMBER 2022

| Monthly COLA Increase | Number of Retired Members and Beneficiaries |
|---|---|
| $45.00 | 114,555 |
| $37.50 - $44.99 | 3,160 |
| $30.00 - $37.49 | 3,463 |
| $22.50 - $29.99 | 9,322 |
| $15.00 - $22.49 | 4,975 |
| $7.50 - $14.99 | 6,989 |
| $0.01 - $7.49 | 2,710 |
| $0 (currently ineligible) | 33,395 |
| **Total** | **178,569** |

## DISTRIBUTION OF CUMULATIVE MONTHLY COLA COMMENCING SEPTEMBER 2022

| Cumulative Monthly COLA | Number of Retired Members and Beneficiaries |
|---|---|
| $444.00 | 16,196 |
| $383.50 - $443.99 | 7,531 |
| $323.00 - $383.49 | 14,756 |
| $262.50 - $322.99 | 18,772 |
| $202.00 - $262.49 | 20,924 |
| $141.50 - $201.99 | 24,461 |
| $0.01 - $141.49 | 42,534 |
| $0 (currently ineligible) | 33,395 |
| **Total** | **178,569** |

## Financial Trends Information

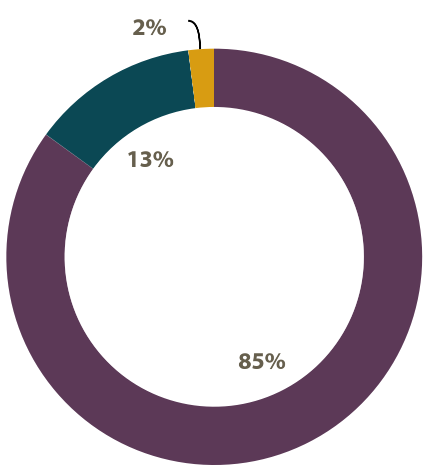
### CHANGES IN FIDUCIARY NET POSITION
Last Ten Fiscal Years
**(dollars in thousands)**

| **Additions:** | **2013** | **2014** | **2015** | **2016** | **2017** |
|---|---|---|---|---|---|
| Net investment income | $11,636,480 | $16,664,703 | $ 5,400,265 | $ 2,392,354 | $ 12,951,892 |
| Employer contributions | 1,734,908 | 2,400,386 | 2,633,682 | 2,046,562 | 1,857,359 |
| Member contributions | 128,903 | 120,762 | 119,411 | 124,587 | 129,770 |
| Transfers | 4,522 | 1,365 | 3,213 | 4,014 | 7,845 |
| Total additions | 13,504,813 | 19,187,216 | 8,156,571 | 4,567,517 | 14,946,866 |
| **Deductions:** (See Benefits and Return of Contributions by Type on Pages 144-145) | | | | | |
| Benefit payments | 6,118,849 | 6,324,546 | 6,513,931 | 6,701,637 | 6,903,361 |
| Return of contributions | 20,869 | 18,992 | 17,209 | 18,229 | 19,676 |
| Administrative expenses | 54,338 | 55,616 | 56,948 | 60,426 | 61,611 |
| Total deductions | 6,194,056 | 6,399,154 | 6,588,088 | 6,780,292 | 6,984,648 |
| **Change in fiduciary net position restricted for pensions** | $ 7,310,757 | $12,788,062 | $ 1,568,483 | $ (2,212,775) | $ 7,962,218 |

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

| Additions: | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Net investment income | $ 9,928,009 | $ 8,023,180 | $ 3,923,633 | $ 33,668,008 | $ (10,078,814) |
| Employer contributions | 1,597,139 | 1,774,646 | 1,504,688 | 1,618,437 | 1,735,255 |
| Member contributions | 131,595 | 136,610 | 145,034 | 159,874 | 190,853 |
| Transfers | 9,278 | 9,087 | 3,955 | 10,025 | 8,685 |
| Total additions | 11,666,021 | 9,943,523 | 5,577,310 | 35,456,344 | (8,144,021) |
| **Deductions:** (See Benefits and Return of Contributions by Type on Pages 144-145) | | | | | |
| Benefit payments | 7,088,949 | 7,285,362 | 7,484,462 | 7,717,521 | 7,961,870 |
| Return of contributions | 20,049 | 21,956 | 19,439 | 14,379 | 16,754 |
| Administrative expenses | 60,610 | 74,242 | 71,385 | 55,492 | 61,230 |
| Total deductions | 7,169,608 | 7,381,560 | 7,575,286 | 7,787,392 | 8,039,854 |
| **Change in fiduciary net position restricted for pensions** | $ 4,496,413 | $ 2,561,963 | $ (1,997,976) | $ 27,668,952 | $ (16,183,875) |

