



# Comprehensive Annual Financial Report

Fiscal Years Ended  
June 30, 2020 and June 30, 2019



TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
A FIDUCIARY FUND OF THE CITY OF NEW YORK

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**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
A FIDUCIARY FUND OF THE CITY OF NEW YORK**

**COMPREHENSIVE ANNUAL FINANCIAL REPORT  
FOR FISCAL YEARS ENDED JUNE 30, 2020 AND JUNE 30, 2019**

Prepared by Accounting Units for the

**QUALIFIED PENSION PLAN  
and  
TAX-DEFERRED ANNUITY PROGRAM**

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Teachers' Retirement System

**Ms. SHERRY S. CHAN**

Chief Actuary

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**

55 Water Street, New York, NY 10041

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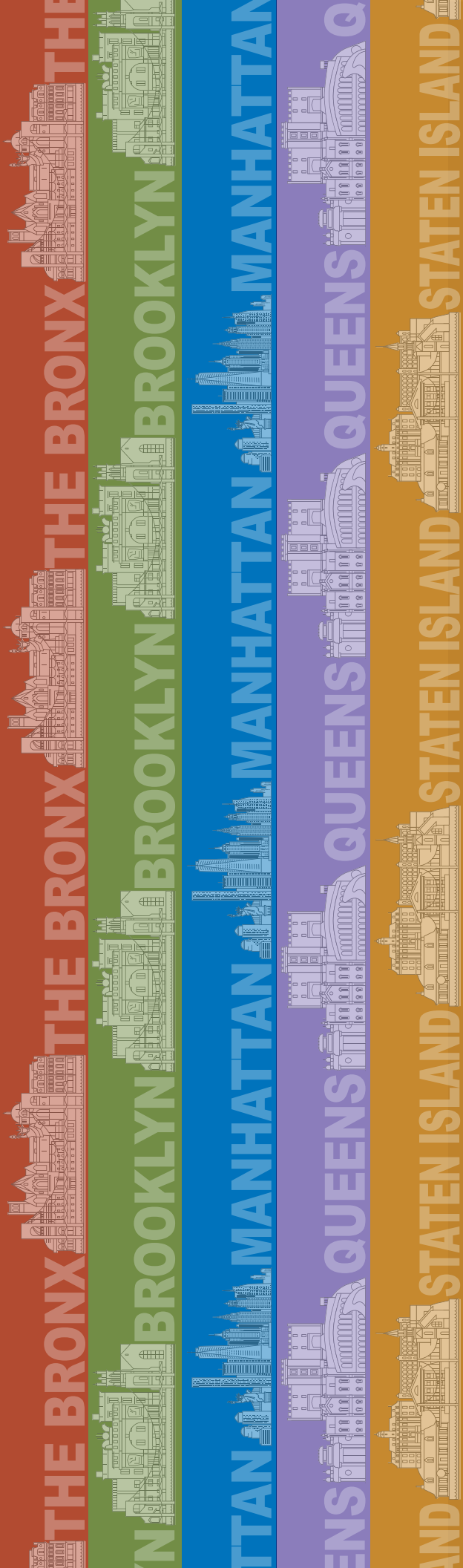
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# Introductory Section

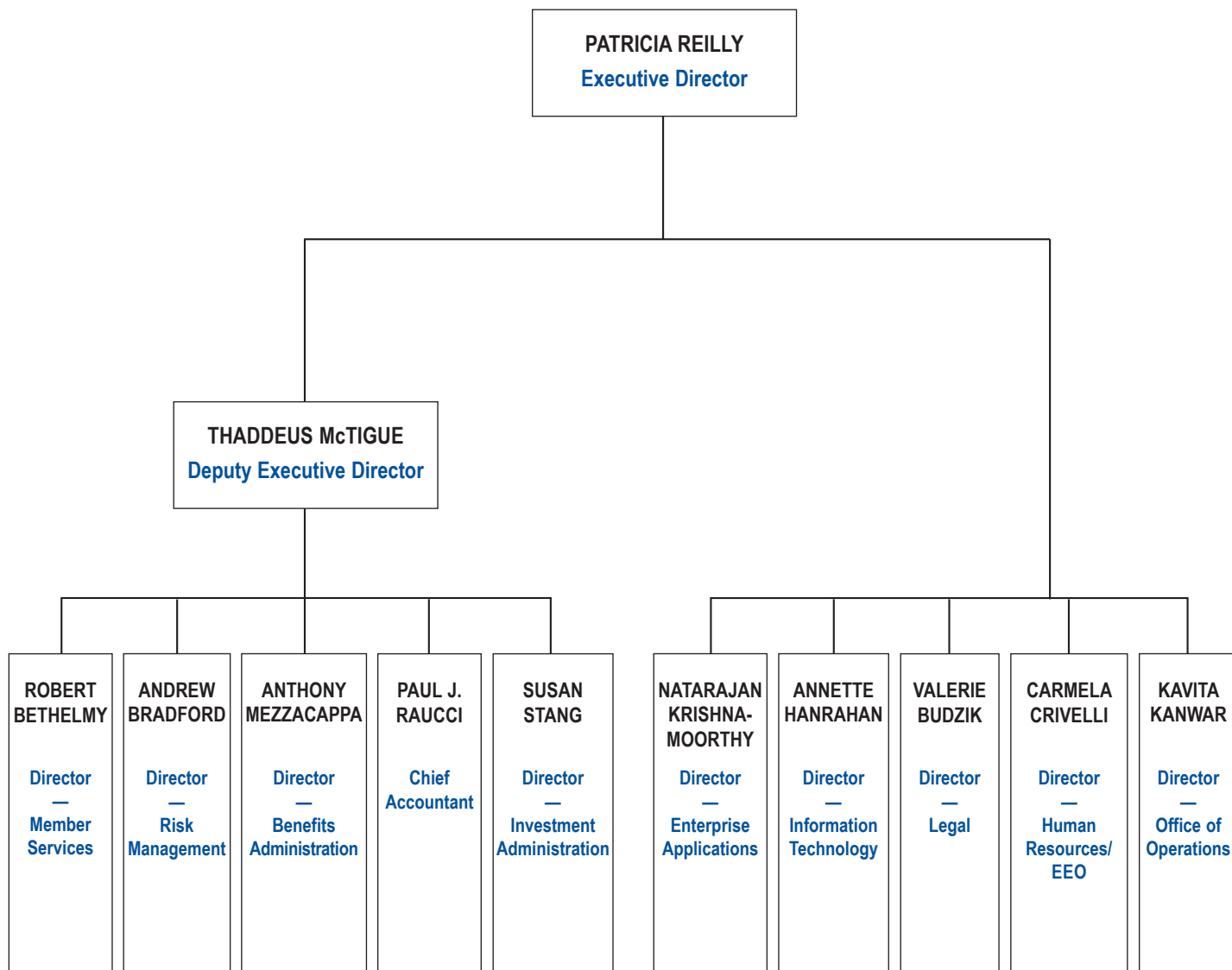


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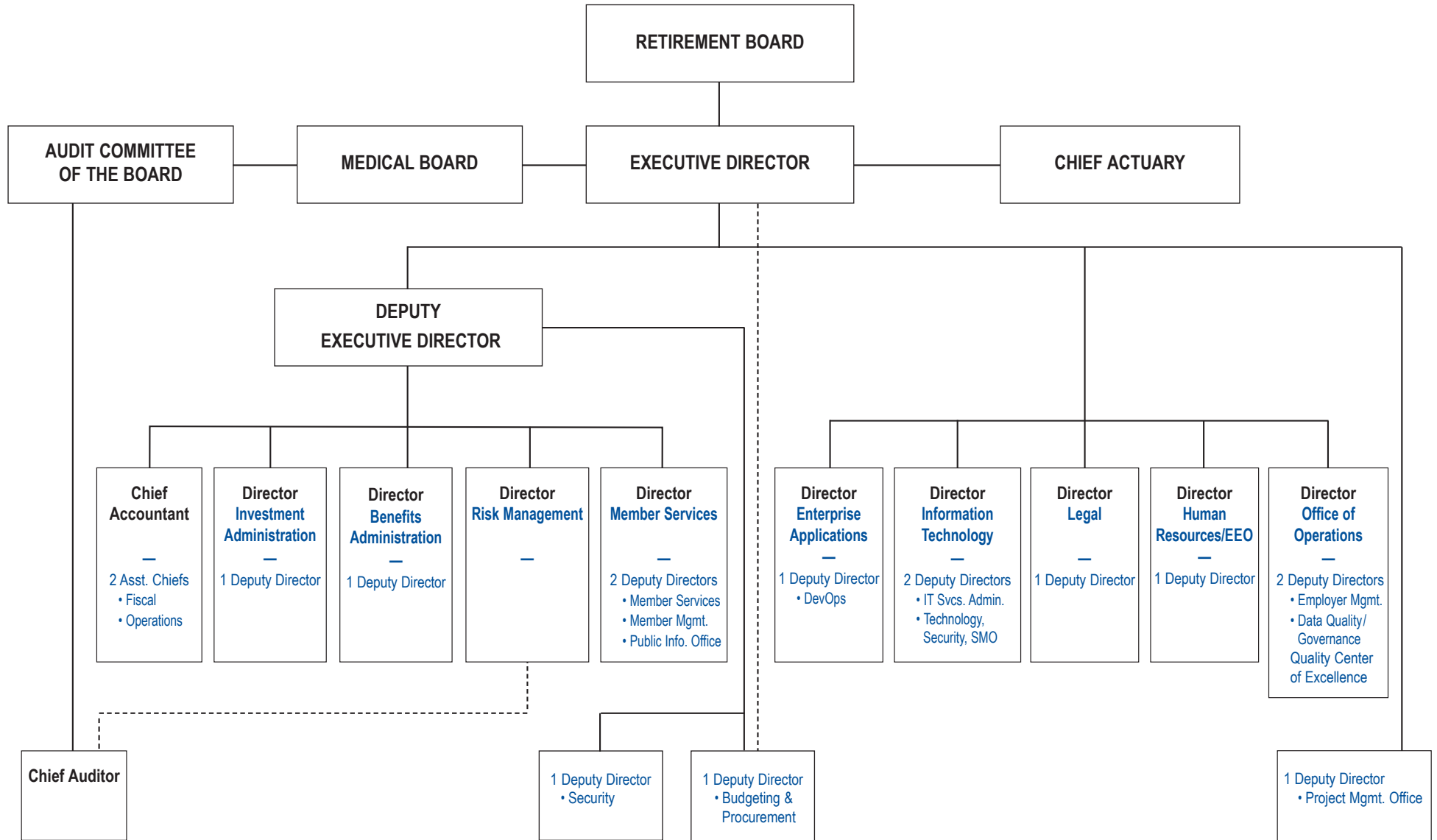
## PRINCIPAL OFFICIALS

as of June 30, 2020



# ORGANIZATION CHART

as of June 30, 2020





Government Finance Officers Association

Certificate of  
Achievement  
for Excellence  
in Financial  
Reporting

Presented to

**Teachers' Retirement System  
of the City of New York  
New York**

For its Comprehensive Annual  
Financial Report  
For the Fiscal Year Ended

June 30, 2019

*Christopher P. Morill*

Executive Director/CEO



**December 21, 2020**

Dear Members of the Board of Trustees:

We are pleased to present the Comprehensive Annual Financial Report of the Teachers' Retirement System of the City of New York (TRS) for the fiscal year ended June 30, 2020.

TRS was established as of August 1, 1917 under Chapter 303 of the Laws of 1917 and is governed by the Administrative Code of the City of New York and the New York State Retirement and Social Security Law.

TRS' pension plan became a tax-qualified retirement plan under Section 401(a) of the Internal Revenue Code (IRC) and is now known as our Qualified Pension Plan (QPP). The QPP is a cost-sharing, multiple employer defined-benefit pension plan. The QPP provides pension benefits to all the teachers and administrative personnel employed by the Department of Education and certain employees of New York City Charter Schools and the City University of New York.

TRS' Tax-Deferred Annuity (TDA) Program was established and is administered pursuant to IRC Section 403(b) and NYC Administrative Code section 13-582, and became effective February 1, 1970. The TDA Program is a voluntary defined-contribution savings option available to TRS members.

### **Member Profile**

Our programs impact approximately 215,000 in-service members, retirees, and beneficiaries. Our membership includes individuals of varying ages, membership tiers, and employment status. And although many TRS members are currently in active service, over 40% of them have retired. As of June 30, 2020, there were approximately 125,000 in-service members and approximately 90,000 retired members and beneficiaries receiving monthly benefits.

### **Participating Employers**

The participating employers that share the cost of the defined-benefit QPP plan are the New York City Department of Education (DOE), City University of New York (CUNY), and certain New York City Charter Schools that offer TRS benefits to their employees. Employees who become TRS members may participate in the TDA Program in addition to the QPP plan.

### **Initiatives**

During this fiscal year, TRS adjusted the Passport Funds, our suite of investment options for members, as we closed one fund and introduced two more. On our ongoing modernization initiative, we continued development and testing on future phases, while providing production support and enhancements on features introduced in the previous year.

In March 2020, the COVID-19 pandemic forced us to begin operating remotely. We quickly made operational changes and service enhancements, such as introducing electronic retirement filing in time for the June retirement rush. We also implemented two major pieces of legislation related to the pandemic: the federal CARES Act, which gave members easier access to their TRS retirement funds through temporary loan and withdrawal provisions; and the New York State COVID-19 Accidental Death Benefit Law, which treats certain COVID-caused deaths as line-of-duty deaths.

## Financial Statements

The financial statements and notes along with Management's Discussion and Analysis in this report present and analyze the changes in TRS fiduciary net position for the fiscal year ended June 30, 2020. Since markets are dynamic and fluid, any judgment of the financial statements should also consider current market conditions.

## Funding

The Qualified Pension Plan's (QPP) funding objective is to meet long-term benefit promises through employer and member contributions, together with investment earnings. Annual funding by employer contributions is determined through an actuarial valuation of all liabilities to the QPP with adjustments to allow for an incremental phase-in of newly assumed actuarial liabilities. As such, employer contributions have been increasing steadily in line with current membership liabilities.

The QPP's funding ratios are also developed as part of the QPP's actuarial valuation. The funding ratios are determined at specific points in time, are usually expressed in various relationships of assets to obligations, and, over time, can provide insight into the long-term financial trend of the QPP.

One measure of the QPP's funded status, the ratio of Actuarial Asset Value to the Entry Age Normal Actuarial Accrued Liability, determined as of June 30, 2018, is 69.3%. Please refer to the report's Actuarial Section for a detailed discussion of the Plan's measures of funded status.

Under Governmental Accounting Standards Board (GASB) Statement No. 67, *Financial Reporting for Pension Plans*, a defined-benefit pension plan is also required to report fiduciary net position as a percentage of the plan's total pension liability. This method reports assets at current fair value and, as such, is more sensitive to market volatility. As of June 30, 2020, the Qualified Pension Plan's fiduciary net position represents 79.0% of the QPP's total pension liability.

Funds needed to finance the QPP's long-term benefit are accumulated through the collection of employer and member contributions and through income from investments. Primary expenses include benefit and survivor payments as well as investment and administrative expenses, and refunds of contributions to terminated employees. An overview of revenue and expenses, as well as asset and liability information, is provided in the Management's Discussion and Analysis portion of the Financial Section.

## Management Responsibility for Financial Reporting and Internal Controls

The financial statements were prepared in accordance with accounting principles generally accepted in the United States of America and GASB pronouncements. Management is responsible for the integrity and fairness of the information presented in the financial statements, including data that, out of necessity, is based on estimates and judgments. Management is also responsible for establishing and maintaining an effective internal control structure. A system of internal controls provides reasonable, but not absolute, assurance that assets are properly safeguarded and that financial statements are reliable. The concept of reasonable assurance recognizes that first, the cost of a control should not exceed the benefits likely to be derived, and second, the valuation of the cost and benefits requires estimates and judgments by management. We believe that the internal controls currently in place support this purpose, and that the financial statements, accompanying schedules, and statistical tables are fairly presented in all material respects.

## Investments

Assets of the QPP and the TDA Program are invested together in the following investment funds: the Pension Fund, the Diversified Equity Fund, the Balanced Fund (formerly the Bond Fund), the International Equity Fund, the Sustainable Equity Fund (formerly Socially Responsive Equity Fund), the U.S. Equity Index Fund, and the International Equity Index Fund. (Note: The Inflation Protection Fund was discontinued as of April 1, 2020.) The performance summary for Fiscal Year 2020 follows:

## Rate of Return by Fund—Fiscal Year 2020

Fund	ROR	Gross vs. Net Returns
Pension	4.89%	Net of Fees
Variable Fund	ROR	Gross vs. Net Returns
Diversified Equity Fund	2.44%	Net of Fees
Balanced Fund	4.35%	Net of Fees
International Equity Fund	-2.91%	Net of Fees
Sustainable Equity Fund*	23.38%	Net of Fees
U.S. Equity Index Fund**	N/A	Net of Fees
International Equity Index Fund**	N/A	Net of Fees

\*As of October 1, 2019, the Socially Responsive Equity Fund became the Sustainable Equity Fund.

\*\*The U.S. Equity Index Fund and the International Equity Index Fund were established as of January 1, 2020, and thus there is no 1-year actual performance figure available. For the six-month period since inception, the U.S Equity Index Fund and the International Equity Index Fund returned 10.35% and 3.57%, respectively.

Note: The Inflation Protection Fund was discontinued as of April 1, 2020, and the ROR Fiscal Year YTD return is -12.46%.

For Funds other than the Pension Fund, members' accounts are valued on a monthly basis based on unit values. The unit values are based on each Fund's closing market value as of the end of the preceding month and are comparable to shares in mutual funds. TRS members who invest in these variable-return funds purchase units with their contributions.

The following table showing July unit values for 2020 and 2019 was based on the performance of the variable-return funds as of June 30. In addition to the changes in unit values, members' accounts are credited with a 4% increment factor increasing the number of units they hold, and their accounts are similarly discounted to offset this increase.

## Unit Values for Fiscal Years 2020 and 2019

Variable Fund	Unit Value July 2020	Unit Value July 2019
Diversified Equity Fund	\$96.973	\$98.450
Balanced Fund	\$16.302	\$16.248
International Equity Fund	\$10.042	\$10.756
Inflation Protection Fund*	N/A	\$10.079
Sustainable Equity Fund**	\$20.889	\$17.608
U.S. Equity Index Fund***	\$10.820	N/A
International Equity Index Fund***	\$10.157	N/A

\*Discontinued as of April 1, 2020.

\*\*As of October 1, 2019, the Socially Responsive Equity Fund became the Sustainable Equity Fund.

\*\*\*New fund as of January 1, 2020.

The Administrative Code of the City of New York authorizes the investments of plan assets subject to the terms, conditions, limitations, and restrictions imposed by law. The New York State Retirement and Social Security Law and the Administrative Code establish the criteria for permissible equity investments. Plan assets are diversified over a range of investments, and multiple investment strategies are used to limit risk. Details concerning the criteria for TRS' investments may be found in the Notes to the Financial Statements. A detailed discussion of TRS' investment strategies, asset classes, and yield information is provided in the report's Investment Section.

## Actuarial Reports

The Actuarial Section contains the Actuary's certification letter, the actuary's statements, a summary of actuarial assumptions, and the actuarial tables. The actuarial valuation provides a picture of the overall funding health of the QPP.

## Statistical Reports

Past and current data are contained in this section. The section includes tables that reflect the net position and demographic characteristics of the QPP and the TDA Program. Also captured in the tables, when applicable, is information comparing ten years of data. This look back shows overall trends in our programs and membership demographics that help to accurately forecast our future ability to meet our members' retirement needs.

## Independent Audit & Professional Services

State statutes require an annual audit by independent certified public accountants. TRS' auditor, Grant Thornton LLP, provides an Independent Auditor's Report on the financial statements and schedules in the Financial Section of this Report.

Investment professionals are appointed under the direction of the Teachers' Retirement Board. Investment administration services for the TRSNYC Pension Fund are provided by the New York City Office of the Comptroller. Investment administration services for TRS's Variable-Return Funds are performed by TRS. The Office of the Comptroller and TRS hire consultants and other investment professionals to perform additional investment services. The Summary of Investment Managers and Fee and the Schedule of Payments of Commissions to Brokers, can be found starting on pages 105 and 112, respectively.

Legal services to TRS are provided by the City's Corporation Counsel and Groom Law Group.

Actuarial services are provided by the Office of the Actuary of the City of New York, which is employed by the City's five major pension systems.

## Awards

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to TRS for its Comprehensive Annual Financial Report for the Fiscal Year ended June 30, 2019. This was the 32<sup>nd</sup> consecutive year that TRS was accorded this prestigious award. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized Comprehensive Annual Financial Report. This report must satisfy both the generally accepted accounting principles and the applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that our current comprehensive annual financial report continues to meet the Certificate of Achievement Program's requirements, and we are submitting it to the GFOA for its consideration.

## Acknowledgements

The compilation of the Report reflects the efforts of the TRS staff under the leadership of the Board of Trustees. It is intended to provide complete and reliable information as a basis for making management decisions, as a means of determining compliance with legal provisions, and as a means for determining responsible stewardship for the assets contributed by the members and their employers.

Finally, we would like to take this opportunity to express our gratitude to the staff, the advisors, and the many people who have worked diligently to ensure the successful operation of TRS.

Sincerely,



Patricia M. Reilly  
Executive Director



Paul J. Raucci  
Chief Accountant

## SUMMARY OF PLAN PROVISIONS

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## SUMMARY OF PLAN PROVISIONS

TRS' principal benefit provisions correspond to the tier structure established by applicable New York State Law<sup>1</sup>.

### **Tiers III, IV, VI**

Members with a date of membership of July 27, 1976 or later are covered by the following provisions:

#### **SERVICE RETIREMENT**

##### ***Normal Service Retirement***

##### **Eligibility:**

A member is eligible to retire at age 62 (age 63 for Tier VI) with immediate payability after 5 or more years of service (10 or more years of service for Tier VI and for members represented by the UFT, joining after December 10, 2009 under the 55/27 plan).

Current members as of February 27, 2008 (excluding CUNY employees) were provided a 180-day period during which they were allowed to join a plan that permitted them to retire at age 55 and later with immediate payability and without reduction after 25 years of service, provided they pay an additional 1.85% of future pay, subject to contribution obligations.

After February 27, 2008, new members (excluding CUNY employees) are eligible to retire at age 55 and later with immediate payability and without reduction after 27 years of service and are required to pay an additional 1.85% of future pay, subject to contribution obligations.

After December 10, 2009, new members in a position represented by the UFT under the 55/27 retirement program are required to make contributions of 4.85% of salary until they have 27 years of credited service and contributions of 1.85% of salary thereafter.

After March 31, 2012, new Tier VI members are required to make contributions in amounts ranging from 3% to 6% per annum, based on annual wages earned during a "plan year," originally defined as April 1 to March 31, but amended to January 1 to December 31 as of January 1, 2016.<sup>2</sup>

##### **Benefits:**

- (1) For a member with fewer than 20 years of service, the benefit is 1.67% times FAS<sup>3</sup> multiplied by years of service.
- (2) For a member with at least 20 (Tier VI) but fewer than 30 years of service (Tier III/IV), the benefit is 2% times FAS multiplied by years of service (Tier III/IV) or 35% plus 2% times FAS multiplied by each additional year exceeding 20 years of service (Tier VI).
- (3) For a member with 30 or more years of service, the benefit is 2% times FAS for each of the first 30 years of service plus 1.5% times FAS for each additional year (Tier III/IV).

##### ***Early Service Retirement***

##### **Eligibility:**

A member is eligible to retire at age 55 or later with immediate payability, after 5 or more years of service (10 or more years for Tier VI and for members represented by the UFT joining on or after December 10, 2009 under the 55/27 plan).

<sup>1</sup> Chapter 274 of the Laws of 1970 (Tiers I/II), as restricted by RSSL Article 11; RSSL Articles 14 and 15 (Tiers III/IV); Chapter 18 of the Laws of 2012 (Tier VI).

<sup>2</sup> For the first three plan years of membership, TRS uses projected annual earnings provided by the employer(s) to determine the contribution rates. For the fourth plan year of membership and each plan year thereafter, TRS uses the actual wages earned two plan years prior to the current plan year.

<sup>3</sup> Final Average Salary (FAS) is the average earned during any three consecutive years (any five consecutive years for Tier VI) providing the highest average salary. However, if salary earned during any year included in the three-year period (five-year period for Tier VI) exceeds the average of the previous two years by more than 10%, the amount in excess of 10% will be excluded.

**Benefits:**

The pension is calculated similarly to the pension of a Normal Service Retirement, but it is reduced as follows:

- (1) For a Tier III/IV member who retires prior to age 62 with less than 30 years of service and is not a member of an Age 55 Plan, his/her pension for service is reduced by 0.5% for each of the first 24 months that the payability date precedes age 62, and by 0.25% for each additional month.
- (2) A Tier III/IV member with 30 or more years of service receives no reduction in benefits because of early retirement.
- (3) For a Tier VI member who retires prior to age 63, the retirement allowance is reduced by 6.5% per year.

***Deferred Vested Benefit***

**Eligibility:**

A member who has 5 or more years of credited service upon termination of employment (10 or more years under Tier VI, and for members represented by the UFT under the 55/27 plan who joined on or after December 10, 2009) is entitled to a deferred vested benefit payable at age 55 or later. A member who elects payability before age 62 (age 63 for Tier VI) will receive a reduced benefit unless they have 30 years of service under Tier III/IV or meet the eligibility requirements of their retirement plan.

**Benefits:**

The benefit formulas are the same as those set forth under a Normal Service Retirement and an Early Service Retirement.

**DISABILITY RETIREMENTS**

***Ordinary Disability Retirement***

**Eligibility:**

A member is eligible for Ordinary Disability Retirement benefits if (s)he has completed 10 or more years of service and is incapacitated for performance of gainful employment. If the disability is judged to be the result of an accident in the performance of duty, the 10-year requirement is waived.

**Benefits:**

The benefit is the greater of: (a) 33.33% of FAS (66.67% of FAS for a member if the disability is judged to be the result of an accident in the performance of duty); or (b) 1.67% times FAS multiplied by the credited service.

A lump-sum disability benefit equals the in-service death benefit amount for members with: a terminal illness with a life expectancy of one year or less; or (b) a medical condition of a long, continued, and indefinite duration requiring extraordinary care and treatment, regardless of life expectancy.

***Accident Disability Retirement***

**Eligibility:**

A member is entitled to an accident disability retirement allowance upon the occurrence of a disability caused by an accident in the actual performance of duty.

**Benefits:**

The retirement allowance will consist of a pension equal to 66.67% (60% under Tier III) of FAS.

## DEATH BENEFITS

### *Ordinary Death Benefits*

#### **Benefits:**

For members joining TRS after January 1, 2001, Death Benefit #2 below would be payable if a member dies before retirement. For members joining prior to that date, the greater of the two death benefits described below would be payable.

#### **Death Benefit 1:**

This benefit provides one month's salary for each year of service up to a maximum of three years' salary. If the member would have been eligible to receive an unreduced retirement allowance at the time of his/her death, the benefit is a lump sum that is actuarially equivalent to the retirement allowance which would have been payable had the member retired on the day before his/her death, if greater.

#### **Death Benefit 2:**

This benefit provides one year's salary for each year of service up to a maximum of three years' salary after three years of service. The benefits reduce after age 60 at the rate of 5% per year, to a maximum reduction of 50% of the benefit in effect at age 60.

A benefit is also payable upon death after retirement and is expressed as follows:

- If death occurs in the first year after retirement, 50% of the benefit in force immediately before retirement.
- If death occurs in the second year following retirement, 25% of the benefit in force immediately before retirement.
- If death occurs subsequently, 10% of the benefit in force at age 60 or immediately before retirement if retirement was earlier than age 60.

If retirement occurs after age 60, the minimum death benefit payable after retirement is 10% of the death benefit in force at age 60.

The death benefit for a vested member with at least 10 years of credited service, who died while inactive before retirement, is equal to 50% of the death benefit that would have been payable had the member died on their last day of active service, in addition to a refund of the member contributions.

The Rules and Regulations adopted by the Teachers' Retirement Board in accordance with Chapter 581 of the Laws of 1970 provide that the first \$50,000 of each benefit on account of death in active service is payable from the Group Term Life Insurance Plan. Only the amount in excess of \$50,000, if any, is payable by TRS.

#### **Beneficiaries:**

The latest named beneficiary, duly designated with TRS, will receive the death benefits. If there is no eligible beneficiary on file, the benefits will be paid to the member's estate.

### *Accidental Death Benefits*

#### **Eligibility:**

A beneficiary is entitled to the benefit if the member died before the effective date of retirement as a natural and proximate result of an accident sustained in the performance of duty, and if the accident was not caused by the member's willful negligence.

**Benefits:**

Benefits are payable to “eligible beneficiaries,” as defined by law. The beneficiary receives a benefit equal to 50% of the wages the member earned during the last year of actual service. If there is no eligible beneficiary on file, the benefits will be paid to the member’s estate.

**Special Provisions:**

An Accidental Death Benefit (resulting from a qualifying World Trade Center-related condition or COVID-19, as defined in law) is payable to the eligible beneficiary(ies).

## **Tiers I, II**

Members with a date of membership before July 27, 1976 are covered by the following provisions:

### **SERVICE RETIREMENT**

#### ***Twenty-Year Pension Plan***

**Eligibility:**

- (1) A Tier I member who elects the Twenty-Year Pension Plan is eligible to retire after having completed 20 years of service, with benefits to begin on the latter of: a) the day they cease active employment, b) age 55, or c) the date they could have completed 25 years of service had they remained active. Regardless of the number of years of service, such a member who has elected the Twenty-Year Pension Plan and who is at least 55 years of age may retire with benefits payable immediately by canceling his/her election of the Twenty-Year Pension Plan, thereby becoming eligible for the benefits under the Age-55-Increased-Benefits Pension Plan.
- (2) A member who joined TRS under Tier II must also have rendered five years of continuous service immediately prior to retiring and must have attained age 55.

**Benefits:**

The service retirement allowance for a Tier I member is the sum of the following:

- (1) 50% of the average salary<sup>4</sup>, reduced by an annuity which is the actuarial equivalent of the minimum accumulation<sup>5</sup>;
- (2) an annuity which is the actuarial equivalent of the accumulated contributions; and
- (3) for service in excess of 20 years, (a) a pension for Increased-Take-Home-Pay<sup>6</sup> which is the actuarial equivalent of the Reserve for Increased-Take-Home-Pay credited in such years, and 1.2% of the average salary for each such year prior to July 1, 1970 and 1.7% of the average salary for each such year beginning on that date.

If a Tier II member retires prior to age 62 with less than 30 years of service, his/her pension for service is reduced by 0.5% for each of the first 24 months that the payability date precedes age 62, and by 0.25% for each additional month.

<sup>4</sup> For a Tier I member, salary earnable in the last year of the most recent three-year period during which (s)he held no more than one position, or the average annual salary earnable in any five consecutive years designated by the member. For a Tier II member, the average salary earned during any three consecutive years which provides the highest salary. However, if salary earned during any year included in the three-year period exceeds the average of the previous two years by more than 20%, the amount in excess of 20% will be excluded.

<sup>5</sup> The difference between (1) the amount of required contributions during the member's first 20 years of city service, accumulated with interest to the member's payability date, and (2) the amount of the reserve for Increased-Take-Home-Pay on the date such period of 20 years is completed.

<sup>6</sup> Increased-Take-Home-Pay consists of special contributions made by the employer at 2.5%, 5%, or 8% of salary, with applicable interest.

Current Tier II members as of February 27, 2008 (excluding CUNY employees) were provided a 180-day period during which they were allowed to join a plan that permitted them to retire at age 55 and later with immediate payability and without reduction after 25 years of service, provided they pay an additional 1.85% of future pay.

### ***Age-55-Increased-Benefits Pension Plan***

#### **Eligibility:**

- (1) A Tier I member who either elects the Age-55-Increased-Benefits Pension Plan or cancels his/her election of the Twenty-Year Pension Plan may retire after having attained age 55 with benefits payable immediately upon retirement.
- (2) A Tier II member must have rendered five years of continuous service immediately prior to retiring and must have attained age 55.

#### **Benefits:**

The service retirement allowance consists of a pension for service, a pension for Increased-Take- Home-Pay, and an annuity.

The pension for service is equal to 1.2% of the average salary multiplied by years of service prior to July 1, 1970, plus 1.53% of the average salary multiplied by years of service after June 30, 1970. The pension for Increased-Take-Home-Pay is the actuarial equivalent of the Reserve for Increased- Take-Home-Pay, and the annuity is the actuarial equivalent of the member's accumulated deductions.

If a Tier II member retires prior to age 62 with less than 30 years of service, his/her pension for service is reduced by 0.5% for each of the first 24 months that the payability date precedes age 62, and by 0.25% for each additional month.

Current Tier II members as of February 27, 2008 (excluding CUNY employees) were provided a 180-day period during which they were allowed to join a plan that permitted them to retire at age 55 and later with immediate payability and without reduction after 25 years of service, provided they pay an additional 1.85% of future pay.

## **VESTED DEFERRED RETIREMENT ALLOWANCE**

#### **Eligibility:**

A member who either resigns or is dismissed from service would receive a benefit equal to his/her accumulated deductions. However, a member who is eligible for benefits under the Age-55-Increased-Benefits Pension Plan and who has at least 5 years of service immediately preceding resignation may instead elect to receive a deferred vested allowance.

#### **Benefits:**

This allowance is computed in the same manner as the retirement allowance for service retirement under the Age-55-Increased-Benefits Pension Plan, except that the allowance is deferred to age 55. Should a member who elected to receive a vested deferred retirement allowance and who had 10 years of service die before the attainment of age 55, the death benefit is 50% of the Ordinary Death Benefit in force on the last day of service.

## DISABILITY RETIREMENTS

### *Ordinary Disability Retirement*

**Eligibility:**

Regardless of the Plan elected, a member who has completed 10 or more years of City service preceding the occurrence of disability, for causes other than an accident in the actual performance of duty, is entitled to an ordinary disability retirement allowance.

**Benefits:**

If, at the time of becoming disabled, the member could have retired for service with benefits payable immediately, the ordinary disability allowance will be the same as the service retirement allowance without reduction on account of age. For all other members, the ordinary disability allowance is computed in the same manner as though the member had been eligible for service retirement under the Age-55-Increased-Benefits Pension Plan with benefits payable immediately, but never less than the allowance that would have been payable under the provisions in effect prior to July 1, 1970.

### *Accident Disability Retirement*

**Eligibility:**

A member is entitled to an accident disability retirement allowance upon the occurrence of a disability caused by an accident in the actual performance of duty.

**Benefits:**

The retirement allowance will consist of a pension equal to 75% of the average salary in the last 5 years, plus a pension which is the actuarial equivalent of the Reserve for Increased-Take-Home-Pay, and an annuity purchased with the member's accumulated deductions.

## DEATH BENEFITS

### *Ordinary Death Benefits*

**Benefits:**

Upon the death of a member in active service, a benefit is paid to his/her estate or to such person(s) as (s)he shall have nominated.

**Tier I Members**

- If a member completed less than 10 years of City Service, the benefit is equal to the compensation earnable by the member in the 6 months immediately preceding death.
- If the total number of years of City Service is greater than 10, but less than 20, the benefit is equal to the compensation earnable by the member during the 12 months immediately preceding death.
- If the total number of years of City Service exceeds 20, the benefit is equal to twice the compensation earnable by the member during the 12 months immediately preceding death.
- In addition, the member's accumulated deductions and the Reserve for Increased-Take-Home- Pay are paid to the member's estate or to the designated beneficiary.

The benefits payable on account of such a member who, at the time of his/her death, would have been eligible for service retirement is either the benefit described above or a lump sum that is actuarially equivalent to the retirement allowance which would have been payable had the member retired on the day before his/her death, whichever is larger.



**Tier II Members** must choose between the two following death benefits so that, upon the member's death, benefits are paid pursuant to the member's election:

**Death Benefit 1:** This benefit provides one month's salary for each year of service, up to a maximum of three years' salary. In addition, the member's accumulated deductions are payable. If the member would have been eligible to receive an unreduced retirement allowance at the time of his/her death, the benefit is a lump sum that is actuarially equivalent to the retirement allowance which would have been payable had the member retired on the day before his/her death, if greater.

**Death Benefit 2:** In addition to a refund of the member's accumulated deductions, this benefit provides one year's salary for each year of service up to a maximum of three years' salary after three years of service. The benefit reduces after age 60 at the rate of 5% per year, to a maximum reduction of 50% of the benefits in effect at age 60.

A benefit is also payable upon death after retirement and is expressed as follows:

- If death occurs in the first year after retirement, 50% of the benefit in force immediately before retirement.
- If death occurs in the second year following retirement, 25% of the benefit in force immediately before retirement.
- If death occurs subsequently, 10% of the benefit in force at age 60 or immediately before retirement if retirement was earlier than age 60.

If retirement occurs after age 60, the minimum death benefit payable after retirement is 10% of the death benefit in force at age 60.

The death benefit for a vested member with at least 10 years of credited service, who died while inactive before becoming eligible for unreduced retirement benefits, is equal to 50% of the death benefit that would have been payable had the member died on their last day of active service, in addition to a refund of the member contributions.

The Rules and Regulations adopted by the Teachers' Retirement Board in accordance with Chapter 581 of the Laws of 1970 provide that the first \$50,000 of each benefit on account of death in active service is payable from the Group Term Life Insurance Plan. Only the amount in excess of \$50,000, if any, is payable by TRS.

#### **Beneficiaries:**

The latest named beneficiary, duly designated with TRS, will receive the death benefits. If there is no eligible beneficiary on file, the benefits will be paid to the member's estate.

### ***Accidental Death Benefits***

#### **Eligibility:**

A member is entitled to accidental death benefits upon the occurrence of death caused by an accident in the actual performance of duty and not the result of willful negligence.

#### **Benefits:**

The accidental death benefits are (a) a lump-sum equal to the Reserve for Increased-Take-Home-Pay and (b) a pension equal to 50% of the average salary in the last five years payable annually to the widow until remarriage or death, or if there is no widow, to a child or children until the attainment of age 18 of the

youngest child, or if there is no widow, or child, to the dependent parents, and (c) a lump-sum equal to the member's accumulated deductions and Reserve for Increased-Take-Home-Pay payable to the member's estate or to the designated beneficiary. Alternatively, the beneficiary of a Tier I member may elect to receive a lump sum that is actuarially equivalent to the retirement allowance which would have been payable if the member had retired on the day before the member's death, provided that the death occurred after the member became eligible to retire for service.

## **Cost-of-Living Adjustments**

### **Eligibility:**

Automatic annual Cost-of-Living Adjustments (COLA) are applicable to retired members in all tiers. COLA are payable to members who are either (1) at least age 62 and have been retired for at least 5 years or (2) at least age 55 and have been retired for at least 10 years. Additionally, COLA are payable to members who retired for disability after being retired for 5 or more years and beneficiaries receiving accidental death benefits who have been receiving them for at least 5 years.

### **Benefits:**

Starting with benefits for September 2001, the annual increase for COLA is equal to 50% of the increase in the Consumer Price Index for all Urban Consumers (CPI-U) based on the year ending March 31, rounded to the next higher 0.1%, not less than 1% nor greater than 3% of the first \$18,000 of the sum of maximum retirement allowance and prior COLA.

COLA are payable during the life of the retired member. Fifty percent of the amount is also payable after the member's death and during the life of the spouse beneficiary if such retired member had elected one of the options under the Administrative Code which provides that benefits are to be continued for the life of such spouse after the death of the retired member, and where the death of such retired member occurred or occurs more than 30 days after the effective date of the retirement of such member.

## **Options on Retirement**

A member, upon retirement, may receive his/her basic retirement allowance in monthly installments throughout life with all payments ending at death, or may elect to receive the actuarial equivalent in the following optional forms.

- (1) A joint-and-survivor allowance under which reduced payment will be made during life, with a provision that upon the member's death, the same payments or 50% of such payments shall be continued throughout the life of other such person(s) as the member shall have designated.  
(Applicable to members under Tiers I and II.)
- (2) A joint-and-survivor allowance under which reduced payments will be made during life, with a provision that upon the member's death, 100% or less (*i.e.*, in 10% increments) of such payments shall be continued throughout the life of such other person(s) as the member shall have designated.  
(Applicable to members under Tier III.)
- (3) A joint-and-survivor allowance under which reduced payments will be made during life, with a provision that upon a member's death, 100% or less (*i.e.*, in 25% increments) of such payments shall be continued throughout the life of such other person(s) as the member shall have designated.  
(Applicable to members under Tiers IV and VI.)



- (4) A joint-and-survivor allowance under which reduced payments will be made during life, with a provision that in the event of a member's death prior to the death of the designated beneficiary, the person designated would receive a percentage of the payments under the applicable plan, which had been received by the member under that plan. Should the designated beneficiary predecease the member, the member's retirement allowance "pops up" to the amount which would have been payable, had no optional modification of the retirement allowance been in effect. (All Tiers)
- (5) A ten-year or five-year certain and life allowance under which reduced payments will be made during life, with a provision that in case of death within ten or five years of retirement, the balance that would have been payable had the member survived for ten or five years, shall continue to be paid to the designated beneficiary or estate. (All Tiers)
- (6) A cash refund allowance under which reduced payment will be made during life, with a provision that, in case of death before such payments have equaled the present value of the retirement allowance at the time of retirement, the balance shall be paid to the designated beneficiary or estate in a lump-sum. (Applicable to members under Tier I.)
- (7) A cash refund allowance under which reduced payments will be made during life, with a provision that, in case of death before such payments have equaled the present value of the retirement allowance at the time of retirement, the balance from the annuity portion of the retirement allowance shall be paid to the designated beneficiary or estate in a lump-sum. (Applicable to members under Tier II.)
- (8) A cash refund allowance under which reduced payment will be made during life, with a provision that, upon the member's death, a sum specified by the retiree at the time of retirement, would be paid to the designated beneficiary or estate. (Applicable to members under Tiers I and II, by resolution of the Teachers' Retirement Board.)
- (9) Such other actuarial equivalent optional forms as may be certified by the Actuary and approved by the Teachers' Retirement Board. (All Tiers)

### **Annuity Options for Beneficiaries of a Death Benefit**

Upon a member's death, the beneficiary may elect to receive the actuarial equivalent of a lump-sum death benefit, otherwise payable, in one of the following forms: 1) An annual amount payable for life in monthly installments, all payments ending at death; (This is only available to the beneficiary of a member who joined under Tiers I and II.) or 2) A cash refund allowance under which reduced payments will be made during life, with a provision that, in case of death before such payments have equaled the lump-sum payable upon the member's death, the balance shall be paid to the designated beneficiary or estate. (This is only available to the beneficiary of a member joined under Tier I.)

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# Financial Section



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**GRANT THORNTON LLP**

757 Third Ave., 9<sup>th</sup> Floor  
New York, NY 10017-2013

**D** +1 212 599 0100

**F** +1 212 370 4520

**REPORT OF INDEPENDENT CERTIFIED PUBLIC ACCOUNTANTS**

To the Teachers' Retirement Board of  
Teachers' Retirement System of the City of New York

We have audited the accompanying combining financial statements of Teachers' Retirement System of the City of New York Qualified Pension Plan ("QPP") and the Teachers' Retirement System of the City of New York Tax-Deferred Annuity ("TDA") Program, (collectively, the "System"), which comprise the combining statement of fiduciary net position as of June 30, 2020 and the related combining statement of changes in fiduciary net position for the year then ended, and the related notes to combining financial statements ("2020 combining financial statements").

**Management's responsibility for the 2020 combining financial statements**

Management is responsible for the preparation and fair presentation of these 2020 combining financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of combining financial statements that are free from material misstatement, whether due to fraud or error.

**Auditor's responsibility**

Our responsibility is to express an opinion on these 2020 combining financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the 2020 combining financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the combining financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the combining financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the System's preparation and fair presentation of the combining financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the System's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the combining financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.



### **Opinion**

In our opinion, the 2020 combining financial statements referred to above present fairly, in all material respects, the combining fiduciary net position of the System as of June 30, 2020, and the changes in the combining fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

### **Other Matters**

#### *Required supplementary information*

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis, Schedule 1: Schedules of Changes in the Employers' Net Pension Liability and Related Ratios, Schedule 2: Schedules of City Contributions, and Schedule 3: Schedule of Investment Returns, as listed in the table of contents, be presented to supplement the basic 2020 combining financial statements. Such information, although not a required part of the basic 2020 combining financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of the financial reporting for placing the basic 2020 combining financial statements in an appropriate operational, economic, or historical context. This required supplementary information is the responsibility of management. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America. These limited procedures 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 2020 combining financial statements, and other knowledge we obtained during our audit of the basic 2020 combining financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

#### *Other information*

Our audit was conducted for the purpose of forming an opinion on the basic combining financial statements. The Introductory Section, Additional Supplementary Information, Investment Section, Actuarial Section, and Statistical Section, as listed in the foregoing table of contents, are presented for the purpose of additional analysis and are not a required part of the basic combining financial statements.

The Additional Supplementary Information (Schedule 4: Schedule of Administrative Expenses and Schedule 5: Schedule of Investment Expenses and Services (QPP & TDA)) for the year ended June 30, 2020, is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic combining financial statements. Such information has been subjected to the auditing procedures, applied in the audit of the basic combining financial statements and certain additional procedures, applied in the audit of the basic combining financial statements or to the basic combining financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the Additional Supplementary Information is fairly stated, in all material respects, in relation to the basic combining financial statements taken as a whole.



The Introductory Section, Investment Section, Actuarial Section and Statistical Section have not been subjected to the auditing procedures applied in the audit of the basic combining financial statements and, accordingly, we do not express an opinion or provide any assurance on them.

*Report on 2019 combining financial statements*

The combining financial statements of the System as of and for the year ended June 30, 2019 ("2019 combining financial statements") were audited by other auditors. Those auditors expressed an unmodified opinion on those 2019 combining financial statements in their report dated October 24, 2019.

*Grant Thornton LLP*

New York, New York

October 28, 2020

(except for the Additional Supplementary Information,  
as to which the date is December 18, 2020)

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)  
JUNE 30, 2020 AND 2019**

This narrative discussion and analysis of the Teachers' Retirement System of the City of New York's ("TRS" or the "System") financial performance provides an overview of the System's combining financial activities for the Fiscal Years ended June 30, 2020 and 2019. It is meant to assist the reader in understanding TRS' combining financial statements by providing an overall review of the combining financial activities during the years and the effects of significant changes, as well as a comparison with prior years' activity and results. This discussion and analysis is intended to be read in conjunction with the System's combining financial statements. TRS administers the TRS Qualified Pension Plan ("QPP") and the TRS Tax-Deferred Annuity ("TDA") Program. The QPP is a cost-sharing, multiple-employer defined-benefit pension plan. The QPP provides pension benefits to City public school teachers and certain other personnel, participating Charter Schools and participating City University of New York ("CUNY") teachers and other personnel. The TDA Program is a tax-deferred annuity program described in Internal Revenue Code section 403(b) and is available as a supplemental savings option to QPP members.

### **OVERVIEW OF BASIC COMBINING FINANCIAL STATEMENTS**

The following discussion and analysis is intended to serve as an introduction to the System's basic combining financial statements. The basic combining financial statements, which are prepared in conformity with Generally Accepted Accounting Principles ("GAAP") as prescribed by Government Accounting Standards Board ("GASB"), include the financial statements of the QPP and the TDA Programs, are as follows:

- **The Combining Statements of Fiduciary Net Position** — presents the financial position of the System at fiscal year-end. It provides information about the nature and amounts of resources with present service capacity that the System presently controls (assets), consumption of net assets by the System that is applicable to a future reporting period (deferred outflow of resources), present obligations to sacrifice resources that the System has little or no discretion to avoid (liabilities), and acquisition of net assets by the System that is applicable to a future reporting period (deferred inflow of resources) with the difference between assets/deferred outflow of resources and liabilities/deferred inflow of resources being reported as net position. Investments are shown at fair value. All other assets and liabilities are determined on an accrual basis of accounting.
- **The Combining Statements of Changes in Fiduciary Net Position** — presents the results of activities during the fiscal year. All changes affecting the assets/deferred outflow and liabilities/deferred inflow of the System are reflected on an accrual basis when the activity occurred, regardless of the timing of the related cash flows. In that regard, changes in the fair values of investments are included in the year's activity as net appreciation (depreciation) in fair value of investments.
- **The Notes to Combining Financial Statements** — provide additional information that is essential to a full understanding of the data provided in the combining financial statements. The notes present information about the System's accounting policies, significant account balances and activities, material risks, obligations, contingencies and subsequent events, if any.
- **Required Supplementary Information ("RSI") (Unaudited)** — as required by GASB, the RSI includes the management discussion and analysis (this section) and information presented following the notes to combining financial statements.



**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)  
JUNE 30, 2020 AND 2019**

## HIGHLIGHTS AND RECENT DEVELOPMENTS

### Employer Information

Employers that participate in TRS include the Department of Education ("DOE"), City University of New York ("CUNY") both Junior and Senior Colleges and New York City Charter Schools that elect to participate. All employers may participate in the QPP and the TDA Program.

The following schedule provides the 2020 QPP summary information of the employer groups.