## BREAKDOWN OF INCOME SOURCES
Fiscal Years Ended 1993-2022




| | |
|---|---|
| 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 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|
| Age and service benefits: | | | | | |
| Retirees | $ 6,023,506 | $ 6,233,619 | $ 6,419,576 | $ 6,601,664 | $ 6,794,278 |
| Survivors | 32,879 | 28,918 | 31,888 | 34,051 | 41,662 |
| In-service death benefits | 23,666 | 21,634 | 20,730 | 22,801 | 23,606 |
| Disability benefits: | | | | | |
| Ordinary | 38,507 | 39,871 | 41,251 | 42,591 | 43,469 |
| Accidental | 291 | 504 | 486 | 530 | 346 |
| Total benefits | $ 6,118,849 | $ 6,324,546 | $ 6,513,931 | $ 6,701,107 | $ 6,903,015 |
| **Type of Return of Contributions** | | | | | |
| Death | $ 2,434 | $ 2,325 | $ 2,350 | $ 3,011 | $ 3,061 |
| Separation from service | 18,435 | 16,667 | 14,859 | 15,218 | 16,615 |
| Total return of contributions | $ 20,869 | $ 18,992 | $ 17,209 | $ 18,229 | $ 19,676 |

## BENEFITS AND RETURN OF CONTRIBUTIONS BY TYPE *(continued)*
Last Ten Fiscal Years

**(dollars in thousands)**

| Type of Benefit | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| Age and service benefits: | | | | | |
| Retirees | $ 6,978,694 | $ 7,179,640 | $ 7,375,088 | $ 7,614,539 | $ 7,847,887 |
| Survivors | 35,234 | 40,775 | 38,101 | 35,205 | 44,429 |
| In-service death benefits | 29,845 | 21,339 | 25,873 | 22,366 | 22,184 |
| Disability benefits: | | | | | |
| Ordinary | 44,828 | 43,256 | 45,045 | 45,055 | 46,963 |
| Accidental | 348 | 352 | 355 | 356 | 407 |
| Total benefits | $ 7,088,949 | $ 7,285,362 | $ 7,484,462 | $ 7,717,521 | $ 7,961,870 |
| **Type of Return of Contributions** | | | | | |
| Death | $ 3,211 | $ 2,865 | $ 3,215 | $ 2,497 | $ 3,167 |
| Separation from service | 16,838 | 19,091 | 16,224 | 11,882 | 13,587 |
| Total return of contributions | $ 20,049 | $ 21,956 | $ 19,439 | $ 14,379 | $ 16,754 |

## Operating Information

# AVERAGE BENEFIT PAYMENTS — JULY 1, 2012 – JUNE 30, 2022

| | Years of Credited Service | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Retirement Effective Dates** | **0-5** | **5-10** | **10-15** | **15-20** | **20-25** | **25-30** | **30-35** | **35+** |
| **Period 7/1/2012 to 6/30/2013** | | | | | | | | |
| Average monthly benefit | $201 | $326 | $782 | $1,513 | $2,721 | $3,910 | $5,285 | $7,061 |
| Average final average salary | $33,171 | $34,780 | $47,730 | $62,797 | $76,501 | $89,200 | $100,095 | $110,455 |
| Number of retired members | 48 | 501 | 705 | 452 | 1,061 | 954 | 1,709 | 900 |
| **Period 7/1/2013 to 6/30/2014** | | | | | | | | |
| Average monthly benefit | $221 | $367 | $837 | $1,571 | $2,836 | $4,140 | $5,275 | $7,305 |
| Average final average salary | $41,966 | $38,623 | $51,493 | $65,104 | $80,215 | $93,124 | $100,079 | $115,852 |
| Number of retired members | 47 | 484 | 649 | 562 | 1,133 | 1,161 | 1,778 | 733 |
| **Period 7/1/2014 to 6/30/2015** | | | | | | | | |
| Average monthly benefit | $255 | $306 | $842 | $1,543 | $2,879 | $4,163 | $5,277 | $6,887 |
| Average final average salary | $35,508 | $33,815 | $51,353 | $64,139 | $82,057 | $92,745 | $100,927 | $110,667 |
| Number of retired members | 37 | 400 | 615 | 521 | 1,081 | 1,255 | 1,660 | 592 |
| **Period 7/1/2015 to 6/30/2016** | | | | | | | | |
| Average monthly benefit | $188 | $321 | $873 | $1,532 | $2,873 | $4,280 | $5,353 | $6,907 |
| Average final average salary | $35,355 | $34,747 | $51,987 | $63,932 | $81,515 | $94,402 | $102,221 | $112,592 |
| Number of retired members | 32 | 491 | 589 | 582 | 1,079 | 1,223 | 1,676 | 573 |
| **Period 7/1/2016 to 6/30/2017** | | | | | | | | |
| Average monthly benefit | $120 | $329 | $868 | $1,645 | $2,871 | $4,282 | $5,452 | $7,076 |
| Average final average salary | $23,555 | $35,957 | $52,383 | $66,494 | $81,188 | $94,415 | $104,070 | $115,549 |
| Number of retired members | 117 | 457 | 569 | 565 | 1,079 | 1,185 | 1,864 | 560 |
| **Period 7/1/2017 to 6/30/2018** | | | | | | | | |
| Average monthly benefit | $119 | $335 | $854 | $1,665 | $2,960 | $4,499 | $5,433 | $7,112 |
| Average final average salary | $29,014 | $36,702 | $51,465 | $68,612 | $83,811 | $98,562 | $103,842 | $116,274 |
| Number of retired members | 51 | 493 | 567 | 581 | 1,173 | 1,088 | 1,921 | 542 |
| **Period 7/1/2018 to 6/30/2019** | | | | | | | | |
| Average monthly benefit | $172 | $329 | $813 | $1,733 | $2,972 | $4,406 | $5,518 | $7,006 |
| Average final average salary | $39,231 | $35,270 | $51,300 | $70,026 | $84,394 | $96,529 | $105,222 | $115,394 |
| Number of retired members | 55 | 516 | 582 | 657 | 1,250 | 1,177 | 2,124 | 529 |
| **Period 7/1/2019 to 6/30/2020** | | | | | | | | |
| Average monthly benefit | $136 | $364 | $838 | $1,684 | $2,903 | $4,449 | $5,623 | $7,062 |
| Average final average salary | $30,831 | $38,777 | $50,970 | $67,553 | $82,646 | $98,885 | $107,546 | $117,306 |
| Number of retired members | 39 | 423 | 562 | 718 | 1,455 | 1,255 | 2,499 | 691 |
| **Period 7/1/2020 to 6/30/2021** | | | | | | | | |
| Average monthly benefit | $213 | $399 | $819 | $1,586 | $2,868 | $4,375 | $5,702 | $7,273 |
| Average final average salary | $41,885 | $39,264 | $49,996 | $63,726 | $81,929 | $98,964 | $109,407 | $120,727 |
| Number of retired members | 20 | 305 | 520 | 710 | 1,551 | 1,378 | 2,466 | 667 |
| **Period 7/1/2021 to 6/30/2022** | | | | | | | | |
| Average monthly benefit | $166 | $363 | $843 | $1,736 | $2,903 | $4,429 | $5,846 | $7,247 |
| Average final average salary | $33,158 | $39,216 | $51,881 | $69,624 | $83,482 | $100,211 | $112,474 | $120,833 |
| Number of retired members | 30 | 380 | 464 | 717 | 1,547 | 1,145 | 2,262 | 590 |

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## RETIRED MEMBERS AND BENEFICIARIES BY TYPE OF BENEFIT
— as of June 30, 2022

| Amount of Monthly Benefit | Number of Retired Members | Type of Retirement 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| **$1 - $500** | 13,924 | 7,125 | 6,307 | 94 | 310 | 19 | 69 |
| **$501 - $1,000** | 12,870 | 6,342 | 5,738 | 327 | 395 | 58 | 10 |
| **$1,001 - $1,500** | 10,586 | 6,458 | 3,235 | 407 | 413 | 65 | 8 |
| **$1,501 - $2,000** | 9,916 | 6,374 | 2,622 | 396 | 475 | 48 | 1 |
| **$2,001 - $2,500** | 10,765 | 7,430 | 2,438 | 315 | 547 | 33 | 2 |
| **$2,501 - $3,000** | 11,518 | 8,582 | 2,077 | 214 | 624 | 17 | 4 |
| **$3,001 - $3,500** | 13,509 | 11,052 | 1,613 | 133 | 699 | 11 | 1 |
| **$3,501 - $4,000** | 16,565 | 14,601 | 1,226 | 78 | 655 | 4 | 1 |
| **$4,001 - $4,500** | 17,662 | 16,088 | 876 | 45 | 642 | 8 | 3 |
| **$4,501 - $5,000** | 15,056 | 13,932 | 554 | 19 | 550 | 1 | 0 |
| **over $5,000** | 46,198 | 44,016 | 882 | 20 | 1,276 | 2 | 2 |
| **Total** | **178,569** | **142,000** | **27,568** | **2,048** | **6,586** | **266** | **101** |