	<b>Members Active</b>	<b>Contribution Employer</b>	<b>Contribution Member</b>	<b>Members Retired</b>	<b>Pension Payments</b>
DOE	116,500	\$3.4 billion	\$212.3 million	87,000	\$ 4.3 billion
CUNY	8,000	142 million	\$13 million	2,700	\$ 137 million
Charter Schools	600	\$7.6 million	\$1.5 million	less than 50	\$ 1.8 million

### UFT Contract

The current collective bargaining agreement between the DOE and the United Federation of Teachers ("UFT"), the primary union for the DOE's employees, was ratified in October 2018. The contract runs from February 14, 2019 to September 13, 2022. In addition to workplace improvements, the agreement includes wage increases and upward adjustments to starting and top salary amounts. The wage increases impact employer contributions, member contributions, and payments to retirees.

## FINANCIAL HIGHLIGHTS

### QPP Fiduciary Net Position

The QPP's net position restricted for benefits is held in trust for the payment of future benefits to members and pensioners. The QPP's net position restricted for benefits was \$59.3 billion, \$58.0 billion, and \$54.5 billion, as of June 30, 2020, 2019, and 2018, respectively. The System's employer contributions amounted to \$3.7 billion, \$3.8 billion, and \$3.9 billion, for Fiscal Years 2020, 2019, and 2018, respectively. The QPP's benefit payments totaled \$4.6 billion, \$4.5 billion, \$4.4 billion, for Fiscal Years 2020, 2019, and 2018, respectively. Below is a summary of the QPP's net position and changes in net position.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)**  
**JUNE 30, 2020 AND 2019**

**QPP Fiduciary Net Position****June 30, 2020, 2019, and 2018****(In thousands)**

	<u>2020</u>	<u>2019</u>	<u>2018</u>
Cash	\$ 48,488	\$ 76,796	\$ 75,847
Receivables for investments sold	1,889,299	2,305,855	839,544
Receivables for accrued interest and dividends	289,845	290,228	273,387
Member loan receivables	323,805	320,976	312,219
Investments, at fair value	87,842,740	83,854,645	78,901,468
Collateral from securities lending	1,391,240	1,222,314	1,117,593
Other assets	<u>63,899</u>	<u>42,615</u>	<u>62,852</u>
Total assets	<u>91,849,316</u>	<u>88,113,429</u>	<u>81,582,910</u>
Accounts payable	299,648	646,918	643,567
Payable for investments purchased	3,096,888	2,574,584	1,568,064
Accrued benefits payable	88,957	77,154	13,858
Investments due to TDA Program	27,653,633	25,602,248	23,707,352
Payable for securities lending	<u>1,391,240</u>	<u>1,222,314</u>	<u>1,117,593</u>
Total liabilities	<u>32,530,366</u>	<u>30,123,218</u>	<u>27,050,434</u>
Net position restricted for benefits	<u>\$ 59,318,950</u>	<u>\$ 57,990,211</u>	<u>\$ 54,532,476</u>

Cash balances amounted to \$48.5 million at June 30, 2020, a decrease of \$28.3 million (-36.9%) from June 30, 2019. Cash balances amounted to \$76.8 million at June 30, 2019, an increase of \$949.0 thousand (1.3%) from June 30, 2018. Cash balances consist of advances to investment managers' accounts, accounts used to process reimbursement transfers between the System's investment programs, and bank accounts associated with the collections of loan insurance premiums and loan service charges. As of June 30, 2020, the largest cash balances of the TRSNYC Pension Fund consisted of the International and Private Equity investment manager, with \$36.0 million and \$6.1 million, respectively. Large cash balances held by an investment manager are due to a recent sale or the general investment cycle. For example, Private Equity's investment cycle generally begins with cash from assets sold during the month and ends with subsequent purchases following month-end.

Receivables for investment securities sold amounted to \$1.9 billion at June 30, 2020, a decrease of \$416.6 million (-18.1%) from June 30, 2019. Receivables for investment securities sold amounted to \$2.3 billion at June 30, 2019, an increase of \$1.5 billion (174.7%) from June 30, 2018. These balances are principally composed of receivables for securities that have been sold but have not yet settled (i.e., the cash has not been collected). The changes resulted primarily from timing differences between trade and settlement dates occurring around fiscal year end. Trades typically do not settle until a few days after the trade date.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)  
JUNE 30, 2020 AND 2019**

Receivables for accrued interest and dividends amounted to \$289.8 million as of June 30, 2020, a decrease of \$383.0 thousand (-0.1%) from June 30, 2019. Receivables for accrued interest and dividends amounted to \$290.2 million as of June 30, 2019, an increase of \$16.8 million (6.2%) from June 30, 2018. Changes in accrued earnings are impacted primarily by the cumulative value of the interest or dividend bearing securities, as well as by changes in discount rates, and interest-payable dates.

At June 30, 2020, member loan receivables amounted to \$323.8 million, an increase of \$2.8 million (0.9%) from the previous year. At June 30, 2019, member loan receivables amounted to \$321.0 million, an increase of \$8.8 million (2.8%) from the previous year. The increases primarily reflect interest accrued on loans receivables for Tiers III, IV, and VI members as new loans have kept pace with loan repayments.

Investments at June 30, 2020 were \$87.8 billion, an increase of \$4.0 billion (4.8%) from June 30, 2019. Investments at June 30, 2019 were \$83.9 billion compared to \$78.9 billion at June 30, 2018, an increase of \$5.0 billion (6.3%) from June 30, 2018. As of June 30, 2020, the QPP's total investment portfolio, including both the TRSNYC Pension and Variable-Return Funds, consisted of 52% equity investments, 36% fixed income securities and 12% alternative investments. The alternative investments consisted of private equity (5%), private real estate investments (3%), opportunistic fixed income (3%), and infrastructure securities (1%). The \$4.0 billion annual increase in investments is the result of \$3.9 billion in net investment income plus a \$938.9 million net increase in the year-over-year payables for investment securities purchased and investment receivables sold. More generally, investments as of June 30, 2020, in comparison with investment values as of June 30, 2019, reflect the equity and fixed income markets' annual returns. For the year ended June 30, 2020, the Russell 3000 Index, a broad measure of U.S. equity markets, returned 6.5%. The Morgan Stanley Capital International ("MSCI") World Index excluding the United States, returned (-4.7%). The NYC Core + 5, a composite index maintained by New York City's Office of the Comptroller and a broad measure of the U.S. fixed income markets, returned 10.1%. The Dow Jones U.S. Select Real Estate Securities Index returned (-17.7%). For the year ended June 30, 2019, the Russell 3000 Index, a broad measure of U.S. equity markets, returned 9.0%. The Morgan Stanley Capital International ("MSCI") World Index excluding the United States, returned 0.2%. The NYC Core + 5, a composite index maintained by New York City's Office of the Comptroller and a broad measure of the U.S. fixed income markets, returned 8.7%. The Dow Jones U.S. Select Real Estate Securities Index returned 9.8%.

Other assets at June 30, 2020 totaled \$63.9 million, a \$21.3 million (49.9%) increase from June 30, 2019. The year-over-year increase in other assets, as of June 30, 2020, was primarily due to a \$25.8 million increase in a cash flow reimbursement due from the TDA Program, less a \$6.1 million decrease in a cash flow reimbursement due from Corpus Expenses. Other assets at June 30, 2019 totaled \$42.6 million, a \$20.2 million (-32.2%) decrease from June, 2018. The year-over-year decrease in other assets, as of June 30, 2019, was primarily due to the \$11.6 million CUNY receivable, and a \$7.6 million decrease in a cash flow reimbursement due from the TDA Program.

Accounts payable at June 30, 2020 amounted to \$299.6 million, a \$347.3 million (-53.7%) decrease from June 30, 2019. Accounts payable as of June 30, 2020 consisted of balances due to depositories (45.2%), reserve for expenses (24.6%), accrued investment expenses (12.3%), unclaimed funds (8.6%), and other payables (9.3%). Accounts payable at June 30, 2019 amounted to \$646.9 million, a \$3.4 million (0.5%) increase from June 30, 2018. Accounts payable as of June 30, 2019 consisted of balances due to depositories (72.6%), reserve for expenses (12.1%), accrued investment expenses (5.1%), unclaimed funds (4.0%), and other payables (6.2%).

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)  
JUNE 30, 2020 AND 2019**

Payables for investment securities purchased at June 30, 2020 amounted to \$3.1 billion, a \$522.3 million (20.3%) increase from June 30, 2019. Payables for investment securities purchased at June 30, 2019 amounted to \$2.6 billion, a \$1.0 billion (64.2%) increase from June 30, 2018. Investments purchased are accounted for on a trade-date basis. The increase resulted from timing differences between settlement dates and trade dates, similar to receivables for investment securities sold (discussed earlier).

Accrued benefits payable at June 30, 2020 amounted to \$90.0 million, a \$11.8 million (15.3%) increase from June 30, 2019. The \$11.8 million increase is primarily attributed to an increase of pending death benefits due to beneficiaries at year-end. Due to a system enhancement implemented in 2019, amounts due to beneficiaries can now be calculated following notice of death without waiting for the beneficiary claim to be received and reviewed. Accrued benefits payable at June 30, 2019 amounted to \$77.2 million, a \$63.3 million (456.7%) increase from June 30, 2018.

Investments due to the TDA Program reflect the TDA Program's share of assets of the TRSNYC Pension Fund/Fixed Fund investments. Assets in the TDA Program's Fixed Return Fund are pooled with the QPP assets as System assets in the TRSNYC Pension Fund for investment purposes only. The amounts owned by the TDA Program are equal to member contributions, inter-fund transfers from other TDA program's passport funds, and earnings applied in accordance with statutory-interest rates (7% for members of the UFT and 8.25% for certain other members). See Note 2 for a full description of the TDA Fixed Return Fund investment program.

**QPP Changes in Fiduciary Net Position  
Years Ended June 30, 2020, 2019, and 2018  
(In thousands)**

	<u>2020</u>	<u>2019</u>	<u>2018</u>
Additions:			
Member contributions	\$ 226,920	\$ 217,205	\$ 195,241
Employer contributions	3,652,570	3,759,199	3,949,689
Net receipts from other retirement systems	(2,798)	1,222	(3,534)
Net securities lending income	10,510	12,132	15,325
Net investment income	<u>3,900,677</u>	<u>5,709,178</u>	<u>6,259,790</u>
Total additions	<u>7,787,879</u>	<u>9,698,936</u>	<u>10,416,511</u>
Deductions:			
Administrative expenses	64,532	64,291	65,076
TDA Rebalance	(42,651)	(27,449)	(32,704)
Benefits payments and withdrawals	1,846,173	4,487,680	4,351,924
Payment of statutory-interest to TDA Program	<u>4,591,086</u>	<u>1,716,679</u>	<u>1,595,462</u>
Total deductions	<u>6,459,140</u>	<u>6,241,201</u>	<u>5,979,758</u>
Net (decrease) increase in net position	<u>1,328,739</u>	<u>3,457,735</u>	<u>4,436,753</u>
Net position restricted for benefits			
Beginning of year	<u>57,990,211</u>	<u>54,532,476</u>	<u>50,095,723</u>
End of year	<u>\$ 59,318,950</u>	<u>\$ 57,990,211</u>	<u>\$ 54,532,476</u>

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)  
JUNE 30, 2020 AND 2019**

TRS received \$226.9 million in member contributions in Fiscal Year 2020, a \$9.7 million (4.5%) increase from Fiscal Year 2019. TRS received \$217.2 million in member contributions in Fiscal Year 2019, a \$22.0 million (11.2%) increase from Fiscal Year 2018. The \$9.7 million increase in Fiscal Year 2020 and the \$22.0 million increase in Fiscal Year 2019 were both primarily due to UFT salary increases and a larger active Tier VI membership.

Employer contributions during Fiscal Year 2020 were \$3.7 billion, a \$106.6 million (-2.8%) decrease from Fiscal Year 2019. Employer contributions during Fiscal Year 2019 were \$3.8 billion, a \$190.5 million (-4.8%) decrease from Fiscal Year 2018. The Fiscal Year 2020 decrease was primarily due to a net actuarial gain and changes in actuarial methods. The June 30, 2018 (Lag) actuarial valuation and June 30, 2017 (Lag) actuarial valuation were used to determine Fiscal Year 2020 and 2019 employer contributions, respectively.

The QPP's net investment income for Fiscal Year 2020 was \$3.9 billion, a \$1.8 billion (-31.7%) decrease from Fiscal Year 2019. The QPP's net investment income of \$3.9 billion consisted of \$2.2 billion in dividend and interest income plus a net gain of \$2.0 billion on the appreciation in fair value of the QPP's investments less \$290.9 million in investment expenses. Net investment income for the QPP portion of the TRSNYC Pension Fund, QPP portion of the Diversified Equity Fund, QPP portion of the Balanced Fund, QPP portion of the International Equity Fund, QPP portion of the Inflation Protection Fund, QPP portion of the Sustainable Equity Fund, QPP portion of the U.S. Equity Index Fund, and QPP portion of the International Equity Index Fund totaled \$3.7 billion, \$144.8 million, \$3.5 million, -\$151.0 thousand, -\$297.0 thousand, \$2.7 million, \$323.0 thousand, and \$16.0 thousand, respectively. The QPP's net investment income for Fiscal Year 2019 was \$5.7 billion, a \$550.6 million (-8.8%) decrease from Fiscal Year 2018. The QPP's net investment income of \$5.7 billion consisted of \$2.3 billion in dividend and interest income plus a net gain of \$3.7 billion on the appreciation in fair value of the QPP's investments less \$301.4 million in investment expenses. Net investment income for the QPP portion of the TRSNYC Pension Fund, QPP portion of the Diversified Equity Fund, QPP portion of the Balanced Fund, QPP portion of the International Equity Fund, QPP portion of the Inflation Protection Fund, and QPP portion of the Sustainable Equity (formerly Socially Responsive) Fund totaled \$5.3 billion, \$415.5 million, \$4.2 million, \$386 thousand, \$172 thousand, and \$540 thousand, respectively.

For Fiscal Year 2020, the QPP's effective net investment income for the QPP portion of the TRSNYC Pension Fund decreased due to investment returns attributable to the TDA Program's TRSNYC Pension Fund assets. The TDA Fixed Return Fund program resulted in approximately \$593.9 million less assets accruing to the QPP's Contingent Reserve Fund of Employer's Contributions, as a result of the TDA Program's investment returns being below the statutory rates. For Fiscal Year 2019, the QPP's effective net investment income for the QPP portion of the TRSNYC Pension Fund increased due to investment returns attributable to the TDA Program's TRSNYC Pension Fund assets. The TDA Fixed Return Fund program resulted in approximately \$24.0 million more assets accruing to the QPP's Contingent Reserve Fund of Employer's Contributions, as a result of the TDA Program's investment returns being above the Statutory Rates. The table below displays the TDA Program's impact on the QPP's Contingent Reserve Fund of Employer's Contributions for Fiscal Years 2020, 2019, and 2018.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
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**JUNE 30, 2020 AND 2019**

**Revenue (Expense) to Contingent Reserve Fund****TRSNYC Pension Fund Assets (QPP)\*****Years Ended 2020, 2019, and 2018****(In thousands)**

	<b>2020</b>	<b>2019</b>	<b>2018</b>
Net Investment Income	\$ 3,759,578	\$ 5,299,563	\$ 5,541,133
TDA percent of Fixed Assets as of June 30	33.67%	32.95%	32.74%
TDA percent of Fixed Assets 6/30/17:			33.30%
TDA percent of Fixed Assets (average)	33.31%	32.85%	33.02%
Investment Income on account of TDA Investment	\$ 1,252,282	\$ 1,740,705	\$ 1,829,591
Less Statutory Interest to TDA	<u>(1,846,173)</u>	<u>(1,716,679)</u>	<u>(1,595,462)</u>
Revenue (Expense) to QPP Contingent Reserve	<u>\$ (593,891)</u>	<u>\$ 24,026</u>	<u>\$ 234,129</u>

\*Includes security-lending income

Administrative expenses during Fiscal Year 2020 were \$64.5 million, an increase of \$241.0 thousand (0.4%) from Fiscal Year 2019. The System continues its phased implementation to replace its legacy IBM A/S 400 computer system with a system based on Microsoft's .NET programming framework. Sagitec, an outside vendor and a provider of Pension Database Systems, and Cognizant, a software testing company, have been assisting with this multi-year project. In Fiscal Year 2020, the System began initial testing of a new pension payroll module, continued development of active account modules and also implemented functionality to support both the new death benefit-related processing module and processes to support a DOE-related class action lawsuit. The change in administrative expenses also reflects the annual update in the System's administrative expenses attributed to the QPP. (See Note 8.) The QPP's total administrative expenses for Fiscal Year 2020 accounted for 72.9% of the System's administrative expenditures. The balance of \$24.0 million (27.1%) was expensed to the TDA Program. Administrative expenses during Fiscal Year 2019 were \$64.3 million, a decrease of \$785.0 thousand (-1.2%) from Fiscal Year 2018. The QPP's total administrative expenses for Fiscal Year 2019 accounted for 72.8% of the System's administrative expenditures. The balance of \$24.0 million (27.2%) was expensed to the TDA Program. The System's administrative expenditures have been \$88.5 million, \$88.3 million, and \$87.5 million for Fiscal Years 2020, 2019, and 2018, respectively.

The TDA rebalance during Fiscal Year 2020 resulted in \$42.7 million in transfers to the TRSNYC Pension Fund from the TDA Program due to a surplus in the TDA Program's Variable Annuity and Pension Reserve Funds. The Administrative Code of the City of New York under sections 13-582 and 13-577 provide for certain internal transfer of funds. These transfers are intended to rebalance estimated actuarial liabilities with reported assets and follow liability reviews conducted by the Actuary of the City of New York. Also, \$9.7 million was transferred due to a deficit in the QPP Program's variable-return funds. The \$9.7 million transfer increased the investments held by the QPP Program's variable-return funds and decreased the investments held by QPP's TRSNYC Pension Fund but did not impact net investments held by the QPP plan (see Note 2, Intra-Fund Payable/Receivable). The TDA rebalance during Fiscal Year 2019 resulted in \$27.4 million in transfers to the TRSNYC Pension Fund from the TDA Program due to a surplus in the TDA Program's Variable Annuity and Pension Reserve Funds. Also, \$115.7 million was transferred due to a surplus in the QPP Program's variable-return funds. The \$115.7 million transfer increased the investments held by the QPP's TRSNYC Pension Fund and decreased the investments held by the QPP Program's variable-return funds but did not impact net investments held by the QPP plan (see Note 2, Intra-Fund Payable/Receivable).



**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)**  
**JUNE 30, 2020 AND 2019**

Benefit payments and withdrawals during Fiscal Year 2020 were \$4.6 billion, a \$103.4 million (2.3%) increase from Fiscal Year 2019. The \$103.4 million increase in benefit payments and withdrawals was primarily due to a \$81.9 million (1.9%) increase in payments to retirees, and a \$21.4 million (25.4%) increase in death benefit payments. In total, benefit payments and withdrawals distributed during Fiscal Year 2020 were composed of 97.0% in retirement benefits and 3.0% in refund/withdrawals and survivor benefits. Benefit payments and withdrawals during Fiscal Year 2019 were \$4.5 billion, a \$135.8 million (3.1%) increase from Fiscal Year 2018. The \$135.8 million increase in benefit payments and withdrawals was primarily due to a \$88.4 million (2.1%) increase in payments to retirees, and a \$53.2 million (172.5%) increase in death benefit payments. In total, benefit payments and withdrawals distributed during Fiscal Year 2019 were composed of 97.4% in retirement benefits and 2.6% in refund/withdrawals and survivor benefits.

Payments of statutory-interest due to the TDA from its investment in the TRSNYC Pension Fund Assets (Fixed Return Fund) during Fiscal Year 2020 were \$1.8 billion, an increase of \$129.5 million (7.5%) from Fiscal Year 2019. Payments of statutory-interest due to the TDA from its investment in the TRSNYC Pension Fund Assets (Fixed Return Fund) during Fiscal Year 2019 were \$1.7 billion, an increase of \$121.2 million (7.6%) from Fiscal Year 2018.

**TDA Program Financial Highlights** — The TDA Program's net position restricted for benefits was \$37.0 billion, \$35.3 billion, and \$33.4 billion as of June 30, 2020, 2019, and 2018, respectively. Member contributions amounted to \$1.0 billion, \$995.0 million, and \$856.3 million for Fiscal Years 2020, 2019, and 2018, respectively. Benefit payments and withdrawals totaled \$1.4 billion, \$1.4 billion, and \$1.1 billion for Fiscal Years 2020, 2019, and 2018, respectively. Below is a summary of the TDA program's net position and changes in net position.

**TDA Program's Fiduciary Net Position**  
**June 30, 2020, 2019, and 2018**

(In thousands)

	2020	2019	2018
Cash	\$ 7,477	\$ 9,533	\$ 7,371
Receivables for investments sold	8,378	55,994	7,250
Receivables for accrued interest and dividends	18,164	16,531	15,580
Member loan receivables	401,243	403,787	386,804
Investments, at fair value	9,427,396	9,591,018	9,427,324
Investment in TRSNYC Pension Fund	27,653,633	25,602,248	23,707,352
Collateral from securities lending	54,770	57,798	95,170
Other assets	18,454	20,813	18,613
Total assets	<u>37,589,515</u>	<u>35,757,722</u>	<u>33,665,464</u>
Accounts payable	83,749	68,740	85,715
Payable for investment securities purchased	15,402	59,678	12,473
Accrued benefits payable	412,069	238,111	91,124
Payable for securities lending transactions	54,770	57,798	95,170
Total liabilities	<u>565,990</u>	<u>424,327</u>	<u>284,482</u>
Net position held in trust for benefits	<u>\$ 37,023,525</u>	<u>\$ 35,333,395</u>	<u>\$ 33,380,982</u>

Cash balances amounted to \$7.5 million at June 30, 2020, a decrease of \$2.1 million (-21.6%) from June 30, 2019. Cash balances amounted to \$9.5 million at June 30, 2019, an increase of \$2.2 million (29.3%) from June 30, 2018. Cash balances consist of accounts used to reimburse the funds of the Variable-Annuity Program and accounts used for advance funding of the variable-return funds' investment managers.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)  
JUNE 30, 2020 AND 2019**

Receivables for investment securities sold at June 30, 2020 amounted to \$8.4 million, a decrease of \$47.6 million (-85.0%) from June 30, 2019. Receivables for investment securities sold at June 30, 2019 amounted to \$56.0 million, an increase of \$48.7 million (672.3%) from June 30, 2018. These balances are principally composed of receivables for securities that have been sold but have not yet settled (i.e., the cash has not been collected). The year-over-year changes resulted from timing differences in trading and settlement dates. Trades typically do not settle until a few days after the trade date.

Receivables for accrued earnings at June 30, 2020 were \$18.2 million, an increase of \$1.6 million (9.9%) from June 30, 2019. Receivables for accrued earnings at June 30, 2019 were \$16.5 million, an increase of \$1.0 million (6.1%) from June 30, 2018. Changes in accrued earnings are impacted by the cumulative value of the interest or dividend-bearing securities, discount rates, and interest payable dates at fiscal year-end.

Member loan receivables at June 30, 2020 amounted to \$401.2 million, a decrease of \$2.5 million (-0.6%) from June 30, 2019. For Fiscal Year 2020, loan disbursements amounted to \$192.4 million and principal and interest payments amounted to \$216.3 million. Member loan receivables at June 30, 2019 amounted to \$403.8 million, an increase of \$17.0 million (4.4%) from June 30, 2018. For Fiscal Year 2019, loan disbursements amounted to \$204.8 million and principal and interest payments amounted to \$205.6 million.

The variable-return funds' investments at June 30, 2020, including collateral received for securities lending, were \$9.5 billion, a decrease of \$166.7 million (-1.7%) from June 30, 2019. The variable-return funds' investments at June 30, 2019, including collateral received for securities lending, were \$9.6 billion, an increase of \$126.3 million (1.3%) from June 30, 2018.

Assets of the TDA Program's Fixed Return Fund invested in the TRSNYC Pension Fund at June 30, 2020 were \$27.7 billion, an increase of \$2.1 billion (8.0%) from June 30, 2019. In addition to the 7% statutory return for UFT members [and 8.25% for non-UFT members] for Fiscal Year 2020, contributions, withdrawals and investment transfers to (from) the Fixed Return Fund totaled \$718.2 million, -\$1.2 billion, and \$510.9 million, respectively. Assets of the TDA Program's Fixed Return Fund invested in the TRSNYC Pension Fund at June 30, 2019 were \$25.6 billion, an increase of \$1.9 billion (8.0%) from June 30, 2018. In addition to the 7% statutory return for UFT members [and 8.25% for non-UFT members] for Fiscal Year 2019, contributions, withdrawals and investment transfers to (from) the Fixed Return Fund totaled \$687.5 million, -\$1.1 billion, and \$439.0 million, respectively.

Other assets at June 30, 2020 were \$18.5 million, a decrease of \$2.4 million (-11.3%) over June 30, 2019. Other assets at June 30, 2019 were \$20.8 million, an increase of \$2.2 million (11.8%) over June 30, 2018. Other assets primarily represent assets already allocated for future administrative expenses.

Accounts payable at June 30, 2020 amounted to \$83.7 million, an increase of \$15.0 million (21.8%) from June 30, 2019. Accounts payable at June 30, 2019 amounted to \$68.7 million, a decrease of \$17.0 million (-19.8%) from June 30, 2018. The TDA Program's accounts payable balance primarily represents a reserve fund to pay the TDA Program's investment and administrative expenses.

Payables for investment securities purchased at June 30, 2020 amounted to \$15.4 million, a decrease of \$44.3 million (-74.2%) from June 30, 2019. Payables for investment securities purchased at June 30, 2019 amounted to \$59.7 million, an increase of \$47.2 million (378.5%) from June 30, 2018. Investments purchased are accounted for on a trade-date basis. The changes resulted from timing differences in settlement and trade dates, similar to receivables for investments sold (discussed earlier).



**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)**  
**JUNE 30, 2020 AND 2019**

Accrued benefits payable at June 30, 2020 amounted to \$412.1 million, an increase of \$174.0 million (73.1%) from June 30, 2019. The \$174.0 million increase is primarily attributed to an increase of pending death benefits due to beneficiaries at year-end. Due to a system enhancement, implemented in 2019, amounts due to beneficiaries can now be calculated following notice of death without waiting for the beneficiary claim to be received and reviewed. Accrued benefits payable at June 30, 2019 amounted to \$238.1 million, an increase of \$147.0 million (161.3%) from June 30, 2018. The \$147.0 million increase in accrued benefits payable is primarily attributed to an increase of pending death benefits due to beneficiaries at year-end.

**Changes in TDA Program's Fiduciary Net Position**  
**Years Ended June 30, 2020, 2019, and 2018**  
(In Thousands)

	<u>2020</u>	<u>2019</u>	<u>2018</u>
Additions:			
Member contributions	\$ 1,029,758	\$ 995,035	\$ 856,294
Net investment income	326,442	668,269	1,053,660
Net securities lending income	<u>1,171</u>	<u>1,271</u>	<u>1,531</u>
Total additions	<u>1,357,371</u>	<u>1,664,575</u>	<u>1,911,485</u>
Deductions:			
Administrative expenses	23,957	23,964	22,456
TDA rebalance	42,651	27,449	32,704
Benefits payments	1,446,806	1,377,428	1,122,898
Receipt of statutory-interest for portion of investment in TRSNYC Pension Fund	<u>(1,846,173)</u>	<u>(1,716,679)</u>	<u>(1,595,462)</u>
Total deductions	<u>(332,759)</u>	<u>(287,838)</u>	<u>(417,404)</u>
Net increase in net position	<u>1,690,130</u>	<u>1,952,413</u>	<u>2,328,889</u>
Net position restricted for benefits			
Beginning of year	<u>35,333,395</u>	<u>33,380,982</u>	<u>31,052,093</u>
End of year	<u>\$ 37,023,525</u>	<u>\$ 35,333,395</u>	<u>\$ 33,380,982</u>

TRS's TDA Program received \$1.0 billion in member contributions during Fiscal Year 2020, an increase of \$34.7 million (3.5%) from Fiscal Year 2019. There were 91,077 members contributing in Fiscal Year 2020 compared to 89,708 members contributing in Fiscal Year 2019. TRS's TDA Program received \$995.0 million in member contributions during Fiscal Year 2019, an increase of \$138.7 million (16.2%) from Fiscal Year 2018. There were 89,708 members contributing in Fiscal Year 2019 compared to 87,296 members contributing in Fiscal Year 2018.

Net investment income for the TDA Program's variable-return funds for Fiscal Year 2020 decreased by \$341.8 million (-51.2%) from Fiscal Year 2019. Net investment income for the TDA Program's variable-return funds for Fiscal Year 2019 decreased by \$385.4 million (-36.6%) from Fiscal Year 2018. Net investment gains/ losses primarily reflect the appreciation/depreciation in fair value of the TDA Program's variable-return fund investments, including both realized and unrealized gains and losses.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)  
JUNE 30, 2020 AND 2019**

Administrative expenses for the Fiscal Year ended June 30, 2020 totaled \$24.0 million, a decrease of \$7 thousand (-0.03%) from Fiscal Year 2019. Administrative expenses for the Fiscal Year ended June 30, 2019 totaled \$24.0 million, an increase of \$1.5 million (6.7%) from Fiscal Year 2018. The TDA Program accounted for a portion of the System's total administrative expenses; see QPP administrative expenses above and Note 8.

The TDA rebalance during Fiscal Year 2020 resulted in a \$42.7 million transfer to the TRSNYC Pension Fund from the TDA Program. The TDA rebalance during Fiscal Year 2019 resulted in a \$27.4 million transfer to the TRSNYC Pension Fund from the TDA Program. The Administrative Code of the City of New York under sections 13-582 and 13-577 provide for certain internal transfer of funds. These transfers are intended to rebalance estimated actuarial liabilities with reported assets; see Note 2, Intra-Fund Payable/Receivable.

Benefit payments and withdrawals for the Fiscal Year ended June 30, 2020 totaled \$1.4 billion, an increase of \$69.4 million (5.0%) from Fiscal Year 2019. Benefit payments and withdrawals for the Fiscal Year ended June 30, 2019 totaled \$1.4 billion, an increase of \$254.5 million (22.7%) from Fiscal Year 2018. Benefit payments and withdrawals consist primarily of total and partial withdrawals and lump sum payments to beneficiaries.

Receipts of statutory interest for the TDA Program's Fixed Return Fund portion in investments in the TRSNYC Pension Fund assets for Fiscal Year 2020 were \$1.8 billion, an increase of \$129.5 million (7.5%) from Fiscal Year 2019. Receipts of statutory-interest for the TDA Program's Fixed Return Fund portion in investments in the TRSNYC Pension Fund assets for Fiscal Year 2019 were \$1.7 billion, an increase of \$121.2 million (7.6%) from Fiscal Year 2018.

### Cash Flow

Monthly contributions, loan repayments, and interest and dividends earned on investments less benefit payments, new loans, and investment and administrative expenses account for the System's non-investment cash flow. The table below provides a three-year summary.

Cash Flow Review (In thousands)	June 30, 2020 QPP	June 30, 2020 TDA	June 30, 2019 QPP	June 30, 2019 TDA	June 30, 2018 QPP	June 30, 2018 TDA
Contributions	\$ 3,879,490	\$ 1,029,758	\$ 3,976,403	\$ 995,035	\$ 4,144,930	\$ 856,294
Contributions — Loan adj.	-	(207)	-	(393)	-	(16)
Loan repayments (cash)	146,168	216,254	147,934	205,573	140,129	197,528
401(a) receipts/(payments)	(2,798)	-	1,222	-	(3,534)	-
Interest income	1,094,140	32,127	1,148,789	33,155	1,330,009	35,177
Interest income — Loan adj.	(14,901)	(28,573)	(13,738)	(27,699)	(21,407)	(26,615)
Dividend income	1,125,180	166,496	1,112,731	176,359	1,056,636	146,932
Investment expenses (net)	(290,871)	(563)	(301,437)	1,824	(350,668)	(2,148)
Benefits/withdrawals	(4,591,086)	(1,446,806)	(4,487,680)	(1,377,428)	(4,351,924)	(1,122,898)
Withdrawals — Loan adj.	14,239	7,946	11,787	10,889	17,713	8,511
New loans	(147,950)	(192,358)	(154,367)	(204,811)	(150,066)	(189,680)
Administrative expenses	(64,532)	(23,957)	(64,291)	(23,964)	(65,076)	(22,456)
	<u>\$ 1,147,079</u>	<u>\$ (239,883)</u>	<u>\$ 1,377,353</u>	<u>\$ (211,460)</u>	<u>\$ 1,746,742</u>	<u>\$ (119,371)</u>

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)**  
**JUNE 30, 2020 AND 2019**

## Investments

TRS investment funds include both QPP and TDA Program assets. The table below details the QPP and TDA Program's portions of the funds.

### TRS Investment Funds by Plan Percentage

	June 30, 2020	June 30, 2020	June 30, 2019	June 30, 2019	June 30, 2018	June 30, 2018
	QPP	TDA	QPP	TDA	QPP	TDA
TRSNYC Pension Fund	66.3%	33.7%	67.0%	33.0%	67.3%	32.7%
Variable-Return Funds:						
Diversified equity*	37.9%	58.1%	39.0%	57.1%	40.6%	55.8%
Balanced fund**	12.1%	87.9%	15.9%	84.1%	18.8%	81.2%
International equity	5.7%	94.3%	6.9%	93.1%	7.9%	92.1%
Inflation protection***	0.0%	0.0%	5.6%	94.4%	7.1%	92.9%
Sustainable equity****	4.3%	95.7%	5.4%	94.6%	6.3%	93.7%
U.S. Equity Index *****	12.8%	87.2%	0.0%	0.0%	0.0%	0.0%
International Equity Index *****	1.9%	98.1%	0.0%	0.0%	0.0%	0.0%

\* Remaining portion is held by Board of Education Retirement System.

\*\* Bond fund prior to January 1, 2018.

\*\*\* Fund discontinued as of April 1, 2020.

\*\*\*\* Socially responsive equity fund prior to October 1, 2019.

\*\*\*\*\* New funds established as of January 1, 2020.

To rate investment performance, both the TRSNYC Pension Fund assets and variable-return funds' investments are monitored with various benchmarks.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)  
JUNE 30, 2020 AND 2019**

In addition to other indices, the "policy index" is a custom benchmark for the complete TRS NYC Pension Fund. As of June 30, 2020, the policy index includes the following percentage weights:

**TRSNYC Pension Fund Policy Index as of June 30, 2020\***

<u>Investment Type</u>	<u>Benchmark</u>	<u>Percent</u>
U.S. Equity	Russell 3000	28.9%
International Developed EAFE Markets	MSCI World ex USA IMI Net	9.8%
Int'l Active- Global	MSCI World Net Dividends Index	0.4%
Emerging Markets	MSCI Custom TRS Emerging Markets (Net)	9.4%
International Emerging Managers FoF	NYC Blended Custom Benchmark for FoF	0.7%
Private Equity	Russell 3000 + 300 b.p per annum	5.4%
Private Real Estate - Core	NFI - ODCE Net	2.5%
Private Real Estate - Non Core	NFI - ODCE Net + 200 bps	1.4%
Infrastructure	CPI + 4%	1.3%
U.S. Treasury Short Term	FTSE USBIG Treasury 1-3Y	7.0%
U.S. Treasury Long Duration	FTSE Treasury 10+	7.6%
Mortgage	FTSE Mortgage Index	5.8%
ETI	ETI Custom Benchmark	0.9%
Investment Grade Credit	NYC - Investment Grade Credit	6.7%
High Yield	Bloomberg Barclays US High Yield 2% Issuer Capped	5.5%
TIPS	BBG BARC Gbl Inf-Lk: US TIPS (Dly)	3.7%
Opportunistic Fixed	OFI - JPMGHY / CSFB 50/50 Blend Plus 300 b.p. per annum	3.0%
		<u>100.0%</u>

\*Source: Teachers' Retirement System of New York City Performance Overview as of June 30, 2020  
prepared by State Street.

Variable-return funds are benchmarked using the Russell 3000, Standard & Poor's 500, Russell 1000 Growth, Dow Jones U.S. Total Stock Market Index, MSCI ACWI ex US IMI Net Index, FTSE Global All Cap, Bloomberg Barclays 1-5 Year Government/Credit indices, as well as numerous other indices.

TRS earns additional investment income by lending its investment securities. The borrowers provide collateral to TRS that is valued in excess of the securities loaned, and the collateral is invested in short-term interest-bearing funds. For the Fiscal Year ended June 30, 2020, net securities lending income amounted to \$11.7 million, a decrease of \$1.7 million from Fiscal Year 2019. For the Fiscal Year ended June 30, 2019, net securities lending income amounted to \$13.4 million, a decrease of \$3.5 million from Fiscal Year 2018. (See Note 2.)

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)**  
**JUNE 30, 2020 AND 2019**

Investments held by TRS, including collateral from securities-lending transactions, are listed according to their investment classification in the following table:

**Investment Summary (by Asset Class)**  
**(in thousands)**

	<u>2020</u>	<u>2019</u>	<u>2018</u>
Short-term investments	\$ 3,519,502	\$ 1,897,730	\$ 1,971,516
Debt securities and fixed income	28,073,127	26,671,698	26,117,272
Equity securities	54,912,360	54,807,149	51,313,246
Alternative investments	10,765,147	10,069,086	8,926,759
Collateral from securities lending	<u>1,446,010</u>	<u>1,280,112</u>	<u>1,212,762</u>
Total	<u>\$ 98,716,146</u>	<u>\$ 94,725,775</u>	<u>\$ 89,541,555</u>

**Investment Summary (by Plan)**  
**(in thousands)**

	<u>2020</u>	<u>2019</u>	<u>2018</u>
<b>TRSNYC Pension Fund</b>			
QPP	\$ 54,488,989	\$ 52,091,309	\$ 48,704,639
TDA	<u>27,653,633</u>	<u>25,602,248</u>	<u>23,707,352</u>
Total	<u>82,142,622</u>	<u>77,693,557</u>	<u>72,411,991</u>
<b>Variable-Return Funds</b>			
QPP	5,700,118	6,161,088	6,489,478
TDA	<u>9,427,396</u>	<u>9,591,018</u>	<u>9,427,324</u>
Total	<u>15,127,514</u>	<u>15,752,106</u>	<u>15,916,802</u>
<b>Collateral for Security Lending</b>			
QPP Pension Fund	1,355,516	1,182,863	1,048,388
QPP Variable-Return Funds	35,724	39,451	69,204
TDA Variable-Return Funds	<u>54,770</u>	<u>57,798</u>	<u>95,170</u>
Total	<u>1,446,010</u>	<u>1,280,112</u>	<u>1,212,762</u>
<b>Total Investments</b>	<u>\$ 98,716,146</u>	<u>\$ 94,725,775</u>	<u>\$ 89,541,555</u>

**CONTACT INFORMATION**

This financial report is designed to provide a general overview of the Teachers' Retirement System's finances. Questions concerning any data provided in this report or requests for additional information should be directed to Mr. Paul J. Raucci, Chief Accountant, Teachers' Retirement System of the City of New York, 55 Water Street, New York, NY 10041.

\* \* \* \* \*

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**COMBINING STATEMENTS OF FIDUCIARY NET POSITION**  
**JUNE 30, 2020**  
**(In Thousands)**

	QPP	TDA	Eliminations	Total
<b>ASSETS:</b>				
Cash	\$ 48,488	\$ 7,477	\$ -	\$ 55,965
Receivables:				
Investment securities sold	1,889,299	8,378	-	1,897,677
Accrued interest and dividends	289,845	18,164	-	308,009
Member loans (Note 6)	323,805	401,243	-	725,048
Total receivables	2,502,949	427,785	-	2,930,734
Investments — at fair value (Notes 2 and 3):				
TRSNYC Pension Fund Assets (Fixed-Return Fund):				
Short-term investment:				
Commercial paper	381,195	-	-	381,195
Short-term investment fund	747,639	-	-	747,639
U.S. Treasury bills and Agencies	2,149,709	-	-	2,149,709
Debt securities:				
U.S. Government	9,911,190	-	-	9,911,190
Corporate and Other	14,707,801	-	-	14,707,801
Treasury inflation protected securities	3,126,355	-	-	3,126,355
Equity securities:				
Domestic equity	25,363,162	-	-	25,363,162
International equity	14,990,424	-	-	14,990,424
Alternative Investments	10,765,147	-	-	10,765,147
Collateral from securities lending (Fixed-Return Fund)	1,355,516	-	-	1,355,516
Diversified Equity Fund:				
Short-term investments	119,761	103,026	-	222,787
Equity securities	5,366,777	8,227,884	-	13,594,661
Debt securities	129,398	198,383	-	327,781
Balanced Fund:				
Short-term investments	1,086	7,865	-	8,951
Equity securities	57,937	419,544	-	477,481
International Equity Fund:				
Short-term investments	104	1,720	-	1,824
International equity	9,422	155,585	-	165,007
Sustainable Equity Fund (formerly Socially Responsive Equity Fund):				
Short-term investments	315	7,082	-	7,397
Equity securities	12,691	285,775	-	298,466
U.S. Equity Index Fund				
Equity securities	2,568	17,470	-	20,038
International Equity Index Fund				
Equity securities	59	3,062	-	3,121
Collateral from securities lending (Variable-Return Funds)	35,724	54,770	-	90,494
Total investments	89,233,980	9,482,166	-	98,716,146
TDA Investment in TRSNYC Pension Fund	-	27,653,633	(27,653,633)	-
Other assets	63,899	18,454	(48,034)	34,319
Total assets	91,849,316	37,589,515	(27,701,667)	101,737,164
<b>LIABILITIES:</b>				
Accounts payable	299,648	83,749	(48,034)	335,363
Payable for investment securities purchased	3,096,888	15,402	-	3,112,290
Accrued benefits payable	88,957	412,069	-	501,026
Due to TDA Program's Fixed Return Fund	27,653,633	-	(27,653,633)	-
Securities lending (Note 2)	1,391,240	54,770	-	1,446,010
Total liabilities	32,530,366	565,990	(27,701,667)	5,394,689
<b>NET POSITION RESTRICTED FOR BENEFITS</b>				
Benefits to be provided by QPP	59,318,950	-	-	59,318,950
Benefits to be provided by TDA Program	-	37,023,525	-	37,023,525
Total net position restricted for benefits	\$ 59,318,950	\$ 37,023,525	\$ -	\$ 96,342,475

The accompanying notes are an integral part of these combining financial statements.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**COMBINING STATEMENTS OF FIDUCIARY NET POSITION**  
**JUNE 30, 2019**  
**(In Thousands)**

	<b>QPP</b>	<b>TDA</b>	<b>Eliminations</b>	<b>Total</b>
<b>ASSETS:</b>				
Cash	\$ 76,796	\$ 9,533	\$ -	\$ 86,329
Receivables:				
Investment securities sold	2,305,855	55,994	-	2,361,849
Accrued interest and dividends	290,228	16,531	-	306,759
Member loans (Note 6)	320,976	403,787	-	724,763
Total receivables	2,917,059	476,312	-	3,393,371
Investments — at fair value (Notes 2 and 3):				
TRSNYC Pension Fund Assets (Fixed-Return Fund):				
Short-term investment:				
Commercial paper	567,394	-	-	567,394
Short-term investment fund	779,479	-	-	779,479
Discount notes	203,555	-	-	203,555
U.S. Treasury bills and Agencies	100,011	-	-	100,011
Debt securities:				
U.S. Government	11,074,088	-	-	11,074,088
Corporate and Other	11,914,295	-	-	11,914,295
Treasury inflation protected securities	3,387,131	-	-	3,387,131
Equity securities:				
Domestic equity	24,374,505	-	-	24,374,505
International equity	15,224,013	-	-	15,224,013
Alternative Investments	10,069,086	-	-	10,069,086
Collateral from securities lending (Fixed-Return Fund)	1,182,863	-	-	1,182,863
Diversified Equity Fund:				
Short-term investments	123,852	109,819	-	233,671
Equity securities	5,826,298	8,535,976	-	14,362,274
Debt securities	120,152	176,032	-	296,184
Balanced Fund:				
Short-term investments	775	4,105	-	4,880
Equity securities	62,502	330,847	-	393,349
International Equity Fund:				
Short-term investments	65	878	-	943
International equity	11,131	150,972	-	162,103
Inflation Protection Fund:				
Short-term investments	13	211	-	224
Equity securities	3,930	66,134	-	70,064
Socially Responsive Equity Fund:				
Short-term investments	410	7,163	-	7,573
Equity securities	10,975	191,682	-	202,657
International equity	985	17,199	-	18,184
Collateral from securities lending (Variable-Return Funds)	39,451	57,798	-	97,249
Total investments	85,076,959	9,648,816	-	94,725,775
TDA Investment in TRSNYC Pension Fund	-	25,602,248	(25,602,248)	-
Other assets	42,615	20,813	(27,616)	35,812
Total assets	88,113,429	35,757,722	(25,629,864)	98,241,287
<b>LIABILITIES:</b>				
Accounts payable	646,918	68,740	(27,616)	688,042
Payable for investment securities purchased	2,574,584	59,678	-	2,634,262
Accrued benefits payable	77,154	238,111	-	315,265
Due to TDA Program's Fixed Return Fund	25,602,248	-	(25,602,248)	-
Securities lending (Note 2)	1,222,314	57,798	-	1,280,112
Total liabilities	30,123,218	424,327	(25,629,864)	4,917,681
<b>NET POSITION RESTRICTED FOR BENEFITS</b>				
Benefits to be provided by QPP	57,990,211	-	-	57,990,211
Benefits to be provided by TDA Program	-	35,333,395	-	35,333,395
Total net position restricted for benefits	\$ 57,990,211	\$ 35,333,395	\$ -	\$ 93,323,606

The accompanying notes are an integral part of these combining financial statements.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**COMBINING STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION**  
**YEAR ENDED JUNE 30, 2020**  
(In Thousands)

	QPP	TDA	Total
ADDITIONS:			
Contributions:			
Member contributions (Note 4)	\$ 226,920	\$ 1,029,758	\$ 1,256,678
Employer contributions	3,590,822	-	3,590,822
Other employer contributions	61,748	-	61,748
Total contributions	<u>3,879,490</u>	<u>1,029,758</u>	<u>4,909,248</u>
Investment income (Note 2):			
Interest income	1,094,140	32,127	1,126,267
Dividend income	1,125,180	166,496	1,291,676
Net appreciation in fair value of investments	1,972,228	128,382	2,100,610
Total investment income	<u>4,191,548</u>	<u>327,005</u>	<u>4,518,553</u>
Less:			
Investment expenses	296,818	11,607	308,425
Net (decrease) in variable expense provision	<u>(5,947)</u>	<u>(11,044)</u>	<u>(16,991)</u>
Net investment income	<u>3,900,677</u>	<u>326,442</u>	<u>4,227,119</u>
Securities lending transactions:			
Securities lending income	11,885	1,299	13,184
Less - securities lending fees	<u>(1,375)</u>	<u>(128)</u>	<u>(1,503)</u>
Net securities lending income	<u>10,510</u>	<u>1,171</u>	<u>11,681</u>
Other:			
Net receipts to other retirement systems	<u>(2,798)</u>	<u>-</u>	<u>(2,798)</u>
Total additions	<u>7,787,879</u>	<u>1,357,371</u>	<u>9,145,250</u>
DEDUCTIONS:			
Benefit payments and withdrawals	4,591,086	1,446,806	6,037,892
Administrative expenses (Note 8)	64,532	23,957	88,489
Other:			
Statutory Interest for TDA Program's Fixed Return Fund	1,846,173	(1,846,173)	-
TDA Rebalance	<u>(42,651)</u>	<u>42,651</u>	<u>-</u>
Total deductions	<u>6,459,140</u>	<u>(332,759)</u>	<u>6,126,381</u>
NET INCREASE IN NET POSITION	1,328,739	1,690,130	3,018,869
NET POSITION RESTRICTED FOR BENEFITS:			
Beginning of year	<u>57,990,211</u>	<u>35,333,395</u>	<u>93,323,606</u>
End of year	<u>\$ 59,318,950</u>	<u>\$ 37,023,525</u>	<u>\$ 96,342,475</u>

The accompanying notes are an integral part of these combining financial statements.



**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**COMBINING STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION**  
**YEAR ENDED JUNE 30, 2019**  
(In Thousands)

	QPP	TDA	Total
ADDITIONS:			
Contributions:			
Member contributions (Note 4)	\$ 217,205	\$ 995,035	\$ 1,212,240
Employer contributions	3,696,686	-	3,696,686
Other employer contributions	62,513	-	62,513
Total contributions	<u>3,976,404</u>	<u>995,035</u>	<u>4,971,439</u>
Investment income (Note 2):			
Interest income	1,148,789	33,155	1,181,944
Dividend income	1,112,731	176,359	1,289,090
Net appreciation in fair value of investments	3,749,095	456,931	4,206,026
Total investment income	<u>6,010,615</u>	<u>666,445</u>	<u>6,677,060</u>
Less:			
Investment expenses	307,370	9,527	316,897
Net (decrease) in variable expense provision	<u>(5,933)</u>	<u>(11,351)</u>	<u>(17,284)</u>
Net investment income	<u>5,709,178</u>	<u>668,269</u>	<u>6,377,447</u>
Securities lending transactions:			
Securities lending income	13,416	1,412	14,828
Less - securities lending fees	<u>(1,284)</u>	<u>(141)</u>	<u>(1,425)</u>
Net securities lending income	<u>12,132</u>	<u>1,271</u>	<u>13,403</u>
Other:			
Net receipts to other retirement systems	<u>1,222</u>	<u>-</u>	<u>1,222</u>
Total additions	<u>9,698,936</u>	<u>1,664,575</u>	<u>11,363,511</u>
DEDUCTIONS:			
Benefit payments and withdrawals	4,487,680	1,377,428	5,865,108
Administrative expenses (Note 8)	64,291	23,964	88,255
Other:			
Statutory Interest for TDA Program's Fixed Return Fund	1,716,679	(1,716,679)	-
TDA Rebalance	<u>(27,449)</u>	<u>27,449</u>	<u>-</u>
Total deductions	<u>6,241,201</u>	<u>(287,838)</u>	<u>5,953,363</u>
NET INCREASE IN NET POSITION	3,457,735	1,952,413	5,410,148
NET POSITION RESTRICTED FOR BENEFITS:			
Beginning of year	<u>54,532,476</u>	<u>33,380,982</u>	<u>87,913,458</u>
End of year	<u>\$ 57,990,211</u>	<u>\$ 35,333,395</u>	<u>\$ 93,323,606</u>

The accompanying notes are an integral part of these combining financial statements.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**NOTES TO COMBINING FINANCIAL STATEMENTS**  
**JUNE 30, 2020 AND 2019**

**1. PLAN DESCRIPTION**

The City of New York ("The City") maintains a number of pension systems providing benefits for employees of its various agencies (as defined within New York State ("State") and City laws). The City's five major actuarially-funded pension systems are the Teachers' Retirement System of the City of New York ("TRS" or the "System"), The New York City Employees' Retirement System ("NYCERS"), The New York City Board of Education Retirement System ("BERS"), The New York City Police Pension Funds ("POLICE"), and The New York City Fire Pension Funds ("FIRE"). Each pension system is a separate Public Employee Retirement System ("PERS") with a separate oversight body and is financially independent of the others.

TRS administers the TRS Qualified Pension Plan (the "QPP") and the TRS Tax-Deferred Annuity Program (the "TDA Program").

The QPP is a cost-sharing, multiple-employer pension plan. The QPP provides pension benefits for certain City public school teachers and certain other school and college teachers. The employers, in addition to The City, are The City University of New York ("CUNY") and several Charter Schools (collectively, the "Employers"). Substantially all teachers in the public schools of The City become members of the QPP, and certain other specified school and college personnel may become members on the first day of permanent employment.

The QPP functions in accordance with State and City laws, which establish benefit terms and Employer and member contribution requirements for the QPP. The QPP is a tax-qualified retirement plan under section 401(a) of the Internal Revenue Code ("IRC") that has received a favorable determination letter from the Internal Revenue Service ("IRS"). The QPP combines features of a defined-benefit pension plan with those of a defined-contribution pension plan, but is a defined-benefit pension plan for financial reporting purposes. Contributions are made by the Employers and the members.

The TDA Program was established and is administered pursuant to IRC Section 403(b) and NYC Administrative Code section 13-582 and became effective February 1, 1970. Members of the QPP have the option to participate in the TDA Program, which provides a means of deferring income tax payments on members' voluntary contributions until after retirement or upon withdrawal of contributions. Contributions to the TDA Program are made by the members only and are voluntary. Benefits provided under the TDA Program are derived from members' accumulated contributions and earnings thereon. The TDA Program is a defined-contribution pension plan for financial reporting purposes.

The QPP and TDA Program are fiduciary funds of The City and are included in the Pension and Other Employee Benefit Trust Funds section of The City's Comprehensive Annual Financial Report ("CAFR").

**Board of Trustees**

The Teachers' Retirement Board, a seven-trustee Board, sets policy and oversees TRS' operations. Three TRS Board trustees are elected from and by the TRS membership. These trustees serve three-year terms. The Mayor appoints two Board trustees, one of whom must be a member of the Panel for Educational Policy. The City Comptroller and the Chair of the Panel for Education Policy are the other two Board trustees, each of which may designate a representative to act on his or her behalf.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**NOTES TO COMBINING FINANCIAL STATEMENTS**  
**JUNE 30, 2020 AND 2019**

**Membership Data**

The QPP's and TDA Program's membership, at June 30, 2020 and June 30, 2019 consisted of:

<b>QPP</b>	<b>2020 *</b>	<b>2019</b>
Retirees and beneficiaries receiving benefits	90,000	88,507
Terminated vested members not yet receiving benefits	16,000	13,410
Other inactives**	7,000	8,174
Active members	125,000	123,336
Total	238,000	233,427

<b>TDA Program</b>	<b>2020 *</b>	<b>2019</b>
Retirees receiving a TDA annuity	2,900	2,827
Retirees or Inactive members with TDA deferral	60,000	57,730
Active members with TDA	97,000	93,600
Total	159,900	154,157

\*Preliminary.

\*\* Represents members who are no longer on payroll but not otherwise classified.

The QPP's and TDA Program's membership, at June 30, 2018 and June 30, 2017, the dates of the membership data used in determining Fiscal Year 2020 and Fiscal Year 2019 employer contributions, consisted of:

<b>QPP</b>	<b>2018</b>	<b>2017</b>
Retirees and beneficiaries receiving benefits	86,295	84,770
Terminated vested members not yet receiving benefits	16,433	15,229
Other inactives*	9,416	7,997
Active members	121,764	120,826
Total	233,908	228,822

<b>TDA Program</b>	<b>2018</b>	<b>2017</b>
Retirees receiving a TDA annuity	2,811	2,866
Retirees or Inactive members with TDA deferral	55,874	54,448
Active members with TDA	90,648	87,694
Total	149,333	145,008

\* Represents members who are no longer on payroll but not otherwise classified.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**NOTES TO COMBINING FINANCIAL STATEMENTS**  
**JUNE 30, 2020 AND 2019**

**Summary of Benefits***QPP Plan*

The State Constitution provides that the pension rights of public employees are contractual and shall not be diminished or impaired. In 1973, 1976, 1983 and 2012, significant amendments made to the State Retirement and Social Security Law ("RSSL") modified certain benefits and member contributions for employees joining the QPP on or after the effective date of such amendments. As such, benefits under the QPP fall into various categories (also referred to as "Tiers") based on the year when an employee joined the QPP. A brief overview follows:

- Members who joined prior to July 1, 1973 ("Tier I") are entitled to service retirement benefits of 50% of "final salary" (as defined within State and City laws) after 20 years of service; a portion is provided from member contributions, plus additional benefits equal to specified percentages (as defined within State and City laws) per year of service of "final salary" for years in excess of the 20-year minimum. These benefits are increased, where applicable, by an annuity attributable to accumulated member contributions in excess of the minimum required balance and by any benefits attributable to Increased-Take-Home-Pay ("ITHP") contributions [accumulated after the twentieth year of member qualifying service]. ITHP represents amounts contributed by The City to members' QPP accounts in lieu of members' own contributions. These amounts reduce the contributions that members would have to make to the QPP during their service and thereby increase their take-home pay. Members have the choice of waiving their ITHP reduction, which would reduce their take-home pay, but provide them with increased benefits upon retirement.

In addition, these same members could elect a service retirement benefit with no minimum service requirement that provides an annual benefit for each year of service equal to a specified percentage (as described within State statutes and City laws) of "final salary" payable on attainment of age 55. This benefit is increased, where applicable, by an annuity attributable to the member's contributions and by any benefits attributable to the Employers' contributions with respect to such service under the ITHP contributions.

- Members who joined the QPP after June 30, 1973 and before July 27, 1976 ("Tier II") have provisions similar to Tier I, except that the eligibility for retirement and the salary base for benefits are different and there is a limitation on the maximum benefit. This maximum limitation was subsequently eliminated under Chapter 574 of the Laws of 2000 for all Tier II members who retired after December 8, 2000. Members retiring prior to the age of 62 without 30 years of credited service are subject to an age-reduction factor in their retirement allowance. Effective February 27, 2008, active members were eligible to enroll in a 55 retirement-age minimum and 25 credited years of service retirement option ("55/25 retirement option") enabling them to eliminate any age-reduction factor in their retirement allowance (Chapter 19 of Laws of 2008). Those choosing the 55/25 retirement option are required to make additional contributions of 1.85% of salary from February 28, 2008 until June 29, 2008, or until they have accumulated 25 years of credited service, whichever is later.

For Tier I and II members enrolled in the QPP prior to July 27, 1976, ITHP contributions made on their behalf, as well as their own contributions are invested, at their election, in the Fixed Return Fund or in variable-return funds. Members can elect to invest in multiples of 5% and change their elections on a quarterly basis. Members receive statutory returns, currently 8.25%, on member contributions or ITHP contributions to the Fixed Return Fund ("Fixed Annuity Program").

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Certain members of Tier I and Tier II have the right to make voluntary member contributions ("Voluntary Contributions") in excess of their required member contributions ("Required Contributions"). Both the investment of the Voluntary Contributions and the Required Contributions are directed by each member. A member may invest in: (1) the QPP's Fixed Return Fund in which it is credited with interest at the Statutory-Interest Rate (currently 8.25% for Tier I and Tier II contributions and 7.0% for UFT members and 8.25% for non-UFT members for TDA Contributions) and/or (2) in one or more of the QPP's variable-return funds (see Note 2—Investment Programs). At the time of retirement or refund of contributions, a member's aggregate balance of actual Required Contributions and Voluntary Contributions, including the actual accumulated earnings thereon, less the outstanding balance of any member loans ("Net Actual Contributions"), may exceed ("Excess of Contributions") or fall short of ("Deficiency of Contributions") the member's Expected Balance. The Expected Balance is the sum of the Required Contributions which a member should have made during his or her credited service, plus the earnings that would have accumulated thereon at the Statutory-Interest rate. The amount of the member's retirement annuity or the refund of contributions that he or she is entitled to is increased by any Excess of Contributions or reduced by any Deficiency of Contributions. The total value of active members' Excess of Contributions, net of all Deficiencies of Contributions, is \$46.4 million and \$53.7 million, for the years ended June 30, 2020 and 2019, respectively. Actuarial estimates of the impact of Excesses and Deficiencies are incorporated into calculation of the QPP's net pension liability.

The variable-return funds include only member contributions and ITHP contributions made on their behalf, as described above, and are expressed in terms of units that are valued monthly based on investment experience. At retirement, monthly annuities attributable to member Voluntary Excess Contributions and ITHP contributions can be paid in both fixed and variable amounts, based on the member's election, which can be changed quarterly. Other benefits are paid only in fixed amounts. Monthly annuities attributable to investments in the variable-return funds are not fixed in amount, but are based on investment experience through the preceding month.

- Members who joined the QPP on or after July 27, 1976 and prior to September 1, 1983 ("Tier III") were later mandated into Tier IV. However, these members retain their Tier III rights. Tier III requires member contributions of 3.0% of salary for a ten-year period (Chapter 126 of the Laws of 2000) and generally provides for reducing benefits by one-half of the primary Social Security benefit attributable to service with the Employer and for an annual cost-of-living escalator in pension benefits of not more than 3.0%. Members retiring prior to the age of 62 without 30 years of credited service are subject to an age-reduction factor in their retirement allowance.
- Members who joined the QPP on or after September 1, 1983 ("Tier IV") were required to make contributions of 3.0% of salary until termination of service. As of October 1, 2000, these members are not required to make contributions after the tenth anniversary of their membership date or completion of ten years of credited service, whichever is earlier (Chapter 126 of the Laws of 2000). The annual benefit is approximately 1.67% of "final average salary" per year of service for members with less than 20 years of service and 2.0% of "final average salary" per year of service for members with 20 to 30 years of service, plus a 1.5% addition of "final average salary" per year of service for service in excess of 30 years of service. Members retiring prior to the age of 62 without 30 years of credited service experience an age-reduction factor in their retirement allowance. Effective February 27, 2008, active members were eligible to enroll in a 55 retirement age minimum and 25 credited years of service retirement option enabling them to eliminate any age-reduction factor in their retirement allowance. Those choosing the age 55 retirement option are required to make additional contributions of 1.85% of salary from February 28, 2008 until June 29, 2008, or until they have accumulated 25 years of credited service, whichever is later. Members joining after February 27, 2008 are automatically enrolled in a 55 retirement age minimum and 27 credited years of service retirement program ("55/27 retirement program").

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These members are required to make additional plan contributions of 1.85% of salary until they have accumulated 27 years of credited service.

Members under the 55/27 retirement program who joined after December 10, 2009, but before April 1, 2012, were required to make contributions of 4.85% of salary until they have 27 years of credited service and contributions of 1.85% of salary thereafter.

- Members who join on and after April 1, 2012 ("Tier VI") are required to make contributions of 3.0% per year through March 31, 2013. Thereafter, contributions range from 3.0% to 6.0% in accordance with a schedule based on salary. Member contributions continue until retirement. Salary is limited to the New York State Governor's salary. Tier VI members are generally eligible to retire with unreduced benefits beginning at age 63 or with reduced benefits beginning at age 55, if vested.

Members enrolled in the QPP on or after July 27, 1976 ("Tier III, IV and VI") who resign or otherwise terminate from service prior to eligibility for a benefit, are refunded all of their member contributions with 5.0% interest (RSSL, Article 15). Tier III, IV and VI members who work for the Department of Education also receive a monthly supplemental contribution. Monthly supplemental contributions totaling \$550 per year for supervisors and administrators and \$400 per year for other eligible members is credited to the members' Annuity Savings Accumulation Fund ("ASAF").

Under all service retirement categories, annuities attributable to member contributions are reduced on an actuarial basis for any loans with unpaid balances outstanding at the date of retirement.

Subject to certain conditions, members become fully vested and eligible for benefits upon the completion of five years of service. After December 10, 2009, new members who belong to the UFT, and all Tier VI members, become fully vested upon the completion of ten years of service.

The QPP provides death benefits and retirement benefits on the occurrence of accidental or ordinary disability. In terms of payment options of the retirement annuity, the QPP provides a number of options depending on whether retirement payments, following death, will continue to an assigned beneficiary.

During the Spring 2000 session, the State Legislature approved and the State Governor ("Governor") authorized automatic Cost-of-Living Adjustments ("COLAs") for certain retirees and beneficiaries (Chapter 125 of the Laws of 2000). COLA is payable to all members who are either: (1) at least age 62 and have been retired for at least five years or (2) at least age 55 and have been retired for at least ten years. Additionally, COLA is payable to members who retired for disability after being retired for five or more years and beneficiaries receiving accidental death benefits who have been receiving them for at least five years. COLA is one-half of the increase in the CPI-U based on the year ending March 31, rounding to the next higher 0.1%, not less than 1% nor greater than 3% of the first \$18,000 of the sum of the maximum retirement allowance and prior COLA.

#### *TDA Program*

The TDA Program is administered by the TRS Board. Contributions to the TDA Program are made by the members only and are voluntary. To participate in the TDA Program, active members of the QPP are required to submit a salary-reduction agreement and enrollment request. Members may choose to stop contributions at any time. A participant may elect to exclude an amount (within the maximum allowed by the IRS) of compensation from current taxable income by contributing it to the TDA Program. This maximum amount is calculated based on various individual factors. Members can elect to invest in the Fixed Return Fund or the variable-return funds.

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A participant may withdraw all or part of the balance of his/her account prior to or at the time of retirement. As of January 1, 1989, the tax laws restricted withdrawals of tax-deferred annuity contributions and accumulated earnings thereon for reasons other than retirement or termination. Contributions made after December 31, 1988 and investment earnings credited after December 31, 1988 may only be withdrawn upon attainment of age 59½ or for reasons of hardship (as defined by IRS regulations). Previously, hardship withdrawals were limited to contributions only and, if hardship withdrawal occurred, the member was not able to contribute for a six-month period. The Budget Act of 2018 authorizes plans to remove these restrictions beginning no later than January 1, 2020.

If a member dies while an in-service employee, the full value of his/her TDA Program account at the date of death is paid to the member's beneficiary or estate.

When a member resigns before attaining vested rights under the QPP, (s)he may withdraw the value of the account or may leave the account in the TDA Program for a period of up to seven school years after the date of resignation, provided (s)he does not withdraw his/her account from the QPP. If a member resigns after attaining vested rights under the QPP, (s)he may leave his/her account in the TDA Program, provided the member does not withdraw his/her QPP funds. Once a withdrawal is made from the QPP, the member's participation in the TDA Program is automatically terminated, and the value of the account in the TDA Program will be paid out to the member. Upon death, TDA balances are paid to the assigned beneficiaries or may be invested on behalf of the beneficiaries in the TDA Program's variable-return funds.

At retirement, several payment options are available to those who annuitize their TDA Program funds. Generally, payment options similar to the QPP are available under the TDA Program.

See "Investments" below for a discussion of TDA investment programs.

## **2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

**Basis of Accounting** — The QPP and the TDA Program use the accrual basis of accounting where the measurement focus is on the flow of economic resources. Revenues are recognized in the accounting period in which they are earned, and expenses are recognized in the period incurred. Contributions from members are recognized when the Employers make payroll deductions from members' salary. Employer contributions to the QPP are recognized when due and the employer has a legal obligation to provide the contributions. Benefits and refunds are recognized when due and payable in accordance with the terms of the QPP and the TDA Program.

**Use of Estimates** — The preparation of combining financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and revenues and expenses during the reporting period. Actual results could differ from those estimates.



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**Investment Valuation** — Investments are reported at fair value. Fair value is defined as the quoted market price at the end of the last trading day for the specified period, except for Alternative investments which are considered long-term and illiquid in nature. Alternative investments consist of limited partnership structures invested in privately held investments for which exchange quotations are not readily available and are valued at estimated fair value as determined in good faith by the General Partner (GP). These investments are initially valued at cost with subsequent adjustments that reflect third party transactions, financial operating results and other factors deemed relevant by the GP. Fair value is determined by plan management based on information provided by the various GPs after review by an independent consultant and the custodian bank for the funds. They include investments held within Private Equity, Real Estate, Opportunistic Fixed Income, and Infrastructure.

Purchases and sales of securities are reflected on the trade date. Dividend income is recorded on the ex-dividend date. Interest income is recorded as earned on an accrual basis.

**Fair Value Measurement** — Government Accounting Standards Board ("GASB") Statement No. 72, Fair Value Measurement and Application ("GASB 72") describes fair value as an exit price, requiring investments to be categorized under a fair value hierarchy prescribed by GASB. GASB 72 establishes a hierarchy of inputs used to measure fair value consisting of three levels based on market price observability. Level 1 inputs are quoted prices in active markets for identical assets or liabilities. Level 2 inputs are inputs, other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. Level 3 inputs are unobservable inputs, and typically reflect management's estimates of assumptions that market participants would use in pricing the asset or liability. GASB 72 also contains note disclosure requirements regarding the hierarchy of valuation inputs and valuation techniques that were used for the fair value measurements.

**Investment Presentation** — The TDA Program Fixed Return Fund's portion of TRSNYC Pension Fund assets are shown as commingled with the QPP's portion of TRSNYC Pension Fund assets, and an offsetting liability is used to show the TDA Program's share of the funds.

**Investment Programs** — Prior to July 1, 2008, investments were composed of the assets of the following investment programs: the TRSNYC Pension Fund (which includes a component, the Fixed Return Fund, which was previously referred to as the Fixed Annuity Program) and two variable-return funds — the Diversified Equity Fund and the Stable-Value Fund. As of July 1, 2008, the investment programs were expanded to include three new variable-return funds — the International Equity Fund, the Inflation Protection Fund and the Socially Responsive Equity Fund. On January 1, 2012, the Stable-Value Fund became the Bond Fund. On January 1, 2018, the Bond Fund became the Balanced Fund. The Balanced Fund's objective is to seek current income and some capital appreciation by investing in a portfolio that includes both stocks and bonds. As of October 1, 2019, the Socially Responsive Equity Fund became Sustainable Equity Fund. On January 1, 2020, the investment programs were expanded to include two new variable-return funds- U.S. Equity Index Fund and International Equity Index Fund. The investment objective of the U.S. Equity Index Fund is to track the total return of the broad U.S. equity market, including large-, mid-, and small-capitalization stocks. The investment objective of the International Equity Index Fund is to track the total return of non-U.S. equity markets, including developed markets and emerging markets. As of April 1, 2020, the Inflation Protection Fund was discontinued. The TRS investment programs are collectively referred to as TRS Passport Funds.

All investment programs excluding the TRSNYC Pension Fund are referred to as the variable-return funds. The TRSNYC Pension Fund includes System investments from QPP employer contributions, QPP Tier I and II members' and ITHP contributions, QPP Tier III, IV, and VI members' contributions and ASAF contributions and TDA Program member contributions invested in the Fixed Return Fund. Investing in variable-return funds is available for both QPP Tier I and II members' and ITHP contributions, and TDA program investments.



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In the Fixed Return Fund, deposits from members' TDA Program accounts are invested along with QPP assets and TDA Program accounts and are credited with a fixed rate of return, determined by the New York State Legislature ("Statutory-Interest Rates"). Payment of the Statutory-Interest is an obligation of The City (NYC Admin. Code section 13-533). The Statutory-Interest Rates are as follows:

- 7% for TDA investments by members who are serving in (or resigned/retired from) titles represented by the United Federation of Teachers. The crediting rate of 7% has been in effect since December 11, 2009. The prior crediting rate of 8.25% had been in effect since July 1, 1988 to December 11, 2009.
- 8.25% for TDA investments by all other members. This crediting rate has been in effect since July 1, 1988.

TDA Program assets are pooled with QPP assets for investment purposes only. NYC Administrative Code section 13-582, subdivision [k], provides for the maintenance of TDA accounts in the Annuity Savings Funds ("Fixed Return Fund") and Variable Annuity Programs ("variable-return funds"), which are distinct from similar funds for the QPP. This is in accordance with requirements that assets of the TDA Program be accounted for separately from assets of the QPP Plan. Statutory Rates received by funds invested in the QPP Plan's and the TDA Program's Annuity Savings Fund ("Fixed Return Fund") are set, respectively, by NYC Administrative Code sections 13-638.2 and 13-582 [d].

Assets in the TDA Fixed Return Fund are invested with assets of the QPP, on a pro rata basis consistent with the QPP's asset allocation policy. Earnings on these investments over (or under) the Statutory Rates are considered by The City's Chief Actuary of the Office of the Actuary (the "Actuary") in determining employer contribution obligations. Earnings over the Statutory Rates accrue to the benefit of the QPP. Earnings under the Statutory Rates are considered by the Actuary in determining employer contributions to the QPP, such that the City is ultimately responsible for any deficiency. For financial reporting purposes, TDA fixed return assets invested alongside QPP assets are reflected as a receivable due from the QPP equal in amount to the aggregate original principal amounts contributed by TDA Program members to the fixed return program, plus accrued interest at the Statutory Rate adjusted for withdrawals and transfers to or from variable funds. This receivable is reported by the TDA Program as an Investment in the Fixed Return Fund, and the corresponding liability is reported by the QPP as Fixed Return Funds due to TDA.

Assets of the variable-return funds of the QPP and the TDA Program Diversified Equity Fund and International Equity Funds are co-invested along with certain assets of the BERS. These financial statements reflect the QPP's and TDA Program's variable-return funds' proportionate shares of Diversified Equity Fund investments and the related activity.

**Other Employer Contributions** — Include amounts for Contingent Reserve Funds for half (or employer's portion) of Additional Member Contributions (Chapter 19 1.85%), buyback payments for outside and military service, and Department of Education (DOE) supplemental contributions for the ASAF and Annuity Savings Fund ("ASF"). The employer portion of Additional Member Contributions is not part of the employer's appropriation amount and also not recoverable by member upon member's resignation.

**Investment Expenses** — The variable-return funds maintain a reserve for administrative and investment expenses. As of June 30, 2020, the reserve was \$73,749,184 for QPP and \$32,395,763 for TDA. The expense reserve and net investment expenses for 2020 were reduced by \$5,947,227 for QPP and \$11,043,616 for TDA. As of June 30, 2019, the reserve was \$78,399,400 for QPP and \$42,993,114 for TDA. The expense reserve and net investment expenses for 2019 were reduced by \$5,932,905 for QPP and \$11,350,305 for TDA.

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**Income Taxes** — Income earned by the QPP and TDA Program is not subject to Federal income tax.

**Accounts Payable** — Accounts payable is principally comprised of amounts owed to the System's banks due to depositories, unclaimed funds, reserves for investment and administrative expenses for the variable-return funds, and investment expenses accrued to the QPP and TDA Program. The System's practice is to fully invest its day-end cash balances in a pooled short-term fund. A typical benefit payment bank account would show balance, since funds are only deposited as outstanding benefit checks are presented to the banks for payment each day.

**Intra-fund Payable / Receivable** — At fiscal year-end, intra-fund payables/receivables between the TRS NYC Pension Fund and the Variable-Return Funds are excluded from QPP and TDA Program assets. The Administrative Code of the City of New York (ACNY) Sections 13-577 and 13-582 provide for certain internal transfers of funds. These transfers are intended to rebalance estimated actuarial liabilities with reported assets. In Fiscal Year 2020, \$9.7 million was transferred from the QPP TRS NYC Pension Fund to the QPP Variable-Return funds. In addition, in Fiscal Year 2020, \$42.7 million was transferred to the QPP from the TDA Program. In Fiscal Year 2019, \$115.7 million was transferred from the QPP Variable-Return funds to the QPP TRS NYC Pension Fund. In addition, in Fiscal Year 2019, \$27.4 million was transferred to the QPP from the TDA Program.

**Payment of Statutory-Interest on the TDA Program's Fixed Return Fund** — The fixed interest, credited to TDA Program member account balances invested in the Fixed Return Fund (7.0% APR for UFT members after December 10, 2009; 8.25% APR for non-UFT members and for UFT members prior to December 10, 2009), and owed and transferred to the TDA Program, is reported as a transfer payment of interest by the QPP and transfer receipt of interest for the TDA Program.

**Inter-Plan Eliminations** — Included on the Combining Statements of Fiduciary Net Position and the Combining Statements of Changes in Fiduciary Net Position is an elimination column, the purpose of which is to remove from the statement any transactions involving dealings between reported entities. The eliminations include offsetting payables and receivables associated with the TDA Program's investment in the TRS NYC Pension Fund. In addition, payables and receivables between the QPP, the TDA Program, and the System's administrative expense fund are eliminated.

**Securities-Lending Transactions** — State statutes and Board policies permit the Funds to lend their investments to broker-dealers and other entities for collateral, for the same securities in the future with a simultaneous agreement to return the collateral in the form of cash, Treasury and U.S. Government securities. The Funds' agent lends the following types of securities: short-term securities, common stocks, long-term corporate bonds, U.S. Government and U.S. Government agency bonds, asset-backed securities, international equities, and bonds held in collective investment funds. In return, the Funds receive collateral in the form of cash, U.S. Treasury, and U.S. Government agency securities at 100% to 105% of the principal plus accrued interest for reinvestment. At June 30, 2020 and 2019, management believes that the Funds had no credit risk exposure to borrowers because the amounts the Funds owed the borrowers equaled or exceeded the amounts the borrowers owed the Funds. Also, the contracts with the Funds' Securities Lending Agent (the "Agent") require the Agent to indemnify the Funds as follows: In the situation when a borrower goes into default, the Agent will liquidate the collateral to purchase replacement securities. Any shortfall before the replacement securities cost and the collateral value is covered by the Agent. All securities loans can be terminated on demand within a period specified in each agreement by either the Funds or the borrowers. Cash collateral is invested by the securities lending agent using approved Lender's Investment guidelines. The weighted average maturity is 39.3 days for collateral investments under State Street's TRS NYC Pension Fund investments and 1.0 days for JPMorgan Chase's Variable-Return Fund investments. The securities-lending program in which the Funds participate only allows pledging or selling securities in the case of borrower default.

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During Fiscal Year 2020, net earnings from the securities-lending program were \$11.7 million. Net earnings from QPP were \$10.5 million including \$9.7 million from TRSNYC Pension Fund and \$763.6 thousand from variable-return funds. The TDA net earnings from the Variable-Return funds securities-lending program amounted to \$1.2 million.

During Fiscal Year 2019, net earnings from the securities-lending program were \$13.4 million. Net earnings from QPP were \$12.1 million including \$11.3 million from TRSNYC Pension Fund and \$867.5 thousand from variable-return funds. The TDA net earnings from the Variable-Return funds securities-lending program amounted to \$1.3 million.

GASB Statement No. 28, *Accounting and Financial Reporting for Securities-Lending Transactions*, requires that securities loaned as assets and related liabilities be reported in the Combining Statements of Fiduciary Net Position. Cash received as collateral on securities-lending transactions and investments made with that cash are reported as assets. As of the balance sheet date, the maturities of the investments made with cash collateral on average exceed the maturities of the securities loans by approximately 38.3 days for State Street's TRSNYC Pension Fund investments and 0.0 days for JP Morgan Chase's Variable-Return Fund investments. Securities received as collateral are also reported as assets if the government entity has the ability to pledge or sell them with a borrower default. Accordingly, the System records the investments purchased with the cash collateral from securities lending with a corresponding liability for securities lending. Securities on loan are carried at fair value; as of June 30, 2020 and 2019, the values on loan by the TRSNYC Pension Fund were \$1.4 billion and \$1.2 billion, respectively, and the values on loan by the variable-return funds were \$87.3 million and \$94.6 million, respectively. Collateral received related to securities lending as of June 30, 2020 and 2019 was \$ 1.4 billion and \$1.3 billion, respectively, for the TRSNYC Pension Fund, and \$90.5 million and \$97.2 million, respectively, for the variable-return funds.

### **3. INVESTMENTS AND DEPOSITS**

The Comptroller of the City of New York (the "Comptroller") acts as an investment advisor to TRS and employs an independent consultant for the TRSNYC Pension Fund. In addition, TRS employs an independent investment consultant as an investment advisor for its variable-return funds. TRS utilizes investment managers to manage the long-term debt and equity portfolios. The managers are regularly reviewed, with regard to both their investment performance and their adherence to investment guidelines.

RSSL and Administrative Code of the City of New York ("NYCAC") authorize the investments of assets subject to the terms, conditions, limitations, and restrictions imposed by law for investments by savings bank and domestic life insurance companies. The State Retirement and Social Security Law §§ 176-178(a), Banking Law § 235 and the ACNY establish the criteria for permissible equity investments. Investments up to 25% of total assets of the QPP and the TDA Program may be made in instruments not expressly permitted by the State RSSL.

QPP and TDA Program assets are diversified over a range of investments, and multiple strategies are used in an effort to limit overall risk.

TRS possesses investment policy statements for its QPP and TDA Program, and investment risk management is an inherent function of the asset allocation process. The System's assets are diversified over a broad range of asset classes and encompass multiple investment strategies aimed at limiting concentration risk. The asset allocation per investment program and targeted for Fiscal Years 2020 and 2019 included securities in the following categories. It is worth noting that the TRSNYC Pension Fund primarily holds QPP assets and the returns from this fund impact the funding of the QPP, a defined-benefit plan. The variable-return funds primarily relate to the TDA Program, a defined-contribution plan.

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**TRSNYC Pension Fund**  
**Target Asset Allocations**

<b>Investment Type</b>	<b>Asset Allocation Percentages *</b>	
	<b>2020</b>	<b>2019</b>
Common stock	29.2%	32.5%
International investments – Non U.S.	10.5%	12.2%
International investments – Emerging Markets	9.6%	9.0%
Alternative investments – Real Estate	3.9%	3.7%
Alternative investments – Private Equity	5.3%	5.4%
Alternative investments – Infrastructure	1.2%	1.1%
Alternative investments – Opportunistic Fixed Income	2.9%	2.8%
Fixed income	37.4%	33.3%
Total	100.0%	100.0%

\* Represents adjusted target policy percentages.

**Variable-Return Funds**  
**Target Asset Allocations**

<b>Investment Type</b>	<b>Asset Allocation Percentages</b>	
	<b>2020</b>	<b>2019</b>
Diversified Equity (Variable A):		
Common stock – Passive	55.0%	55.0%
Common stock – Active	15.0%	15.0%
Common stock – Defensive	10.0%	10.0%
International investments	20.0%	20.0%
Balanced Fund (formerly Bond Fund - Variable B):		
Fixed Income	70.0%	70.0%
Equity	30.0%	30.0%
International Equity (Variable C):		
International Investments	100.0%	100.0%
Inflation Protection Equity (discontinued as of April 1, 2020 – Variable D):		
Inflation Protection Fidelity Strategic Real Return Mutual Fund	- %	100.0%
Sustainable Equity (former Socially Responsible – Variable E):		
Sustainable Equity BA SEF	100.0%	100.0%
U.S. Equity Index (established January 1, 2020 – Variable F):		
U.S. Equity Index Fund	100%	- %
International Equity Index (established January 1, 2020 – Variable G):		
International Equity Index Fund	100%	- %

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State Street is currently the custodial bank for the securities of the TRS NYC Pension Fund. JPMorgan Chase is currently the custodial bank for the securities of the variable-return programs.

The information reflected in the Credit Ratings and in the Years to Maturity is derived from the Custodians' Risk and Performance Analytics Reporting System.

**Concentrations** — In accordance with RSSL section 177, the System's investment programs do not have investments in any individual company that may represent more than 2% of the QPP or TDA Program total net assets or 5% of the company's total outstanding shares. The above concentration exclusion does not apply to obligations of the United States, or those for which the faith of the United States is pledged to provide payment of the interest and principal.

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**Credit Risk** — The possibility of a loss or default resulting from a borrower's inability to repay a loan or fulfill its contractual debt obligations. Portfolios, other than U.S. Government and related portfolios, have credit rating limitations. Investment Grade portfolios are limited to mostly ratings of BBB/Baa2 and above, except that they are also permitted a 10% maximum exposure to BB & B / Ba2 & B2 rated securities. While High Yield non-investment grade managers primarily invest in BB & B / Ba2 & B2 rated securities, they can also invest up to 10% of their portfolio in securities rated CCC/Caa2.

The quality ratings of the TRSNYC Pension Fund investments, by percentage of the rated portfolio, as described by nationally recognized rating organizations, at June 30, 2020 and 2019, are as follows:

Investment Type Pension Fund June 30, 2020		Moody's Quality Ratings																	
Investment Type (in percent)	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1 & Below	Not Rated	Total
U.S. Government	30.34%	0.04%	0.01%	-	0.03%	0.01%	0.01%	0.09%	0.15%	0.01%	-	-	-	-	-	-	-	1.05%	31.74%
Corporate bonds	23.22%	0.20%	0.21%	0.36%	0.54%	1.81%	2.29%	2.15%	3.14%	2.98%	1.66%	2.06%	3.05%	2.75%	3.07%	2.02%	2.22%	4.04%	57.77%
Short term:																			
Commercial Paper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.22%	1.22%
Discount Notes & T-Bills	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.88%	6.88%
Pooled Fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.39%	2.39%
Percent of Rated Portfolio	53.56%	0.24%	0.22%	0.36%	0.57%	1.82%	2.30%	2.24%	3.29%	2.99%	1.66%	2.06%	3.05%	2.75%	3.07%	2.02%	2.22%	15.58%	100.00%

Investment Type Pension Fund June 30, 2019		Moody's Quality Ratings																	
Investment Type (in percent)	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1 & Below	Not Rated	Total
U.S. Government	39.26%	0.02%	0.05%	0.01%	0.04%	0.01%	0.06%	0.02%	0.13%	0.01%	-	-	-	-	-	-	-	0.44%	40.05%
Corporate bonds	13.66%	0.20%	0.13%	0.22%	0.48%	1.33%	1.67%	1.89%	2.05%	2.39%	1.43%	2.20%	3.72%	3.20%	3.66%	2.71%	1.64%	12.33%	54.91%
Short term:																			
Commercial Paper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.05%	2.05%
Discount Notes & T-Bills	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.10%	1.10%
Pooled Fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.89%	1.89%
Percent of Rated Portfolio	52.92%	0.22%	0.18%	0.23%	0.52%	1.34%	1.73%	1.91%	2.18%	2.40%	1.43%	2.20%	3.72%	3.20%	3.66%	2.71%	1.64%	17.81%	100.00%

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The quality ratings of the variable-return fund investments, both QPP and TDA, by percentage of the rated portfolio, as described by nationally recognized statistical rating organizations, at June 30, 2020 and 2019, are as follows:

Investment Type  
Variable Funds  
June 30, 2020

June 30, 2020	Moody's Credit Rating																		
	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1 & Below	Not Rated	Total
Corporate	-	-	-	-	-	0.45%	0.73%	1.00%	0.63%	0.59%	-	0.38%	-	0.87%	-	-	-	52.91%	57.56%
Short Term:																			
U.S. Treasury Bills	0.43%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.43%
Money Market	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	42.01%	42.01%
Cash Equivalent	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.00%
Percent of rated portfolio	0.43%	- %	- %	- %	- %	0.45%	0.73%	1.00%	0.63%	0.59%	- %	0.38%	- %	0.87%	- %	- %	- %	94.92%	100.00%

Investment Type  
Variable Funds  
June 30, 2019

June 30, 2019	Moody's Credit Rating																		
	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1 & Below	Not Rated	Total
Corporate	-	-	-	-	-	0.49%	-	0.42%	-	0.72%	0.30%	-	0.74%	0.22%	0.30%	-	-	49.53%	52.72%
Short Term:																			
U.S. Treasury Bills	0.30%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.30%
Money Market	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46.85%	46.85%
Cash Equivalent	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.13%	0.13%
Percent of rated portfolio	0.30%	- %	- %	- %	- %	0.49%	- %	0.42%	- %	0.72%	0.30%	- %	0.74%	0.22%	0.30%	- %	- %	96.51%	100.00%

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**Custodial Credit Risk** — Deposits are exposed to custodial credit risk if they are uninsured and uncollateralized. Custodial credit risk is the risk that in the event of a failure of the counterparty or depository financial institution, the Funds will not be able to recover the value of its investment or collateral securities that are in the possession of an outside party. Investment securities are exposed to custodial credit risk if the securities are not registered in the name of the Funds and are held by either the counterparty or the counterparty's trust department or agent but not in the name of the Funds. Consistent with the Funds' investment policy, investments are held by the custodians of the TRSNYC Pension Fund and variable-return funds' and registered in the System's or QPP and TDA Program's name.

Generally, the System is the sole account owner of the custodial account. However, the Diversified Equity and International Investment Funds are co-invested along with certain assets of BERS. Also, as of June 30, 2020, 1.7% of the TRSNYC Pension Fund assets were held in NYC commingled trust accounts owned 100% by the City's pension systems and related funds.

All of the System's deposits are insured by the Federal Deposit Insurance Corporation (FDIC) or are collateralized by securities held by a financial institution separate from the Funds' depository financial institution. However, the Fund's cash balances can exceed FDIC insured limits. Non-invested cash is swept into the custodial bank's short-term investment intraday account, which is not FDIC insured.

**Interest Rate Risk** — Interest rate risk is the risk that the value of debt securities will be affected by fluctuations in market interest rates. The duration of the portfolio, relative to the duration of the portfolio's benchmark, is monitored by the Bureau of Asset Management.



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The lengths of investment maturities (in years) of TRSNYC Pension Fund investments, both QPP and TDA, as shown by the percent of the rated portfolio, at June 30, 2020 and 2019, are as follows:

**Years to Maturity**

<b>June 30, 2020</b> <b>Investment Type</b> <b>Pension Fund</b>	<b>Investment Maturities</b>				
	<b>Fair Value</b>	<b>Less than One Year</b>	<b>One to Five Years</b>	<b>Six to Ten Years</b>	<b>More than Ten Years</b>
U.S. Government	31.74 %	0.02 %	11.23 %	3.19 %	17.30 %
Corporate bonds	57.77 %	0.47 %	21.09 %	14.38 %	21.83 %
Short-term:					
Commercial paper	1.22 %	1.22 %	-	-	-
Pooled funds	2.39 %	2.39 %	-	-	-
Discount Notes and Treasury Bills	6.88 %	6.88 %	-	-	-
Percent of rated portfolio	<u>100.00 %</u>	<u>10.98 %</u>	<u>32.32 %</u>	<u>17.57 %</u>	<u>39.13 %</u>

<b>June 30, 2019</b> <b>Investment Type</b> <b>Pension Fund</b>	<b>Investment Maturities</b>				
	<b>Fair Value</b>	<b>Less than One Year</b>	<b>One to Five Years</b>	<b>Six to Ten Years</b>	<b>More than Ten Years</b>
U.S. Government	40.05 %	0.04 %	10.58 %	8.68 %	20.75 %
Corporate bonds	54.91	0.50	22.61	14.84	16.96
Short-term:					
Commercial paper	2.05	2.05	-	-	-
Pooled funds	1.89	1.89	-	-	-
Discount Notes and Treasury Bills	1.10	1.10	-	-	-
Percent of rated portfolio	<u>100.00 %</u>	<u>5.58 %</u>	<u>33.19 %</u>	<u>23.52 %</u>	<u>37.71 %</u>

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The lengths of investment maturities (in years) of the variable-return funds' for QPP and TDA, as shown by the percent of the rated portfolio, at June 30, 2020 and 2019, are as follows:

**Years to Maturity**

<b>June 30, 2020</b> <b>Investment Type</b> <b>Variable Funds</b>	<b>Investment Maturities</b>				
	<b>Fair Value</b>	<b>Less than One Year</b>	<b>One to Five Years</b>	<b>Six to Ten Years</b>	<b>More than Ten Years</b>
Corporate bonds	57.56 %	3.18 %	35.58 %	16.46 %	2.34 %
Short-term:					
U.S. Treasury Bills	0.43	0.43	-	-	-
Money Market Funds	42.01	42.01	-	-	-
Percent of rated portfolio	100.00 %	45.62 %	35.58 %	16.46 %	2.34 %

<b>June 30, 2019</b> <b>Investment Type</b> <b>Variable Funds</b>	<b>Investment Maturities</b>				
	<b>Fair Value</b>	<b>Less than One Year</b>	<b>One to Five Years</b>	<b>Six to Ten Years</b>	<b>More than Ten Years</b>
Corporate bonds	52.72 %	1.83 %	33.77 %	13.31 %	3.81 %
Short-term:					
U.S. Treasury Bills	0.30	0.30	-	-	-
Money Market Funds	46.85	46.85	-	-	-
Cash Equivalent	0.13	0.13	-	-	-
Percent of rated portfolio	100.00 %	49.11 %	33.77 %	13.31 %	3.81 %

**Foreign Currency Risk** — Foreign currency risk is the risk that changes in the exchange rates will adversely impact the fair value of an investment. Currency risk is present in underlying portfolios that invest in foreign stocks and/or bonds. The currency markets are diversifiers in a total portfolio context; therefore, the TRSNYC Pension Fund has numerous managers that invest globally. In general, currency exposure is viewed as a benefit for its diversification reasons and not as an inherent risk within the portfolio.

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In addition, the TRSNYC Pension Fund and variable-return funds have investments in foreign stocks and/or bonds denominated in foreign currencies. Foreign currency exposures as of June 30, 2020 and 2019 are as follows (amounts in thousands of U.S. dollars):

Trade Currency (in thousands)	Pension Fund		Variable-Return Funds		Pension Fund		Variable-Return Funds	
	June 30, 2020		June 30, 2020		June 30, 2019		June 30, 2019	
Euro Currency	\$	3,676,357	\$	695,985	\$	3,412,071	\$	796,132
Hong Kong Dollar		2,386,667		217,079		400,094		93,064
Japanese Yen		1,832,279		497,803		1,978,864		548,934
British Pnd Sterling		1,260,854		312,614		1,694,782		417,881
South Korean Won		995,140		65,891		1,185,756		65,598
New Taiwan Dollar		986,116		66,461		931,014		36,902
Indian Rupee		764,006		50,560		1,034,745		59,524
Swiss Franc		761,446		210,789		800,191		238,287
Danish Krone		343,104		52,924		244,099		44,257
Canadian Dollar		320,557		52,534		482,512		27,037
Brazilian Real		317,461		16,562		670,123		31,595
Australian Dollar		282,025		103,740		338,378		146,905
Chinese Yuan (Offshore)		270,523		-		-		-
South African Rand		263,540		10,677		575,411		23,473
Swedish Krona		178,183		59,481		210,046		55,456
Indonesian Rupiah		162,937		5,956		275,906		7,067
Thai Baht		131,190		9,071		279,009		15,217
Mexican Nuevo Peso		124,283		3,624		256,320		7,093
Singapore Dollar		118,444		25,324		159,356		38,070
Malaysian Ringgit		84,761		1,504		183,919		7,996
Norwegian Krone		82,110		13,628		108,206		20,033
Polish Zloty		71,998		1,785		148,865		6,384
Turkish Lira		71,209		10,439		110,208		10,044
Chinese Yuan Renminbi		64,504		21,298		-		-
Philippines Peso		59,058		119		102,166		56
Chilean Peso		42,305		996		90,138		1,938
Hungarian Forint		30,271		1,406		43,308		2,651
UAE Dirham		26,774		3,137		51,012		5,784
Qatari Rial		25,951		-		57,802		-
Israeli Shekel		21,439		4,101		25,017		6,948
Colombian Peso		11,195		-		40,193		-
New Zealand Dollar		10,560		6,962		13,560		5,112
Czech Koruna		7,932		43		21,542		82
Egyptian Pound		5,572		875		14,088		902
Peruvian Nuevo Sol		1,197		-		5,405		-
Pakistan Rupee		212		-		-		-
Saudi Arabian Riyal		-		925		-		-
Total	\$	15,792,160	\$	2,524,293	\$	15,944,106	\$	2,720,422

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**Securities Lending Transactions**

*Credit Risk* — The quality ratings of investments held as collateral for Securities Lending by the TRSNYC Pension Fund at June 30, 2020 and 2019 are as follows:

Investment Type and Fair Value  
of Securities Lending Transactions - Pension Fund  
(in thousands)  
June 30, 2020

	Moody's Quality Ratings						
	Aaa & Below	A1	A2	A3	Baa2	Not Rated	Total
Short-term:							
Reverse Repurchase Agreements	\$ -	\$ -	\$ 77,299	\$ 117,494	\$ 8,589	\$ 541,141	\$ 744,523
Money Market	227,787	-	-	-	-	97,106	324,893
U.S. Agency	-	-	-	-	-	148,999	148,999
Cash or Cash Equivalent	-	135,529	-	-	-	-	135,529
Uninvested	-	-	-	-	-	1,572	1,572
Total	<u>\$ 227,787</u>	<u>\$ 135,529</u>	<u>\$ 77,299</u>	<u>\$ 117,494</u>	<u>\$ 8,589</u>	<u>\$ 788,818</u>	<u>\$ 1,355,516</u>
Percent of securities lending portfolio	<u>16.81%</u>	<u>10.00%</u>	<u>5.70%</u>	<u>8.67%</u>	<u>0.63%</u>	<u>58.19%</u>	<u>100.00%</u>

June 30, 2019

	Moody's Quality Ratings						
	Aaa & Below	A1	A2	A3	Baa2	Not Rated	Total
Short-term:							
Reverse Repurchase Agreements	\$ -	\$ -	\$ 77,184	\$ 137,323	\$ 8,040	\$ 470,720	\$ 693,267
Money Market	113,702	-	-	-	-	88,578	202,280
U.S. Agency	-	-	-	-	-	171,848	171,848
Cash or Cash Equivalent	-	113,896	-	-	-	-	113,896
Uninvested	-	-	-	-	-	1,572	1,572
Total	<u>\$ 113,702</u>	<u>\$ 113,896</u>	<u>\$ 77,184</u>	<u>\$ 137,323</u>	<u>\$ 8,040</u>	<u>\$ 732,718</u>	<u>\$ 1,182,863</u>
Percent of securities lending portfolio	<u>9.61%</u>	<u>9.63%</u>	<u>6.53%</u>	<u>11.61%</u>	<u>0.68%</u>	<u>61.94%</u>	<u>100.00%</u>

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
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The quality ratings of investments held as collateral for Securities Lending under the variable-return funds at June 30, 2020 and 2019 are as follows:

**Investment Type and Fair Value of**  
**Securities Lending Transactions - Variable Return Funds**  
(In thousands)  
**June 30, 2020**

	Moody's Quality Ratings			
	Aaa	A3	Not Rated	Total
Government	\$ 17,777	\$ -	\$ -	\$ 17,777
Short-term:				
Repurchase Agreements	47,743	-	22,524	70,267
U.S. Treasury	2,450	-	-	2,450
Total	<u>\$ 67,970</u>	<u>\$ -</u>	<u>\$ 22,524</u>	<u>\$ 90,494</u>
Percent of securities lending portfolio	<u>75.11%</u>	<u>0.00%</u>	<u>24.89%</u>	<u>100.00%</u>

**June 30, 2019**

	Moody's Quality Ratings			
	Aaa	A3	Not Rated	Total
Government	\$ 20,977	\$ -	\$ -	\$ 20,977
Short-term:				
Repurchase Agreements	66,060	-	7,963	74,023
U.S. Treasury	2,249	-	-	2,249
Total	<u>\$ 89,286</u>	<u>\$ -</u>	<u>\$ 7,963</u>	<u>\$ 97,249</u>
Percent of securities lending portfolio	<u>91.81%</u>	<u>0.00%</u>	<u>8.19%</u>	<u>100.00%</u>

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*Interest Rate Risk* — The lengths of investment maturities (in years) of the collateral for Securities Lending held by the TRSNYC Pension Fund at June 30, 2020 and 2019 are as follows:

**Years to Maturity**  
**(in thousands)**

<b>Investment Type - Pension Fund</b> <b>June 30, 2020</b>	<b>Investment Maturities</b>				
	<b>Fair Value</b>	<b>Less Than One Year</b>	<b>One to Five Years</b>	<b>Six to Ten Years</b>	<b>More Than Ten Years</b>
Short-term:					
Reverse repurchase agreements	\$ 744,523	\$ 744,523	\$ -	\$ -	\$ -
Money market	324,893	324,893	-	-	-
U.S. Agency	148,999	148,999	-	-	-
Cash equivalents	135,529	135,529	-	-	-
Uninvested	1,572	1,572	-	-	-
<b>Total</b>	<b>\$ 1,355,516</b>	<b>\$ 1,355,516</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Percent of Securities Lending Portfolio	100.00 %	100.00 %	- %	- %	- %

<b>Investment Type - Pension Fund</b> <b>June 30, 2019</b>	<b>Investment Maturities</b>				
	<b>Fair Value</b>	<b>Less Than One Year</b>	<b>One to Five Years</b>	<b>Six to Ten Years</b>	<b>More Than Ten Years</b>
Short-term:					
Reverse repurchase agreements	\$ 693,267	\$ 693,267	\$ -	\$ -	\$ -
Money market	202,280	202,280	-	-	-
U.S. Agency	171,848	171,848	-	-	-
Cash equivalents	113,896	113,896	-	-	-
Uninvested	1,572	1,572	-	-	-
<b>Total</b>	<b>\$ 1,182,863</b>	<b>\$ 1,182,863</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Percent of Securities Lending Portfolio	100.00 %	100.00 %	- %	- %	- %

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The lengths of investment maturities (in years) of the collateral for Securities Lending held under the variable-return funds at June 30, 2020 and 2019 are as follows:

**Years to Maturity**  
**(in thousands)**

<b>Investment Type - Variable Return Funds</b> <b>June 30, 2020</b>	<b>Investment Maturities</b>				
	<b>Fair Value</b>	<b>Less Than One Year</b>	<b>One to Five Years</b>	<b>Six to Ten Years</b>	<b>More Than Ten Years</b>
Government	\$ 17,777	\$ 2,128	\$ 8,129	\$ 3,452	\$ 4,068
Short-term:					
Repurchase agreements	70,267	70,267	-	-	-
U.S. Treasury	2,450	2,450	-	-	-
<b>Total</b>	<b>\$ 90,494</b>	<b>\$ 74,845</b>	<b>\$ 8,129</b>	<b>\$ 3,452</b>	<b>\$ 4,068</b>
Percent of securities lending portfolio	100.00 %	82.71 %	8.98 %	3.81 %	4.50 %

<b>Investment Type - Variable Return Funds</b> <b>June 30, 2019</b>	<b>Investment Maturities</b>				
	<b>Fair Value</b>	<b>Less Than One Year</b>	<b>One to Five Years</b>	<b>Six to Ten Years</b>	<b>More Than Ten Years</b>
Government	\$ 20,977	\$ 1,192	\$ 14,877	\$ 2,868	\$ 2,040
Short-term:					
Repurchase agreements	74,023	74,023	-	-	-
U.S. Treasury	2,249	2,249	-	-	-
<b>Total</b>	<b>\$ 97,249</b>	<b>\$ 77,464</b>	<b>\$ 14,877</b>	<b>\$ 2,868</b>	<b>\$ 2,040</b>
Percent of securities lending portfolio	100.00 %	79.65 %	15.30 %	2.95 %	2.10 %

**Rate of Return** — For the years ended June 30, 2020 and 2019, the annual money-weighted rate of return on the TRSNYC Pension Fund was 4.92% and 7.50%, respectively. The money-weighted rate of return expresses investment performance, net of investment expense adjusted for the changing amounts actually invested.