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, in-service death benefit

**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 *(continued)*

— as of June 30, 2022

| Amount of Monthly Benefit | Number of Retired Members | Option Selected | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 |
| **$1 - $500** | 13,924 | 10,717 | 768 | 1,103 | 602 | 316 | 418 |
| **$501 - $1,000** | 12,870 | 9,418 | 843 | 1,580 | 519 | 182 | 328 |
| **$1,001 - $1,500** | 10,586 | 7,470 | 727 | 1,607 | 406 | 154 | 222 |
| **$1,501 - $2,000** | 9,916 | 6,884 | 783 | 1,640 | 301 | 137 | 171 |
| **$2,001 - $2,500** | 10,765 | 7,390 | 881 | 1,896 | 323 | 108 | 167 |
| **$2,501 - $3,000** | 11,518 | 7,729 | 991 | 2,201 | 285 | 133 | 179 |
| **$3,001 - $3,500** | 13,509 | 9,008 | 1,179 | 2,659 | 341 | 79 | 243 |
| **$3,501 - $4,000** | 16,565 | 10,840 | 1,274 | 3,672 | 380 | 104 | 295 |
| **$4,001 - $4,500** | 17,662 | 11,224 | 1,383 | 4,258 | 372 | 78 | 347 |
| **$4,501 - $5,000** | 15,056 | 9,219 | 1,307 | 3,821 | 298 | 63 | 348 |
| **over $5,000** | 46,198 | 26,303 | 4,392 | 12,968 | 886 | 125 | 1,524 |
| **Total** | **178,569** | **116,202** | **14,528** | **37,405** | **4,713** | **1,479** | **4,242** |

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 2022 | Covered Employees | Rank | Percentage of Total System** |
|---|---|---|---|
| Buffalo Public Schools | 4,478 | 1 | 1.70% |
| Rochester City School District | 3,503 | 2 | 1.33% |
| Syracuse City School District | 2,964 | 3 | 1.12% |
| Yonkers Public Schools | 2,147 | 4 | 0.81% |
| Brentwood Union Free Schools | 1,818 | 5 | 0.69% |
| Greece Central Schools | 1,389 | 6 | 0.53% |
| Sachem City School District | 1,355 | 7 | 0.51% |
| Newburgh Central Schools | 1,322 | 8 | 0.50% |
| Albany City School District | 1,212 | 9 | 0.46% |
| Clarkstown Central Schools | 1,193 | 10 | 0.45% |
| All Other* | 242,094 + | | 91.88% |
| **Total** | **263,475 +** | | **100.00%** |

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

All Other Participating Employers:

| Type | Number | Covered Employees |
|---|---|---|
| Public School Districts | 669 | 220,451 + |
| Boards of Cooperative Educational Services (BOCES) | 37 | 13,658 |
| SUNY | 31 | 2,491 |
| Community Colleges | 30 | 2,543 |
| Charter Schools | 27 | 2,141 |
| Special Act Districts | 9 | 473 |
| Other | 9 | 337 |
| **Total All Other** | **812** | **242,094 +** |

*+ 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 2013 | Covered Employees | Rank | Percentage of Total System** |
|---|---|---|---|
| Buffalo Public Schools | 4,613 | 1 | 1.69% |
| Rochester City School District | 4,037 | 2 | 1.48% |
| Syracuse City School District | 2,669 | 3 | 0.98% |
| Yonkers Public Schools | 1,993 | 4 | 0.73% |
| Brentwood Union Free Schools | 1,755 | 5 | 0.64% |
| Sachem Central Schools | 1,520 | 6 | 0.56% |
| Greece Central Schools | 1,444 | 7 | 0.53% |
| Newburgh City School District | 1,313 | 8 | 0.48% |
| Wappingers Central Schools | 1,239 | 9 | 0.45% |
| Clarkstown Central Schools | 1,229 | 10 | 0.45% |
| All Other | 251,516 + | | 92.02% |
| **Total** | **273,328** + | | **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
10 Corporate Woods Drive
Albany, NY 12211-2395
(800) 348-7298 ◆ NYSTRS.org