In Fiscal Year 2015, the System adopted GASB 72. GASB 72 was issued to address accounting and financial reporting issues related to fair value measurements.

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The System categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset. Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs. The System has the following recurring fair value measurements as of June 30, 2020 and June 30, 2019:

**GASB 72 - Disclosure (Pension Fund)**

June 30, 2020

(In thousands)

	2020			
	Level One	Level Two	Level Three	QPP Total
<b>INVESTMENTS — At fair value (Notes 2 and 3):</b>				
Short-term investments:				
Commercial paper	\$ -	\$ 381,195	\$ -	\$ 381,195
Short-term investment fund	-	747,639	-	747,639
U.S. Treasury bills and Agencies	-	2,149,709	-	2,149,709
Debt securities:				
U.S. Government	-	9,911,190	-	9,911,190
Corporate and Other	-	14,439,071	268,730	14,707,801
Treasury inflation protected securities	-	3,126,355	-	3,126,355
Equity securities:				
Domestic equity	25,354,212	-	8,950	25,363,162
International equity	14,979,798	-	10,626	14,990,424
Alternative investments	15,454	193,447	10,556,246	10,765,147
<b>Total Pension Fund Investments</b>	<b>\$ 40,349,464</b>	<b>\$ 30,948,606</b>	<b>\$ 10,844,552</b>	<b>\$ 82,142,622</b>

**GASB 72 - Disclosure (Pension Fund)**

June 30, 2019

(In thousands)

	2019			
	Level One	Level Two	Level Three	QPP Total
<b>INVESTMENTS — At fair value (Notes 2 and 3):</b>				
Short-term investments:				
Commercial paper	\$ -	\$ 567,394	\$ -	\$ 567,394
Short-term investment fund	-	779,479	-	779,479
Discount notes	-	203,555	-	203,555
U.S. Treasury bills and Agencies	-	100,011	-	100,011
Debt securities:				
U.S. Government	-	11,074,088	-	11,074,088
Corporate and Other	-	11,386,655	527,640	11,914,295
Treasury inflation protected securities	-	3,387,131	-	3,387,131
Equity securities:				
Domestic equity	24,367,892	-	6,613	24,374,505
International equity	15,222,381	-	1,632	15,224,013
Alternative investments	12,379	181,958	9,874,749	10,069,086
<b>Total Pension Fund Investments</b>	<b>\$ 39,602,652</b>	<b>\$ 27,680,271</b>	<b>\$ 10,410,634</b>	<b>\$ 77,693,557</b>



**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
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**Equity and Fixed Income Securities**

Equity securities classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets issued by pricing vendors for these securities. Debt and equity securities classified in Level 2 of the fair value hierarchy are valued using prices determined by the use of matrix pricing techniques maintained by the various pricing vendors for these securities. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices. Debt and equity securities classified in Level 3 of the fair value hierarchy are securities whose stated market price is unobservable by the marketplace; many of these securities are priced by the issuers or industry groups for these securities. Fair value is defined as the quoted market value on the last trading day of the period. These prices are obtained from various pricing sources by our custodian bank.

**Alternative Investments**

Alternative investments include Private Equity, Real Estate, Opportunistic Fixed Income, and Infrastructure Investments.

**Alternative Investments by Asset Class**

(in thousands)	2020	2019
Infrastructure	\$ 993,461	\$ 893,830
Opportunistic Fixed Income	2,373,458	2,122,358
Private Equity	4,279,636	4,211,228
Private Real Estate	3,118,592	2,841,670
	<u>\$ 10,765,147</u>	<u>\$ 10,069,086</u>

These are investments for which exchange quotations are not readily available and are valued at Net Assets Value calculated by the GP's valuation policy. Alternative investments are mainly illiquid and typically not sold or redeemed. These investments are initially valued at cost, with subsequent adjustments that reflect third-party transactions, financial operating results, and other factors deemed relevant by the GP. The assets in our Alternative Investment program are classified mainly as Level 3 assets. A more detailed explanation of the Level 3 valuation methodologies follows:

Investments in non-public equity securities are valued by the GP or by the fund administrator using one or more valuation methodologies outlined in Accounting Standards Codification 820, depending upon the availability of data required by each methodology. In some cases, the GP may use multiple approaches to estimate a valuation range. For the immediate time period following a transaction, the determination of fair value for equity securities, in which no liquid trading market exists, can generally be approximated based on the transaction price (absent any significant developments). Thereafter, or in the interim, if significant developments relating to such portfolio company or industry occur which may suggest a material change in value, the GP should value each investment by applying generally accepted valuation methods including: (1) the market approach (such as market transaction and comparable public company multiples, which are based on a measurement of the company's historical and projected financial performance with typical metrics including enterprise value/latest 12 months EBITDA or projected fiscal year EBITDA) or (2) the income or discounted cash flow approach.

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In the market approach, valuation multiples that are relevant to the industry and company in the investments held should be considered and relied upon. Valuation multiples should be assessed and may be adjusted on a go-forward basis based on the business risk associated with the subject company in which the investment is held. In addition, the implied entry multiples should be considered as benchmarks in valuing unlisted equity. In circumstances where no financial performance metrics are available, the GP should rely on other non-financial related metrics applicable to relevant progress from the original investment date to the valuation date. In the income or discounted cash flow approach, forecasted cash flows that may be generated by the subject company are discounted to present value at an appropriate discount rate. These methodologies can be utilized to determine an enterprise value ("Enterprise Valuation Methodologies") from which net debt is subtracted to estimate equity value.

The determination of fair value using these methodologies should take into consideration a range of factors, including but not limited to the price at which the investment was acquired, the nature of the investment, local market conditions, trading values on public exchanges for comparable securities, current and projected operating performance, and financing transactions subsequent to the acquisition of the investment. Because of the subjective nature of estimated fair value of the private investments, such value may differ significantly from the values that would have been used had a ready market existed for these investments. These financial instruments have been classified as Level 3 in the fair value hierarchy.

Alternative investments are not fully funded upon subscribing to the investment. The GP can draw down or call for capital as the fund goes into more investments or when the need arises such as expenses associated with the partnership. The residual balance of uncalled capital is also known as unfunded commitments which are restricted to the maximum amount of the limited partners total committed amount.

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**GASB 72 - Disclosure (Variable-Return Funds)****June 30, 2020**

(in thousands)

	<b>2020</b>			
	Level One	Level Two	Level Three	Total
<b>INVESTMENTS- at fair value</b>				
Diversified Equity Fund:				
Short-term investments	\$ -	\$ 222,787	\$ -	\$ 222,787
Equity securities	12,929,011	571,870	93,780	13,594,661
Debt securities	-	327,775	6	327,781
Balanced Fund:				
Short-term investments	-	8,951	-	8,951
Equity securities	477,481	-	-	477,481
International Equity Fund:				
Short-term investments	-	1,824	-	1,824
International equity	156,928	6,941	1,138	165,007
Sustainable Equity Fund (formerly Socially Responsive Equity Fund):				
Short-term investments	-	7,397	-	7,397
Equity securities	298,466	-	-	298,466
U.S. Equity Index Fund:				
Equity securities	-	20,038	-	20,038
International Equity Index Fund:				
Equity securities	-	3,121	-	3,121
<b>Total Variable-Return Funds Investments</b>	<b>\$ 13,861,886</b>	<b>\$ 1,170,704</b>	<b>\$ 94,924</b>	<b>\$ 15,127,514</b>

**GASB 72 - Disclosure (Variable-Return Funds)****June 30, 2019**

(in thousands)

	<b>2019</b>			
	Level One	Level Two	Level Three	Total
<b>INVESTMENTS- at fair value</b>				
Diversified Equity Fund:				
Short-term investments	\$ -	\$ 233,671	\$ -	\$ 233,671
Equity securities	13,713,982	476,061	172,231	14,362,274
Debt securities	-	296,182	2	296,184
Balanced Fund:				
Short-term investments	-	4,880	-	4,880
Equity securities	-	393,349	-	393,349
International Equity Fund:				
Short-term investments	-	943	-	943
International equity	154,785	5,374	1,944	162,103
Inflation Protection Fund:				
Short-term investments	-	224	-	224
Equity securities	70,064	-	-	70,064
Socially Responsive Equity Fund:				
Short-term investments	-	7,573	-	7,573
Equity securities	202,657	-	-	202,657
International equity	18,184	-	-	18,184
<b>Total Variable-Return Funds Investments</b>	<b>\$ 14,159,672</b>	<b>\$ 1,418,257</b>	<b>\$ 174,177</b>	<b>\$ 15,752,106</b>

Equity securities classified in Level 1 of the fair value hierarchy (above) are valued using prices quoted in active markets for those securities.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
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Equity and debt securities classified in Level 2 of the fair value hierarchy (above) are valued using a matrix pricing technique. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices.

Securities are classified in Level 3 (above) when inputs to the valuation methodology are unobservable and significant to the fair value measurement. Instruments are often based on internally developed models of the custodian, in which there are few, if any, external observations. Generally, Level 3 includes distressed securities or alternative investments.

#### **4. QPP CONTRIBUTIONS**

The financial objective of the QPP is to fund members' retirement benefits during their active service and to establish Employer contribution rates that, expressed as a percentage of annualized covered payroll, will remain approximately level from year to year. The Employers contribute amounts that, together with Member Contributions and investment income, are intended to ultimately be sufficient to accumulate assets to pay benefits when due.

**Member Contributions** — Members who joined prior to July 27, 1976 contribute by salary deductions on the basis of a normal rate of contribution that is assigned by the QPP at membership. This member normal rate, which is dependent upon age, years of prior service, and actuarial tables in effect at the time of membership, is determined so as to provide approximately one-fourth of the service retirement allowance at the earliest age for service retirement. For age at membership equal to 20 and with no prior service, the member normal rate is equal to 4.6%. For age at membership equal to 40 with no prior service, the member normal rate is equal to 3.6%.

Members who joined on or after July 27, 1976 are mandated to contribute 3% of salary. Effective October 1, 2000, these members are not required to make contributions after the tenth anniversary of their membership date or completion of ten years of credited service, whichever is earlier.

Effective February 27, 2008, active members were eligible to enroll in a 55 retirement-age minimum and 25 credited years of service retirement option ("55/25 retirement option"), enabling them to eliminate any age-reduction factor in their retirement allowance. Those choosing the age 55/25 retirement option are required to make additional contributions of 1.85% of salary from February 28, 2008 until June 29, 2008, or until they have accumulated 25 years of credited service, whichever is later. Members joining after February 27, 2008 are automatically enrolled in a 55 retirement-age minimum and 27 credited years of service retirement program ("55/27 retirement program"). These members are required to make additional pension contributions of 1.85% of salary until they have accumulated 27 years of credited service. Chapter 504 of the Laws of 2009 ("Chapter 504/09") provides that individuals joining after December 10, 2009, who participate in the 55/27 retirement program, are required to make pension contributions of 4.85% of salary until they have 27 years of credited service and contributions of 1.85% of salary thereafter.

Also, under Chapter 504/09, all members represented by the UFT who join the QPP on and after December 10, 2009 will become vested after ten years of credited service.

Under Chapter 18 of the Laws of 2012, members who join on and after April 1, 2012 are automatically enrolled in Tier VI. These members are required to make contributions ranging from 3.0% (based on a salary of \$45,000 and less) to 6.0% (based on a salary above \$100,000) until separation from service or retirement.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
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**Employer Contributions** — Statutorily-required contributions ("Statutory Contributions") to the QPP, determined by The Actuary in accordance with the State statutes and City laws, are generally funded by the Employers within the appropriate fiscal year. These contributions consider any expected deficiencies between the statutory rates of interest on TDA Program deposits in the Fixed Return Fund and on statutory rates of interest credited to QPP members and actual investment earnings on such funds. The Statutory Contribution for the year ended June 30, 2020, based on an actuarial valuation as of June 30, 2018, was \$3,591 million, and the Statutory Contribution for the year ended June 30, 2019, based on an actuarial valuation as of June 30, 2017, was \$3,697 million. The Statutory Contributions for Fiscal Years 2020 and 2019 were equal to the Actuarial Contributions. Refer to the Schedule of Employers' Contributions in the accompanying required supplementary information for more information on the actuarial methods and assumptions applied by the Actuary to determine the Statutory Contributions.

**5. QPP NET PENSION LIABILITY**

The components of the net pension liability of the Employers at June 30, 2020 and 2019 were as follows:

	(in millions)	
	<u>2020</u>	<u>2019</u>
Total pension liability	\$75,116	\$73,347
Fiduciary net position *	<u>59,319</u>	<u>57,990</u>
Employers' net pension liability	<u>\$15,797</u>	<u>\$15,357</u>
Fiduciary net position as a percentage of the total pension liability	<u>79.0%</u>	<u>79.1%</u>

\* Such amounts represent the preliminary System's fiduciary net position and may differ from the final System's fiduciary net position.

**Actuarial Methods and Assumptions**

The total pension liability as of June 30, 2020 and 2019, was determined by actuarial valuations as of June 30, 2019 and June 30, 2018, respectively, that were rolled forward to develop the total pension liability to the respective fiscal year end. The following actuarial assumptions were applied to all periods included in the measurement:

Projected Salary Increases *	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per annum.
Investment Rate of Return *	7.0% per annum, net of Investment Expenses.
COLAs *	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.

\* Developed assuming a long-term Consumer Price Inflation assumption of 2.5% per annum.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
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Mortality tables for Service and Disability pensioners and beneficiaries were developed from an experience study of the QPP.

There were no changes in actuarial assumptions and methods from the prior actuarial valuation.

Beginning with the June 30, 2017 actuarial valuation, the Employer Contribution is based on the actuarial assumptions and methods adopted by the TRS Board of Trustees during Fiscal Year 2019 (the "2019 A&M").

Pursuant to Section 96 of the New York City Charter, a study of the actuarial assumptions used to value liabilities of the QPP is conducted every two years. The most recent of these studies was performed by Bolton, Inc. and included experience through June 30, 2017.

The Entry Age Normal ("EAN") cost method of funding is utilized by the System's Actuary to calculate the contribution required of the Employer.

Under this method, the Present Value (PV) of Future Benefits (PVFB) of each individual included in the actuarial valuation is allocated on a level basis over the earnings (or service) of the individual between entry age and assumed exit age(s). The employer portion of this PVFB allocated to a valuation year is the Normal Cost. The portion of this PVFB not provided for at a valuation date by the PV of Future Normal Costs or future member contributions is the Accrued Liability (AL).

The excess, if any, of the AL over the Actuarial Value of Asset (AVA) is the Unfunded Accrued Liability (UAL).

Under this method, actuarial gains and losses, as they occur, reduce and increase the UAL and are explicitly identified and amortized.

Increases or decreases in obligations due to benefit changes, actuarial assumption changes, and actuarial method changes are also explicitly identified and amortized.

In accordance with the Actuarial Asset Valuation Method (AAVM), actual Unexpected Investment Returns (UIR) are phased into the AVA at rates of 15%, 15%, 15%, 15%, 20%, and 20% per year (*i.e.*, cumulative rates of, 15%, 30%, 45%, 60%, 80%, and 100% over a period of six years).

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**Expected Rate of Return on Investments**

The long-term expected rate of return on QPP investments was determined using a building-block method in which best-estimate ranges of expected real rates of return (*i.e.*, expected returns, net of QPP 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 real rates of return by the target asset allocation percentage and by adding expected inflation. The target asset allocations and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

<b>Asset Class</b>	<b>Target Asset Allocation</b>	<b>Long-Term Expected Real Rate of Return</b>
<b><u>Public Markets:</u></b>	25.0%	5.7%
U.S. Public Market Equities	10.0%	7.5%
Developed Public Market Equities	9.5%	10.2%
Emerging Public Market Equities	32.5%	1.6%
Fixed Income		
<b><u>Private Markets (Alternative Investments):</u></b>		
Private Equity	7.0%	10.6%
Private Real Estate	7.0%	6.7%
Infrastructure	4.0%	5.1%
Opportunistic Fixed Income	5.0%	6.3%
Total	<u>100.0%</u>	

**Discount Rate**

The discount rate used to measure the total pension liability was 7.0%. The projections of cash flows used to determine the discount rate assumed that employee contributions will be made at the rates applicable to the current Tier for each member and that Employer contributions will be made at rates as determined by the Actuary. Based on those assumptions, the QPP's fiduciary net position was projected to be available to make all projected future benefit payments of current active and non-active QPP members. Therefore, the long-term expected rate of return on QPP investments was applied to all periods of projected benefit payments to determine the total pension liability.

The following presents the net pension liability of the Employers, calculated using the discount rate of 7.0%, as well as what the Employers' net pension liability would be if it were calculated using a discount rate that is one-percentage point lower (6.0%) or one-percentage point higher (8.0%) than the current rate:

<b>(in thousands)</b>	<b>1% Decrease (6%)</b>	<b>Discount Rate (7%)</b>	<b>1% Increase (8%)</b>
Employers' Net Pension Liability — June 30, 2020	\$ 24,391,175	\$ 15,797,047	\$ 8,601,992

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
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**6. MEMBER LOANS**

The balance of member loans receivable for the QPP at June 30, 2020 and June 30, 2019 was \$323.8 million and \$321.0 million, respectively. QPP members are permitted to borrow up to 75% of their own contributions, including accumulated interest. Outstanding loan balances are insured in order to protect members' balances in case of death. In return for insurance coverage, Tiers III, IV, and VI members supplement their loan interest payments of 6.0% APR with a 0.1% insurance fee. Tiers I and II members pay loan interest payments of 6.0% APR and are not subject to the insurance fee. Upon termination of employment before retirement, certain QPP members are entitled to refunds of their own contributions, including accumulated interest, less any loans outstanding.

The balance of member loans receivable for the TDA Program at June 30, 2020 and June 30, 2019 is \$401.2 million and \$403.8 million, respectively. Members of the TDA Program are permitted to borrow up to 75% of their own contributions, including accumulated interest. TDA Program members supplement their member loans' interest payments (7.0% for UFT, 8.25% for all other members) with a 0.3% ("APR") insurance fee. This fee funds a reserve, which is used to repay members' loan balances outstanding in case of death. Upon termination of employment before retirement, members are entitled to refunds of their own contributions, including accumulated interest, less any loans outstanding.

**7. RELATED PARTIES**

The Comptroller has been appointed by law as custodian for assets of the QPP and TDA Program with discretionary authority. Securities are held by certain banks under custodial agreements with the Comptroller. The Comptroller, the Financial Information Services Agency ("FISA"), and the Office of Payroll Administration ("OPA") provide cash receipt and cash disbursement services and financial services; the Office of Management and Budget ("OMB") provides budget review services; and the City's Corporation Counsel provides legal services to TRS. The cost of providing such services amounted to \$12.1 million and 12.3 million in Fiscal Years 2020 and 2019, respectively. In addition, actuarial services are provided to TRS by the New York City Office of the Actuary. The City also provides other administrative services.

**8. ADMINISTRATIVE EXPENSES**

Chapter 593 of the Laws of 1996 ("Chapter 593/96"), effective July 1, 1996, authorized the Board of Trustees to draw upon its assets to pay the administrative expenses incurred by TRS. Prior to Fiscal Year 1997, The City and Variable Annuity Programs had paid all administrative expenses. After Chapter 593/96, administrative expenses incurred by the System are attributed to the QPP and the variable-return funds of the TDA Program. The cost sharing is weighted and depends on an assessment of the prior year's administrative activities. Total TRS administrative expenses, attributable to the QPP and TDA Program, amounted to \$88.5 million and \$88.3 million for Fiscal Years 2020 and 2019, respectively. In addition to TRS' administrative expense, other City agencies attribute the cost for services rendered by them during the fiscal year; see Note 7 above.



**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
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In November 2015, the System amended and extended its lease agreement to rent office space. The agreement will expire on May 31, 2039. The future minimum rental payments required under this operating lease are as follows:

<u>Years Ending June 30</u>	<u>Amount</u>
2021	\$ 8,760,000
2022	8,760,000
2023	9,480,000
2024	9,559,000
2025	11,156,000
Thereafter	169,599,000

Rent expense under the lease agreement for the year ended June 30, 2020, was approximately \$8.6 million, and for year ended June 30, 2019, was approximately \$7.9 million.

## 9. CONTINGENT LIABILITIES AND OTHER MATTERS

**Contingent Liabilities** — The QPP and TDA Program have certain contingent liabilities. TRS management, on advice from legal counsel, believes that such proceedings and contingencies will not have a material effect on the fiduciary net position of the QPP or cause changes in its fiduciary net position. Under the State statutes and City laws that govern the functioning of the QPP, increases in the obligation of the QPP to members and beneficiaries ordinarily result in increases in the obligations of the Employers to the QPP.

**DOE Class Action** — In 1996, a class action was brought against the City Board of Education and the State under Title VII of the Civil Rights Act of 1964 alleging that the use by the Board of Education of two teacher certification examinations mandated by the State had a disparate impact on minority candidates. In 2006, the United States Court of Appeals for the Second Circuit dismissed the claims against the State. In December 2012, the District Court decided a controlling legal question against the City. On February 4, 2013, the Second Circuit affirmed the District Court's decision. The District Court has appointed a Special Master to oversee claimants' individualized hearings both as to damages and eligibility for Board of Education employment. The hearings relate to members of the class that took the Liberal Arts and Science Test ("LAST") from 1996 to 2004. Currently, approximately 4,000 such individuals have submitted claim forms and may be eligible for damages. On June 5, 2015, the Court ruled that a second version of LAST, LAST-2, that was administered from 2004 to 2014, violated Title VII because it did not measure skills necessary to do the job. Currently, up to 700 potential LAST-2 class members have submitted claim forms and may be eligible for damages. In August 2015, the Court found that the State's new teacher certification test, the Academic Literacy Skills Test (ALST), administered since Spring 2014, was not discriminatory and evaluated skills necessary to do the job. Hearings to determine each claimant's damages are ongoing. While some final judgments have been entered, it is too early to permit an accurate estimation of the ultimate potential cost to The City.

**Actuarial Audit** — Pursuant to Section 96 of the New York City Charter, studies of the actuarial assumptions used to value liabilities of the five actuarially-funded New York City Retirement Systems ("NYCRS") are conducted every two years. Refer to Note 5 ("QPP Net Pension Liability") for the results of the most recent actuarial audits for the QPP.

**Revised Actuarial Assumptions and Methods** — In accordance with the ACNY and with appropriate practice, the Boards of Trustees of the five actuarially-funded NYCRS are to periodically review and adopt actuarial assumptions as proposed by the Actuary for use in the determination of Employer Contributions.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
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The most recently completed study was published by Bolton, Inc. dated June 2019. Bolton analyzed experience for the four- and ten-year periods ending June 30, 2017 and made recommendations with respect to the actuarial assumptions and methods based on their analysis. Based, in part, on these, recommendations, the Actuary proposed new assumptions and methods for use in determining Employer Contributions for Fiscal Years beginning on and after July 1, 2018. These assumptions and methods have been adopted by the Board of Trustees during Fiscal Year 2019.

Previously, Gabriel, Roeder, Smith & Company (GRS) published their study in October 2015.

**New York State Legislation** (only significant laws since Fiscal Year 2012 are included) —

Chapter 18 of the Laws of 2012 ("Chapter 18/12") placed certain limitations on the Tier III and Tier IV benefits available to participants hired on and after April 1, 2012 in most New York State PERS, including TRS. These changes are sometimes referred to as Tier VI.

Chapter 3 of the Laws of 2013 implemented changes in the actuarial procedures for determining Employer Contributions beginning Fiscal Year 2012. In particular, Chapter 3/13 continued the One-Year Lag Methodology ("OYLM"), employed the Entry Age Actuarial Cost Method ("EAACM"), established an Actuarial Interest Rate ("AIR") assumption of 7.0% per annum, net of expenses, continued it and other interest rates until June 30, 2016, and defined the amortization of Unfunded Actuarial Accrued Liabilities ("UAAL").

Chapter 489 of the Laws of 2013 ("Chapter 489/13") extended the Notice of Participation filing deadline to September 11, 2014 for vested members to file a sworn statement indicating participation in the World Trade Center Rescue, Recovery, and Clean-up Operations.

Chapter 427 of the Laws of 2014 ("Chapter 427/14") provides non-contributory retirement service credit for members called to active military duty on or after September 11, 2001 and prior to January 1, 2006, who did not receive their full salary from a participating employer and who are otherwise eligible to receive retirement service credit for such service. Such members would not be required to make member contributions to receive such credit.

Chapter 510 of the Laws of 2015 clarifies for Tier VI the definition of multiple employers for the purpose of exclusion of wages, and changes the plan year for contributions from plan year April 1 to March 31 to plan year January 1 to December 31. Chapter 41 of the Laws of 2016 was enacted on May 31, 2016. This amendment removes the specified periods of time, medal requirements, and theaters of operation in which military service would have had to have been rendered for a service purchase pursuant to RSSL § 1000. Accordingly, for a member to be eligible to purchase service credit pursuant to RSSL § 1000 for pre-membership military service, the member need only have been honorably discharged from the military; all other requirements of RSSL § 1000 remain the same. This law is not retroactive and does not permit retired members to purchase service credit.

Chapter 326 of the Laws of 2016, enacted on September 11, 2016, extends the deadline to file a Notice of Participation in the World Trade Center Rescue, Recovery, and Clean-up Operations to September 11, 2018. Proper filing of a Notice of Participation is a requirement for a member to be eligible for a World Trade Center disability or death benefit.

Chapter 266 of the Laws of 2018 extends the time for members or eligible beneficiaries to file a Notice of Participation in World Trade Center Rescue, Recovery, and Cleanup Operations to September 11, 2022.

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This law was signed on September 7, 2018, and shall be deemed to have been in full force and effect on and after September 11, 2001.

Chapter 89 of the Laws of 2020 provides death benefits to statutory beneficiaries of members whose death was a result of or was contributed to by COVID-19. This law provides an Accidental Death Benefit to the eligible beneficiaries of a member or a retiree who retired after March 1, 2020, where such member reported for work outside their home and contracted COVID-19 within 45 days after reporting for work, and whose death was caused by COVID-19 or where COVID-19 contributed to such member's death. Amounts payable are reduced by payments of any ordinary death benefits or option benefit paid to another statutory beneficiary.

**Other Legislation**

The SECURE Act of December 2019 increased the age at which Required Minimum Distributions must commence from 70.5 to 72. It also required that certain inherited retirement plan accounts be more rapidly distributed to their owners.

The CARES Act of March 2020 suspended Required Minimum Distributions due in 2020. It also authorized more advantageous loans and distributions to members who certify that COVID-19 adversely affected themselves or their household. These special rules sunset on or before December 31, 2020.

**COVID-19**

The outbreak of the coronavirus disease (COVID-19), has been declared a pandemic by the World Health Organization. The Governor declared a state of emergency in the State on March 7, 2020 and the Mayor declared a state of emergency in the City on March 12, 2020, each of which is still in effect. The ultimate impact of the COVID-19 pandemic on the Plans cannot be determined at this time.

\* \* \* \* \*

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)  
QUALIFIED PENSION PLAN**

**SCHEDULES OF CHANGES IN THE EMPLOYERS' NET PENSION LIABILITY AND RELATED RATIOS  
(In Thousands)**

**SCHEDULE 1**

	2020	2019	2018	2017	2016	2015	2014
Total pension liability:							
Service cost	\$ 1,555,755	\$ 1,691,144	\$ 1,436,617	\$ 1,386,674	\$ 1,274,308	\$ 1,223,158	\$ 1,205,662
Interest	4,838,801	4,914,552	5,071,481	5,147,042	4,131,177	4,027,139	4,407,702
Changes of benefit terms	-	-	-	-	-	-	-
Differences between expected and actual experience	(34,324)	(1,188,247)	(2,235,673)	1,008,249	1,229,501	1,507,964	-
Changes of assumptions	-	(826,850)	-	-	2,432,878	-	-
Benefit payments/withdrawals	(4,591,086)	(4,487,680)	(4,351,924)	(4,219,312)	(4,107,455)	(4,024,272)	(3,818,248)
Net change in total pension liability	1,769,146	102,919	(79,499)	3,322,653	4,960,409	2,733,989	1,795,116
Total pension liability – beginning	73,346,850	73,243,931	73,323,430	70,000,777	65,040,368	62,306,379	60,511,262
Total pension liability – ending (a)	75,115,996	73,346,850	73,243,931	73,323,430	70,000,777	65,040,368	62,306,378
Plan fiduciary net position:							
Contributions - Employer	3,590,822	3,696,686	3,889,710	3,888,399	3,760,714	3,325,528	3,054,424
Contributions - Other Employer*	61,748	62,513	59,979	57,369	n/a	n/a	n/a
Contributions - Employee	226,920	217,205	195,241	180,076	173,696	158,590	154,962
Net investment income	3,911,187	5,721,310	6,275,115	8,133,280	960,267	1,611,929	9,435,906
Benefit payments/withdrawals	(4,591,086)	(4,487,680)	(4,351,924)	(4,219,312)	(4,107,455)	(4,024,272)	(3,818,248)
Payment of Interest on TDA Fixed Funds	(1,846,173)	(1,716,679)	(1,595,462)	(1,466,615)	(1,354,207)	(1,248,988)	(1,147,923)
Administrative expenses	(64,532)	(64,291)	(65,076)	(60,790)	(59,367)	(58,391)	(46,042)
Other Changes	39,853	28,671	29,170	(46,229)	1,233	329	404
Net change in plan fiduciary net position	1,328,739	3,457,735	4,436,753	6,466,178	(625,119)	(235,275)	7,633,483
Plan fiduciary net position – beginning	57,990,211	54,532,476	50,095,723	43,629,545	44,254,664	44,489,939	36,856,456
Plan fiduciary net position – ending (b)**	59,318,950	57,990,211	54,532,476	50,095,723	43,629,545	44,254,664	44,489,939
Employer's net pension liability – ending (a)-(b)	\$ 15,797,046	\$ 15,356,639	\$ 18,711,455	\$ 23,227,707	\$ 26,371,232	\$ 20,785,704	\$ 17,816,440
Plan fiduciary net position as a percentage of the total pension liability	78.97%	79.06%	74.45%	68.32%	62.33%	68.04%	71.41%
Covered Payroll	\$ 10,903,755	\$ 10,404,404	\$ 9,200,180	\$ 8,818,537	\$ 8,256,100	\$ 8,074,522	\$ 7,964,149
TRS' Net Pension Liability as a Percentage of covered payroll	144.88%	147.60%	203.38%	263.40%	319.42%	257.42%	223.71%

Additionally, in accordance with paragraph 50 of GASB No. 67, this schedule should present information for 10 years, if available. The information presented here pertains to periods beginning with the June 30, 2014 fiscal year, the Plan's adoption year of GASB No. 67. Additional years will be added until the 10-year requirement is met.

\*Includes amounts for employer's portion of Additional Member Contributions and supplemental contributions for the ASAF and ASF Funds.

\*\*Such amounts represent the preliminary Systems' fiduciary net position and may differ from the Systems' final fiduciary net position.

See Report of Independent Certified Public Accountants.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)**  
**QUALIFIED PENSION PLAN**  
**SCHEDULES OF EMPLOYERS' CONTRIBUTIONS**  
**(In Thousands)**

**SCHEDULE 2**

	<u>2020</u>	<u>2019</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>	<u>2011</u>
Actuarially determined contribution	\$ 3,590,822	\$ 3,696,686	\$ 3,889,710	\$ 3,888,399	\$ 3,702,569	\$ 3,270,007	\$ 2,998,694	\$ 2,855,640	\$ 2,673,078	\$ 2,468,973
Contributions in relation to the actuarially determined contribution	<u>3,590,822</u>	<u>3,696,686</u>	<u>3,889,710</u>	<u>3,888,399</u>	<u>3,702,569</u>	<u>3,270,007</u>	<u>2,998,694</u>	<u>2,855,640</u>	<u>2,673,078</u>	<u>2,468,973</u>
Contribution deficiency (excess)	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Covered payroll <sup>1</sup>	\$10,903,755	\$10,404,404	\$ 9,200,180	\$ 8,818,537	\$ 8,256,100	\$ 8,074,522	\$ 7,964,149	\$ 7,833,329	\$ 7,920,935	\$ 7,935,248
Contributions as a percentage of covered payroll	32.932%	35.530%	42.279%	44.093%	44.846%	40.498%	37.652%	36.455%	33.747%	31.114%

<sup>1</sup> Projected payroll at time 1.0 under previous roll-forward methodology through 2018. Actual payroll at valuation date (time = 0) beginning in 2019.

See Report of Independent Certified Public Accountants.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)  
QUALIFIED PENSION PLAN  
SCHEDULES OF EMPLOYERS' CONTRIBUTIONS**

(In Thousands)

**SCHEDULE 2 (CONTINUED)**

The above actuarially determined contributions were developed using a One-Year Lag Methodology, under which the actuarial valuation determines the employer contribution for the second following fiscal year (e.g., Fiscal Year 2020 contributions were determined using an actuarial valuation as of June 30, 2018). The methods and assumptions used to determine the actuarially determined contributions are as follows:

Valuation Dates	June 30, 2018	June 30, 2017	June 30, 2016	June 30, 2015	June 30, 2014	June 30, 2013	June 30, 2012	June 30, 2011	June 30, 2010	June 30, 2009- June 30, 2008
Actuarial cost method	Entry Age	Entry Age	Entry Age	Entry Age	Entry Age	Entry Age	Entry Age	Entry Age	Entry Age	Frozen Initial Liability <sup>1</sup>
Amortization method for Unfunded Actuarial Accrued Liabilities:										
Initial Unfunded Post-2010 Unfunded	Increasing Dollar Level Dollar	Increasing Dollar Level Dollar	Increasing Dollar Level Dollar	Increasing Dollar Level Dollar	Increasing Dollar Level Dollar	Increasing Dollar Level Dollar	Increasing Dollar Level Dollar	Increasing Dollar Level Dollar	Increasing Dollar Level Dollar	NA <sup>2</sup> NA <sup>2</sup>
Remaining amortization period:										
Initial Unfunded	14 years (closed)	15 years (closed)	16 years (closed)	17 years (closed)	18 years (closed)	19 years (closed)	20 years (closed)	21 years (closed)	22 years (closed)	NA <sup>2</sup>
2010 ERI	0	0	0	1 year (closed)	2 years (closed)	3 years (closed)	4 years (closed)	5 years (closed)	NA	NA <sup>2</sup>
2011 Actuarial Gain/Loss	8 years (closed)	9 years (closed)	10 years (closed)	11 years (closed)	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA <sup>2</sup>
2012 Actuarial Gain/Loss	9 years (closed)	10 years (closed)	11 years (closed)	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA <sup>2</sup>
2013 Actuarial Gain/Loss	10 years (closed)	11 years (closed)	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA	NA <sup>2</sup>
2014 Actuarial Gain/Loss	11 years (closed)	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA	NA	NA <sup>2</sup>
2015 Actuarial Gain/Loss	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA	NA	NA	NA <sup>2</sup>
2016 Actuarial Gain/Loss	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA	NA	NA	NA	NA <sup>2</sup>
2017 Actuarial Gain/Loss	14 years (closed)	15 years (closed)	NA	NA	NA	NA	NA	NA	NA	NA <sup>2</sup>
2017 ASAF Method Change	19 years (closed)	20 years (closed)	NA	NA	NA	NA	NA	NA	NA	NA <sup>2</sup>
2017 Method Change	19 years (closed)	20 years (closed)	NA	NA	NA	NA	NA	NA	NA	NA <sup>2</sup>
2017 Assumption Change	19 years (closed)	20 years (closed)	NA	NA	NA	NA	NA	NA	NA	NA <sup>2</sup>
2018 Actuarial Gain/Loss	15 years (closed)	NA	NA	NA	NA	NA	NA	NA	NA	NA <sup>2</sup>
2018 Method Change	20 years (closed)	NA	NA	NA	NA	NA	NA	NA	NA	NA <sup>2</sup>
Actuarial Value of Assets (AVA) Method <sup>3</sup>	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AVA is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 1999.

See Report of Independent Certified Public Accountants.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)  
QUALIFIED PENSION PLAN  
SCHEDULES OF EMPLOYERS' CONTRIBUTIONS**

(In Thousands)

**SCHEDULE 2 (CONTINUED)**

Valuation Dates	June 30, 2018	June 30, 2017	June 30, 2016	June 30, 2015	June 30, 2014	June 30, 2013	June 30, 2012	June 30, 2011	June 30, 2010	June 30, 2009- June 30, 2008
Actuarial assumptions:										
Assumed rate of return <sup>4</sup>	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	8.0% per annum, gross of investment expenses
Post-retirement mortality	Tables adopted by Retirement Board during Fiscal Year 2019	Tables adopted by Retirement Board during Fiscal Year 2019	Tables adopted by Retirement Board during Fiscal Year 2016	Tables adopted by Retirement Board during Fiscal Year 2016	Tables adopted by Retirement Board during Fiscal Year 2016	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2012
Active service: withdrawal, death, disability, service retirement	Tables adopted by Retirement Board during Fiscal Year 2019	Tables adopted by Retirement Board during Fiscal Year 2019	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2012	Tables adopted by Retirement Board during Fiscal Year 2006	Tables adopted by Retirement Board during Fiscal Year 2000
Salary increases <sup>4</sup>	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.
Cost-of-Living Adjustments <sup>4</sup>	1.5% per annum for Auto Cola. 2.5% per annum for Escalation.	1.5% per annum for Auto Cola. 2.5% per annum for Escalation.	1.5% per annum for Auto Cola. 2.5% per annum for Escalation.	1.5% per annum for Auto Cola. 2.5% per annum for Escalation.	1.5% per annum for Auto Cola. 2.5% per annum for Escalation.	1.5% per annum for Auto Cola. 2.5% per annum for Escalation.	1.5% per annum for Auto Cola. 2.5% per annum for Escalation.	1.5% per annum for Auto Cola. 2.5% per annum for Escalation.	1.5% per annum for Auto Cola. 2.5% per annum for Escalation.	1.3% per annum for Auto Cola. 2.5% per annum for Escalation.

<sup>1</sup> Under this actuarial cost method, the Initial Liability was reestablished as of June 30, 1999, by the Entry Age Actuarial Cost Method but with the unfunded actuarial accrued liability (UAAL) not less than \$0. The financial results using this Frozen Initial Liability Actuarial Cost Method are the same as those that would be produced using the Aggregate Actuarial Cost Method.

<sup>2</sup> In conjunction with Chapter 85 of the Laws of 2000, there is an amortization method. However, the June 30, 1999 UAAL for the QPP equaled \$0 and no amortization period was required.

<sup>3</sup> As of the June 30, 2014 (Lag) valuation, the AVA is constrained to be no more than 20% from Fair Value. As of the June 30, 2018 (Lag) valuation, the AVA is determined by re-characterizing the interest credited on TDA Fixed Fund account balances as investment income instead of as a cash disbursement.

<sup>4</sup> Developed using a long-term Consumer Price Inflation assumption of 2.5% per year.

See Report of Independent Certified Public Accountants.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK  
REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)  
QUALIFIED PENSION PLAN  
SCHEDULE OF INVESTMENT RETURNS**

**SCHEDULE 3**

The following table displays the annual money-weighted rate of return, net of investment expense, for TRSNYC Pension Fund investments for each of the past seven fiscal years:

<u>Fiscal Year-Ended</u>	<u>Money-weighted Rate of Return</u>
June 30, 2020	4.92%
June 30, 2019	7.50%
June 30, 2018	8.14%
June 30, 2017	12.50%
June 30, 2016	1.66%
June 30, 2015	2.81%
June 30, 2014	17.60%

Note: In accordance with paragraph 50 of GASB No. 67, this schedule should present information for 10 years, if available. The information presented here pertains to periods beginning with the June 30, 2014 fiscal year, the Plan's adoption year of GASB No. 67. Additional years will be added until the 10-year requirement is met.



**ADDITIONAL SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF ADMINISTRATIVE EXPENSES**  
**Year Ended June 30, 2020**

**SCHEDULE 4**

	Total	QPP	TDA
<b>PERSONNEL SERVICES</b>			
Staff Salaries	\$32,367,834	\$25,256,621	\$7,111,213
Social Security	1,857,721	1,449,579	408,142
Insurance (Health)	5,286,048	4,124,703	1,161,345
Welfare Benefit Fund	1,356,875	1,058,770	298,105
TOTAL PERSONNEL SERVICES	40,868,478	31,889,673	8,978,805
<b>PROFESSIONAL SERVICES</b>			
Data Processing Support and Licenses	8,204,853	6,402,247	1,802,606
Temporary and Consultant Staffing	4,748,734	3,705,437	1,043,297
Outside Professional Services	948,586	740,182	208,404
TOTAL PROFESSIONAL SERVICES	13,902,173	10,847,866	3,054,307
<b>MODERNIZATION INITIATION</b>			
Personnel Services	50,000	28,081	21,919
Consultants and Temporary Costs	9,646,445	5,417,559	4,228,886
IT Vendor Development Costs	3,259,743	1,830,711	1,429,032
QA Vendor Non-IT Costs	3,476,188	1,952,269	1,523,919
Equipment Costs	85,608	48,078	37,530
Other Expenses	803,767	451,405	352,362
TOTAL MODERNIZATION INITIATION ***	17,321,751	9,728,103	7,593,648
<b>DOE CLASS ACTION EXPENSE</b>			
Consultants and Temporary Costs	1,882,203	1,143,045	739,158
IT Vendor Development Costs	1,361,841	827,034	534,807
QA Vendor Non-IT Costs	647,110	392,984	254,126
Equipment Costs	316,096	191,962	124,134
TOTAL DOE CLASS ACTION EXPENSE ***	4,207,250	2,555,025	1,652,225
<b>RENTALS</b>			
Office Space	8,593,089	6,705,188	1,887,901
Real Estate Taxes & Operating Expenses	759,983	593,015	166,968
Equipment Leasing	171,258	133,633	37,625
TOTAL RENTALS	9,524,330	7,431,836	2,092,494
<b>COMMUNICATION</b>			
Telephone	295,700	230,735	64,965
Postage	580,492	452,958	127,534
Local Travel Expenses *	32,693	25,510	7,183
Non-Local Travel Expenses **	72,359	56,461	15,898
TOTAL COMMUNICATION	981,244	765,664	215,580
<b>OTHER OPERATING EXPENSES</b>			
Utilities	394,808	308,069	86,739
Supplies and Materials	70,952	55,364	15,588
Maintenance, Repairs, and Services	521,593	407,011	114,582
Office Equipment and Furniture	44,428	34,667	9,761
Printing	161,010	125,636	35,374
Training Programs	440,615	343,812	96,803
Dues and Subscriptions	49,714	38,792	10,922
TOTAL OTHER OPERATING EXPENSES	1,683,120	1,313,351	369,769
<b>TOTAL ADMINISTRATIVE EXPENSES***</b>	<b>\$88,488,346</b>	<b>\$64,531,518</b>	<b>\$23,956,828</b>

\*Total TRS Local Travel Expenses includes Local Travel Fare \$7,586, Courier \$17,338, Meals & Refreshments \$7,664, and Conferences \$105.

\*\* Total TRS Non-Local Travel Expenses includes Hotels & Meals \$29,785, Travel Fare \$15,622, and Conferences \$26,952.

\*\*\* The QPP Fixed Return Fund's administrative expenses amounted to \$50,523,532, of which the modernization portion was \$4,850,090 and the DOE class action expense was \$1,493,666. The Variable Return Fund's administrative expenses amounted to \$37,964,814, of which the modernization portions attributable to the QPP and TDA were \$4,878,013 and \$7,593,648, respectively, and the DOE class action expense portions attributable to the QPP and TDA were \$1,061,359 and \$1,652,225, respectively.

The schedule shows total expenses paid by TRS. Other administrative expenses of \$12,060,664 were paid on TRS' behalf by other City agencies under Regulation 85 of the New York State Superintendent of Insurance Regulations.

See Note 8 of the Financial Statements for Administrative Expenses.

See Report of Independent Certified Public Accountants.

**ADDITIONAL SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF INVESTMENT EXPENSES AND SERVICES (QPP & TDA)**  
**Year Ended June 30, 2020**

	ASSETS UNDER MANAGEMENT	INVESTMENT EXPENSES AND SERVICES
<b>INVESTMENT CATEGORY</b>		
Pension Fund	\$82,142,621,538	\$278,702,029
Diversified Equity and Int'l Equity Funds	14,312,061,070	18,619,996
Balanced Fund	486,431,024	582
Inflation Protection Fund*	-	395
Sustainable Equity Fund**	305,862,836	870,815
U.S. Equity Index Fund***	20,038,669	-
International Equity Index Fund***	3,121,655	-
<b>OTHER INVESTMENT SERVICES</b>		
NYC Office of Comptroller (Fixed-Return Fund)		4,603,054
Consultant		3,284,966
Legal		820,362
Other Services		1,522,632
Provision for Expense Reduction		(16,990,843)
	<u>\$97,270,136,792****</u>	<u>\$291,433,988</u>
<p>* Discontinued as of April 1, 2020</p> <p>** Socially Responsive Equity Fund prior to October 1, 2019</p> <p>*** New fund as of January 1, 2020</p> <p>**** Excludes \$1,446,009,576 in securities lending</p>		

See Report of Independent Certified Public Accountants.



# Investment Section



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## REPORT ON INVESTMENT ACTIVITY

The below report on investment activity was prepared by Rocaton Investment Advisors. Fund summaries of the System's Investment Options follow it. After the reports are disclosures of sector returns, asset class allocation, investment management and other service fees, and bond and equity holdings. The disclosures supplement the investment information of the Financial Section.

**Prepared by Rocaton Investment Advisors, LLC,**

**Investment Consultant to the Teachers' Retirement System of the City of New York**

As of June 30, 2020, TRS offered seven investment program options to its membership: the Fixed Return Fund, the Diversified Equity Fund, the Balanced Fund, the International Equity Fund, the Sustainable Equity Fund, the U.S. Equity Index Fund, and the International Equity Index Fund. State Street and JP Morgan Chase are the custodians of the assets of these investment programs. The custodian calculates the return information using time-weighted compound return. The structure of each of these programs differs depending upon its investment objective. These seven programs and their objectives are described below.

The pooled New York City Pension Fund includes a) all funds that Tier I/II members invested in the Fixed Return Fund and b) Employer Contribution assets for Tier I/II members c) all Tier III/IV/VI QPP funds d) all TDA funds invested in the Fixed Return Fund. The Fixed Return Fund currently provides Tier I/II participants with an 8.25% return. Tier III/IV/VI members are credited 5% in their QPP accounts. UFT members and non UFT members with TDA funds invested in the Fixed Return Fund are provided with 7.0% and 8.25% returns, respectively. The combined QPP and TDA Fixed Return Funds assets totaled \$82.1 billion as of June 30, 2020. The overall Pension Fund had a net of fee return of 4.89% for the fiscal year ending June 30, 2020. As of June 30, 2020, the Fund had 31% U.S. equity investments, 18% non-U.S. equity investments, 13% in alternative investments, 38% fixed income investments and short-term investments. The Fund's long-term asset allocation policy is based on the Fund's long-term investment horizon of more than 20 years. The investment structure has a significant emphasis on risk control. For example, as of June 30, 2020, approximately 95% of U.S. equity assets were invested in indexed or risk-controlled strategies. This emphasis on indexed and risk-controlled strategies also enables the program to more effectively control costs. The Fund's fixed income holdings are primarily high-quality U.S. securities with smaller allocations to sectors such as enhanced yield and convertible securities.

The Diversified Equity Fund's objective is to provide participants with a diversified equity investment portfolio. As of June 30, 2020, the Diversified Equity Fund, including both QPP and TDA assets, had \$14.1 billion in assets and had a net of fee return of 2.44% for the fiscal year ending June 30, 2020. This portfolio's target structure is a mixture of U.S. equities (70%), non-U.S. equities (20%), and defensive strategies (10%). The defensive sector is made up of convertible bond strategies, conservatively-oriented equity strategies, and tactical asset allocation strategies. Tactical asset allocation strategies shift allocations to and within asset classes such as stocks, bonds and cash, depending upon the managers' analysis of market conditions. The diversification of this portfolio beyond U.S. equities is intended to broaden diversification and help protect participants against significant market downturns within a single asset class (*i.e.*, U.S. stocks). Again, risk control and cost-effectiveness are a very important focus of the investment structure. For example, as of June 30, 2020, approximately 67% of the assets within the Diversified Equity Fund were invested in indexed strategies.

The Balanced Fund's objective is to seek current income and some capital appreciation. The Balanced Fund invests in both stocks and bonds and targets a conservative mix of approximately 70% bonds and 30% stocks. The Fund's bond allocation is passively managed and includes allocations to short-term U.S. Treasuries, Agencies, short-term investment-grade Corporate Bonds, and some foreign securities. The Fund's stock allocation is passively managed and is composed of U.S. and non-U.S. companies located in developed and emerging markets, traded on a variety of stock exchanges and denominated in a variety of currencies around the world. As of June 30, 2020, the combined QPP and TDA Balanced Funds' assets totaled \$486.4 million, and the Fund earned a net of fee return of 4.35% for the fiscal year ending June 30, 2020.

The International Equity Fund invests primarily in the stocks of non-U.S. companies located in both developed and emerging markets. The objective of this fund is to provide a return comparable to the return of the non-U.S. developed equity markets over a full market cycle. As of June 30, 2020, the combined QPP and TDA International Equity Funds' assets totaled \$166.8 million. For the fiscal year ending June 30, 2020, the International Equity Fund returned -2.91%, net of fees.

The Sustainable Equity Fund invests primarily in stocks of large and mid-cap U.S. and non-U.S. companies that meet certain financial and social criteria. The objective of this fund is to provide a rate of return comparable to the broad equity market while reflecting social priorities. As of June 30, 2020, the combined QPP and TDA Sustainable Equity Funds' assets totaled \$305.9

million. For the fiscal year ending June 30, 2020, the Socially Responsive Equity Fund returned 23.38%, net of fees.

The U.S. Equity Index invests primarily in stocks of large, mid, and small-cap companies in the U.S. The objective of this fund is to closely track the returns and characteristics of the Dow Jones US Total Stock Market Index. As of June 30, 2020, the combined QPP and TDA U.S. Equity Index Funds' assets totaled \$20.0 million. The Fund earned a net of fee return of 10.35% for the six-month period since the fund was inception on January 1, 2020.

The International Equity Index invests primarily in stocks of large, mid, and small-cap companies located in both developed and emerging markets. The objective of this fund is to closely track the returns and characteristics of the MSCI ACWI ex US IMI Net Index. As of June 30, 2020, the combined QPP and TDA International Equity Index Funds' assets totaled \$3.1 million. The Fund earned a net of fee return of 3.57% for the six-month period since the fund was inception on January 1, 2020.

The investment strategies of these investment managers are monitored periodically for consistency with TRS' overall investment objectives.

### **ECONOMIC REVIEW**

Interest rates declined in the U.S. during the one-year period ending June 30, 2020, with the 10-year Treasury note yielding 0.7% at the end of June, a decline of approximately 135 basis points from June 30, 2019. The returns of investment grade fixed income sectors generated positive results over the trailing one-year period, with corporates returning 9.50% and treasuries returning 10.45%. U.S. equities (proxied by the S&P 500) gained 7.51% during the trailing one-year period, outperforming non-U.S. developed markets (proxied by the MSCI EAFE Index), which returned -5.13%. Additionally, emerging market equities (proxied by the MSCI Emerging Markets Index) posted a return of -3.39% for the one-year period ending June 30, 2020. The return on the broad fixed income market (proxied by the Bloomberg Barclays U.S. Aggregate Bond Index) during the trailing one-year period was 8.74%. High yield fixed income (below investment grade corporate bonds proxied by the Bloomberg Barclays U.S. High Yield Index) underperformed higher-quality domestic fixed income during the one-year period ending June 30, 2020, returning 0.03%, while emerging markets debt (proxied by the J.P. Morgan EMBI Global Diversified Index) returned 0.49%.

### **U.S. MARKETS REVIEW**

Most major domestic equity indices rose during the one-year period ending June 30, 2020, with larger market capitalization companies, as represented by the Russell 1000 Index, outperforming their smaller counterparts, as represented by the Russell 2000 Index. The Russell 1000 Index returned 7.48% during the one-year period ending June 30, 2020 versus the Russell 2000 Index return of -6.63% for the same period. The Russell 3000 Index, a broad measure of the U.S. equity markets, returned 6.53% for the one-year period ending June 30, 2020. For the 12 months ending June 30, 2020, growth stocks outperformed value stocks as the Russell 3000 Growth Index outperformed the Russell 3000 Value Index by over 31%.

For the year ending June 30, 2020, the Bloomberg Barclays U.S. Aggregate Bond Index, a broad index of U.S. investment grade bonds, returned 8.74%.

### **INTERNATIONAL MARKETS REVIEW**

The return for the MSCI EAFE Index, a measure of the developed international equity markets, was -5.13% in U.S. dollar terms for the one-year period ending June 30, 2020. Of the following four regions: Japan, Pacific ex-Japan, U.K., and Europe ex-U.K., Japan had the strongest performance for the one-year period, with a return of 3.10%. Europe ex-U.K. followed with a return of -0.01% for the one-year period while the MSCI U.K. and MSCI Pacific ex-Japan markets returned -17.68%, and -12.74%, respectively. International small cap stocks outperformed foreign large cap companies for the 12-month period ending June 30, 2020, with the MSCI EAFE Small Cap Index's return of -3.52%. The MSCI Emerging Markets Index returned -3.39% for the one-year period ending June 30, 2020. All of the performance information regarding non-U.S. markets is provided from the perspective of U.S.-based investors and, as such, were translated at fiscal year-end and reviewed as U.S. dollar denominations.

### ***Rocaton Investment Advisors, LLC***

*20 Glover Avenue*

*Norwalk, Connecticut 06850*

*Performance information for MSCI non-U.S. equity indices represents Total Return Net Dividends in U.S. Dollar Terms.*

## INVESTMENT OPTIONS

Below is a depiction of the investment programs in the QPP and the TDA Program available to members. The programs' portfolios are structured differently to allow members to diversify their investments. Please see pages 91-95 for detailed descriptions of the investment programs.

PENSION FUND		DIVERSIFIED EQUITY FUND		BALANCED FUND	
(Member Contributions, Pension Reserve Funds & ITHP Contributions)		(Member Contributions & ITHP Contributions)		(Member Contributions & ITHP Contributions)	
Tiers I/II QPP funds in the Fixed Return Fund		Tiers I/II QPP funds in the Diversified Equity Fund		Tiers I/II QPP funds in the Balanced Fund	
+					
All Tiers III/IV/VI QPP Funds		+		+	
+					
All Tiers' TDA funds in the Fixed Return Fund		All Tiers' TDA funds in the Diversified Equity Fund		All Tiers' TDA funds in the Balanced Fund	

INTERNATIONAL EQUITY FUND		SUSTAINABLE EQUITY FUND		U.S. EQUITY INDEX FUND		INTERNATIONAL EQUITY INDEX FUND	
(Member Contributions & ITHP Contributions)		(Member Contributions & ITHP Contributions)		(Member Contributions & ITHP Contributions)		(Member Contributions & ITHP Contributions)	
Tiers I/II QPP funds in the International Equity Fund		Tiers I/II QPP funds in the Sustainable Equity Fund		Tiers I/II QPP funds in the U.S. Equity Index Fund		Tiers I/II QPP funds in the International Equity Index Fund	
+		+		+		+	
All Tiers' TDA funds in the International Equity Fund		All Tiers' TDA funds in the Sustainable Equity Fund		All Tiers' TDA funds in the U.S. Equity Index Fund		All Tiers' TDA funds in the International Equity Index Fund	

*Note: Members' QPP accounts receive additional contributions from their employer: "Pension Reserve" funds, which are invested in the Pension Fund, are provided to all members on a statutory basis consistent with generally accepted actuarial principles; actuarial variations are performed annually as of June 30. "Increased-Take-Home Pay" (ITHP) funds, provided by the City of New York to Tier I and Tier II members only, are invested according to member designation in any combination of the seven investment programs. The Inflation Protection Fund was discontinued as of April 1, 2020. However, some Fund activity was reported from June 30, 2019 through April 1, 2020.*



The table below compares accumulations as of June 30, 2020, based on assumed contributions of \$100.00 per month into each of the Fixed Return, Diversified Equity, Balanced, International Equity, Sustainable Equity, U.S. Equity Index, and International Equity Index Funds.

## 10-YEAR COMPARISON OF ACCUMULATIONS IN TRS' INVESTMENT PROGRAMS

*As of June 30, 2020*

MONTHS OF PARTICIPATION	12	24	36	48	60	72	84	96	108	120
Fixed Return Fund (TDA/UFT) <sup>1</sup>	\$1,239	\$2,564	\$3,982	\$5,499	\$7,122	\$8,859	\$10,718	\$12,707	\$14,835	\$17,114
Fixed Return Fund (All others) <sup>1</sup>	\$1,245	\$2,594	\$4,053	\$5,633	\$7,343	\$9,194	\$11,198	\$13,367	\$15,715	\$18,256
Diversified Equity Fund <sup>2</sup>	\$1,232	\$2,536	\$3,908	\$5,523	\$7,314	\$9,091	\$11,106	\$13,572	\$16,403	\$19,429
Balanced Fund <sup>3</sup>	\$1,236	\$2,539	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
International Equity Fund <sup>4</sup>	\$1,200	\$2,425	\$3,611	\$5,039	\$6,571	\$8,017	\$9,520	\$11,294	\$13,323	\$15,114
Sustainable Equity Fund <sup>5</sup>	\$1,409	\$2,939	\$4,563	\$6,444	\$8,546	\$10,663	\$13,081	\$16,154	\$19,565	\$23,169
U.S. Equity Index Fund <sup>6</sup>	\$672	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
International Equity Index Fund <sup>7</sup>	\$654	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

<sup>1</sup> Fixed Return Fund

QPP: Tiers I/II members are credited with 8.25% annually on QPP investments in the Fixed Return Fund; this rate has been in effect since July 1, 1988.

TDA: Members who are represented by the United Federation of Teachers (UFT) are credited with 7% annually on TDA investments. This rate has been in effect since December 11, 2009; the previous rate was 8.25%. Members who are not represented by the UFT are credited with 8.25% annually on TDA investments in the Fund; this rate has been in effect since July 1, 1988. The numbers in the chart represent the accumulation for a UFT member.

<sup>2</sup> Based on July 2020 unit value of \$96.973

<sup>3</sup> Based on July 2020 unit value of \$16.302

<sup>4</sup> Based on July 2020 unit value of \$10.042

<sup>5</sup> Based on July 2020 unit value of \$20.889

<sup>6</sup> Based on July 2020 unit value of \$10.820. U.S. Equity Index Fund began on 1/1/20, so the above is a 6-month figure.

<sup>7</sup> Based on July 2020 unit value of \$10.157. International Equity Index Fund began on 1/1/20, so the above is a 6-month figure.



## PENSION FUND Fund Summary Fiscal Year 2020

**Return: 4.89%**

**Total Investments: \$82.143 Billion**

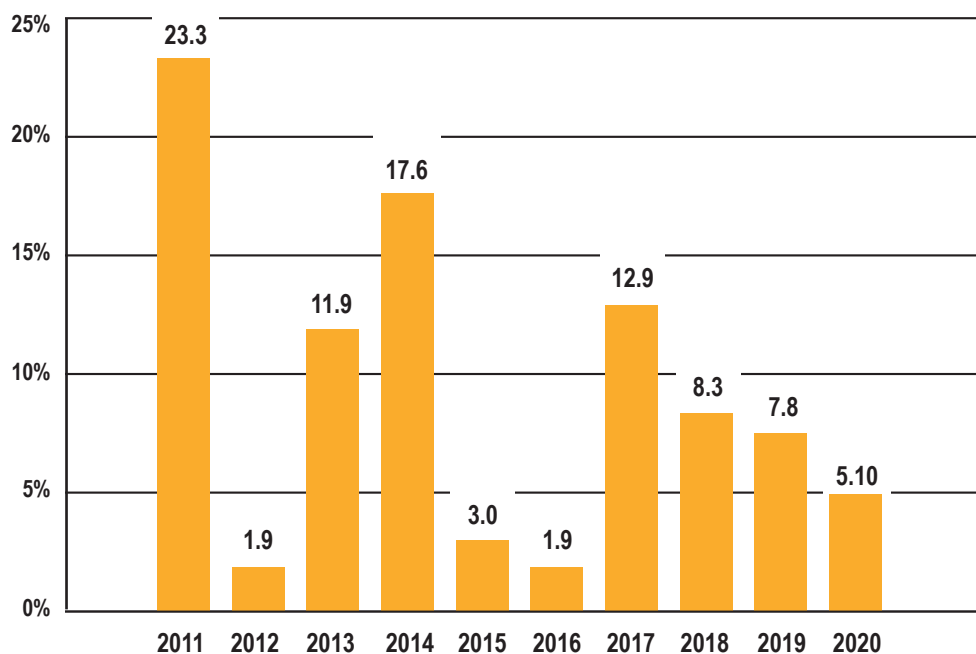
During Fiscal Year 2020, the Pension Fund's portfolio, consisting primarily of equities and fixed-income investments, yielded a net return of 4.89% and a gross return of 5.10%. The 5.10% gross return was a decrease from the 7.76% return for Fiscal Year 2019.

The Pension Fund includes a) all funds that Tier I/II members invested in the Fixed Return Fund; b) Employer Contribution assets for Tier I/II members; c) all Tier III/IV/VI Qualified Pension Plan (QPP) funds; and d) all Tax-Deferred Annuity (TDA) Program funds invested in the Fixed Return

Fund. The Fixed Return Fund provides an annual rate of return that is set by the New York State Legislature in accordance with applicable laws. The combined QPP and TDA Fixed Return Fund assets totaled \$82.143 billion as of June 30, 2020.

The Comptroller of the City of New York invests the Pension Fund's holdings in a diversified portfolio, as authorized by the Teachers' Retirement Board. This portfolio consists of U.S. and international equities and fixed-income instruments, with smaller allocations to private equity and real estate investments.

### 2011-2020 PENSION FUND ANNUAL RATE OF RETURN\*



\* Reflects Gross Returns (Annualized Net Return for Pension Fund available beginning Fiscal Year 2015.)

**DIVERSIFIED EQUITY FUND****Fund Summary****Fiscal Year 2020****Return: 2.44%****Total Investments: \$14.145 Billion**

For the 12-month period ending June 30, 2020, the U.S. equity market, as measured by the Russell 3000 Index, returned 6.53%. The Russell 3000 Index includes no fees and provides a passive representation of the overall U.S. stock market. For the same 12-month period ending June 30, 2020, the Diversified Equity Fund returned 2.44%, after fees. The Fund invests in a diversified blend of investment strategies that historically have made the Diversified Equity Fund less volatile over long time periods than the overall U.S. equity market. The Hybrid Benchmark, which includes no fees, is constructed based upon a passive reflection of the Diversified Equity Fund's target asset allocation among domestic stocks, domestic fixed-income securities, and international equities. As of June 30, 2020, the Hybrid Benchmark was 70% Russell 3000 Index, 20% International Composite Benchmark, and 10% Defensive Strategies benchmark. Over the 12-month period ending June 30, 2020, the Diversified Equity Fund underperformed the Hybrid Benchmark's return of 4.58%.

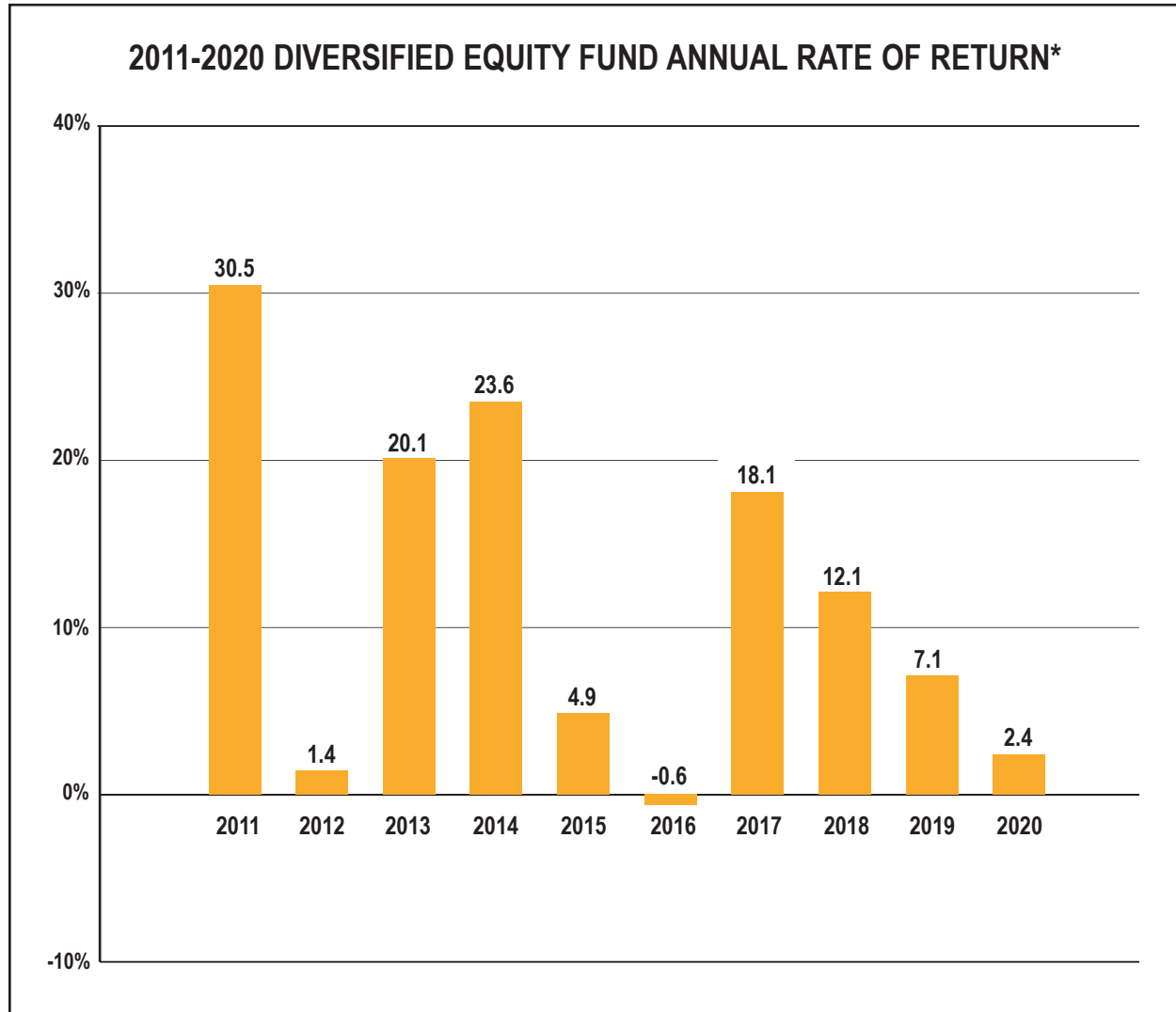
For the three-year period ending June 30, 2020, the Diversified Equity Fund returned 7.15% on an annualized basis after fees, trailing the Russell 3000 Index's annualized return of 10.04% and the Hybrid Benchmark's annualized returns of 8.23% over the same period. For the five-year period ending June 30, 2020, the Diversified Equity Fund returned 7.62%, annualized after fees, behind the Russell 3000 Index's annualized return of 10.03% and the Hybrid Benchmark's annualized return of 8.67%. Due to its diversified structure, the Diversified Equity Fund has exhibited less performance volatility than the Russell 3000 Index over the same five-year period.

As of June 30, 2020, approximately 75% of the Diversified Equity Fund's portfolio was invested in the U.S. common stock market. The Diversified Equity Fund's portfolio also contained approximately

20% in international stocks and approximately 5% in fixed income, cash-equivalents, and other securities as of the fiscal year-end. The international stock and the fixed income allocations contribute to portfolio diversification.

The Diversified Equity Fund utilizes several different investment strategies managed by professional money management firms. These strategies are classified into the component sectors described here. Returns after fees for all of the Diversified Equity Fund's component sectors for the one-year period ending June 30, 2020 are as follows:

- The Passive Core (or index) sector is comprised of two index mandates.
- The Active Domestic Equity sector is comprised of strategies focused on particular market capitalization ranges and investment styles.
- The Defensive Strategies sector is designed to provide a diversification benefit to the overall fund and has generally been beneficial to the fund during periods of market decline. The sector is comprised of a variety of strategy types. The tactical asset allocation and global allocation managers within this sector, which can modify their mix of equity, bonds, other diversifying assets, and cash equivalents, were positioned with approximately 62% equity exposure, and approximately 38% to fixed income and other assets in their portfolios as of June 30, 2020. The sector also includes two low expected volatility equity strategies, two convertible bond portfolios which exhibit a hybrid of equity and fixed income characteristics. The fixed income exposure of the overall Diversified Equity Fund comes from the Defensive Strategies sector.
- The International Equity sector is comprised of strategies focused on particular market capitalization ranges and investment styles across developed and emerging markets.



\* After expenses

## BALANCED FUND

### Fund Summary

Fiscal Year 2020

**Return: 4.35%**

**Total Investments: \$486.432 Million**

The Balanced Fund has targets of 70% U.S. short-term fixed income and 30% passive world equity. The fund aims to passively track its benchmark, which is 70% Bloomberg Barclays U.S. Govt/Credit

1-5 Year Float Adjusted Index and 30% FTSE Global All Cap Index. For the one-year period ending June 30, 2020, the Fund returned 4.35%, and the Balanced Fund Composite Benchmark returned 4.88%.

## INTERNATIONAL EQUITY FUND

### Fund Summary

Fiscal Year 2020

**Return: -2.91%**

**Total Investments: \$166.831 Million**

As of June 30, 2020, the International Equity Fund was primarily comprised of a mix of active and passive management, implemented by one passive and nine active non-U.S. equity managers, which invest primarily in the stocks of non-U.S. companies located in developed and emerging markets. For the one-year period ending June 30, 2020, the International Equity Fund returned -2.91%, after fees outperforming the International Composite Benchmark, which

returned -4.18%. For the three-year period ending June 30, 2020, the International Equity Fund returned 2.11%, outperforming the benchmark return of 1.34%. Over the longer five-year period ending June 30, 2020, the International Equity Fund has returned 3.74%, outperforming the benchmark return of 3.16%. The total return of this option reflects performance of the underlying managers as well as the impact of cash flows into and out of the fund.

## SUSTAINABLE EQUITY FUND

### Fund Summary

Fiscal Year 2020

**Return: 23.38%**

**Total Investments: \$305.863 Million**

As of October 1, 2019, the Socially Responsible Equity fund became the Sustainable Equity Fund. The Sustainable Equity Fund invests in the common stock of large- and mid-cap U.S. companies that, in the manager's view, effectively implement sustainable business strategies to drive their prospects for future earnings growth. For the one-year period ending June 30, 2020, the Sustainable Equity Fund returned 23.38%, after fees, versus the Sustainable Fund Composite Benchmark's return of 23.54%. The Sustainable Fund Composite Benchmark is comprised of the S&P 500 Index through

September 30, 2019, and the Russell 1000 Growth Index thereafter. For the three-year period ending June 30, 2020, the Sustainable Equity Fund returned 12.95%, underperforming the Sustainable Fund Composite Benchmark return of 15.98% for the same period. Over the longer five-year period ending June 30, 2020, the Sustainable Equity Fund has also trailed the benchmark, returning 11.49% against the benchmark return of 13.85%. The total return of this option reflects performance of the underlying manager as well as the impact of cash flows into and out of the fund.

## U.S. EQUITY INDEX FUND

### Fund Summary

Fiscal Year 2020

**Six-Month Return: 10.35%**

**Total Investments: \$20.038 Million**

The U.S. Equity Index Fund was added to the Passport Funds in January 2020. The fund tracks the Dow Jones U.S. Total Stock Market Index, which represents the broad U.S. equity market excluding

the smallest and least liquid stocks. The U.S. Equity Index Fund returned 10.35% year-to-date, outperforming the benchmark return of -3.50% for the same time period.

## INTERNATIONAL EQUITY INDEX FUND

### Fund Summary

Fiscal Year 2020

**Six-Month Return: 3.57%**

**Total Investments: \$3.121 Million**

The International Equity Index Fund was added to the Passport Funds in January 2020. The objective of the fund is to track the MSCI ACWI ex-US IMI Net Index, which includes both non-U.S. developed

and emerging markets. The International Equity Index Fund returned 3.57% year-to-date, outperforming the index return of -11.24%.

**ANNUALIZED INVESTMENT RESULTS<sup>1</sup>**

As of June 30, 2020

	Current Year 2020	3 Year	Annualized 5 Year	10 Year
<b>TRS Pension Fund<sup>2</sup></b>	5.10%	7.05%	7.13%	9.16%
Benchmark: Policy Index <sup>3</sup>	5.16%	6.93%	7.16%	9.42%
<b>TRS Diversified Equity Fund</b>	2.44%	7.15%	7.62%	11.51%
Hybrid Benchmark <sup>4</sup>	4.58%	8.23%	8.67%	12.29%
Benchmark: Russell 3000	6.53%	10.04%	10.03%	13.72%
<b>TRS Balanced Fund</b>	4.35%	N/A	N/A	N/A
Benchmark: Custom Benchmark <sup>5</sup>	4.88%	4.59%	4.08%	4.61%
<b>TRS International Equity Fund</b>	-2.91%	2.11%	3.74%	6.48%
Benchmark: International Equity Composite Benchmark <sup>6</sup>	-4.18%	1.34%	3.16%	6.54%
<b>TRS Sustainable Equity Fund</b>	23.38%	12.95%	11.49%	13.38%
Benchmark: Sustainable Fund Composite Benchmark <sup>7</sup>	23.54%	15.98%	13.85%	15.58%
<b>TRS U.S. Equity Index Fund<sup>8</sup></b>	N/A	N/A	N/A	N/A
Benchmark: Dow Jones U.S. Total Stock Market Index	6.42%	9.99%	9.99%	13.68%
<b>TRS International Equity Index Fund<sup>9</sup></b>	N/A	N/A	N/A	N/A
Benchmark: MSCI ACWI ex-US IMI Net Index	-4.55%	1.04%	2.20%	5.06%

1 Performance calculations reflect time-weighted compound returns. Chart reflects TRS Pension Fund's gross returns. Investment results of variable-return funds are net of operational fees (advisory and custody) and administrative expenses.

2 Average crediting rates for the Fixed Annuity Program for the specified period. These rates are set by the New York State Legislature. QPP: Tier I/II members are credited with 8.25% annually on QPP investments. TDA: Members who are represented by the United Federation of Teachers (UFT) are credited with 7% annually on TDA investments. Members who are not represented by the UFT are credited with 8.25% annually on TDA investments in the Fund.

3 The "Policy Index" is a custom benchmark representing the weighted average return of the weighted benchmark indexes for each major investment program within the TRS Pension Fund. For the weights of the benchmark indexes, see the MD&A of the Financial Section.

4 The Hybrid Benchmark is rebalanced monthly to Variable A's target weights of 70% Russell 3000/20% International Equity Composite Benchmark/10% Defensive Strategies' Composite Benchmark.

5 The Custom Benchmark return is composed of 70% Bloomberg Barclays U.S. Government/Credit 1-5 Year Float Adjusted Index and 30% FTSE Global All Cap Index.

6 The International Equity Composite Benchmark reflects the underlying strategy benchmarks at target and is currently comprised of 70% MSCI EAFE/15% MSCI Emerging Markets Index/11% MSCI ACWI ex USA Small Cap Index/4% S&P Developed ex US Small Cap Index. These weights have changed periodically over time with the strategy targets. Prior to January 2016, the benchmark was the MSCI EAFE.

7 The Sustainable Fund Composite Benchmark is the S&P 500 Index through 9/30/2019 and the Russell 1000 Growth Index thereafter.

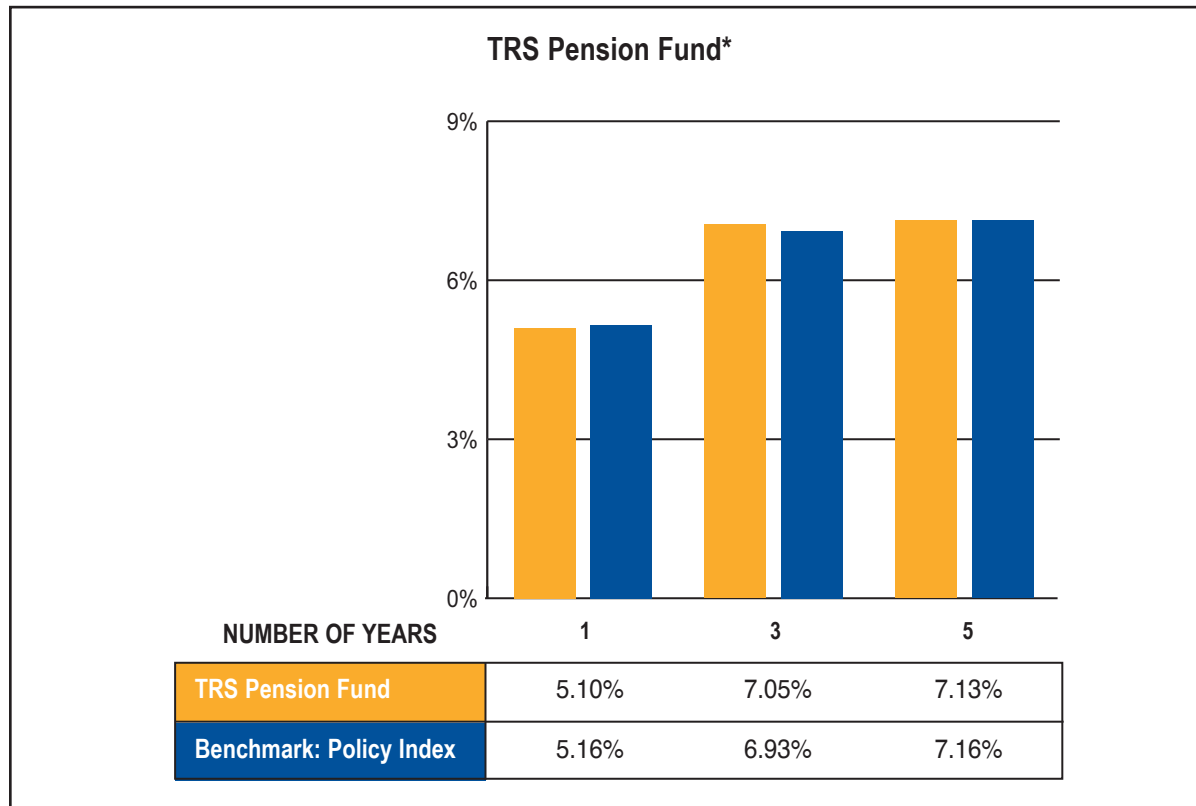
8 Reflects the net-of-fees performance of the Fidelity Total Market Index Fund. The U.S. Equity Index Fund began on January 1, 2020; thus, there is no actual performance data for this table. For the 6 months ended June 30, 2020, the U.S. Equity Index Fund returned 10.35%. Results of this Fund will depend on cash flows into and out of the Fund.

9 Performance does not reflect performance of the International Equity Index Fund. Performance reflects net-of-fees mutual fund returns of the institutional share class of the Fidelity Total International Index Fund. Prior to the mutual fund's inception of July 2016, performance represents MSCI ACWI ex-USA IMI net returns.

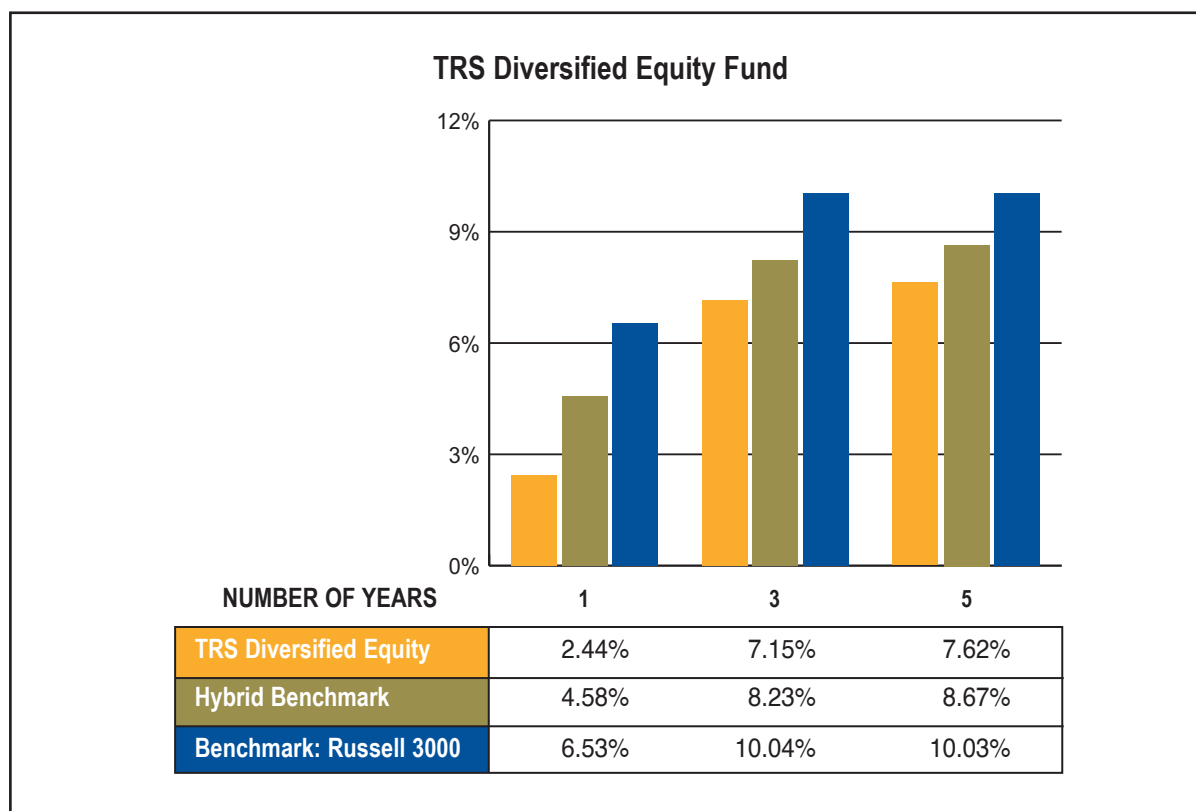
The above information has been gathered from reliable sources, but TRS can only take responsibility for the accuracy of the information concerning its own investment programs.

## ANNUALIZED INVESTMENT RESULTS

As of June 30, 2020



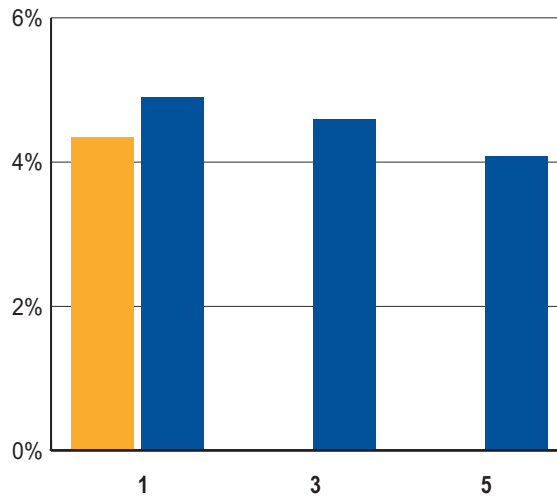
\* Reflects TRS Pension Fund's Gross Return.



ANNUALIZED INVESTMENT RESULTS *(Continued)*

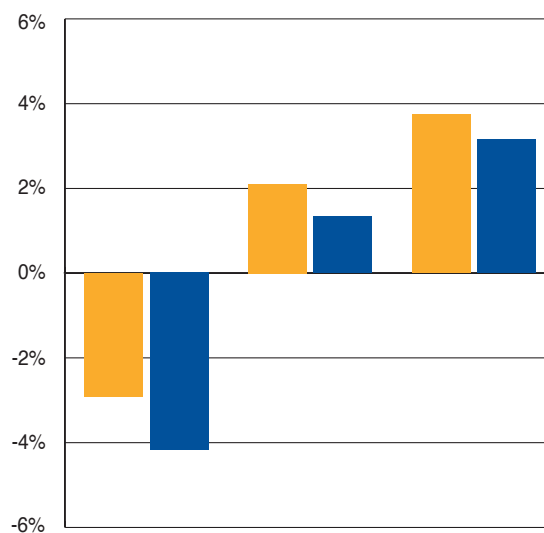
As of June 30, 2020

## TRS Balanced Fund



TRS Balanced Fund	4.35%	N/A	N/A
Custom Benchmark	4.88%	4.59%	4.08%

## TRS International Equity Fund



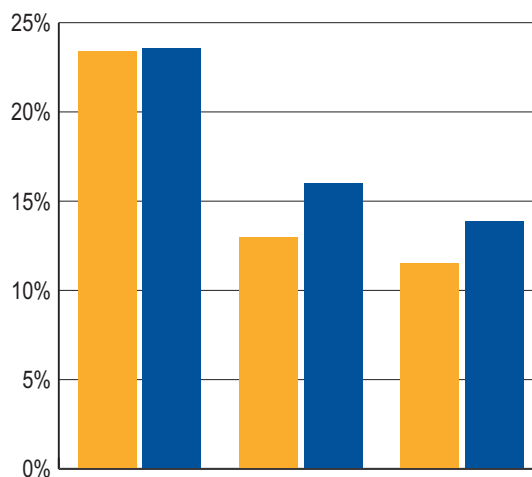
TRS International Equity	-2.91%	2.11%	3.74%
Benchmark: International Equity Composite	-4.18%	1.34%	3.16%



## ANNUALIZED INVESTMENT RESULTS

As of June 30, 2020

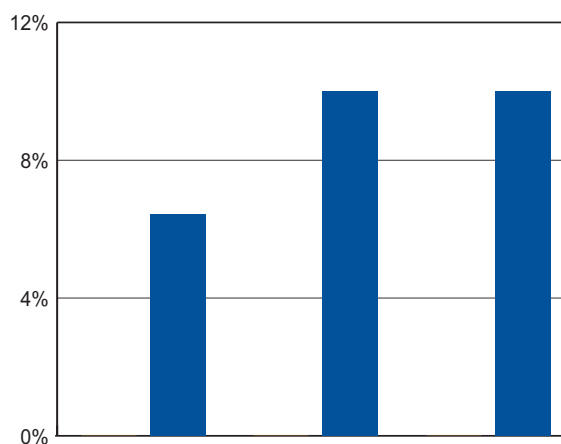
## TRS Sustainable Equity Fund



NUMBER OF YEARS

NUMBER OF YEARS	1	3	5
TRS Sustainable Equity	23.38%	12.95%	11.49%
Benchmark: Sustainable Fund Composite	23.54%	15.98%	13.85%

## TRS U.S. Equity Index Fund



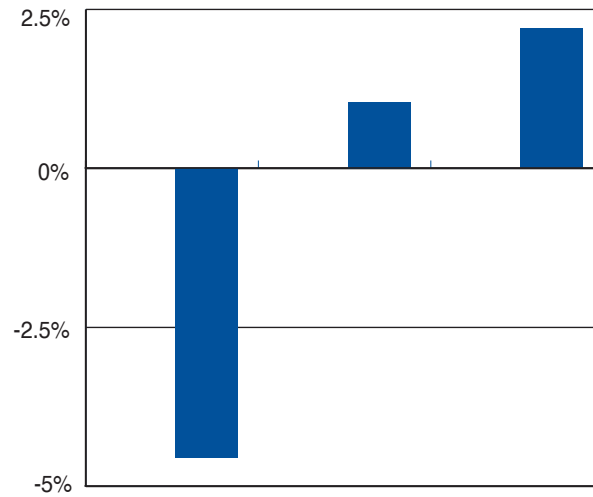
NUMBER OF YEARS

NUMBER OF YEARS	1	3	5
TRS U.S. Equity Index Fund	N/A	N/A	N/A
Benchmark: Dow Jones U.S. Total Stock Market Index	6.42%	9.99%	9.99%

## ANNUALIZED INVESTMENT RESULTS

As of June 30, 2020

## TRS International Equity Index Fund



## NUMBER OF YEARS

1

3

5

TRS International Equity Index Fund

N/A

N/A

N/A

Benchmark: MSCI ACWI ex-US IMI Net Index

-4.55%

1.04%

2.20%

## INVESTMENT SUMMARY (QPP & TDA)

As of June 30, 2020

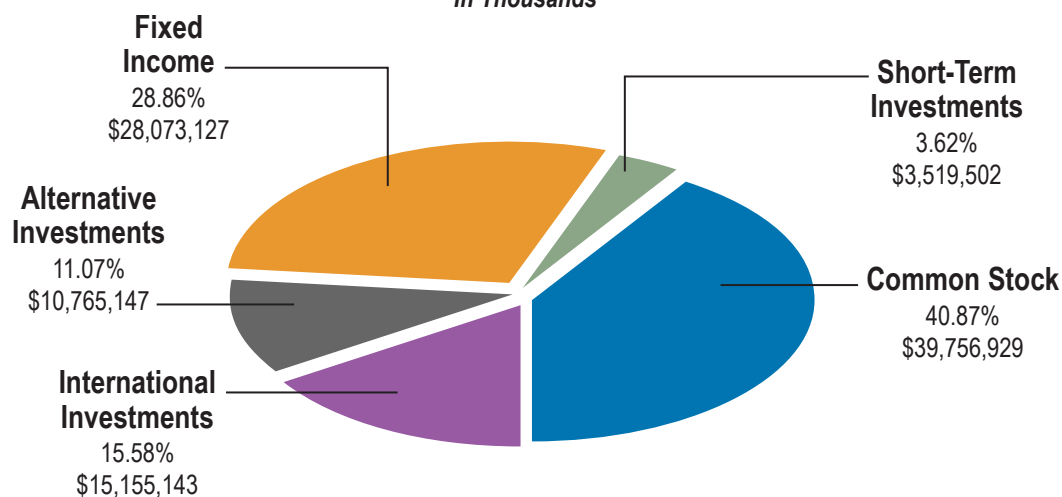
Type of Investment	Fair Value In Thousands	Percent of Total Fair Value
Fixed Income:		
Government Bonds	\$9,911,190	10.19%
Corporate and Other	14,707,801	15.12
TIPS	3,126,355	3.21
Misc. Fixed Income	327,781	0.34
<b>Total Fixed Income</b>	<b>\$ 28,073,127</b>	<b>28.86%</b>
Common Stock:		
Financial & Utility	\$5,961,647	6.13%
Basic Industry	7,373,749	7.58
Consumer & Service	14,412,544	14.82
Technological	6,584,207	6.76
Miscellaneous	5,424,782	5.58
<b>Total Common Stock</b>	<b>\$39,756,929</b>	<b>40.87%</b>
<b>International Investments</b>	<b>\$15,155,431</b>	<b>15.58%</b>
<b>Alternative/Private-Equity Investments</b>	<b>\$10,765,147</b>	<b>11.07%</b>
<b>Short-Term Investments</b>	<b>\$3,519,502</b>	<b>3.62%</b>
<b>Total Investments</b>	<b>\$97,270,136*</b>	<b>100.00%</b>

\* Excludes \$1,446,010 in securities lending

## TOTAL INVESTMENTS ASSET ALLOCATION

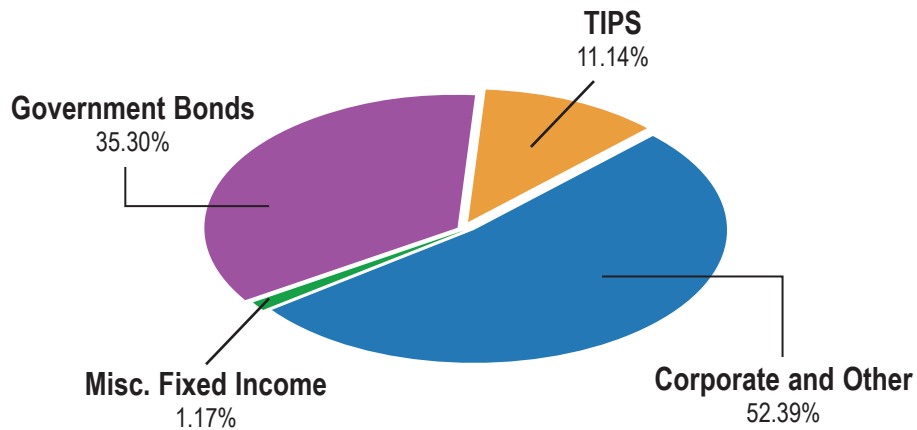
As of June 30, 2020

In Thousands



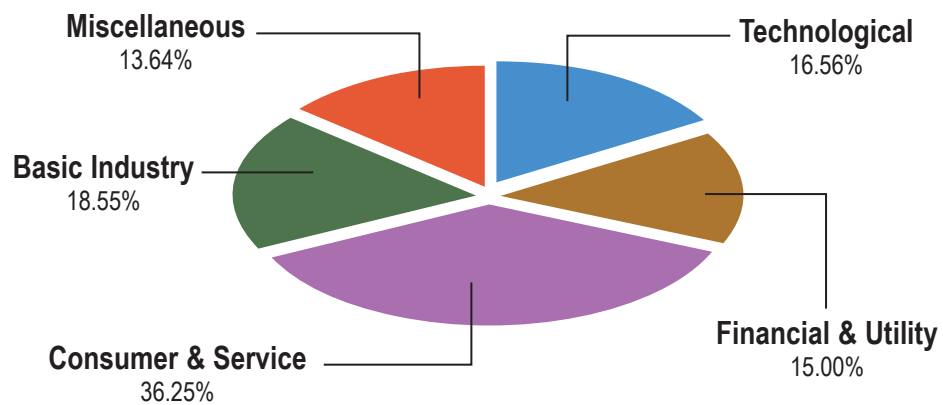
### FIXED-INCOME INVESTMENTS ASSET ALLOCATION

As of June 30, 2020



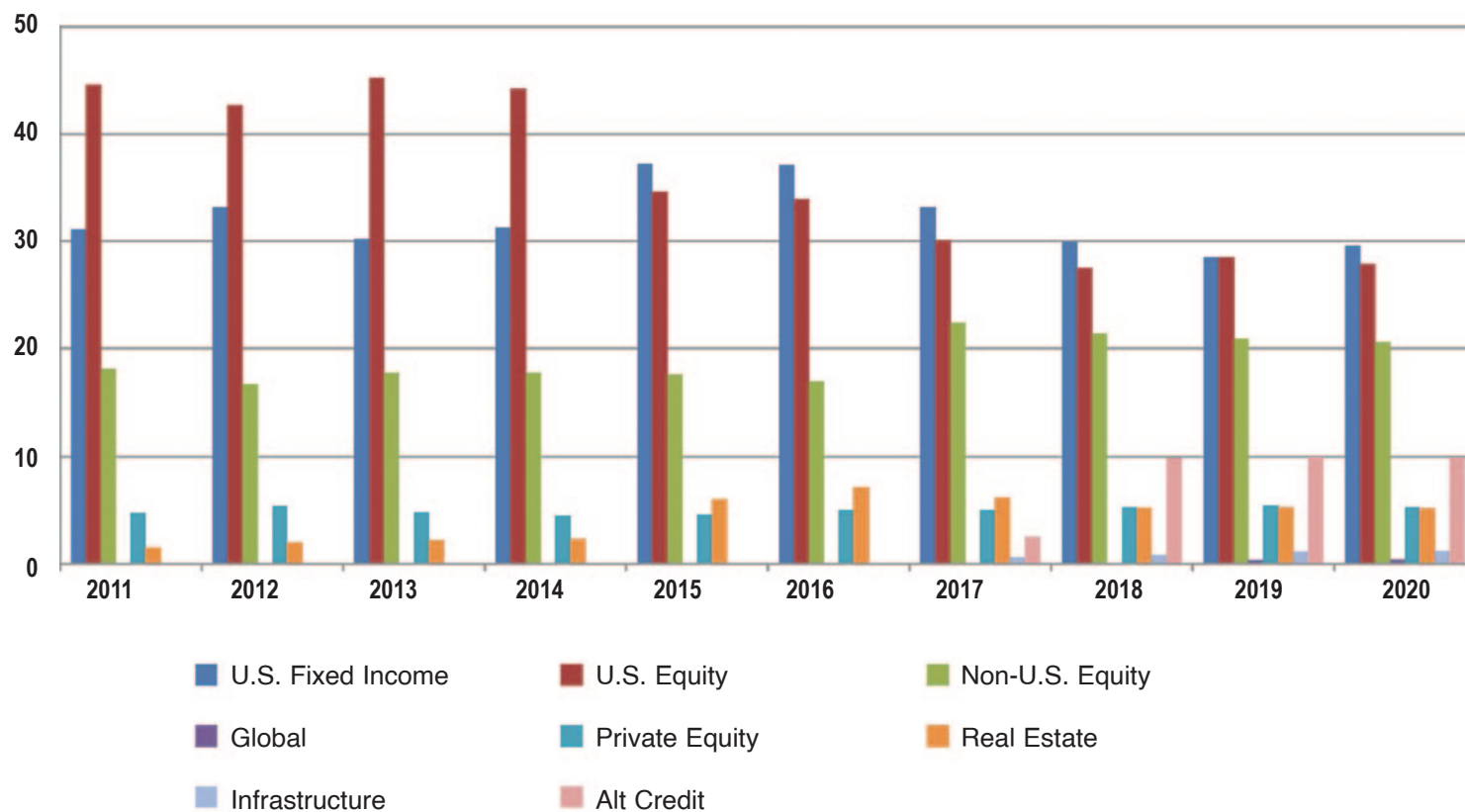
### EQUITY INVESTMENTS ASSET ALLOCATION

As of June 30, 2020



### CHANGES IN ASSET ALLOCATION BY PERCENTAGE FOR TRS PENSION FUND OVER 10-YEAR PERIOD

June 30, 2011 – June 30, 2020



## LIST OF LARGEST BOND ASSETS HELD (BY FAIR VALUE)

As of June 30, 2020

Par Value		Interest Rate	Due Date	Fair Value
\$384,497,000	Federal Nat Mtg Assn TBA 30YRS	4.500%	07/14/50	\$413,122,802
255,960,000	United States Treasury Notes	3.750	11/15/43	380,929,910
260,750,657	Govt Nat Mtg Assn II Pool MA6339	3.500	12/20/49	275,404,844
199,890,000	United States Treasury Notes	3.000	08/15/48	274,894,725
189,025,000	United States Treasury Notes	3.375	05/15/44	267,353,180
192,950,000	United States Treasury Notes	3.000	02/15/49	266,392,559
220,510,000	United States Treasury Notes	2.000	02/15/50	252,534,667
228,996,500	Govt Nat Mtg Assn TBA 30 YRS	3.000	07/21/50	242,619,502
216,689,759	United States Treasury Notes	1.625	02/15/26	231,808,203
193,000,000	United States Treasury Notes	1.750	12/31/26	209,057,600
144,720,000	United States Treasury Notes	3.000	02/15/47	197,147,714
167,267,600	Federal Nat Mtg Assn TBA 30YRS	4.000	07/14/50	177,255,148
162,259,599	United State Treasury INFL IX Notes	0.125	01/15/22	164,446,859
155,416,000	Federal Nat Mtg Assn TBA 30YRS	2.500	08/13/50	161,769,406

## LIST OF LARGEST EQUITY ASSETS HELD (BY FAIR VALUE)

As of June 30, 2020

Company Name	Shares	Fair Value
Microsoft	7,643,688	\$1,555,566,945
Apple Inc	4,157,519	1,516,662,931
Amazon.Com Inc	432,037	1,191,912,316
Facebook Inc	2,477,940	562,665,836
Alphabet Inc - CL A	316,596	448,948,958
Alphabet Inc - CL C	301,210	425,793,468
Johnson & Johnson	2,718,056	382,240,215
Berkshire Hathaway Inc	2,099,201	374,728,371
Visa Inc	1,737,436	335,620,512
The Procter & Gamble Co	2,574,346	307,814,551
JPMorgan Chase & Co	3,115,494	293,043,366
Unitedhealth Group Inc	992,271	292,670,331
Home Depot Inc	1,092,257	273,621,301
Mastercard Inc	896,535	265,105,400
Intel Corp	4,353,656	260,479,238
Verizon Communications Inc	4,453,664	245,530,496
Nvidia Corp	599,616	227,800,115
AT&T Inc	7,332,930	221,674,474
Adobe Inc	495,399	215,652,139
Merck & Co Inc	2,787,781	215,579,105
The Walt Disney Co	1,897,653	211,607,286
Paypal Holdings Inc	1,193,113	207,876,078
Pfizer Inc	6,344,027	207,449,683
Cisco Systems Inc	4,377,578	204,170,238
Netflix Inc	437,971	199,294,324

**Note:** The above tables reflect assets of both the Qualified Pension Plan (QPP) and the Tax-Deferred Annuity (TDA) Program.  
The complete list of assets held by TRS' seven investment programs is included in the publication Investment Portfolios.

SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)			
YEAR ENDED JUNE 30, 2020			
INVESTMENT MANAGERS		QPP	TOTAL
<b>FIXED ANNUITY PROGRAM</b>			
<b>Fixed Income</b>			
Advent Capital Management	Investment Manager	\$443,632	\$443,632
AFL-CIO Housing Investment	Investment Manager	996,516	996,516
Barings	Investment Manager	1,407,999	1,407,999
Barrow Hanley Mewhinney Strauss	Investment Manager	796,368	796,368
Blackrock	Investment Manager	2,301,913	2,301,913
Brigade Capital Management	Investment Manager	1,449,179	1,449,179
Credit Suisse Asset Management	Investment Manager	1,034,176	1,034,176
Eaton Vance Management	Investment Manager	1,892,801	1,892,801
GIA Partners	Investment Manager	142,027	142,027
Integrity Fixed Income Management	Investment Manager	33,392	33,392
LM Capital Group	Investment Manager	132,444	132,444
Mackay Shields	Investment Manager	1,480,431	1,480,431
Neuberger Berman Group	Investment Manager	2,888,997	2,888,997
New Century Advisors	Investment Manager	100,138	100,138
Nomura Corp. Research and Asset Mgmt.	Investment Manager	1,287,367	1,287,367
Oaktree Capital Management	Investment Manager	1,223,620	1,223,620
Optimum Quantvest Corporation	Investment Manager	37,214	37,214
Pinebridge Investments	Investment Manager	1,598,257	1,598,257
Prudential Financial	Investment Manager	600,612	600,612
Pugh Capital Management	Investment Manager	144,480	144,480
Ramirez Asset Management	Investment Manager	86,617	86,617
State Street Global Advisors	Investment Manager	2,066,545	2,066,545
Stone Harbor Investment Partners	Investment Manager	3,614	3,614
T Rowe Price Associates	Investment Manager	4,159,466	4,159,466
Taplin Canida & Habacht	Investment Manager	294,578	294,578
Victory Capital Management	Investment Manager	294,169	294,169
Voya Investment Management	Investment Manager	1,199,965	1,199,965
<b>Domestic Equity</b>			
Adelante Capital Management	Investment Manager	1,103,807	1,103,807
Altravue Capital	Investment Manager	76,627	76,627
Blackrock	Investment Manager	463,962	463,962
Bowling Portfolio Management	Investment Manager	74,237	74,237
Bridge City Capital	Investment Manager	128,352	128,352
Brown Asset Management	Investment Manager	5,597,502	5,597,502
Centersquare Investment Management	Investment Manager	984,161	984,161
Cohen & Steers Capital Management	Investment Manager	1,006,134	1,006,134
Cooke and Bieler	Investment Manager	103,953	103,953
Dean Capital Management	Investment Manager	97,319	97,319
Essex Inv. Mgmt. Co.	Investment Manager	98,697	98,697
Lisanti Capital Growth	Investment Manager	75,508	75,508
Morgan Stanley Inv. Mgmt.	Investment Manager	1,833,116	1,833,116
Panagora Asset Management	Investment Manager	389,466	389,466
T Rowe Price Associates	Investment Manager	326,346	326,346

Continued on page 106

SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)			
YEAR ENDED JUNE 30, 2020 (Continued)			
INVESTMENT MANAGERS		QPP	TOTAL
<b>International Fund</b>			
Acadian Asset Management	Investment Manager	\$3,873,955	\$3,873,955
Algert Global	Investment Manager	419,544	419,544
Applied Research Investments	Investment Manager	70,840	70,840
AQR Capital Management	Investment Manager	4	4
Arga Investment Management	Investment Manager	225,466	225,466
Ativo Capital Management	Investment Manager	313,792	313,792
Aubrey Capital Management	Investment Manager	37,248	37,248
Bailard Institutional	Investment Manager	214,497	214,497
Baillie Gifford	Investment Manager	13,739,783	13,739,783
Blackcrane Capital	Investment Manager	233,627	233,627
Blackrock	Investment Manager	759,749	759,749
Causeway Capital Management	Investment Manager	4,289,687	4,289,687
Change Global Investments	Investment Manager	75,383	75,383
Denali Advisors	Investment Manager	244,861	244,861
Dimensional Fund Advisors	Investment Manager	5,455,768	5,455,768
Dundas Global Investors	Investment Manager	361,239	361,239
Eaton Vance Management	Investment Manager	2,261,117	2,261,117
Fidelity Institutional Asset Management	Investment Manager	1,439,000	1,439,000
Fiera Capital Corporation	Investment Manager	1,657,553	1,657,553
FIS Group	Investment Manager	13	13
Global Alpha Capital Management	Investment Manager	53,023	53,023
Haven Global Partners	Investment Manager	150,783	150,783
Henry James International Management	Investment Manager	244,730	244,730
Lazard Asset Management	Investment Manager	1,465,433	1,465,433
Leading Edge Investment Advisors	Investment Manager	8,368	8,368
Martin Investment Management	Investment Manager	63,250	63,250
Metis Global Partners	Investment Manager	29,300	29,300
North of South Capital	Investment Manager	300	300
Osmosis Investment Management	Investment Manager	105,097	105,097
Radin Capital Partners	Investment Manager	49,307	49,307
RBC Global Asset Management	Investment Manager	63,775	63,775
Redwood Investments	Investment Manager	317,534	317,534
RVX Asset Management	Investment Manager	32,920	32,920
Sands Capital	Investment Manager	300	300
Smith Asset Management Group	Investment Manager	207,710	207,710
Sprucegrove Investment Management	Investment Manager	2,821,346	2,821,346
State Street Global Advisors	Investment Manager	507,035	507,035
T Rowe Price Associates	Investment Manager	2	2
UBS	Investment Manager	314,978	314,978
Walter Scott & Partners	Investment Manager	4,677,067	4,677,067
<b>TIPS MTA Fund</b>			
Blackrock	Investment Manager	114,355	114,355
<b>Mortgage Fund</b>			
RBC Global Asset Management	Investment Manager	277,158	277,158
<b>Alternative Investment</b>			
Acon Investments	Investment Manager	40,926	40,926
Actis	Investment Manager	1,498,800	1,498,800

Continued on page 107



SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)			
YEAR ENDED JUNE 30, 2020 (Continued)			
INVESTMENT MANAGERS		QPP	TOTAL
Aermont Capital	Investment Manager	\$1,049,927	\$1,049,927
Aisling Capital	Investment Manager	22,552	22,552
Almanac Realty Investors	Investment Manager	3,850,278	3,850,278
Altaris Capital Partners	Investment Manager	346,415	346,415
American Security Partners	Investment Manager	1,201,194	1,201,194
American Value Partners	Investment Manager	30,451	30,451
Ampersand Capital	Investment Manager	95,837	95,837
Angelo Gordon	Investment Manager	1,565,018	1,565,018
Apax Partners	Investment Manager	4,612,762	4,612,762
Apollo Global Management	Investment Manager	9,734,627	9,734,627
Ardian	Investment Manager	6,268,728	6,268,728
ARES Management	Investment Manager	6,077,821	6,077,821
Artemis Real Estate Partners	Investment Manager	1,856,580	1,856,580
Aurora Capital Group	Investment Manager	1,919	1,919
Avanath Capital	Investment Manager	159,967	159,967
Avenue Capital Group	Investment Manager	6,591	6,591
Avista Capital Partners	Investment Manager	25,271	25,271
Axiom Infrastructure	Investment Manager	367,470	367,470
Basis Management Group	Investment Manager	153,023	153,023
BC Partners	Investment Manager	1,290,251	1,290,251
Black Diamond Capital Partners	Investment Manager	116,312	116,312
Blackrock	Investment Manager	2,205,198	2,205,198
Blue Wolf Capital	Investment Manager	81,483	81,483
Bridgepoint Capital	Investment Manager	1,637,907	1,637,907
Brightwood Capital Advisers	Investment Manager	1,533,200	1,533,200
Brookfield Asset Management	Investment Manager	10,275,041	10,275,041
Capital Partners	Investment Manager	404,340	404,340
Capri Capital Partners	Investment Manager	779,257	779,257
Carlyle Group	Investment Manager	5,564,173	5,564,173
Catterton Partners	Investment Manager	80,138	80,138
CCMP Capital Advisors	Investment Manager	5,383	5,383
Centerbridge Partners	Investment Manager	1,166,758	1,166,758
City Investment Fund Associates	Investment Manager	3,716	3,716
Clarion Partners	Investment Manager	1,194,518	1,194,518
Clearlake Capital Group	Investment Manager	133,034	133,034
Constellation Growth Capital	Investment Manager	9,305	9,305
Contrarian Capital Management	Investment Manager	613,975	613,975
Crestview Partners	Investment Manager	3,337,870	3,337,870
CVC Capital Partners	Investment Manager	3,081,726	3,081,726
Deutsche Bank	Investment Manager	376,778	376,778
DivcoWest Real Estate Investments	Investment Manager	1,634,266	1,634,266
DRA Advisors	Investment Manager	2,238,829	2,238,829
EIG Credit Management	Investment Manager	45,634	45,634
EQT Partners	Investment Manager	4,805,440	4,805,440
Exeter Property Group	Investment Manager	593,051	593,051
Fairview Capital Partners	Investment Manager	228,648	228,648
FDG Capital Partners	Investment Manager	44,137	44,137
Fortress Investment Group	Investment Manager	3,634,605	3,634,605
Freeman Spogli	Investment Manager	1,058	1,058
FTV Capital	Investment Manager	923,531	923,531
GCM Grosvenor	Investment Manager	971,890	971,890

Continued on page 108

SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)			
YEAR ENDED JUNE 30, 2020 (Continued)			
INVESTMENT MANAGERS		QPP	TOTAL
GF Capital Management	Investment Manager	\$19,414	\$19,414
Global Infrastructure Management	Investment Manager	3,865,927	3,865,927
Goldentree Asset Management	Investment Manager	1,655,210	1,655,210
Grain Management	Investment Manager	318,093	318,093
Grey Mountain Partners	Investment Manager	83,391	83,391
GSO Capital Partners	Investment Manager	10,399	10,399
H/2 Capital Partners	Investment Manager	1,755,115	1,755,115
Halyard Capital	Investment Manager	56,291	56,291
Harrison Street Real Estate Capital	Investment Manager	861,329	861,329
Heitman Capital Management	Investment Manager	1,154,522	1,154,522
ICG Strategic Equity	Investment Manager	868,678	868,678
ICV Partners	Investment Manager	386,137	386,137
Incline Equity Partners	Investment Manager	766,937	766,937
Industry Funds Management	Investment Manager	5,113,215	5,113,215
Intermedia	Investment Manager	2,957	2,957
Intermediate Capital Group	Investment Manager	712,703	712,703
Jamestown	Investment Manager	429,863	429,863
JP Morgan	Investment Manager	1,950,565	1,950,565
KKR	Investment Manager	6,624,924	6,624,924
Landmark Partners	Investment Manager	1,342,211	1,342,211
Lasalle Investment Management	Investment Manager	502,601	502,601
Leeds Equity Partners	Investment Manager	5,061	5,061
Leonard Green & Partners	Investment Manager	1,984,488	1,984,488
Levine Leichtman Capital Partners	Investment Manager	3,512	3,512
Lexington Partners	Investment Manager	2,671,466	2,671,466
Lincolnshire Management	Investment Manager	155,709	155,709
Lindsay Goldberg	Investment Manager	135,305	135,305
Lone Star	Investment Manager	310,757	310,757
Maranon Capital	Investment Manager	1,004,175	1,004,175
Marathon Asset Management Limited	Investment Manager	1,762,536	1,762,536
Metlife	Investment Manager	490,954	490,954
Midocean Partners	Investment Manager	76,877	76,877
Mill City Capital	Investment Manager	139,252	139,252
Montreux Equity Partners	Investment Manager	125,159	125,159
Nautic Partners	Investment Manager	2,058	2,058
Neuberger Berman Group	Investment Manager	28,985	28,985
New Mainstream Capital	Investment Manager	574,510	574,510
New Mountain Capital	Investment Manager	458,980	458,980
NGN	Investment Manager	48,066	48,066
Oak Hill Advisors	Investment Manager	2,532,257	2,532,257
Oaktree Capital Management	Investment Manager	974,065	974,065
Olympus Growth	Investment Manager	735,072	735,072
Onex Credit Partners	Investment Manager	171,824	171,824
Paladin	Investment Manager	1,395,376	1,395,376
Palladium Equity Partners	Investment Manager	688,161	688,161
Patriot Financial Partners	Investment Manager	381,942	381,942
Pegasus Capital Advisors	Investment Manager	305,261	305,261
Phoenix Realty Group	Investment Manager	373	373
Pine Brook Capital Partners	Investment Manager	5,518	5,518
Platinum Equity	Investment Manager	5,654,457	5,654,457
Prologis	Investment Manager	130,848	130,848

Continued on page 109

**SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)**  
**YEAR ENDED JUNE 30, 2020 (Continued)**

INVESTMENT MANAGERS		QPP	TOTAL
Prudential Financial	Investment Manager	\$1,433,749	\$1,433,749
Quaker Bioventures	Investment Manager	44,831	44,831
Related Fund Management	Investment Manager	1,057,333	1,057,333
Reverence Capital Partners	Investment Manager	876,930	876,930
RLJ Equity Partners	Investment Manager	59,679	59,679
RRE Ventures	Investment Manager	21,305	21,305
SCP Partners	Investment Manager	141,735	141,735
Silverpeak Legacy Partners	Investment Manager	24,582	24,582
Siris Capital Group	Investment Manager	1,367,277	1,367,277
Snow Phipps	Investment Manager	6,064	6,064
Solera Partners	Investment Manager	111,611	111,611
Starvest Partners	Investment Manager	95,090	95,090
Stellex Capital Management	Investment Manager	569,332	569,332
Stockbridge Capital Group	Investment Manager	32,673	32,673
Stone Point Capital	Investment Manager	144,231	144,231
Taconic Investment Partners	Investment Manager	171,722	171,722
Terra Firma Investments	Investment Manager	34,373	34,373
The Blackstone Group	Investment Manager	3,056,118	3,056,118
The Hudson Companies	Investment Manager	540,134	540,134
The Raine Group	Investment Manager	761,816	761,816
The Vistria Group	Investment Manager	227,965	227,965
The Yucaipa Group	Investment Manager	1,062,621	1,062,621
Thomas Mcnerney & Partners	Investment Manager	4,765	4,765
Thor Equities Group	Investment Manager	5,244	5,244
Torchlight Investors	Investment Manager	1,554,648	1,554,648
Trilantic Capital Partners	Investment Manager	3,837,347	3,837,347
Tristan Capital Partners	Investment Manager	896,734	896,734
UBS	Investment Manager	629,850	629,850
USAA Real Estate	Investment Manager	940,013	940,013
Valor Equity Partners	Investment Manager	795,488	795,488
Vanbarton Group	Investment Manager	1,790,289	1,790,289
Vista Equity Partners	Investment Manager	17,284,201	17,284,201
Warburg Pincus	Investment Manager	9,336,139	9,336,139
Webster Capital	Investment Manager	157,303	157,303
Welsh Carson Anderson & Stowe	Investment Manager	3,957,737	3,957,737
Westbrook Partners	Investment Manager	918,776	918,776
Arsenal Capital Partners	Fee Refund	(1,000,024)	(1,000,024)
Canyon Johnson	Fee Refund	(27,079)	(27,079)
Colony Investors	Fee Refund	(4,514)	(4,514)
Psilos Group Partners	Fee Refund	(33,776)	(33,776)
Riverstone Carlyle Global Energy	Fee Refund	(1,298,472)	(1,298,472)
Ernst and Young	Purchase Fees	45,965	45,965
Pricewaterhouse Coopers Taiwan	Purchase Fees	26,528	26,528
Cox Castle Nicholson	Legal Fees	107,743	107,743
Day Pintney	Legal Fees	35,111	35,111
Foley & Lardner	Legal Fees	67,518	67,518
Foster Pepper	Legal Fees	52,029	52,029
Hitchcock	Legal Fees	263	263
Lowenstein Millennium	Legal Fees	3,725	3,725
Morgan Lewis Bockius	Legal Fees	193,852	193,852
Nixon Peabody	Legal Fees	81	81

Continued on page 110

SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)				
YEAR ENDED JUNE 30, 2020 (Continued)				
INVESTMENT MANAGERS		QPP	TDA	TOTAL
Pillsbury Winthrop Shaw Pittman	Legal Fees	\$101,557		\$101,557
Reinhart Boerner Van Dueren	Legal Fees	89,365		89,365
Seward Kissel	Legal Fees	104,839		104,839
Squire Patton Boggs	Legal Fees	2,409		2,409
Aksia	Consultant Fees	1,267		1,267
BAM - Subscriptions	Consultant Fees	185,551		185,551
Hamilton Lane Advisors	Consultant Fees	1,000,000		1,000,000
IHS Markit	Consultant Fees	1,031		1,031
Markit North America	Consultant Fees	15,730		15,730
MSCI Barra	Consultant Fees	309,117		309,117
MSCI ESG Research	Consultant Fees	28,208		28,208
MSCI Investment Property Databank	Consultant Fees	56,280		56,280
NYC Office of Comptroller - BAM	Consultant Fees	4,603,054		4,603,054
Rocaton Investment	Consultant Fees	505,000		505,000
Shareholder Research Services	Consultant Fees	89,704		89,704
Stepstone Group	Consultant Fees	470,758		470,758
The Burgiss Group	Consultant Fees	62,219		62,219
JP Morgan Chase Security Lending	Other Fees	1,291,204		1,291,204
<b>DIVERSIFIED EQUITY FUND AND INTERNATIONAL EQUITY FUND</b>			<b>TDA</b>	
Acadian Asset Management	Investment Manager	\$433,220	\$529,917	\$963,137
Advent Capital Management	Investment Manager	551,720	674,867	1,226,587
Amalgamated Bank	Investment Manager	18,719	22,897	41,616
Analytic Investors	Investment Manager	210,200	257,118	467,318
Baillie Gifford	Investment Manager	342,401	418,827	761,228
Blackrock	Investment Manager	231,122	282,709	513,831
Brown Capital	Investment Manager	317,114	387,895	705,009
Cardinal	Investment Manager	294,414	360,128	654,542
Clearbridge Investments	Investment Manager	94,918	116,105	211,023
Diamond Hill Capital Management	Investment Manager	113,466	138,791	252,257
Franklin Templeton	Investment Manager	279,953	342,440	622,393
GMO	Investment Manager	20,816	25,462	46,278
Invesco	Investment Manager	243,087	297,345	540,432
MCM	Investment Manager	125,186	153,128	278,314
MFS Investment Advisors Intl Equity	Investment Manager	440,187	538,438	978,625
New South Capital Management	Investment Manager	665,693	814,279	1,479,972
Pyramis Global	Investment Manager	369,036	451,406	820,442
Shapiro Capital Management	Investment Manager	1,041,066	1,273,436	2,314,502
Sound Shore Management	Investment Manager	295,162	361,043	656,205
Sprucegrove Investment Management	Investment Manager	169,689	207,564	377,253
Walter Scott & Partners	Investment Manager	273,061	334,009	607,070
Wasatch Advisors	Investment Manager	935,446	1,144,241	2,079,687
Wellington Management	Investment Manager	647,319	791,804	1,439,123
Groom Law Group	Legal Fees	18,716	40,517	59,233
eVestment Alliance	Consultant Fees	6,110	34,281	40,391
Rocaton Investment Advisors	Consultant Fees	212,484	286,441	498,925
Broadridge Financial Solutions	Data Services	57,747	125,008	182,755
Supporting Services	Travel & Other	12,329	26,690	39,019
Custodian Bank	Custodian Bank	262,303	320,849	583,152

Continued on page 111

SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)				
YEAR ENDED JUNE 30, 2020				
INVESTMENT MANAGERS		QPP	TDA	TOTAL
<b>BALANCED FUND</b>				
NISA Investment Advisors	Investment Manager	\$42	\$200	\$242
Groom Law Group	Legal Fees	399	1,807	2,206
eVestment Alliance	Consultant Fees	126	572	698
Rocaton Investment Advisors	Consultant Fees	2,235	9,758	11,993
Broadridge Financial Solutions	Data Services	1,214	5,337	6,551
Supporting Services	Travel & Other	207	1,186	1,393
JP Morgan Chase Bank	Custodian Bank	59	281	340
<b>INFLATION PROTECTION FUND</b>				
Fidelity Strategic R. Fund	Mutual Fund	9	171	180
Groom Law Group	Legal Fees	26	123	149
eVestment Alliance	Consultant Fees	11	54	65
Rocaton Investment Advisors	Consultant Fees	125	1,537	1,662
Broadridge Financial Solutions	Data Services	95	455	550
Supporting Services	Travel & Other	18	86	104
JP Morgan Chase Bank	Custodian Bank	11	204	215
<b>SUSTAINABLE EQUITY FUND</b>				
Neuberger Berman Group	Investment Manager	50,403	816,048	866,451
Groom Law Group	Legal Fees	37	245	282
eVestment Alliance	Consultant Fees	12	80	92
Rocaton Investment Advisors	Consultant Fees	402	5,873	6,275
Broadridge Financial Solutions	Data Services	115	756	871
Supporting Services	Travel & Other	24	161	185
JP Morgan Chase Bank	Custodian Bank	254	4,110	4,364
<b>Investment Expenses</b>	<b>Subtotal:</b>	<b>\$296,818,152</b>	<b>\$11,606,679</b>	<b>\$308,424,831</b>
Provision for Administrative Expenses	Administrative Fees	7,525,084	12,397,625	19,922,709
Reserve Transfer to				
Administrative expenses	Fund Transfer	(13,472,311)	(23,441,241)	(36,913,552)
<b>Net (decrease) in variable expense provision</b>	<b>Subtotal:</b>	<b>(\$5,947,227)</b>	<b>(\$11,043,616)</b>	<b>(\$16,990,843)</b>
<b>Total Investment Expenses</b>		<b>\$290,870,925</b>	<b>\$563,063</b>	<b>\$291,433,988</b>

**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2020**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
Abel Noser	635,858	\$0.05	\$31,807
ABG Securities As (Stockholm)	58,269	0.01	439
ABG Securities Limited	10,800	0.01	92
Actinver Casa De Bolsa Sa De Cv	72,600	0.00	292
Arqaam Securities LLC	381,724	0.00	1,017
Autrepat-Div Re	84,591	0.02	1,764
Baader Bank Ag	5,806	0.04	238
Banc of Santander - Chile	17,816,169	0.00	3,444
Banco Bice	89,774	0.00	197
Banco Itau SA	1,148,140	0.01	8,099
Banco Modal SA	25,680	0.02	508
Banco Pactual SA	1,125,018	0.00	4,314
Banco Santander Central Hispano	4,302,798	0.00	13,170
Bank J Vontobel Und Co Ag	63,711	0.11	6,783
Bank of America Corporation	2,346,165	0.00	8,388
Bank of America Merrill Lynch Secur Inc	21,142,670	0.00	41,969
Bank of Nova Scotia - Scusa	966,559	0.00	2,889
Bank of Santander - Mexico	9,040	0.02	184
Bankhaus Hermann Lampe	4,490	0.04	178
Barclays Capital Inc	9,843,443	0.01	66,923
Barclays Capital Inc/Le	792,456	0.01	6,030
Barclays Capital Le	875,683	0.03	24,863
BMO Capital Markets	1,067,770	0.03	32,876
BNP Paribas	148,802	0.01	1,035
BNP Paribas Securities Services	19,662,000	0.00	56,790
BNP Paribas Securities Services Austr Br	566,885	0.00	1,114
BNP Paribas Securities Services SA	229,325,507	0.00	100,260
BOFA Securities Inc	31,260,638	0.01	241,621
Bradesco SA Ctvm	6,851,132	0.00	26,366
B. Riley & Co, LLC	1,437	0.02	35
BTG Pactual Casa De Bolsa	2,867,729	0.00	5,565
BTG Pactual Chile SA Corredores De Bol	107,067,882	0.00	25,655
BTIG Hong Kong Limited	146,000	0.04	5,302
BTIG, LLC	815,931	0.02	16,399
Cabrera Capital Markets LLC	241,865	0.01	1,345
Canaccord Adams Inc	21,700	0.00	99
Canaccord Genuity (Australia) Limited	8,086	0.00	23
Canaccord Genuity LLC	270,295	0.03	8,911
Canadian Imperial Bank of Commerce	2,775,822	0.00	12,989
Cantor Fitzgerald & Co	212,892	0.02	4,804
Cantor Fitzgerald/Cantor Clearing Serv	1,034,381	0.02	21,143
Capital Institutional Svcs Inc Equities	28,260	0.02	565
Carnegie AS	35,961	0.07	2,460
Carnegie Investment Bank Ab	6,512	0.01	75
Carnegie Securities Finland	277,900	0.04	11,503
China International Capital Co	3,452,750	0.01	28,175
CIBC World Mkts Inc	68,312	0.01	707
CIMB Securities (HK) LTD	3,835,700	0.00	1,357
CIMB Securities (India) Private LIM	348,772	0.00	984
CIMB Securities (Thailand) Co, LTD	667,900	0.00	879

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2020 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
CIMB-Gk Securities Pte LTD	384,300	\$0.00	\$333
Citation Group	196,099	0.02	4,025
Citibank Canada	9,278	0.02	203
Citibank Mexico	7,695	0.02	163
Citibank NA	18,502,300	0.00	8,517
Citibank NA Spain	47,826	0.00	132
Citibank of Colombia	1,164,354	0.00	2,830
Citigroup Global Markets Australia Pty	527,244	0.00	541
Citigroup Global Markets Inc	73,908,664	0.00	214,573
Citigroup Global Markets India	1,581,487	0.01	10,648
Citigroup Global Markets Limited	20,525,374	0.01	105,101
Citigroup Global Markets Taiwan	20,793,919	0.00	6,729
Citigroup Global Markets Korea Secs LTD	1,313,017	0.01	11,691
CL Securities Taiwan Company Limited	35,293,727	0.00	61,566
CLSA Australia Pty LTD	4,495,870	0.00	9,484
CLSA Securities Korea LTD	4,856,870	0.02	74,333
CLSA Securities Malaysia Sdn Bhd	5,236,510	0.00	3,732
CLSA Singapore Pte LTD	97,217,310	0.00	172,659
CLSA UK	28,506	0.00	98
COL Financial Group, Inc	2,122,300	0.00	788
Commercial Bank of Qatar, LTD	490,675	0.00	934
Cornerstone Macro LLC	30,570	0.05	1,532
Cowen and Company, LLC	591,298	0.01	8,767
Cowen Execution Services LLC	63,540,379	0.00	308,625
Craig - Hallum	36,682	0.05	1,664
Credibolsa Sociedad Agente	3,306,038	0.00	7,452
Credicorp Capital Colombia SA	4,094,246	0.00	15,794
Credit Agricole Securities (USA) Inc	2,050	0.04	82
Credit Lyonnais Capital Indonesia	2,662,300	0.00	3,190
Credit Lyonnais Securities (Asia)	475,948,982	0.00	331,890
Credit Lyonnais Securities (India)	6,253,081	0.01	51,731
Credit Mutuel-Cic Banques	2,198	0.03	72
Credit Suisse First Boston	437,755	0.01	4,870
Credit Suisse First Boston (Europe)	425,704	0.06	26,677
Credit Suisse First Boston SA Ctm	69,400	0.00	225
Credit Suisse Secs India Private LTD	7,811,759	0.00	27,301
Credit Suisse Securities (Europe) LTD	71,926,600	0.00	220,846
Credit Suisse Securities (USA) LLC	57,723,862	0.00	164,758
Credit Suisse Securities Canada Inc	37,326	0.03	1,118
CS First Boston (Hong Kong) Limited	248,151	0.01	1,552
CSFB Australia Equities LTD	568,704	0.00	1,063
Daiwa Sbcm Europe	556,300	0.01	4,771
Daiwa Securities (HK) LTD	4,324,932	0.01	31,568
Daiwa Securities America Inc	1,580,396	0.04	57,898
Danske Bank AS	1,526,700	0.01	11,248
Davidson DA & Company Inc	6,313	0.04	253
Davy Stockbrokers	246,476	0.03	7,763
DBS Vickers (Hong Kong) Limited	911,300	0.00	2,591
DBS Vickers Securities (Singapore)	644,600	0.02	11,305
Den Norske Bank	58,650	0.01	571

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2020 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Deutsche Bank Securities Inc	864,453	\$0.01	\$4,332
DNB Markets Custody	23,544	0.02	563
DOM Inwestycyjny Bre Bank USA	18,843	0.02	373
DSP Merrill Lynch LTD	12,915,630	0.01	107,689
Erste Bank Befektetesi Rt	7,492	0.07	491
Erste Group Bank Ag	671	0.05	33
Euroclear Bank	184,114	0.00	283
Evercore Group LLC	80,261	0.02	1,727
Evercore Isi	816,086	0.04	30,614
Exane SA	1,517,528	0.01	18,922
Fidelity Clearing Canada ULC	110,359	0.02	2,210
Financial Brokerage Group (FBG)	22,439,301	0.00	88,530
Flow Corretora De Mercadorias LTDA	17,227,818	0.00	59,928
Gk Goh Ometraco Pt	2,993,500	0.00	760
Goldman Sachs & Co Intl	290,280	0.00	1,080
Goldman Sachs & Co LLC	119,667,799	0.00	375,057
Goldman Sachs (Asia) LLC	133,461,450	0.00	104,016
Goldman Sachs (India)	6,049,738	0.01	39,247
Goldman Sachs (Japan) LTD	18,200	0.03	494
Goldman Sachs Australia Pty LTD	1,289,238	0.00	962
Goldman Sachs Do Brasil Corretora	2,188,857	0.01	16,981
Goldman Sachs International	132,028,766	0.00	59,080
Goodbody Stockbrokers	17,200	0.00	10
Green Street Trading, LLC	186,272	0.04	7,492
Guggenheim Capital Markets LLC	10,725	0.03	322
Haitong Intl Secs Company LTD	135,623,550	0.00	25,376
Hanwha Securities Seoul	1,337	0.15	202
Hilltop Securities Inc	14,717	0.05	684
Hongkong and Shanghai Banking Corporation	18,390,283	0.00	86,462
HSBC Bank PLC	114,347,186	0.00	203,453
HSBC Bank USA	23,339	0.00	111
HSBC Brokerage (USA) Inc	25,345	0.01	135
HSBC Mexico	4,102,418	0.00	3,438
HSBC Securities	11,744,172	0.00	16,427
HSBC Securities (USA) Inc	268,316,018	0.00	112,012
HSBC Securities India Holdings	11,012,897	0.00	40,044
Hyundai Securities	237	0.89	211
ICICI Brokerage Services	5,352,309	0.00	12,681
IM Trust SA Corredores De Bolsa	66,004,661	0.00	19,440
India Infoline LTD	770,416	0.01	10,814
Instinet Australia Clearing Svc Pty LTD	7,993,941	0.00	13,839
Instinet Canada Limited	5,466	0.02	107
Instinet LLC	45,670,544	0.00	74,940
Instinet Pacific Limited	411,865,024	0.00	180,848
Instinet Singapore Services Pt	2,736,111	0.00	3,607
Instinet UK LTD	57,024,452	0.00	234,110
Intesa Sanpaolo SPA	5,736	0.02	88
Intl Fcstone Financial Inc	2,200	0.02	54
Intl Fcstone Securities Inc	22,060	0.02	441
Investec Bank PLC	269,753	0.00	940

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2020 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Investec Markets(Proprietary)Limited	742,258	\$0.00	\$785
Investec Securities LTD	231,256	0.00	609
Investment Technology Group LTD	13,642,492	0.01	78,480
Is Yatirim Menkul Degerler As	1,846,608	0.00	3,073
ITAU USA Securities Inc	7,000	0.03	210
ITG Australia LTD	110,328,697	0.00	32,719
ITG Canada	152,811	0.00	739
ITG Inc	403,820	0.00	852
Ivy Securities, Inc	1,192,947	0.04	46,706
Janney Montgomery, Scott Inc	70,870	0.02	1,771
Jefferies & Company Inc	10,561,785	0.01	91,365
Jefferies Hong Kong Limited	1,129,012	0.00	1,187
Jefferies India Private Limited	7,289,351	0.00	18,324
Jefferies International LTD	183,288,705	0.00	85,463
Joh Berenberg, Gossler & Co KG	3,488,358	0.01	29,148
Jonestrading Institutional Services LLC	2,190,048	0.02	34,850
JP Morgan	7,208	0.02	146
JP Morgan Clearing Corp	11,650,232	0.01	89,004
JP Morgan India Private LTD	1,053,868	0.01	10,626
JP Morgan Securities (Asia Pacific) LTD	130,698,495	0.00	48,968
JP Morgan Securities (Australia) LTD	4,021,528	0.00	4,406
JP Morgan Securities (Far East) LTD Seoul	241,612	0.00	1,445
JP Morgan Securities (Taiwan) LTD	25,276,644	0.00	9,873
JP Morgan Securities Inc	19,945,609	0.04	31,214
JP Morgan Securities Limited	280,702	0.02	10,406
JP Morgan Securities LLC	2,751,218	0.01	66,085
JP Morgan Securities PLC	46,312,662	0.01	254,263
JP Morgan Securities Singapore	573,441	0.01	6,792
Jupiter Securities Sdn Bhd	4,775,000	0.00	3,809
KAS-Associate NV	1,820	0.00	6
Keefe Bruyette & Woods Inc	84,926	0.03	2,276
Kempen & Co NV	3,900	0.05	206
Kepler Equities Paris	76,942	0.04	2,964
Keybanc Capital Markets Inc	552,910	0.02	12,336
KGI Securities CO LTD	754,000	0.00	1,757
Kim Eng Securities (Hk) LTD	261,838	0.01	1,632
Korea Investment And Securities Co, LTD	262,363	0.04	9,780
Kotak Securities LTD	1,156,449	0.02	20,445
Kt Zmico Securities Company Limited	15,400	0.04	623
Larrain Vial	6,178,446	0.00	4,374
Liberum Capital Limited	17,600	0.00	35
Liquidnet Canada Inc	93,998	0.00	423
Liquidnet Europe LTD	2,295,283	0.00	10,246
Liquidnet Inc	5,615,903	0.02	102,953
Loop Capital Markets LLC	20,120,615	0.02	377,027
Luminex Trading and Analytics LLC	643,956	0.01	3,221
Macquarie Bank Limited	187,744,498	0.00	116,178
Macquarie Capital (Europe) LTD	82,533	0.01	542
Macquarie Capital (USA) Inc	9,285,937	0.00	16,235
Macquarie Sec Nz LTD	290,760	0.00	255

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2020 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Macquarie Securities (India) Pvt LTD	1,110,462	\$0.01	\$6,852
Macquarie Securities (USA) Inc	452,330	0.02	8,200
Macquarie Securities Indonesia	387,100	0.00	398
Macquarie Securities Korea Limited	112,524	0.01	1,482
Macquarie Securities Limited	859,600	0.00	1,424
Mainfirst Bank De	11,300	0.01	140
Mediobanca Spa	126,941	0.01	940
Merrill Lynch Canada Inc	25,050	0.03	751
Merrill Lynch Equities (Australia)	4,480,000	0.00	2,387
Merrill Lynch Far East LTD	787,500	0.00	423
Merrill Lynch International	198,790,062	0.00	414,945
Merrill Lynch Pierce Fenner & Smith	86,571	0.02	1,332
Mirabaud Securities LLP	10,564	0.14	1,521
Mirae Asset Daewoo Co, LTD	267,858	0.04	11,787
Mirae Asset Sec USA	510,810	0.02	10,557
Mischler Financial Group, Inc-Equities	38,619	0.03	1,216
Mitsubishi UFJ Securities (USA)	239,605	0.06	15,115
Mizuho International PLC	56,600	0.06	3,529
Mizuho Securities Asia Limited	8,500	0.01	92
Mizuho Securities USA Inc	334,533	0.05	17,702
MKM Partners LLC	329,805	0.04	13,026
MI Professional Clearing Corp	12,766	0.03	320
Morgan Stan International LTD	196,600	0.04	7,291
Morgan Stanley and Co International	197,286,652	0.00	136,229
Morgan Stanley Co Incorporated	81,814,050	0.00	376,954
Morgan Stanley Dean Witter Australia	783,461	0.00	610
Morgan Stanley India Company Pvt LTD	6,927,775	0.00	31,908
Morgan Stanley Taiwan Limited	45,708,305	0.00	44,589
Motilal Oswal Securities Limited	12,500	0.08	977
National Financial Services Corporation	3,051,464	0.01	32,239
Nedbank (A division of Nedcor Bank)	20,180	0.00	100
Needham & Company	35,318	0.01	265
Needham and Company LLC	332,920	0.04	14,321
Nesbitt Burns	84,240	0.03	2,218
NH Investment and Securities Co LTD	223,634	0.02	4,313
Nomura Financial Advisory & Sec India	8,121,500	0.00	22,263
Nordea Bank Ab (Publ), Finnish Branch	4,614	0.02	90
North South Capital LLC	510,348	0.01	5,299
Northland Securities Inc	18,279	0.04	705
Numis Securities Inc	131,517	0.01	752
ODDO Et Cie	83,037	0.01	960
Oppenheimer & Co Inc	8,460	0.03	235
Parel	300,152	0.02	5,822
Paribas	2,974	0.02	51
Pavilion Global Markets LTD	1,341,298	0.01	19,445
Peel Hunt LLP	173,600	0.00	157
Penserra Securities LLC	9,336,645	0.01	49,222
Pershing LLC	29,199,793	0.01	182,589
Pershing Securities Limited	10,201,443	0.00	50,088
Pictet (Canada) LP	12,858	0.01	127

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2020 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Pictet and Cie	3,785,768	\$0.00	\$14,784
Piper Jaffray & Co	4,713,882	0.02	97,807
Pt Osk Nusantara Securities Indonesia	967,200	0.00	416
Raiffeisen Zentralbank Oesterreich Ag	159,508	0.03	5,021
Raymond James and Associates Inc	1,804,816	0.03	54,500
Raymond James LTD	139,302	0.02	2,514
RBC Capital Markets, LLC	1,082,982	0.02	19,047
RBC Dominion Securities Corporation	1,581,264	0.01	21,789
Redburn (Europe) Limited	1,801,516	0.03	46,232
Rencap Securities Inc	128,564	0.01	648
RHB Investment Bank Berhad	317,600	0.00	724
Robert W. Baird Co Incorporated	1,923,861	0.03	53,740
Rosenblatt Securities	86,325	0.00	365
Royal Bank Of Canada Europe LTD	3,730,316	0.01	31,309
Samsung Securities Co LTD	264,237	0.08	21,077
Sanford C Bernstein (India) Private LIM	595,834	0.03	19,920
Sanford C Bernstein LTD	30,695,287	0.01	194,834
SB Equities Incorporated	260,320	0.00	1,030
SBI Securities (Hong Kong) Limited	100,300	0.03	2,512
Sbicap Securities Limited	80,648	0.02	1,681
Scotia Capital (USA) Inc	33,393,510	0.00	3,544
Scotia Capital Inc	570,009	0.01	3,531
Seaport Group Securities, LLC	89,440	0.02	1,342
SG Americas Securities LLC	14,566,322	0.00	9,456
SG Asia Securities (Inoia) Pvt LTD	11,600,292	0.00	22,758
SG Securities (London) LTD	23,780,603	0.00	7,392
SG Securities HK	226,070,379	0.00	60,183
Shenyin and Wanguo Securities (HK) LTD	217,000	0.01	2,903
Shenyin and Wanguo Securities Co LTD	39,700	0.01	355
Sidoti & Company LLC	35,628	0.03	1,193
Singer Capital Markets Limited	4,618	0.02	79
Skandinaviska Enskilda Banken	34,380	0.02	558
Skandinaviska Enskilda Banken London	830	0.04	31
Smbc Nikko Capital Markets Limited	135,700	0.05	6,239
Smbc Nikko Securities (Honk Kong) LTD	328,176	0.00	1,332
SMBC Securities Inc	150,579	0.02	3,522
Societe Generale	6,802,261	0.00	12,552
Societe Generale London Branch	2,140,988	0.01	27,672
State Street Global Markets, LLC	2,319	0.03	58
Stephens, Inc	136,961	0.05	6,178
Stern Brothers and Co	300	0.03	8
Stifel Nicolaus & Co Inc	860,706	0.02	19,866
Stifel Nicolaus Europe Limited	4,021	0.01	23
Strategas Securities LLC	36,633	0.04	1,347
Sturdivant and Co, Inc	124,305	0.04	4,918
Suntrust Capital Markets, Inc	108,691	0.02	2,620
Svenska Handelsbanken	5,091	0.02	78
Telsey Advisory Group	70,449	0.02	1,523
Telsey Advisory Group LLC	16,000	0.01	219
The Fig Group, LLC	190,400	0.00	939

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2020**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
The Hongkong and Shanghai Bank	1,584,173	\$0.05	\$83,258
Toronto Dominion Securities Inc	1,861,533	0.01	9,490
UBS Ag	166,288,190	0.00	324,630
UBS Ag (Formerly Swiss Bank Co) Zurich	579,871	0.01	3,546
UBS Ag London	1,255,716	0.02	26,986
UBS Securities Asia LTD	107,793,040	0.00	67,205
UBS Securities Canada Inc	3,054,097	0.01	23,385
UBS Securities India Private LTD	5,614,472	0.01	28,941
UBS Securities LLC	10,929,296	0.00	44,562
UBS Securities Pte LTD	30,608,000	0.00	45,063
UBS Securities Pte LTD, Seoul	1,359,647	0.02	27,930
UBS Warburg Australia Equities	1,192,442	0.00	1,020
UOB Kay Hian Pte Limited	801,917	0.00	744
Virtu Americas LLC	1,310,720	0.02	23,282
Wedbush Morgan Securities Inc	17,659	0.02	353
Weeden & Co	537,945	0.01	3,554
Wells Fargo Securities, LLC	3,830,004	0.01	53,548
William Blair & Company LLC	460,754	0.04	19,869
Williams Capital Group Lp (The)	5,047,905	0.01	60,594
Winterflood Securities LTD	17,510,567	0.00	12,709
Wolfe Trahan Securities	90,168	0.03	2,573
Wood and Company	659,198	0.00	1,358
XP Investments Cctvm SA	28,100	0.01	400
Yunta Securities Co, LTD	377,000	0.00	565

**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2020**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Abel Noser	4,742,854	\$0.03	\$145,826
ABG Securities AS (Stockholm)	26,240	0.01	311
ABG Securities, Oslo	15,200	0.01	141
Ambit Capital PVT LTD	38,600	0.00	31
Axis Capital Limited	95,200	0.00	63
Banco Itau Sao Paulo	41,400	0.00	139
Banco Pactual SA Rio De Janeiro	13,600	0.00	49
Banco Santander SA New York	325,405	0.00	1,065
Bank J Vontobel Und Co	4,550	0.16	716
Bank Of America Merrill Lynch Securities	2,748,946	0.00	8,208
Bank Of Americas Securities Inc	1,590,687	0.01	20,938
Bank Of New York	51,268	0.00	140
Barclays Bank London	3,725,860	0.00	15,799
Barclays Capital Inc/Le	580,794	0.00	2,750
Barclays Capital Le	1,134,866	0.02	19,082
Barclays Capital Securities LTD	20,226	0.01	183
Baypoint Trading LLC	1,254,455	0.01	15,518
Benchmark Capital Holdings LLC	3,712	0.02	74
Berenberg Bank Hamburg	707,739	0.03	21,858
BNP Paribas Securities (Asia) LTD	138,500	0.00	47
BNP Paribas Securities Services	1,457,119	0.00	7,026
BNP Paribas Security Svcs London	53,647	0.00	79
BNY Convergen Execution Solutions	1,345,969	0.01	11,696
Bofa Securities Inc	39,582	0.00	196
Bradesco SA	549,650	0.00	2,517
B. Riley & Co, LLC	165,890	0.03	5,576
Broad Court Cap Corp Sub Div Merrill	324,950	0.03	9,748
Brockhouse & Cooper Inc Montreal	136,341	0.01	2,023
BTIG Hong Kong Limited	18,300	0.04	665
Canaccord Capital Corp Vancouver	9,400	0.00	36
Cantor Clearing Services	4,819	0.02	96
Cantor Fitzgerald & Co Inc	606,478	0.02	13,876
Cantor Fitzgerald Europe	1,518	0.13	194
Cantor Fitzgerald/Mis Brokers	8,472	0.02	169
Carnegie AS	2,910	0.09	272
Carnegie Secs Helsinki	73,662	0.03	2,037
Celfin Capital Sa Corredores De Bolsa	3,195	0.01	34
China International Capital Corporation	180,500	0.01	2,543
CIBC London	142,870	0.01	840
CIBC New York	200	0.02	3
CIBC World Markets New York	2,711	0.02	41
CIBC World Markets Toronto	80,300	0.01	423
CIMB Securities (HK) LTD	940,100	0.00	322
CIMB Securities (USA) Inc	137,000	0.01	1,181
CIMB-GK Securities Pte LTD	223,800	0.00	99
Citadel Securities Institutional LLC	338,675	0.01	1,694
Citibank Europe PLC	84,677	0.02	1,469
Citibank Europe PLC UK Branch	2,744,868	0.01	31,976
Citibank Frankfurt CBF	1,409,513	0.02	22,825
Citibank NA	51,874,504	0.00	136,275
Citibank NA London	1,569,736	0.01	13,556
Citibank New York	5,372,625	0.00	8,665
Citigroup Global Markets Inc	8,079,783	0.00	39,470
Citigroup Global Markets Limited	1,737,489	0.01	11,393

*Continued on page 120*

**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2020 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Citigroup Global Mkt Secs LTD	7,445	\$0.00	\$15
Citigroup Global Mkts Australia Pty	8,096	0.01	41
Citigroup Pty Limited	1,835	0.01	19
C.L. King & Associates Inc	29,608	0.04	1,043
CLSA Australia Pty LTD	53,830	0.00	214
CLSA India LTD	2,001,469	0.00	2,015
CLSA LTD Hong Kong	27,529,730	0.00	25,672
CLSA Singapore Pte LTD	3,615,293	0.00	8,035
Collins Stewart LLC	53,613	0.02	1,072
Convergex LLC	148,150	0.02	2,963
Cornerstone Macro LLC	31,375	0.02	627
Cowen And Company LLC	3,006,629	0.03	83,683
Craig - Hallum	605,215	0.01	8,387
Craig-Hallum Capital Group LLC	134,266	0.03	3,684
Credit Lyonnais Sec (USA) Inc NY	1,568,400	0.00	856
Credit Lyonnais Sec Seoul	537,286	0.01	5,112
Credit Lyonnais Secs (Asia) Taipei	4,217,000	0.00	4,052
Credit Lyonnais Secs Singapore	5,080,239	0.00	16,738
Credit Suisse AG Dublin	15,882	0.02	302
Credit Suisse Equities (Australia)	216,042	0.00	920
Credit Suisse First Boston HK	3,759,972	0.00	3,749
Credit Suisse First Boston SA	51,000	0.00	148
Credit Suisse Securities (CRSUSA)	214,809	0.03	5,416
Credit Suisse Securities (Europe)	4,799,703	0.00	23,384
Credit Suisse Securities (USA) LLC	6,739,854	0.00	10,687
CSFB (Europe) LTD Seoul Secs Brnch	71,615	0.06	3,954
CSFB India (Secs) Pvt LTD Mumbai	472,345	0.00	1,316
CSFB Taipei	1,714,896	0.00	1,405
D Carnegie AB Stockholm	343,863	0.03	8,697
D.A. Davidson & Co	109,045	0.03	3,049
Daiwa Capital Markets Europe	29,500	0.00	62
Daiwa Capital Markets America Inc	381,791	0.05	17,368
Daiwa Capital Markets Hong Kong	170,200	0.00	777
Danske Bank A/S Copenhagen	40,200	0.01	474
Davy Stockbrokers	34,180	0.02	711
DBS Vickers Ballas Hong Kong LTD	105,200	0.00	339
DBS Vickers Secs (Sing) Pte LTD	75,000	0.02	1,562
Den Norske Bank ASA	32,400	0.01	263
Deutsche Bank London	73,574	0.00	365
Deutsche Bank Securities Inc NY	125,718	0.02	2,377
Deutsche Secs Aust LTD Sydney	16,700	0.00	46
Dougherty & Company LLC	42,354	0.04	1,694
Drexel Hamilton LLC	2,616	0.02	52
DSP Merrill Lynch LTD Mumbai	240,954	0.02	4,062
Edelweiss Securities Pvt LTD	70,412	0.00	105
Enam Securities PVT LTD Mumbai	42,840	0.03	1,398
Euroclear Bank SA	490	0.40	196
Euroclear UK and Ireland LTD	36,294	0.01	414
Exane New York	8,565	0.07	613
Exane Paris	28,628	0.01	182
Exane SA	1,066,061	0.01	6,226
Fidelity Capital Markets	61,200	0.01	637
Fidelity Clearing Canada ULC	405,100	0.01	2,931
Financial Brokerage Group	195,600	0.00	250

Continued on page 121



**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2020 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
First Analysis Securities Corp	1,050	\$0.02	\$21
First Union Capital Markets	289,621	0.03	8,858
Flow Corretora De Mercadorias LTDA	113,900	0.00	201
Friedman Billings & Ramsey	426,182	0.01	5,106
Goldman Sachs	5,411,998	0.02	85,892
Goldman Sachs (Asia) LLC Seoul	50,846	0.02	944
Goldman Sachs (Asia) Taipei	3,543,653	0.00	1,963
Goldman Sachs (India) Securities	1,063,045	0.00	2,375
Goldman Sachs Australia Pty LTD	55,678	0.01	373
Goldman Sachs Bank London	1,197,004	0.00	4,888
Goldman Sachs Bank USA	10,029	0.01	149
Goldman Sachs Do Brasil Corretora	66,203	0.00	235
Goldman Sachs International	1,724,170	0.00	7,795
Goldman Sachs New York	15,466,733	0.00	35,760
Goodbody Stockbrokers Dublin	882,163	0.00	571
Guzman & Company	380,170	0.01	2,608
Haitong Intl Securities Co Limited	146,033	0.00	155
Hilltop Securities Inc	3,002	0.04	120
Hongkong & Shanghai Bnking Corp LTD	4,172	0.05	195
HSBC Bank PLC London	5,860,164	0.00	12,794
HSBC Brokerage (USA) Inc	323,224	0.00	887
HSBC Secs & Cap Mkts India Privt LTD	1,414,547	0.00	2,079
HSBC Securities Brokers (Asia) LTD	206,900	0.00	899
HSBC Securities USA	37,209,068	0.00	16,329
Ichiyoshi Securities	25,400	0.08	1,906
ICICI Brokerage Services Mumbai	960,750	0.00	4,240
IM Trust SA Corredores De Bolsa	4,357,026	0.00	1,340
Imperial Capital LLC	19,800	0.03	594
India Infoline LTD Mumbai	73,290	0.02	1,401
Instinet	6,617,797	0.01	43,825
Instinet Australia Clearing Svcs	384,276	0.00	772
Instinet Clearing Services Inc	607,771	0.00	1,376
Instinet Corp New York	734,265	0.00	1,294
Instinet Europe Limited	2,985,986	0.01	15,972
Instinet Pacific LTD Hong Kong	5,805,287	0.00	2,930
Instinet Singapore Services Pte LTD	287,000	0.00	398
International Advisory Services Group	503,800	0.00	1,364
Investec Henderson Crosthwaite Secs	193,700	0.00	756
Investment Technology Group Dublin	34,817	0.01	178
Investment Technology Group Inc	1,582,827	0.01	10,580
ISI Group Inc	2,090,108	0.02	44,761
ITG	283,700	0.00	993
ITG Australia Limited Melbourne	754,037	0.00	2,249
ITG Canada Corp Toronto	63,950	0.01	474
Itg Hong Kong	1,600	0.01	17
ITG Inc	289,006	0.00	1,178
ITG Inc New York	48,022	0.00	101
ITG London	2,329,067	0.01	12,417
Janney Montgomery Scott Inc	169,630	0.04	6,564
Jefferies & Company	3,468,972	0.02	86,297
Jefferies & Company Inc NY	879,525	0.01	7,096
Jefferies India Private Limited	171,347	0.00	790
Jefferies International	4,018,558	0.00	7,535
JM Financial Institutional	620,594	0.01	6,514

Continued on page 122

**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2020 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
JM Morgan Stanley Secs Pvt LTD	724,704	\$0.01	\$4,324
JMP Securities	115,310	0.02	2,306
JNK Securities Inc	33,078	0.01	331
Johnson Rice & Company LLC	350,000	0.03	10,500
Jones & Associates	4,638	0.01	27
Jones Trading Institutional Services	931,507	0.03	25,841
JP Morgan Chase Bank	4,235,326	0.02	73,731
JP Morgan Chase Bank, London	1,692,888	0.00	5,169
JP Morgan Clearing Corp NY	13,568	0.01	141
JP Morgan India Private LTD	120,618	0.01	1,055
JP Morgan Secs Inc NY	1,576,508	0.00	7,060
JP Morgan Secs London	181,009	0.02	2,736
JP Morgan Securities (Asia Pacific)	3,251,634	0.00	2,326
JP Morgan Securities (Far East) LTD	19,093	0.00	88
JP Morgan Securities Australia Limited	131,292	0.00	268
JP Morgan Securities Limited	4,508,230	0.01	28,961
JP Morgan Securities Singapore	67,385	0.00	28
JP Morganchase / CustJPMCC	1,559,865	0.01	10,633
KAS Bank	42,200	0.01	454
KBC Peel Hunt	12,787	0.01	120
Keefe Bruyette & Woods Inc	4,406	0.02	88
Kempen And Co	68,010	0.01	902
Kepler Capital Markets	7,251	0.02	113
Keybanc Capital Markets Inc	25,384	0.04	1,015
Knight Equity Markets Lp	597,197	0.01	3,845
Knight Execution & Clearing Services	772,911	0.02	13,567
Korea Investment And Securities Co	57,034	0.00	86
Kotak Securities Mumbai	356,793	0.01	4,931
Leerink Swann And Company	21,700	0.03	651
Liquidnet Asia Limited Hong Kong	22,000	0.00	23
Liquidnet Canada Inc	5,500	0.01	54
Liquidnet Europe LTD London	447,882	0.00	582
Liquidnet Inc	1,055,703	0.02	23,472
Loop Capital Markets	7,225	0.04	289
Luminex Trading And Analytics LLC	62,750	0.01	314
Macquarie Bank Limited	16,113,838	0.00	19,504
Macquarie Capital (Europe) LTD Ldn	16,885	0.04	676
Macquarie Capital Usa Inc	11,990	0.02	239
Macquarie Securities (Singapore)	4,100	0.00	18
Macquarie Securities (USA) Inc	298,092	0.01	2,754
Macquarie Securities Indian Pvt LTD	150,939	0.02	3,642
Macquarie Securities New Zealand	53,863	0.01	403
Mainfirst Bank AG	790	0.43	336
Merrill Lynch & Co Inc (Atlas Gbl) NY	733,200	0.00	537
Merrill Lynch And Co Inc	1,597,420	0.01	8,468
Merrill Lynch International London	21,650,076	0.00	61,036
Merrill Lynch Pierce Fenner & Smith	77,457	0.04	2,934
Mirae Asset Securities	14,282	0.04	623
Mirae Asset Securities (USA) Inc	5,543	0.04	222
Mitsubishi UFJ Securities (USA)	255,947	0.00	706
Mizuho Securities Asia LTD	20,200	0.01	115
Mizuho Securities Inc	293,900	0.01	2,595
Morgan Stanley & Co	17,295,204	0.00	58,490
Morgan Stanley And Co Intl Taipei	911,253	0.00	971

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2020 (Continued)**

BROKERAGE FIRM	NO. OF SHARES TRADED	COMMISSION PER SHARE	COMMISSION PAID
Morgan Stanley Dean Witter Sydney	29,112	\$0.00	\$78
Morgan Stanley Intl Seoul	164,156	0.03	5,645
Motilal Oswal Securities LTD	986,900	0.00	546
National Finl Svcs Corp	30,653,471	0.01	191,625
NBC Clearing Services Inc	13,900	0.02	242
Needham And Company LLC	102,377	0.02	2,528
Nesbitt Burns Toronto	358,260	0.01	4,657
Nomura Financial Advisory And Securities	1,197,559	0.00	4,963
Nordea Bank Finland PLC	2,900	0.02	57
Northland Securities Inc	27,392	0.04	1,001
Numis Securities London	366,182	0.00	497
Numis Securities, New York	728,152	0.01	4,071
Oddo Et Cie Paris	81,630	0.03	2,688
Oppenheimer & Co Inc	207,603	0.03	6,029
Parel Paris	79,494	0.01	855
Pellinor Securities Corp	10,353	0.02	207
Penserra Securities	549,356	0.01	4,961
Pershing LLC	2,786,256	0.01	28,359
Pershing Securities	1,671,222	0.01	10,536
Piper Jaffray & Co	4,045,636	0.01	45,043
Pulse Trading LLC	49,308	0.01	613
Raymond James & Associates Inc	393,048	0.03	11,360
Raymond James LTD Toronto	142,900	0.01	1,967
RBC Capital Markets Corporation	680,836	0.01	9,172
RBC Dain Rauscher Inc	550	0.01	4
RBC Dominion Secs Toronto	830,164	0.01	7,823
Redburn Partners LLP London	411,183	0.01	4,608
Robert W Baird & Co	116,854	0.04	4,271
Rosenblatt Securities Inc	124,827	0.01	1,136
Roth Capital Partners, LLC	14,716	0.02	294
Royal Bank Of Canada	7,892	0.01	113
Royal Bank Of Canada Europe Limited	581,409	0.00	2,521
Salomon Smith Barney Taipei Brch	1,243,905	0.00	454
Samsung Securities	54,366	0.02	1,355
Sandler O'Neill & Partners LP	22,660	0.03	747
Sanford C Bernstein & Co Inc	1,045,368	0.01	13,155
Sanford C Bernstein And Co, LLC	670,422	0.00	1,445
Sanford C Bernstein LTD London	1,479,540	0.01	8,332
Scotia Capital Mkts Toronto	201,700	0.01	2,308
Scotia Capital USA Inc	2,143,800	0.00	2,187
Seaport Group Securities LLC	36,802	0.02	817
Seb (Enskilda Securities) London	23,882	0.01	249
SG Americas Securities LLC (Sgas)	1,129,648	0.00	4,793
SG Asia Sec (India) Prvt LTD Mumbai	726,926	0.00	2,963
SG Secs (London) LTD Taipei	2,491,254	0.00	1,664
SG Securities (Hk) LTD Hong Kong	13,891,044	0.00	8,559
Shenyin Wanguo Securities (HK) LTD	49,800	0.01	688
SIDCO/ITG Inc	21,646	0.02	520
Sidoti & Company LLC	429,378	0.02	8,588
Skandinaviska Enskilda Banken	14,426	0.04	565
SMBC Nikko Securities (Hong Kong)	202,740	0.01	1,713
SMBC Securities Inc	61,400	0.01	486
Societe Generale	2,350,203	0.01	17,785
Societe Generale London Branch	954,145	0.01	7,407

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2020**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
Societe Generale Secs Corp New York	424,537	\$0.00	\$1,207
Southwest Securities Inc	781,412	0.01	10,810
Spark Capital Advisors (India)	294,630	0.00	225
Stephens Inc	73,385	0.04	2,842
Stifel Nicolaus & Co Inc	438,694	0.03	11,281
Suntrust Capital Markets Inc	430,750	0.03	12,551
Svenska Handelsbanken	8,842	0.01	86
Taylor D W & Co LTD	77,484	0.01	775
Themis Trading LLC	539,232	0.01	5,438
Toronto Dominion Bank	50,200	0.01	667
Toronto Dominion Secs Toronto	43,900	0.01	359
UBS AG London	6,921,041	0.00	20,100
UBS AG London Branch	88,579	0.02	1,353
UBS AG Stamford CT	110,934	0.01	711
UBS Securities Asia LTD	10,987,013	0.00	8,328
UBS Securities Australia LTD	131,538	0.00	149
UBS Securities LLC (Warburg)	1,620,470	0.01	17,749
UBS Warburg LLC	5,139	0.01	36
UBS Warburg Secs India Pvt Mumbai	81,549	0.01	598
UBS Warburg Securities LTD Seoul	104,232	0.01	1,033
UBS Warburg Securities Taiwan	2,428,282	0.00	3,962
UBS-AG Zurich	9,451	0.01	55
Unpublished	318,120	0.00	1,102
Wall Street Access	4,384	0.01	33
Weeden And Co	108,934	0.02	2,056
Wells Fargo Securities LLC	71,069	0.01	791
William Blair & Company	249,264	0.02	5,120
Winterflood Securities Limited	804,622	0.00	2,498
Wolfe Trahan Securities	405,550	0.03	11,476
Wood & Company	28,506	0.02	669
XP Investments Cctvm SA	32,500	0.00	131



# Actuarial Section



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## OFFICE OF THE ACTUARY

255 GREENWICH STREET • 9<sup>TH</sup> FLOOR  
 NEW YORK, NY 10007  
 (212) 442-5775 • FAX: (212) 442-5777

SHERRY S. CHAN  
 CHIEF ACTUARY

December 4, 2020

Board of Trustees  
 Teachers' Retirement System of the City of New York  
 55 Water Street, 16<sup>th</sup> Floor  
 New York, NY 10041

Re: Actuarial Information for the Comprehensive Annual Financial Report (CAFR) for the  
 Fiscal Year Ended June 30, 2020

Dear Members of the Board of Trustees:

The financial objective of the Teachers' Retirement System of the City of New York - Qualified Pension Plan (TRS-QPP or the Plan) is to fund members' retirement benefits during their active service by establishing employer normal contribution rates that, expressed as a percentage of active member annualized covered payroll, would remain approximately level over the future working lifetimes of those active members and, together with member contributions and investment income, are intended to ultimately be sufficient to accumulate assets to pay benefits when due.

An actuarial valuation of the Plan is performed annually as of the second June 30 preceding each fiscal year to determine the Employer Contributions to be paid for that fiscal year (i.e. the June 30, 2018 (Lag) actuarial valuation is used to determine the Fiscal Year 2020 Employer Contributions (Actuarial Contributions)).

The funding policy of the City of New York (the City) is to contribute statutorily-required contributions (Statutory Contributions) and these contributions are generally funded by the City within the appropriate fiscal year.

For Fiscal Year 2020, the Actuarial Contributions to TRS, are equal to those recommended by the Actuary of the New York City Retirement Systems and Pension Funds (the Actuary) and represent the Statutory Contributions.

Pursuant to the Governmental Accounting Standards Board (GASB) Statement No. 67 (GASB67) and Statement No. 68 (GASB68), on September 25, 2020, the Actuary published the "Fiscal Year 2020 GASB 67/68 Report for the City of New York and the New York City Retirement Systems" (the Fiscal Year 2020 GASB67/68 Report). Appendix B of the Fiscal Year 2020 GASB67/68 Report contains information developed in accordance with GASB67 for TRS.

Board of Trustees  
Teachers' Retirement System of the City of New York  
December 4, 2020  
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## **Actuarial Assumptions and Methods**

The assumptions and methods used for the June 30, 2018 valuation were presented in the report titled "Proposed Changes in Actuarial Assumptions and Methods Used in Determining Employer Contributions for Fiscal Years Beginning on and After July 1, 2018 for the New York City Teachers' Retirement System," dated January 17, 2019 which was adopted by the Board of Trustees at the February 28, 2019 Board meeting. There have been no changes since the prior year with the exception of the method for determining the Actuarial Value of Assets. Details describing this change can be found later in this CAFR. These actuarial assumptions and methods meet the parameters set forth by the Actuarial Standards of Practice (ASOPs).

## **Benefits, Financial Information, and Census Data**

The June 30, 2018 (Lag) and June 30, 2017 (Lag) actuarial valuations are based upon the census data as of those dates submitted by the Plan's administrative staff and the employer's payroll facilities. A summary of the census data used in the June 30, 2018 (Lag) actuarial valuation is included in this CAFR. A summary of the census data used in the June 30, 2017 (Lag) actuarial valuation of the Plan is available in the Fiscal Year 2019 CAFR.

Consistent with the Actuarial Standards of Practice, the Office of the Actuary has reviewed the census data and financial information for consistency and reasonability but has not audited it. The accuracy of the results and calculations presented are dependent on the accuracy of this census data and financial information. To the extent any such data or information provided is materially inaccurate or incomplete, the results contained herein will require revision.

A summary of the benefits available under the terms of the Plan is shown in the Introductory Section of this CAFR. The benefits under the Plan are unchanged from the prior valuation.

## **Funded Status**

The funded status of the Plan is usually expressed by the relationship of assets to liabilities.

With respect to the funded status of the Plan, included in the Actuarial Section of the CAFR is a schedule of funded status based on the Entry Age Normal cost method (Table 11).

Also included in the Actuarial Section of the CAFR is a Solvency Test (i.e. Comparative Summary of Accrued Liabilities Funded by Actuarial Value of Assets) (Table 12), as prescribed by the Government Finance Officers Association (GFOA). This Solvency Test represents an alternative approach to describing progress toward funding objectives.

Board of Trustees  
Teachers' Retirement System of the City of New York  
December 4, 2020  
Page 3

### **Presentation Style and Sources of Information**

The actuarial information herein is believed to be presented in a manner consistent with the requirements of the GFOA and, where applicable, with GASB67.

The following items in the Actuarial Section of the CAFR were prepared by the OA:

- Summary of Actuarial Assumptions and Methods in Effect for the June 30, 2018 (Lag) Actuarial Valuation.
- Summary of Active Member Valuation Data.
- Summary of Plan Membership Data.
- Schedule of Retirees and Beneficiaries Added to and Removed from Rolls.
- Actuarial and Statutory Contribution History.
- Funded Status Based on Entry Age Normal Cost Method.
- Comparative Summary of Accrued Liabilities Funded by Actuarial Value of Assets - Solvency Test.
- Contributions.

The following items in the Financial Section of the CAFR were also prepared by the OA:

- Membership Data.
- Net Pension Liability.
- Actuarial Assumptions and Methods.
- Schedule of Changes in Employers' Net Pension Liability and Related Ratios.
- Schedule of Employer Contributions.

If you have any questions about the information in this Actuarial Section or the actuarial information presented elsewhere in this CAFR, please do not hesitate to contact Mr. Michael J. Samet, Mr. Edward Hue, or me.

Board of Trustees  
Teachers' Retirement System of the City of New York  
December 4, 2020  
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### **Acknowledgment of Qualification**

I, Sherry S. Chan, am the Chief Actuary for, and independent of, the New York City Retirement Systems and Pension Funds. I am a Fellow of the Society of Actuaries, an Enrolled Actuary under the Employee Retirement Income and Security Act of 1974, a Member of the American Academy of Actuaries, and a Fellow of the Conference of Consulting Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. To the best of my knowledge, the results contained herein have been prepared in accordance with generally accepted actuarial principles and procedures and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

A handwritten signature in black ink that reads "Sherry Chan". The signature is written in a cursive, flowing style.

Sherry S. Chan, FSA, EA, MAAA, FCA  
Chief Actuary

SSC/eh

Att.

cc: Ms. Dolores Capone - New York City Office of the Actuary  
Mr. Craig Chu - New York City Office of the Actuary  
Mr. Edward Hue - New York City Office of the Actuary  
Mr. Thad McTigue - New York City Teachers' Retirement System  
Mr. Paul Raucci - New York City Teachers' Retirement System  
Ms. Patricia Reilly - New York City Teachers' Retirement System  
Mr. Michael Samet - New York City Office of the Actuary  
Keith Snow, Esq. - New York City Office of the Actuary



# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## QUALIFIED PENSION PLAN

### SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS IN EFFECT FOR THE JUNE 30, 2018 (LAG) ACTUARIAL VALUATION

1. Pursuant to Section 96 of the New York City Charter, studies of the actuarial assumptions used to value liabilities of the five actuarially-funded New York City Retirement Systems (NYCRS) are conducted every two years.

Also, in accordance with the Administrative Code of the City of New York (ACCNy), the Boards of Trustees of the five actuarially-funded NYCRS are to periodically review and adopt actuarial assumptions as proposed by the Actuary for use in the determination of Employer Contributions.

Based on the most recent actuarial experience study and recommendations prepared by Bolton, Inc. in their 10-year experience study ending on June 30, 2017, the Actuary issued a Report entitled "Proposed Changes in Actuarial Assumptions and Methods Used in Determining Employer Contributions for Fiscal Years Beginning on and after July 1, 2018 for the New York City Teachers' Retirement System," dated January 17, 2019. The actuarial assumptions and methods described in that report were adopted by the Board of Trustees at the February 28, 2019 Board meeting and are referred to as the "2019 A&M." These actuarial assumptions and methods are effective beginning with Fiscal Year 2019.

2. The Actuarial Interest Rate (AIR) assumption is 7.0% per annum, net of investment expenses (4.0% per annum for benefits payable under the Variable Annuity Program).
3. Active service tables are used to estimate various withdrawals from active service. Probabilities are shown in Table 1 for members withdrawing from active service for service retirement, Table 2 for members terminating from active service, and Tables 3 and 4 for members withdrawing from active service due to disability or death, respectively.
4. The service retiree mortality, disabled retiree mortality, and beneficiary mortality base tables are projected from 2012 using mortality improvement scale MP-2018. The base tables are also multiplied by adjustment factors to convert from lives-weighted to amounts-weighted tables to reflect socioeconomic effects on mortality. Base table probabilities for service and disability pensioners are shown in Tables 5a and 5b respectively, and for beneficiaries in Table 5c.
5. A salary scale is used to estimate salaries at termination, retirement, or death. Percentage increases are shown in Table 6. The salary scale includes a General Wage Increase (GWI) assumption of 3.0% per annum.

## TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK QUALIFIED PENSION PLAN

### SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS IN EFFECT FOR THE JUNE 30, 2018 (LAG) ACTUARIAL VALUATION (Cont'd)

6. The economic assumptions (i.e. the assumed investment return rate, GWI rate, and Cost-of-Living Adjustments (COLA)) were developed assuming a long-term Consumer Price Inflation (CPI) assumption of 2.5% per annum. The assumption is 1.5% per annum for Auto COLA and 2.5% per annum for escalation.
7. The valuation assumes a closed group of members.
8. Beginning with the June 30, 2012 (Lag) actuarial valuation, the Actuarial Asset Valuation Method (AAVM) recognizes investment returns greater or less than expected over a period of six years.

In accordance with this AAVM, the Unexpected Investment Returns (UIR) are phased into the Actuarial Value of Assets (AVA) at rates of 15%, 15%, 15%, 15%, 20%, and 20% per year (i.e. cumulative rates of 15%, 30%, 45%, 60%, 80%, and 100% over a period of six years).

The AVA is further constrained to be within a corridor of 80% to 120% of the Market Value of Assets.

Beginning with the June 30, 2018 (Lag) actuarial valuation, the Actuarial Value of Assets is determined by re-characterizing the interest credited on TDA Fixed Fund account balances as investment income instead of as a cash disbursement.

9. The Entry Age Normal (EAN) cost method of funding is used by the Plan's Actuary to calculate Employer Contributions.

Under this method, the Present Value (PV) of Future Benefits (PVFB) of each individual included in the actuarial valuation is allocated on a level basis over the earnings (or service) of the individual between entry age and the assumed exit age(s). The employer portion of this PVFB allocated to a valuation year is the Normal Cost. The portion of this PVFB not provided for at a valuation date by the PV of Future Employer Normal Costs or future member contributions is the Accrued Liability (AL).

The excess, if any, of the AL over the Actuarial Value of Assets (AVA) is the Unfunded Accrued Liability (UAL).

Under this method, actuarial gains and losses, as they occur, reduce and increase the UAL, respectively, and are explicitly identified and amortized.

Increases or decreases in obligations due to benefit changes, actuarial assumption changes, and actuarial method changes are also explicitly identified and amortized.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## QUALIFIED PENSION PLAN

### SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS IN EFFECT FOR THE JUNE 30, 2018 (LAG) ACTUARIAL VALUATION (Cont'd)

The explicit UALs that are developed each year under EAN are generally financed over fixed periods. Ideally, these periods are reasonably consistent with the expected future working lifetimes of all active participants.

Under EAN, the Normal Cost as a percentage of pay remains constant by individual and changes gradually over time for the entire plan as the characteristics of the group changes (*e.g.*, more Tier 6 active members decrease the average Normal Cost as a percentage of pay). A cost is added to each year's Normal Cost for providing a guaranteed 8.25% return on the TDA Fixed Fund for non-UFT members.

10. The Employer Contribution for a fiscal year is increased by the interest-adjusted amount of administrative expenses paid from TRS during the second prior fiscal year.
11. Obligations attributable to the WTC Disability Benefits Law and to the WTC Death Benefits Law are determined through the use of explicit assumptions in the 2019 A&M, and through estimation techniques for post-retirement reclassifications.
12. One-Year Lag Methodology (OYLM) uses a June 30, XX-2 valuation date to determine Fiscal Year XX employer contributions.

This methodology requires adjustments to certain components used to determine Fiscal Year XX employer contributions as follows:

a. Normal Cost

The normal cost as of June 30, XX-2 is rolled forward with the assumed AIR of 7.0% to derive the normal cost as of December 31, XX-1.

b. UAL Payments

For determining the UAL payments for Fiscal Year XX, and to be consistent with the OYLM, the UAL as of June 30, XX-2 is adjusted by the discounted value of the employer normal cost and UAL payments paid during Fiscal Year XX-1 and the discounted value of Administrative Expenses reimbursed during Fiscal Years XX-1 and XX.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK QUALIFIED PENSION PLAN

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS IN EFFECT FOR THE JUNE 30, 2018 (LAG) ACTUARIAL VALUATION (Cont'd)

Table 1					
PROBABILITIES OF SERVICE RETIREMENT					
Age	Reduced Service Retirement	Unreduced Service Retirement Probabilities For Members Who Did Not Elect an Improved Retirement Program		Unreduced Service Retirement Probabilities For Members Who Did Elect an Improved Retirement Program	
		Year 1	Ultimate	Year 1	Ultimate
55	2.50%	18.00%	0.00%	37.50%	0.00%
56	2.50%	18.00%	20.00%	37.50%	22.00%
57	2.50%	18.00%	20.00%	37.50%	22.00%
58	2.50%	18.00%	20.00%	37.50%	22.00%
59	3.75%	18.00%	20.00%	37.50%	22.00%
60	5.00%	18.00%	20.00%	37.50%	22.00%
61	6.25%	18.00%	20.00%	37.50%	22.00%
62	7.50% <sup>1</sup>	27.00%/18.00% <sup>2</sup>	20.00%	50.00%	33.00%
63	0.00%	18.00%/27.00% <sup>3</sup>	20.00%	37.50%	22.00%
64	0.00%	18.00%	20.00%	37.50%	22.00%
65	0.00%	27.00%	20.00%	50.00%	33.00%
66	0.00%	18.00%	20.00%	37.50%	22.00%
67	0.00%	18.00%	20.00%	37.50%	22.00%
68	0.00%	18.00%	20.00%	37.50%	22.00%
69	0.00%	18.00%	20.00%	37.50%	22.00%
70	0.00%	20.00%	20.00%	37.50%	22.00%
71	0.00%	20.00%	20.00%	37.50%	22.00%
72	0.00%	20.00%	20.00%	37.50%	22.00%
73	0.00%	20.00%	20.00%	37.50%	22.00%
74	0.00%	20.00%	20.00%	37.50%	22.00%
75	0.00%	20.00%	20.00%	37.50%	22.00%
76	0.00%	20.00%	20.00%	37.50%	22.00%
77	0.00%	20.00%	20.00%	37.50%	22.00%
78	0.00%	20.00%	20.00%	37.50%	22.00%
79	0.00%	20.00%	20.00%	37.50%	22.00%
80+	N/A	100.00%	100.00%	100.00%	100.00%

<sup>1</sup> 7.50% only applies to Tier 6 members; 0.00% otherwise.

<sup>2</sup> 27.00% for Tier 1, 2, & 4 members and 18.00% for Tier 6 members.

<sup>3</sup> 18.00% for Tier 1, 2, & 4 members and 27.00% for Tier 6 members.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK QUALIFIED PENSION PLAN

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS IN EFFECT FOR THE JUNE 30, 2018 (LAG) ACTUARIAL VALUATION (Cont'd)

<p style="text-align: center;"><b>Table 2</b></p> <p style="text-align: center;">PROBABILITIES OF TERMINATION</p>	
<b>Years of Service</b>	<b>Probability of Termination</b>
0	9.00%
1	8.00%
2	7.00%
3	6.00%
4	5.00%
5	4.00%
6	3.50%
7	3.05%
8	2.65%
9	2.30%
10	2.00%
11	1.75%
12	1.55%
13	1.40%
14	1.30%
15	1.25%
16	1.20%
17	1.15%
18	1.10%
19	1.05%
20	1.00%
21	0.90%
22	0.80%
23	0.70%
24	0.60%
25+	0.50%

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## QUALIFIED PENSION PLAN

### SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS IN EFFECT FOR THE JUNE 30, 2018 (LAG) ACTUARIAL VALUATION (Cont'd)

Table 3				
PROBABILITIES OF DISABILITY RETIREMENT				
	Ordinary Disability		Accidental Disability	
Age	Males	Females	Males	Females
15	0.01%	0.01%	0.00%	0.00%
16	0.01%	0.01%	0.00%	0.00%
17	0.01%	0.01%	0.00%	0.00%
18	0.01%	0.01%	0.00%	0.00%
19	0.01%	0.01%	0.00%	0.00%
20	0.01%	0.01%	0.00%	0.00%
21	0.01%	0.01%	0.00%	0.00%
22	0.01%	0.01%	0.00%	0.00%
23	0.01%	0.01%	0.00%	0.00%
24	0.01%	0.01%	0.00%	0.00%
25	0.01%	0.01%	0.00%	0.00%
26	0.01%	0.01%	0.00%	0.00%
27	0.01%	0.01%	0.00%	0.00%
28	0.01%	0.01%	0.00%	0.00%
29	0.01%	0.01%	0.00%	0.00%
30	0.01%	0.01%	0.00%	0.00%
31	0.02%	0.01%	0.00%	0.00%
32	0.03%	0.02%	0.00%	0.00%
33	0.04%	0.03%	0.01%	0.00%
34	0.05%	0.04%	0.01%	0.00%
35	0.06%	0.05%	0.01%	0.01%
36	0.07%	0.06%	0.01%	0.01%
37	0.08%	0.07%	0.01%	0.01%
38	0.08%	0.08%	0.02%	0.01%
39	0.09%	0.09%	0.02%	0.01%
40	0.10%	0.10%	0.02%	0.01%
41	0.11%	0.11%	0.02%	0.01%
42	0.12%	0.12%	0.02%	0.01%
43	0.13%	0.13%	0.02%	0.02%
44	0.14%	0.14%	0.02%	0.02%
45	0.15%	0.15%	0.03%	0.02%
46	0.15%	0.16%	0.03%	0.02%
47	0.15%	0.17%	0.03%	0.02%
48	0.15%	0.18%	0.03%	0.03%
49	0.15%	0.19%	0.03%	0.03%
50	0.15%	0.20%	0.03%	0.03%
51	0.15%	0.20%	0.03%	0.03%
52	0.15%	0.20%	0.03%	0.03%
53	0.15%	0.20%	0.03%	0.03%
54	0.15%	0.20%	0.03%	0.03%
55	0.15%	0.20%	0.04%	0.04%
56	0.15%	0.20%	0.04%	0.04%
57	0.15%	0.20%	0.04%	0.04%
58	0.15%	0.20%	0.04%	0.04%
59	0.15%	0.20%	0.04%	0.04%
60	0.15%	0.20%	0.04%	0.04%
61	0.15%	0.20%	0.04%	0.04%
62	0.15%	0.20%	0.04%	0.04%
63	0.15%	0.20%	0.04%	0.04%
64	0.15%	0.20%	0.04%	0.04%
65	0.15%	0.20%	0.04%	0.04%
66	0.15%	0.20%	0.04%	0.04%
67	0.15%	0.20%	0.04%	0.04%
68	0.15%	0.20%	0.04%	0.04%
69	0.15%	0.20%	0.04%	0.04%
70	0.15%	0.20%	0.04%	0.04%
71	0.15%	0.20%	0.04%	0.04%
72	0.15%	0.20%	0.04%	0.04%
73	0.15%	0.20%	0.04%	0.04%
74	0.15%	0.20%	0.04%	0.04%
75	0.15%	0.20%	0.04%	0.04%
76	0.15%	0.20%	0.04%	0.04%
77	0.15%	0.20%	0.04%	0.04%
78	0.15%	0.20%	0.04%	0.04%
79	0.15%	0.20%	0.04%	0.04%
80+	N/A	N/A	N/A	N/A

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK QUALIFIED PENSION PLAN

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS IN EFFECT FOR THE JUNE 30, 2018 (LAG) ACTUARIAL VALUATION (Cont'd)

Table 4			
PROBABILITIES OF MORTALITY FOR ACTIVE MEMBERS			
Age	Ordinary Death		Accidental Death
	Males	Females	
15	0.040%	0.025%	0.000%
16	0.040%	0.025%	0.000%
17	0.040%	0.025%	0.000%
18	0.040%	0.025%	0.000%
19	0.040%	0.025%	0.000%
20	0.040%	0.025%	0.000%
21	0.040%	0.025%	0.000%
22	0.040%	0.025%	0.000%
23	0.040%	0.025%	0.000%
24	0.040%	0.025%	0.000%
25	0.040%	0.025%	0.000%
26	0.040%	0.025%	0.000%
27	0.040%	0.025%	0.000%
28	0.040%	0.025%	0.000%
29	0.040%	0.025%	0.000%
30	0.040%	0.025%	0.000%
31	0.042%	0.026%	0.000%
32	0.044%	0.028%	0.000%
33	0.046%	0.029%	0.000%
34	0.048%	0.030%	0.000%
35	0.050%	0.031%	0.000%
36	0.052%	0.033%	0.000%
37	0.054%	0.034%	0.000%
38	0.056%	0.035%	0.000%
39	0.058%	0.036%	0.000%
40	0.060%	0.038%	0.000%
41	0.070%	0.044%	0.000%
42	0.080%	0.050%	0.000%
43	0.090%	0.056%	0.000%
44	0.100%	0.063%	0.000%
45	0.110%	0.069%	0.000%
46	0.120%	0.075%	0.000%
47	0.130%	0.081%	0.000%
48	0.140%	0.088%	0.000%
49	0.150%	0.094%	0.000%
50	0.160%	0.100%	0.000%
51	0.170%	0.106%	0.000%
52	0.180%	0.113%	0.000%
53	0.190%	0.119%	0.000%
54	0.200%	0.125%	0.000%
55	0.210%	0.131%	0.000%
56	0.220%	0.138%	0.000%
57	0.230%	0.144%	0.000%
58	0.240%	0.150%	0.000%
59	0.250%	0.156%	0.000%
60	0.260%	0.163%	0.000%
61	0.270%	0.169%	0.000%
62	0.280%	0.175%	0.000%
63	0.290%	0.181%	0.000%
64	0.300%	0.188%	0.000%
65	0.320%	0.200%	0.000%
66	0.350%	0.219%	0.000%
67	0.390%	0.244%	0.000%
68	0.440%	0.275%	0.000%
69	0.500%	0.313%	0.000%
70	0.540%	0.350%	0.000%
71	0.600%	0.388%	0.000%
72	0.650%	0.425%	0.000%
73	0.700%	0.463%	0.000%
74	0.750%	0.525%	0.000%
75	0.800%	0.588%	0.000%
76	0.890%	0.650%	0.000%
77	0.980%	0.713%	0.000%
78	1.070%	0.775%	0.000%
79	1.160%	0.925%	0.000%
80+	N/A	N/A	N/A

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## QUALIFIED PENSION PLAN

### SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS IN EFFECT FOR THE JUNE 30, 2018 (LAG) ACTUARIAL VALUATION (Cont'd)

<b>Table 5a</b>  PROBABILITIES OF MORTALITY FOR SERVICE RETIREES BASE TABLE					
Age	Males	Females	Age	Males	Females
15	0.0108%	0.0105%	68	1.3827%	0.8399%
16	0.0146%	0.0128%	69	1.5070%	0.8992%
17	0.0197%	0.0140%	70	1.6306%	0.9855%
18	0.0222%	0.0145%	71	1.7953%	1.1072%
19	0.0235%	0.0151%	72	1.9579%	1.2311%
20	0.0246%	0.0153%	73	2.1191%	1.3549%
21	0.0263%	0.0162%	74	2.2784%	1.4775%
22	0.0278%	0.0171%	75	2.4370%	1.5961%
23	0.0295%	0.0181%	76	2.7233%	1.8356%
24	0.0309%	0.0193%	77	3.0074%	2.0765%
25	0.0320%	0.0206%	78	3.2885%	2.3162%
26	0.0335%	0.0220%	79	3.5677%	2.5533%
27	0.0347%	0.0234%	80	3.8824%	2.7842%
28	0.0364%	0.0249%	81	4.4474%	3.3221%
29	0.0386%	0.0267%	82	5.0193%	3.8708%
30	0.0418%	0.0286%	83	5.5977%	4.4089%
31	0.0476%	0.0348%	84	6.1798%	5.0027%
32	0.0532%	0.0401%	85	6.7676%	5.5878%
33	0.0583%	0.0449%	86	7.7139%	6.2981%
34	0.0629%	0.0489%	87	8.6843%	6.9333%
35	0.0673%	0.0527%	88	9.6857%	7.5758%
36	0.0698%	0.0557%	89	10.7135%	8.5620%
37	0.0720%	0.0591%	90	11.7744%	9.6778%
38	0.0745%	0.0626%	91	13.6049%	10.8390%
39	0.0782%	0.0672%	92	15.5105%	11.9717%
40	0.0837%	0.0726%	93	17.4679%	13.1425%
41	0.0941%	0.0775%	94	19.5105%	15.1670%
42	0.1051%	0.0838%	95	21.6689%	17.3761%
43	0.1167%	0.0918%	96	23.7343%	19.5275%
44	0.1294%	0.1013%	97	25.7571%	21.6213%
45	0.1432%	0.1132%	98	27.8633%	23.3643%
46	0.1582%	0.1271%	99	29.8272%	23.8705%
47	0.1744%	0.1429%	100	31.5152%	23.9898%
48	0.1918%	0.1597%	101	33.0771%	24.9134%
49	0.2102%	0.1774%	102	34.4234%	26.0067%
50	0.2317%	0.1950%	103	35.6398%	27.2992%
51	0.2657%	0.2130%	104	36.6357%	28.7614%
52	0.3011%	0.2304%	105	37.3430%	30.3385%
53	0.3373%	0.2472%	106	37.7004%	31.9944%
54	0.3744%	0.2638%	107	37.8599%	33.6898%
55	0.4112%	0.2806%	108	38.0314%	35.3785%
56	0.4578%	0.3034%	109	38.1998%	37.0129%
57	0.5025%	0.3264%	110	50.0000%	50.0000%
58	0.5448%	0.3498%	111	50.0000%	50.0000%
59	0.5843%	0.3732%	112	50.0000%	50.0000%
60	0.6211%	0.3973%	113	50.0000%	50.0000%
61	0.7018%	0.4321%	114	50.0000%	50.0000%
62	0.7804%	0.4686%	115	50.0000%	50.0000%
63	0.8588%	0.5072%	116	50.0000%	50.0000%
64	0.9371%	0.5479%	117	50.0000%	50.0000%
65	0.9994%	0.5912%	118	50.0000%	50.0000%
66	1.1295%	0.6619%	119	50.0000%	50.0000%
67	1.2569%	0.7367%	120	100.0000%	100.0000%



# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK QUALIFIED PENSION PLAN

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS IN EFFECT FOR THE JUNE 30, 2018 (LAG) ACTUARIAL VALUATION (Cont'd)

<b>Table 5b</b>  PROBABILITIES OF MORTALITY FOR DISABLED RETIREES BASE TABLE					
Age	Males	Females	Age	Males	Females
15	0.3819%	0.3483%	68	2.8007%	2.0012%
16	0.5167%	0.4712%	69	2.8946%	2.0043%
17	0.6964%	0.5141%	70	3.0268%	2.0073%
18	0.7863%	0.5351%	71	3.1148%	2.0103%
19	0.8312%	0.5569%	72	3.2684%	2.1811%
20	0.8353%	0.5649%	73	3.3926%	2.3760%
21	0.8659%	0.5961%	74	3.5875%	2.5968%
22	0.8978%	0.6295%	75	3.7271%	2.8417%
23	0.9464%	0.6597%	76	3.9657%	3.0808%
24	0.9977%	0.6908%	77	4.2691%	3.3373%
25	1.0424%	0.7150%	78	4.5349%	3.6085%
26	1.0960%	0.7387%	79	4.8252%	3.8944%
27	1.1348%	0.7520%	80	5.1378%	4.1909%
28	1.1774%	0.7625%	81	5.6917%	4.6921%
29	1.2163%	0.7686%	82	6.2841%	5.1536%
30	1.2878%	0.7763%	83	6.8835%	5.5061%
31	1.3554%	0.9885%	84	7.7954%	6.1180%
32	1.3755%	1.1922%	85	8.8286%	6.7342%
33	1.3953%	1.3874%	86	9.9032%	7.3088%
34	1.4153%	1.3942%	87	10.8837%	8.2536%
35	1.4357%	1.4012%	88	11.9567%	9.3264%
36	1.4563%	1.4082%	89	13.8059%	10.3734%
37	1.4772%	1.4152%	90	15.7270%	11.4459%
38	1.4985%	1.4223%	91	17.7012%	12.6271%
39	1.5200%	1.4294%	92	19.6428%	14.1350%
40	1.5418%	1.4366%	93	21.9234%	15.4424%
41	1.5640%	1.4436%	94	24.0761%	16.9560%
42	1.5865%	1.4509%	95	26.0577%	18.4261%
43	1.6093%	1.4581%	96	28.3614%	20.1727%
44	1.6324%	1.4654%	97	30.3483%	21.6213%
45	1.6559%	1.5299%	98	31.8739%	23.3643%
46	1.6797%	1.6016%	99	33.6652%	23.8705%
47	1.7038%	1.6623%	100	35.0392%	23.9898%
48	1.7283%	1.7238%	101	36.0496%	24.9134%
49	1.7531%	1.7485%	102	37.0460%	26.0067%
50	1.7783%	1.7736%	103	37.7767%	27.2992%
51	1.8039%	1.7991%	104	38.1460%	28.7614%
52	1.9408%	1.8530%	105	38.3076%	30.3385%
53	2.0713%	1.8909%	106	38.4698%	31.9944%
54	2.2040%	1.9173%	107	38.6325%	33.6898%
55	2.3207%	1.9622%	108	38.8076%	35.3785%
56	2.4304%	1.9652%	109	38.9794%	37.0129%
57	2.4937%	1.9681%	110	50.0000%	50.0000%
58	2.5070%	1.9711%	111	50.0000%	50.0000%
59	2.5245%	1.9741%	112	50.0000%	50.0000%
60	2.5362%	1.9770%	113	50.0000%	50.0000%
61	2.5394%	1.9801%	114	50.0000%	50.0000%
62	2.5426%	1.9831%	115	50.0000%	50.0000%
63	2.5480%	1.9861%	116	50.0000%	50.0000%
64	2.5797%	1.9891%	117	50.0000%	50.0000%
65	2.6258%	1.9921%	118	50.0000%	50.0000%
66	2.6510%	1.9951%	119	50.0000%	50.0000%
67	2.7083%	1.9982%	120	100.0000%	100.0000%

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## QUALIFIED PENSION PLAN

### SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS IN EFFECT FOR THE JUNE 30, 2018 (LAG) ACTUARIAL VALUATION (Cont'd)

<b>Table 5c</b>  PROBABILITIES OF MORTALITY FOR BENEFICIARIES BASE TABLE					
Age	Males	Females	Age	Males	Females
15	0.0105%	0.0092%	68	1.8256%	1.3605%
16	0.0142%	0.0112%	69	1.9386%	1.4332%
17	0.0191%	0.0122%	70	2.0542%	1.5007%
18	0.0222%	0.0133%	71	2.2359%	1.6745%
19	0.0240%	0.0143%	72	2.4230%	1.8463%
20	0.0251%	0.0145%	73	2.6165%	2.0157%
21	0.0268%	0.0153%	74	2.8157%	2.1838%
22	0.0284%	0.0161%	75	3.0220%	2.3492%
23	0.0301%	0.0171%	76	3.4928%	2.6652%
24	0.0315%	0.0183%	77	3.9787%	2.9831%
25	0.0327%	0.0195%	78	4.4792%	3.3011%
26	0.0342%	0.0208%	79	4.9963%	3.6207%
27	0.0354%	0.0221%	80	5.5282%	3.9391%
28	0.0371%	0.0236%	81	6.1051%	4.4386%
29	0.0394%	0.0252%	82	6.6894%	4.9473%
30	0.0427%	0.0270%	83	7.2805%	5.4665%
31	0.0495%	0.0330%	84	7.8749%	5.9942%
32	0.0562%	0.0384%	85	8.4753%	6.5354%
33	0.0625%	0.0431%	86	9.6136%	7.4659%
34	0.0682%	0.0471%	87	10.8005%	8.3995%
35	0.0743%	0.0511%	88	12.0443%	9.3428%
36	0.0780%	0.0542%	89	13.3397%	10.2918%
37	0.0818%	0.0579%	90	14.6958%	11.2477%
38	0.0861%	0.0618%	91	16.4185%	12.8868%
39	0.0917%	0.0666%	92	18.1416%	14.4887%
40	0.0997%	0.0719%	93	19.8574%	16.0801%
41	0.1394%	0.0775%	94	21.6187%	17.5854%
42	0.1774%	0.0859%	95	23.5884%	19.0626%
43	0.2143%	0.0968%	96	25.4266%	20.2474%
44	0.2507%	0.1111%	97	27.2119%	21.2937%
45	0.2875%	0.1287%	98	29.0202%	22.0663%
46	0.3207%	0.1501%	99	30.6654%	22.5443%
47	0.3534%	0.1748%	100	32.1584%	22.6473%
48	0.3849%	0.2022%	101	33.7521%	23.5294%
49	0.4150%	0.2319%	102	35.1259%	24.5619%
50	0.4431%	0.2633%	103	36.3671%	25.7825%
51	0.5156%	0.2999%	104	37.3834%	27.1635%
52	0.5928%	0.3376%	105	38.1051%	28.6530%
53	0.6740%	0.3762%	106	38.4698%	30.2169%
54	0.7583%	0.4151%	107	38.6325%	31.8182%
55	0.8440%	0.4540%	108	38.8076%	33.4131%
56	0.9048%	0.5132%	109	38.9794%	34.9566%
57	0.9604%	0.5735%	110	50.0000%	50.0000%
58	1.0101%	0.6353%	111	50.0000%	50.0000%
59	1.0536%	0.6981%	112	50.0000%	50.0000%
60	1.0919%	0.7631%	113	50.0000%	50.0000%
61	1.1835%	0.8329%	114	50.0000%	50.0000%
62	1.2676%	0.8908%	115	50.0000%	50.0000%
63	1.3473%	0.9493%	116	50.0000%	50.0000%
64	1.4238%	1.0146%	117	50.0000%	50.0000%
65	1.4985%	1.0876%	118	50.0000%	50.0000%
66	1.6059%	1.1681%	119	50.0000%	50.0000%
67	1.7146%	1.2609%	120	100.0000%	100.0000%

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK QUALIFIED PENSION PLAN

## SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS IN EFFECT FOR THE JUNE 30, 2018 (LAG) ACTUARIAL VALUATION (Cont'd)

<p style="text-align: center;"><b>Table 6</b></p> <p style="text-align: center;">ANNUAL RATES OF MERIT AND SALARY INCREASE</p>		
Years of Service	Merit Increase	Salary Increase <sup>1</sup>
0	10.00%	13.00%
1	8.00%	11.00%
2	6.00%	9.00%
3	5.00%	8.00%
4	6.00%	9.00%
5	5.00%	8.00%
6	5.00%	8.00%
7	4.00%	7.00%
8	2.00%	5.00%
9	5.00%	8.00%
10	1.00%	4.00%
11	1.00%	4.00%
12	3.00%	6.00%
13	1.00%	4.00%
14	5.00%	8.00%
15	1.00%	4.00%
16	1.00%	4.00%
17	2.00%	5.00%
18	1.00%	4.00%
19	9.00%	12.00%
20	1.00%	4.00%
21	5.00%	8.00%
22+	1.00%	4.00%

<sup>1</sup>Salary Increase is the General Wage Increase of 3.00% plus the Merit Increase.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK QUALIFIED PENSION PLAN

## SUMMARY OF ACTIVE MEMBER VALUATION DATA

<b>Table 7</b>  ACTIVE MEMBER VALUATION DATA				
<b>June 30 (Lag) Actuarial Valuation</b>	<b>Number</b>	<b>Annual Salary</b>	<b>Average Annual Salary</b>	<b>Percentage Increase/ (Decrease) In Avg. Salary</b>
2009	113,132	\$8,016,635,700	\$70,861	0.5%
2010	111,647	7,979,671,378	71,472	0.9%
2011	109,636	7,888,203,642	71,949	0.7%
2012	112,460	8,013,395,184	71,256	(1.0%)
2013	112,481	8,128,378,071	72,264	1.4%
2014	111,726	8,274,685,657	74,062	2.5%
2015	114,652	8,844,650,633	77,143	4.2%
2016	118,201	9,224,267,647	78,039	1.2%
2017	120,826	9,848,899,232	81,513	4.5%
2018	121,764	10,404,403,684	85,447	4.8%

Salaries reflect the impact of recent labor contract settlements and certain non-union salary increases with retroactive effective dates, if any.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK QUALIFIED PENSION PLAN

## SUMMARY OF PLAN MEMBERSHIP DATA

As of the June 30, 2018 (Lag) and June 30, 2017 (Lag) actuarial valuations, the Plan's Membership consisted of:

<b>Table 8</b> SUMMARY OF PLAN MEMBERSHIP		
<b>Group</b>	<b>June 30, 2018 (Lag)</b>	<b>June 30, 2017 (Lag)</b>
Active members	121,764	120,826
Active Off Payroll <sup>1</sup>	9,416	7,997
Terminated vested members not yet receiving benefits	16,433	15,279
Retirees and beneficiaries currently receiving benefits	<u>86,295</u>	<u>84,770</u>
Total	233,908	228,872

<sup>1</sup> Represents members who are no longer on payroll but not otherwise classified.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## QUALIFIED PENSION PLAN

### SCHEDULE OF RETIREES AND BENEFICIARIES ADDED TO AND REMOVED FROM THE ROLLS

Table 9								
SCHEDULE OF RETIREES AND BENEFICIARIES ADDED TO AND REMOVED FROM THE ROLLS								
June 30 (Lag) Actuarial Valuation	Added to Rolls		Removed from Rolls		End of Year Rolls		% Increase in Annual Allowances	Average Annual Allowances
	Number	Annual Allowances <sup>1</sup>	Number	Annual Allowances	Number	Annual Allowances <sup>2</sup>		
2009	3,115	\$6,288,013	2,065	\$73,586,895	70,825	\$2,874,313,269	(2.3%)	\$40,583
2010	3,534	207,981,284	2,003	64,538,942	72,356	3,017,755,611	5.0%	41,707
2011	3,849	278,652,149	2,141	67,488,320	74,064	3,228,919,440	7.0%	43,596
2012	4,684	200,786,572	2,209	62,805,438	76,539	3,366,900,574	4.3%	43,989
2013	4,078	248,087,233	2,440	77,107,240	78,177	3,537,880,567	5.1%	45,255
2014	4,356	275,947,759	2,114	67,585,789	80,419	3,746,242,537	5.9%	46,584
2015	4,728	219,769,491	2,370	81,986,287	82,777	3,884,025,741	3.7%	46,922
2016	3,808	157,518,432	2,492	86,890,450	84,093	3,954,653,723	1.8%	47,027
2017	3,519	254,567,439	2,842	111,573,800	84,770	4,097,647,362	3.6%	48,338
2018	4,107	240,586,776	2,582	103,957,220	86,295	4,234,276,918	3.3%	49,067

<sup>1</sup> Amounts shown include changes due to benefit finalization, changes in benefit type (e.g., Service to Accidental Disability), COLA increases, and other changes.

<sup>2</sup> Allowances shown are those used in the actuarial valuation as of the Year-End date and are not adjusted for anticipated changes due to finalization of benefit calculations or contract settlements.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## QUALIFIED PENSION PLAN

### ACTUARIAL AND STATUTORY CONTRIBUTION HISTORY

<p style="text-align: center;"><b>Table 10</b></p> <p style="text-align: center;">ACTUARIAL AND STATUTORY CONTRIBUTION HISTORY</p>			
<b>Fiscal Year Ended June 30</b>	<b>Actuarial Contribution Certified</b>	<b>Statutory Contribution Contributed <sup>1</sup></b>	<b>Employer Rate of Contribution <sup>2,3,4</sup></b>
2011	\$2,468,973,357	\$2,468,973,357	31.1%
2012	2,673,078,096	2,673,078,096	33.7%
2013	2,855,639,947	2,855,639,947	36.5%
2014	2,998,693,727	2,998,693,727	37.7%
2015	3,270,006,920	3,270,006,920	40.5%
2016	3,702,569,102	3,702,569,102	44.8%
2017	3,888,399,470	3,888,399,470	44.1%
2018	3,889,709,927	3,889,709,927	42.3%
2019	3,696,685,559	3,696,685,559	37.7%
2020	3,590,801,261	3,590,801,261	34.6%

<sup>1</sup>Represents total employer contributions accrued for fiscal year.

<sup>2</sup>The Employer Rate of Contribution equals the Statutory Contribution as a percentage of the salaries of members who were on payroll or projected to be on payroll (under One-Year Lag Methodology) as of the preceding June 30 adjusted, where applicable, to be consistent with collective bargaining agreements estimated to be achieved.

<sup>3</sup>Starting with the Fiscal Year ended June 30, 2019, the Employer Rate of Contribution is calculated before offsetting for Annuity Savings Accumulation Fund (ASAF).

<sup>4</sup> For Fiscal Year ended June 30, 2020, the Employer Rate of Contribution is calculated before offsetting for the Pre-Payment credit as well as the ASAF credit.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## QUALIFIED PENSION PLAN

### FUNDED STATUS BASED ON ENTRY AGE NORMAL COST METHOD

Prior to the June 30, 2010 (Lag) Actuarial Valuation, the Frozen Initial Liability (FIL) cost method was used to develop the funding requirements for the Plan. Under this method, following establishment of any Initial UAL, actuarial gains and losses are financed over the working lifetimes of active participants and are not identified as separate UAL.

The funding status and funding progress information provided in the schedule below has been prepared using the Entry Age Normal (EAN) cost method where the Present Value (PV) of any obligations of the Plan not provided by the PV of Future Contributions (Employer and Employee), as determined under the EAN cost method, equals the Accrued Liability (AL). Under the EAN cost method, the UAL equals the AL minus the Actuarial Value of Assets.

<b>Table 11</b> FUNDED STATUS BASED ON ENTRY AGE NORMAL COST METHOD (\$ Thousands)						
June 30 (Lag) Valuation Date	(1) Actuarial Value of Assets (AVA)	(2) Accrued Liability (AL)	(3) Unfunded AL (UAL) (2) - (1)	(4) Funded Ratio (1) / (2)	(5) Covered Payroll	(6) UAL as a % of Covered Payroll (3) / (5)
2009	\$30,774,981	\$47,988,459	\$17,213,478	64.1%	\$8,016,636	214.7%
2010	32,477,527	55,138,366	22,660,839	58.9%	7,979,671	284.0%
2011	33,601,537	57,702,731	24,101,194	58.2%	7,888,204	305.5%
2012	33,871,180	58,783,399	24,912,219	57.6%	8,013,395	310.9%
2013	35,186,072	61,988,933	26,802,861	56.8%	8,128,378	329.7%
2014	37,521,424	67,309,977	29,788,553	55.7%	8,274,686	360.0%
2015	39,290,072	69,625,608	30,335,536	56.4%	8,844,651	343.0%
2016	41,015,087	69,964,412	28,949,325	58.6%	9,224,268	313.8%
2017	44,381,706	69,552,380	25,170,674	63.8%	9,848,899	255.6%
2018	50,012,149	72,205,318	22,193,169	69.3%	10,404,404	213.3%

Effective June 30, 2010, AL is based on the Entry Age Normal cost method. Previously, the Frozen Initial Liability cost method was used. Salaries reflect the impact of recent labor contract settlements and certain non-union salary increases with retroactive effective dates, if any.



# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## QUALIFIED PENSION PLAN

### COMPARATIVE SUMMARY OF ACCRUED LIABILITIES FUNDED BY ACTUARIAL VALUE OF ASSETS

<b>Table 12</b>  COMPARATIVE SUMMARY OF ACCRUED LIABILITIES FUNDED BY ACTUARIAL VALUE OF ASSETS SOLVENCY TEST (\$ Thousands)							
June 30 (Lag) Valuation Date	Accrued Liabilities for			Actuarial Value of Assets (D)	Percentage of Accrued Liabilities Funded by Actuarial Value of Assets		
	Accumulated Member Contributions (A)	Current Retirees and Beneficiaries (B)	Active Members' Employer-Financed Portion (C)		(A)	(B)	(C)
2009	\$2,823,873	\$27,862,679	\$14,620,140	\$30,774,981	100%	100%	1%
2010	2,962,696	32,264,333	17,529,345	32,477,527	100	91	0
2011	3,167,737	34,317,270	17,770,140	33,601,537	100	89	0
2012	3,122,720	35,575,735	17,558,791	33,871,180	100	86	0
2013	3,330,541	37,451,527	18,565,932	35,186,072	100	85	0
2014	3,547,779	40,753,340	20,193,955	37,521,424	100	83	0
2015	3,646,765	42,095,109	20,888,473	39,290,072	100	85	0
2016	3,765,740	41,651,524	21,465,314	41,015,087	100	89	0
2017	3,291,234	42,149,684	23,681,032	44,381,706	100	97	0
2018	3,431,852	43,150,865	25,230,752	50,012,149	100	100	14

See following "SOLVENCY TEST – NOTES."

## TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK QUALIFIED PENSION PLAN

### COMPARATIVE SUMMARY OF ACCRUED LIABILITIES FUNDED BY ACTUARIAL VALUE OF ASSETS (Cont'd)

#### SOLVENCY TEST - NOTES

The ultimate test of financial soundness in a retirement system is its ability to pay all of its promised benefits when due. The retirement system's progress in accumulating assets to pay all promised benefits can be measured by comparing the Actuarial Value of Assets of the retirement system with the Accrued Liabilities for:

- a. Accumulated Member Contributions;
- b. Current Retirees and Beneficiaries; and
- c. Active Members' Employer-Financed Portion.

The Accrued Liabilities are the PV of projected benefits produced by the projected benefit attribution approach prorated on service. The Accrued Liabilities were calculated in accordance with Governmental Accounting Standards Board Statement No. 5 (GASB5).

This comparative summary allocated assets as if they were priority groups, somewhat similar (but not identical) to the priority categories of Section 4044 of the Employee Retirement Income Security Act of 1974.

The values in the table are dependent upon census data, benefit levels (which have changed over the past years), and the actuarial assumptions and methods employed at each valuation date.

To fully evaluate trends in financial soundness, changes in assumptions need to be evaluated. Beginning with the June 30, 2010 (Lag) actuarial valuation, the Actuarial Interest Rate assumption equals 7.0% per annum, net of investment expenses, and the General Wage Increase assumption equals 3.0% per annum. Prior to the June 30, 2010 (Lag) actuarial valuation, the Actuarial Interest Rate assumption was 8.0% per annum, gross of expenses. The two most recent changes in assumptions and methods occurred in the June 30, 2017 (Lag) valuation used to compute the Employer Contributions for Fiscal Year 2019 and in the June 30, 2014 (Lag) valuation used to compute the Employer Contributions for Fiscal Year 2016.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

## QUALIFIED PENSION PLAN

### CONTRIBUTIONS

The benefits of the System are financed by member and employer contributions and from investment earnings of the System.

#### A. MEMBER CONTRIBUTIONS

##### 1. Coordinated Retirement Plan (Article 15):

A Tier III/IV member of this Plan is mandated to contribute 3% of annual wages during all the years of coverage. If a member resigns or is otherwise terminated from City Service prior to eligibility for a benefit, all of his or her contributions with 5% interest will be refunded upon request.

Beginning October 1, 2000, Tier III and IV members are not required to make basic required contributions after the 10th anniversary of their membership date or completion of 10 years of City Service, whichever is earlier. Effective February 27, 2008, active members were eligible to enroll in a 55/25 plan (age 55 with 25 years of service). Those that chose the 55/25 plan were required to contribute an additional 1.85% of pay from February 28, 2008 until June 29, 2008, or until they have accumulated 25 years of service, whichever is later. New members joining after February 27, 2008 are automatically enrolled in a 55/27 plan (age 55 with 27 years of service). These members are required to pay an additional 1.85% of pay for the first 27 years of service. New members after December 10, 2009 who are represented by the UFT are required to contribute 4.85% of salary for the first 27 years of service and 1.85% of salary thereafter.

A Tier VI member is mandated to contribute between 3.0% and 6.0% of salary until the later of separation from service or retirement.

##### 2. Twenty-Year Pension Plan:

A member of this Plan is required to contribute a percentage of salary which, if paid from the date of entry until the date of completion of 20 years of City Service, would provide at the payability date, an annuity of approximately one-eighth of the member's final salary as of the completion of 20 years of City Service. Tier II members who elected to join the 55/25 plan pay an additional 1.85% of pay.

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK QUALIFIED PENSION PLAN

## CONTRIBUTIONS (Cont'd)

### 3. Age-55-Increased-Benefits Pension Plan:

A member of this Plan is required to contribute a percentage of salary, which if paid to the age for service retirement under the law in effect prior to July 1, 1970, would provide an annuity equal to approximately 1% of the average annual compensation during the last five years of service multiplied by years of service. Tier II members who elected to join the 55/25 plan pay an additional 1.85% of pay.

Member contributions are accumulated with interest in individually maintained accounts. Except under Article 15, upon retirement, the amount to the member's credit (*i.e.*, Accumulated Deductions) is used to purchase an annuity on the basis of the tables adopted by the Teachers' Retirement Board. Upon death in service, the death benefits, including the Accumulated Deductions, are paid to the beneficiary and, on termination of employment other than by death or retirement, the Accumulated Deductions are returned to the member.

Beginning July 1, 1960, on a year-to-year basis, the required contributions of members were reduced by an Increased-Take-Home-Pay rate initially equal to 2.5% of salary. The following table shows effective periods and Increased-Take-Home-Pay rate.

PERIOD	INCREASED-TAKE-HOME-PAY RATE
<b>Board of Education Employees</b>	
07/01/60 – 06/30/61	2.5%
07/01/61 – 08/31/67	5.0%
09/01/67 – 08/31/68	8.0%
<b>Board of Higher Education Employees</b>	
09/01/67 – 08/31/68	5.0%
<b>Twenty-Year and Age-55-Increased-Benefits Pension Plan Members</b>	
09/01/68 – 06/30/70	8.0%
07/01/70 – 12/31/75	5.0%
01/01/76 and later	2.5%
<b>Article 15 Members</b>	
All	0.0%

# TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK QUALIFIED PENSION PLAN

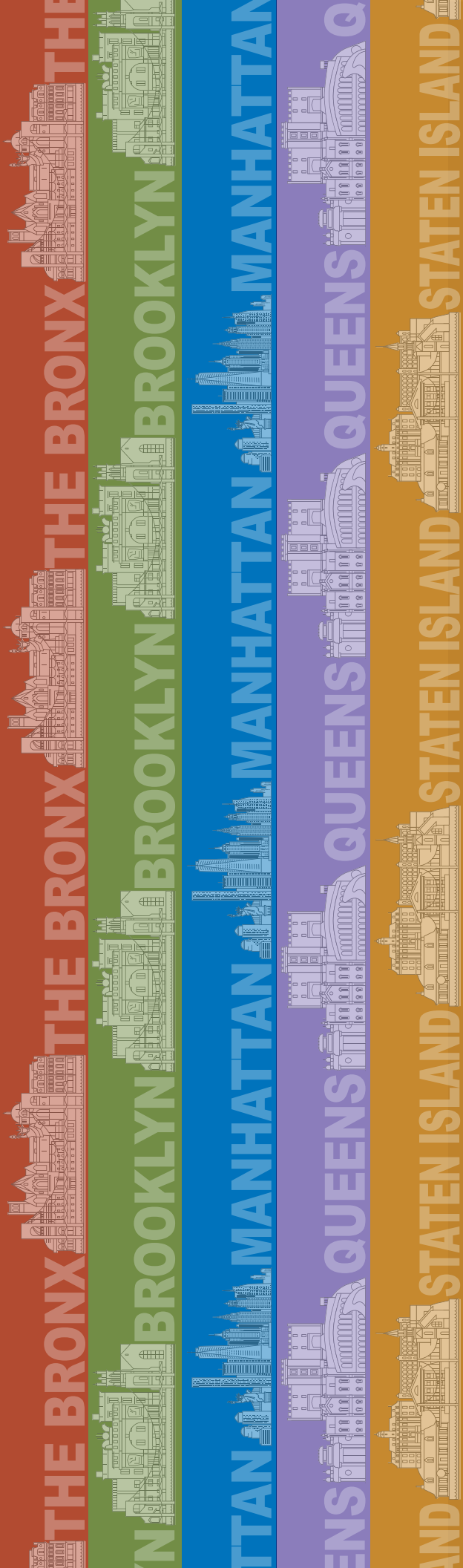
## CONTRIBUTIONS (Cont'd)

### **B. EMPLOYER CONTRIBUTIONS**

The Entry Age Normal cost method of funding is utilized by the Plan's Actuary to calculate the contributions required of the employers.

Employer contributions are accrued by the Plan and are funded by the employers on a current basis.

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# Statistical Section



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## STATISTICAL SECTION OVERVIEW

This part of the Comprehensive Annual Financial Report presents detailed information as a context for understanding how the information in the Financial Section relates to the Teachers' Retirement System's overall condition. The following are the categories of the various schedules that are included in this Section:

### **QPP Financial Trend Information**

Schedules 1 through 3 contain trend information to help the reader understand how the QPP's financial performance and condition have changed over time.

### **QPP Demographic and Economic Information of In-Service Members**

Schedules 4 through 7 offer demographic and economic information of in-service members to help the reader understand this segment of the QPP membership population.

### **QPP Benefit Payment and Demographic and Economic Information of Retired Members**

Schedules 8 through 16 present information to help the reader assess the QPP's current and future benefit payment obligations based on financial and demographic information of retired members.

### **QPP and TDA Operating Expense Information**

Schedule 17 contains trend information as it relates to investment and administrative expenses of the System.

### **TDA Financial Trend Information**

Schedules 18 through 20 contain trend information to help the reader understand how the TDA Program's financial performance and condition have changed over time.

### **TDA Membership Information of In-Service and Retired Members**

Schedules 21 through 25 present membership information to help the reader assess the TDA Program's demographics and financial activity.

**SCHEDULE 1: NET POSITION AND CHANGES IN NET POSITION—QPP***In Thousands*

Year Ended	Pension Fund	Diversified Equity	Balanced Fund*	International Equity	Inflation Protection**	Sustainable Equity***	U.S. Equity Index****	International Equity Index****	Net Position	Changes in Net Position
2011	\$29,942,258	\$3,523,126	\$112,117	\$15,626	\$4,527	\$3,883	\$ -	\$ -	\$33,601,537	\$7,203,127
2012	29,611,995	3,053,466	80,952	16,802	5,937	5,609	-	-	32,774,761	(826,776)
2013	33,654,166	3,110,127	63,719	16,320	5,882	6,242	-	-	36,856,456	4,081,695
2014	41,199,953	3,210,248	48,507	17,082	5,662	8,487	-	-	44,489,939	7,633,483
2015	41,452,046	2,740,658	34,034	15,071	4,747	8,108	-	-	44,254,664	(235,275)
2016	41,440,456	2,142,217	22,786	12,262	3,930	7,894	-	-	43,629,545	(625,119)
2017	43,920,339	6,058,218	83,594	16,685	4,760	12,127	-	-	50,095,723	6,466,178
2018	48,172,801	6,256,312	69,477	16,458	4,553	12,875	-	-	54,532,476	4,436,753
2019	51,949,650	5,947,790	61,152	15,470	3,904	12,245	-	-	57,990,211	3,457,735
2020	53,732,776	5,499,519	57,166	13,813	-	12,791	2,795	90	59,318,950	1,328,739

\* Bond Fund prior to January 1, 2018 and Stable-Value Fund prior to January 1, 2012

\*\* Fund discontinued as of April 1, 2020

\*\*\* Socially Responsive Equity Fund prior to October 1, 2019

\*\*\*\* New funds established as of January 1, 2020

**SCHEDULE 2: 2020 CHANGES IN NET POSITION—QPP***In Thousands*

	Pension Fund	Diversified Equity	Balanced Fund	International Equity	Inflation Protection	Sustainable Equity	U.S. Equity Index	International Equity Index	Total
2019 Net Position	\$51,949,650	\$5,947,790	\$61,153	\$15,471	\$3,904	\$12,243	\$ -	\$ -	\$57,990,211
Member Contributions	226,673	221	26	-	-	-	-	-	226,920
Employer Contributions	3,652,556	13	1	-	-	-	-	-	3,652,570
Interest & Misc Income	1,101,002	3,625	8	2	9	4	-	-	1,104,650
Dividend Income	996,781	126,571	1,543	32	119	124	10	-	1,125,180
Realized Profit/Loss	1,325,655	189,679	19	(49)	(500)	2,076	53	(2)	1,516,931
Unrealized Profit/Loss	624,219	(170,370)	1,081	(287)	-	401	248	5	455,297
Benefit Payments	(3,991,134)	(574,260)	(7,806)	(1,419)	(265)	(1,076)	(91)	(3)	(4,576,054)
Refunds & Withdrawals	(14,368)	(664)	-	-	-	-	-	-	(15,032)
Interest Paid to TDA Funds	(1,846,173)	-	-	-	-	-	-	-	(1,846,173)
Transfer to other Systems	(2,798)	-	-	-	-	-	-	-	(2,798)
Interfund Transfer	7,201	(6,986)	1,220	77	(3,263)	(915)	2,576	90	-
TDA Rebalance	42,651	-	-	-	-	-	-	-	42,651
Provision for Expenses*	(339,139)	(16,100)	(79)	(14)	(4)	(66)	(1)	-	(355,403)
<b>2020 Net changes</b>	<b>\$1,783,126</b>	<b>(\$448,271)</b>	<b>(\$3,987)</b>	<b>(\$1,658)</b>	<b>(\$3,904)</b>	<b>\$548</b>	<b>\$2,795</b>	<b>\$90</b>	<b>\$1,328,739</b>
<b>2020 Net Position</b>	<b>\$53,732,776</b>	<b>\$5,499,519</b>	<b>\$57,166</b>	<b>\$13,813</b>	<b>\$ -</b>	<b>\$12,791</b>	<b>\$2,795</b>	<b>\$90</b>	<b>\$59,318,950</b>

\* Includes Administrative and Investment Expenses

### SCHEDULE 3: CHANGES IN NET POSITION—QPP

*In Thousands*

	1	2	3	4	5	6	7	8	9	10	11
Year Ended June 30*	Net Member Contributions	Employer Contributions	Net Investment Income	Transfer from/to Other Systems	TDA Fixed Interest Payments	Total Retirement Benefits	Loans Closed at Retirement	Withdrawals	Other Benefits**	Administrative Expenses	Change in Net Position
2011	\$158,829	\$2,525,111	\$8,888,669	\$737	(\$854,073)	(\$3,228,940)	(\$39,998)	(\$10,593)	(\$197,066)	(\$39,549)	\$7,203,127
2012	164,361	2,732,263	803,007	853	(945,967)	(3,366,901)	(28,031)	(17,273)	(129,375)	(39,713)	(826,776)
2013	154,698	2,912,844	5,721,112	(44)	(1,047,979)	(3,537,881)	(24,006)	(12,690)	(44,677)	(39,682)	4,081,695
2014	154,962	3,054,424	9,435,906	404	(1,047,923)	(3,740,243)	(24,866)	(18,813)	(134,326)	(46,042)	7,633,483
2015	158,590	3,325,528	1,611,929	329	(1,248,988)	(3,884,026)	(28,775)	(14,312)	(97,159)	(58,391)	(235,275)
2016	173,696	3,760,714	960,267	1,233	(1,354,207)	(3,954,654)	(20,126)	(13,639)	(119,036)	(59,367)	(625,119)
2017	180,076	3,945,768	8,133,280	(2,291)	(1,466,615)	(4,097,646)	(16,958)	(13,493)	(135,153)***	(60,790)	6,466,178
2018	195,241	3,949,689	6,275,115	(3,534)	(1,595,462)	(4,234,277)	(17,935)	(17,262)	(49,746)***	(65,076)	4,436,753
2019	217,205	3,759,199	5,721,310	1,222	(1,716,679)	(4,370,616)	(12,800)	(16,580)	(60,235)***	(64,291)	3,457,735
2020	226,920	3,652,570	3,911,187	(2,798)	(1,846,173)	(4,431,210)	(14,476)	(15,033)	(87,716)***	(64,532)	1,328,739

#### Total Retirement Benefits By Type

Year Ended June 30*	6a Service Retirement Allowances	6b Ordinary Disability Retirement Allowances	6c Accident Disability Retirement Allowances	6d Death Benefits To Beneficiaries	Total Retirement Benefits
2011	(\$3,046,583)	(\$43,348)	(\$25,596)	(\$113,413)	(\$3,228,940)
2012	(3,178,074)	(46,071)	(27,811)	(114,945)	(3,366,901)
2013	(3,337,405)	(48,492)	(28,487)	(123,497)	(3,537,881)
2014	(3,531,071)	(51,484)	(23,087)	(134,601)	(3,740,243)
2015	(3,660,115)	(54,633)	(30,276)	(139,002)	(3,884,026)
2016	(3,721,783)	(56,624)	(30,912)	(145,335)	(3,954,654)
2017	(3,855,232)	(58,447)	(31,470)	(152,497)	(4,097,646)
2018	(3,979,655)	(61,606)	(32,700)	(160,316)	(4,234,277)
2019	(4,094,412)	(64,061)	(33,510)	(178,633)	(4,370,616)
2020	(4,151,231)	(66,494)	(34,185)	(179,300)	(4,431,210)

\* *Benefit Payment categories for 2011-2019 take into account retirement valuation reports.*

\*\* *Other Benefits consists of Retiree Advances, delayed interest payments, Active Death Payments, and, excluding Fiscal Year 2020, adjustment of retirement benefits is based on retirement valuation reports. Also, Fiscal Year 2011 includes \$112,462 in Nager II benefit payments.*

\*\*\* *TDA rebalance transfers include a \$43,938 negative adjustment in 2017, a \$32,704 positive adjustment in 2018, a \$27,449 positive adjustment in 2019, and a \$42,651 positive adjustment in 2020.*

**Note:** *Benefit payments and withdrawals include columns 6, 7, 8, and 9.*

**SCHEDULE 4: PARTICIPATING EMPLOYERS—QPP***As of June 30, 2018 (Lag)*

<b>Employer</b>	<b>Number of In-Service Members*</b>		<b>Annual Payroll*</b>
NYC Department of Education and City University of New York	115,212		\$9,951,484,310
City University of New York Senior Colleges & Community Colleges	5,983		406,045,806
Charter Schools**	Start Date	Type	
Future Leaders Institute	09/2005	DOE Conversion - UFT	39
Harriet Tubman	09/2005	DOE Conversion - Non Union	64
Imagine Me Leadership	09/2017	Non Conversion - Non Union	22
Kipp Academy	09/2000	DOE Conversion - UFT	83
Kipp NYC	07/2016	Non Conversion - Non Union	38
Opportunity	09/2004	Non Conversion - UFT	61
Renaissance	09/2000	DOE Conversion - UFT	58
South Bronx	09/2015	Non Conversion - UFT	40
UFT***	09/2005	Non Conversion - UFT	28
University Prep	09/2008	Non Conversion - UFT	45
Voice	09/2008	Non Conversion - Non Union	63
Wildcat	09/2000	DOE Conversion - UFT	28
SUBTOTAL			569
<b>TOTAL</b>			<b>121,764</b>
			<b>\$10,404,403,684</b>

\* The number of in-service employees and their corresponding Annual Payroll include only current active members receiving salary as of each June 30.

\*\* Charter Schools that were converted from the NYC Department of Education Schools became participating employers when they were first converted to Charter Schools. Unless restricted by a collective bargaining agreement, a non-conversion Charter School decision to participate is voluntary and at the discretion of the individual school.

\*\*\* UFT Charter School relinquished its charter as of July 1, 2020 and was replaced by a new Board school.

### SCHEDULE 5: ACTIVE MEMBERSHIP SUMMARY—QPP

Year	As of July 1	Contributors Registered	Payroll Updates	Contributors Withdrawn	As of June 30th
2010	113,132	4,617	(3,378)	(2,724)	111,647
2011	111,647	4,779	(3,717)	(3,073)	109,636
2012	109,636	9,519	(3,135)	(3,560)	112,460
2013	112,460	7,101	(3,744)	(3,336)	112,481
2014	112,481	7,915	(4,032)	(4,638)	111,726
2015	111,726	8,727	(2,499)	(3,302)	114,652
2016	114,652	10,239	(2,519)	(4,171)	118,201
2017	118,201	9,466	(2,894)	(3,947)	120,826
2018	120,826	8,797	(3,619)	(4,240)	121,764
2019	121,764	7,357	(1,844)	(3,941)	123,336

Active membership summary based on latest valuation reports. Estimated active memberships of 125,000 for 2020.

### SCHEDULE 6: TABLE OF AVERAGE SALARIES OF IN-SERVICE MEMBERS—QPP

As of June 30, 2019

MEN			WOMEN		
Age	Number of In-Service Members*	Average Salaries*	Age	Number of In-Service Members*	Average Salaries*
24 & under	268	\$52,447	24 & under	1,018	\$54,785
25-29	2,446	65,197	25-29	9,463	66,956
30-34	3,919	77,812	30-34	13,530	78,140
35-39	4,241	91,124	35-39	13,976	88,505
40-44	4,020	100,078	40-44	13,524	93,359
45-49	3,703	105,430	45-49	12,615	95,620
50-54	3,260	107,717	50-54	11,405	93,479
55-59	2,592	104,982	55-59	9,513	90,638
60-64	1,782	101,993	60-64	6,765	88,217
65-69	894	95,957	65-69	2,922	87,467
70 & over	441	87,094	70 & over	1,039	80,636
<b>TOTAL</b>	<b>27,566</b>	<b>\$93,843</b>	<b>TOTAL</b>	<b>95,770</b>	<b>\$86,842</b>

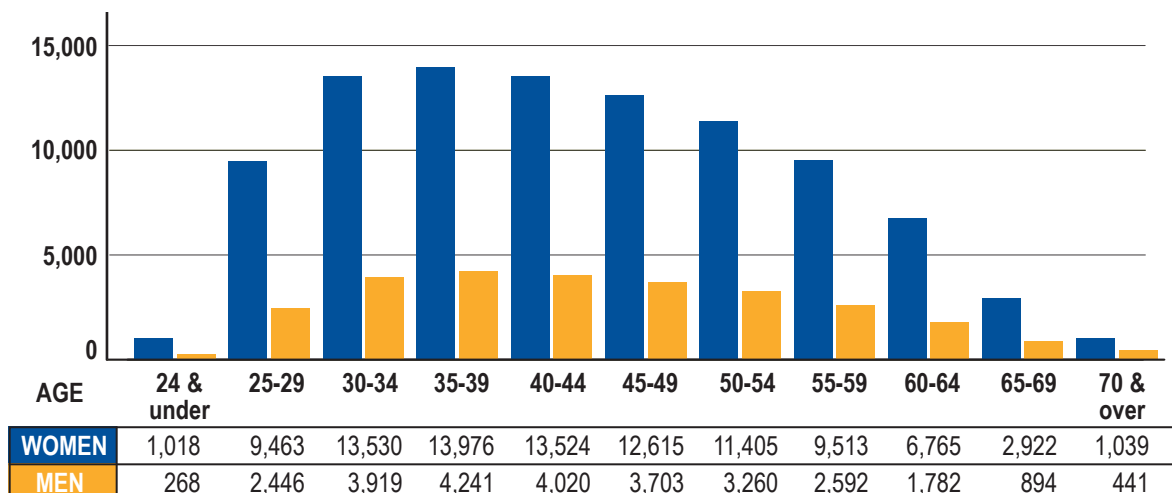
TOTAL ANNUAL SALARIES \$2,586,864,706

TOTAL ANNUAL SALARIES \$8,316,890,353

\* The member count and the annual payroll include only those who were on the June 30 payroll.

### IN-SERVICE MEMBERS ON PAYROLL—DISTRIBUTION BY AGE

As of June 30, 2019



### SCHEDULE 7: IN-SERVICE MEMBERSHIP BY TIER AND BY TITLE—QPP

Year	Average Age	IN-SERVICE MEMBERSHIP BY TIER					IN-SERVICE MEMBERSHIP BY TITLE					
		Tier I	Tier II	Tier III	Tier IV	Tier VI	Teachers	Paraprofessionals	Principals and Administrators	Full-Time CUNY Faculty	Adjunct CUNY Instructors	Others
2011	45.5	1.2%	0.6%	2.3%	95.9%	0.0%	67.2%	15.6%	5.5%	2.1%	1.3%	8.3%
2012	45.4	0.9%	0.5%	1.8%	96.6%	0.2%	65.1%	16.7%	5.4%	2.4%	2.4%	8.0%
2013	45.3	0.7%	0.4%	1.4%	91.4%	6.1%	64.9%	16.9%	5.5%	2.7%	2.4%	7.6%
2014	44.8	0.5%	0.2%	1.0%	86.3%	12.1%	64.7%	16.6%	5.7%	3.0%	2.4%	7.6%
2015	44.8	0.4%	0.2%	0.7%	81.3%	17.4%	64.5%	16.8%	5.4%	3.3%	2.3%	7.7%
2016	44.7	0.3%	0.2%	0.6%	81.0%	17.9%	63.6%	17.3%	5.6%	3.4%	2.3%	7.8%
2017	44.6	0.2%	0.1%	0.5%	71.6%	27.6%	62.9%	17.7%	5.6%	3.7%	2.3%	7.8%
2018	44.7	0.2%	0.1%	0.4%	67.7%	31.6%	62.9%	17.6%	5.6%	3.9%	2.3%	7.7%
2019	44.8	0.1%	0.1%	0.3%	64.5%	35.0%	62.5%	17.8%	5.6%	4.2%	2.3%	7.6%
2020	44.9	0.1%	0.1%	0.2%	61.3%	38.3%	62.3%	17.8%	5.4%	4.2%	2.4%	7.9%

### SCHEDULE 8: RETIREE SUMMARY—QPP

Year	As of July 1	Retirees Registered	Payroll Status Changes	Retirees Withdrawn	As of June 30th
2010	70,825	3,065	(404)	(1,130)	72,356
2011	72,356	3,285	(39)	(1,537)	74,065
2012	74,064	4,180	(412)	(1,293)	76,539
2013	76,539	3,541	(451)	(1,452)	78,177
2014	78,177	3,791	(186)	(1,363)	80,419
2015	80,419	4,171	(308)	(1,505)	82,777
2016	82,777	3,267	(16)	(1,935)	84,093
2017	84,093	3,030	(153)	(2,200)	84,770
2018	84,770	3,578	(21)	(2,032)	86,295
2019	86,295	4,122	198	(2,108)	88,507

Retiree membership summary is based on latest valuation reports. Estimated retiree memberships of 90,000 for 2020.

### SCHEDULE 9: AVERAGE YEARS OF SERVICE OF NEW RETIREES—QPP

#### Average Years of Service

Year Ended June 30	Men	Women	Men and Women	Total Number of Retirees*
2010	26.6	25.8	26.0	3,065
2011	26.5	25.3	25.6	3,285
2012	25.8	25.2	25.3	4,180
2013	25.1	24.8	24.9	3,541
2014	24.2	24.7	24.6	3,791
2015	24.9	24.0	24.2	4,171
2016	24.5	24.3	24.4	3,267
2017	25.6	25.0	25.1	3,030
2018	25.6	25.1	25.2	3,578
2019	25.6	25.0	25.1	4,122

\*Total number of new retirees is based on latest valuation reports.

### SCHEDULE 10: PAYMENT OPTIONS CHOSEN AT RETIREMENT—QPP

Year	Average Age	OPTIONS CHOSEN BY TIER I/II MEMBERS					OPTIONS CHOSEN BY TIER III/IV/VI MEMBERS			
		Maximum Payout	Pop-Up Payments	Continuing Payments	Lump-Sum Payment	Guaranteed Number of Payments	Maximum Payout	Pop-Up Payments	Continuing Payments	Guaranteed Number of Payments
2011	60.5	59.2%	24.5%	12.1%	2.8%	1.4%	71.0%	16.4%	10.5%	2.1%
2012	60.6	61.1%	24.8%	11.3%	1.1%	1.7%	71.4%	17.2%	9.7%	1.7%
2013	60.7	64.1%	21.5%	11.5%	1.3%	1.6%	68.9%	19.1%	10.3%	1.7%
2014	60.8	62.1%	25.2%	10.7%	1.1%	0.9%	69.2%	19.5%	9.6%	1.7%
2015	60.8	50.8%	25.4%	20.0%	1.5%	2.3%	68.5%	18.1%	10.6%	2.8%
2016	60.9	59.4%	20.3%	17.6%	0.7%	2.0%	68.2%	19.6%	10.7%	1.5%
2017	60.9	62.4%	23.7%	11.9%	0.0%	2.0%	67.8%	19.4%	10.9%	1.9%
2018	61.0	56.1%	27.1%	15.0%	0.9%	0.9%	66.6%	20.3%	11.6%	1.5%
2019	61.0	56.4%	15.4%	25.6%	1.3%	1.3%	66.7%	20.5%	11.4%	1.4%
2020	61.0	59.1%	18.2%	16.6%	6.1%	0.0%	66.3%	20.4%	12.0%	1.3%

## SCHEDULE 11: RETIREES' AVERAGE MONTHLY BENEFIT PAYMENTS AND FINAL AVERAGE SALARY ORGANIZED BY YEARS OF CREDITED SERVICE—QPP

	Year*	Survivor	Other	Under 5 Yrs**	5 - 9 Yrs	10 - 14 Yrs	15 - 19 Yrs	20 - 24 Yrs	25 - 29 Yrs	30 - 35 Yrs	35 & up Yrs	Total
Retirees	2011	3,989	6,423	60	1,040	3,937	5,466	8,163	15,057	18,401	11,529	74,065
Retirees	2012	4,071	5,882	63	1,165	4,382	5,720	8,786	15,942	18,786	11,742	76,539
Retirees	2013	4,118	5,363	64	1,270	4,704	5,862	9,371	16,634	19,064	11,727	78,177
Retirees	2014	4,257	8,208	65	1,377	5,054	6,011	9,600	16,671	18,140	11,036	80,419
Retirees	2015	4,403	4,620	68	1,481	5,543	6,374	10,588	18,260	19,649	11,791	82,777
Retirees	2016	4,564	4,989	67	1,516	5,794	6,535	10,854	18,568	19,536	11,670	84,093
Retirees	2017	4,635	3,879	69	1,566	5,975	6,713	11,266	19,106	19,912	11,649	84,770
Retirees	2018	4,651	3,264	67	1,679	6,290	6,909	11,720	19,784	20,279	11,652	86,295
Retirees	2019	4,734	7,064	65	1,722	6,245	6,757	11,661	19,027	19,839	11,393	88,507
Retirees	2020***	4,798	9,303	64	1,790	6,235	6,615	11,655	18,807	19,576	11,157	90,000

	Year*	Under 5 Yrs**	5 - 9 Yrs	10 - 14 Yrs	15 - 19 Yrs	20 - 24 Yrs	25 - 29 Yrs	30 - 34 Yrs	35 & up Yrs
Avg Monthly Benefit	2011	\$1,194	\$568	\$951	\$1,459	\$2,394	\$4,004	\$5,451	\$7,556
Avg Monthly Benefit	2012	\$1,265	\$588	\$987	\$1,504	\$2,331	\$3,682	\$4,798	\$6,286
Avg Monthly Benefit	2013	\$1,292	\$597	\$993	\$1,478	\$2,417	\$3,822	\$4,969	\$6,532
Avg Monthly Benefit	2014	\$1,322	\$614	\$1,005	\$1,531	\$2,451	\$3,897	\$5,100	\$6,764
Avg Monthly Benefit	2015	\$1,324	\$606	\$1,046	\$1,541	\$2,609	\$4,054	\$5,279	\$7,350
Avg Monthly Benefit	2016	\$1,290	\$681	\$1,118	\$1,555	\$2,601	\$4,065	\$5,202	\$6,895
Avg Monthly Benefit	2017	\$1,360	\$648	\$1,112	\$1,626	\$2,693	\$4,198	\$5,368	\$7,061
Avg Monthly Benefit	2018	\$1,442	\$995	\$1,219	\$1,714	\$2,792	\$4,266	\$5,481	\$7,240
Avg Monthly Benefit	2019	\$1,506	\$906	\$1,153	\$1,620	\$2,741	\$4,276	\$5,475	\$7,232
Avg Monthly Benefit	2020***	\$1,562	\$688	\$1,189	\$1,649	\$2,790	\$4,319	\$5,541	\$7,285

	Year*	Under 5 Yrs**	5 - 9 Yrs	10 - 14 Yrs	15 - 19 Yrs	20 - 24 Yrs	25 - 29 Yrs	30 - 34 Yrs	35 & up Yrs
Final Average Salary	2011	\$28,895	\$40,803	\$42,607	\$44,701	\$55,226	\$63,830	\$72,377	\$81,273
Final Average Salary	2012	\$30,270	\$42,741	\$44,943	\$46,367	\$57,724	\$66,782	\$73,787	\$82,267
Final Average Salary	2013	\$31,076	\$43,539	\$46,381	\$47,698	\$59,738	\$69,113	\$74,985	\$82,940
Final Average Salary	2014	\$30,646	\$43,911	\$47,700	\$48,561	\$60,661	\$70,338	\$75,376	\$83,206
Final Average Salary	2015	\$30,946	\$44,441	\$49,831	\$50,645	\$63,802	\$73,796	\$77,860	\$84,692
Final Average Salary	2016	\$30,465	\$44,767	\$51,350	\$52,142	\$65,096	\$75,755	\$78,660	\$85,340
Final Average Salary	2017	\$30,945	\$45,569	\$52,882	\$54,286	\$67,606	\$78,798	\$80,914	\$86,726
Final Average Salary	2018	\$32,029	\$45,696	\$53,990	\$55,783	\$69,233	\$80,890	\$82,536	\$87,830
Final Average Salary	2019	\$32,819	\$45,373	\$53,449	\$55,695	\$69,782	\$81,534	\$83,186	\$88,424
Final Average Salary	2020***	\$34,330	\$45,396	\$53,968	\$56,659	\$70,950	\$82,503	\$84,193	\$89,319

\* Retiree figures for 2011-2019 take into account retirement valuation reports.

\*\* Retirees include Service Retirement, Accidental Disability, and Ordinary Disability. The majority of retirees with under 5 years of service are Accidental Disability.

\*\*\* Retiree figures for 2020 include Service or FAS retirement revision cases previously categorized as "Other."

**Note:** If elected, total monthly benefits for Tier I and Tier II members depend on current unit value.



### SCHEDULE 12: AVERAGE ANNUAL BENEFIT PAYMENT AMOUNTS—QPP

Year Ended June 30	SERVICE RETIREMENT BENEFITS		ORDINARY (NON-DUTY) DISABILITY BENEFITS		ACCIDENTAL (DUTY) DISABILITY BENEFITS		SURVIVORS' BENEFITS	
	Number	Average Annual Allowance	Number	Average Annual Allowance	Number	Average Annual Allowance	Number	Average Annual Benefit
2010	65,734	\$43,381	2,068	\$19,500	619	\$36,849	3,935	\$26,170
2011	67,253	45,300	2,153	20,134	670	38,202	3,989	28,432
2012	69,515	45,718	2,242	20,549	711	39,116	4,071	28,235
2013	71,017	46,994	2,299	21,093	713	39,954	4,148	29,773
2014	73,069	48,325	2,379	21,641	714	40,738	4,257	31,619
2015	75,251	48,639	2,481	22,020	732	41,360	4,313	32,229
2016	76,346	48,749	2,541	22,284	745	41,492	4,461	32,579
2017	76,973	50,086	2,549	22,929	744	42,299	4,504	33,858
2018	78,364	50,784	2,640	23,336	757	43,197	4,534	35,359
2019	80,048	51,149	2,728	23,483	776	43,183	4,955	36,051

### SCHEDULE 13: SERVICE RETIREMENT ALLOWANCES—QPP

*As of June 30, 2019*

MEN			WOMEN		
Age	Number of Retirees	Average Annual Allowance	Age	Number of Retirees	Average Annual Allowance
under 30	-	\$ -	under 30	-	\$ -
30-34	-	-	30-34	-	-
35-39	-	-	35-39	-	-
40-44	-	-	40-44	-	-
45-49	-	-	45-49	-	-
50-54	-	-	50-54	-	-
55-59	650	54,460	55-59	1,935	53,342
60-64	1,694	52,723	60-64	5,546	49,082
65-69	3,201	52,212	65-69	11,369	48,604
70-74	6,845	64,560	70-74	14,672	53,333
75-79	4,510	61,959	75-79	10,187	48,243
80-84	2,680	58,512	80-84	6,222	41,981
85-89	1,658	58,440	85-89	4,192	40,394
90 & over	1,107	53,807	90 & over	3,580	37,838
<b>TOTAL</b>	<b>22,345</b>	<b>\$59,363</b>	<b>TOTAL</b>	<b>57,703</b>	<b>\$47,969</b>
TOTAL ANNUAL ALLOWANCES PAID \$1,326,457,873			TOTAL ANNUAL ALLOWANCES PAID \$2,767,954,179		

**SCHEDULE 14: ORDINARY DISABILITY RETIREMENT ALLOWANCES—QPP***As of June 30, 2019*

MEN			WOMEN		
Age	Number of Retirees	Average Annual Allowance	Age	Number of Retirees	Average Annual Allowance
under 30	-	\$ -	under 30	-	\$ -
30-34	-	-	30-34	-	-
35-39	1	10,097	35-39	5	22,974
40-44	7	24,270	40-44	35	24,704
45-49	24	27,552	45-49	91	25,833
50-54	38	27,055	50-54	146	26,470
55-59	58	29,566	55-59	312	25,420
60-64	84	24,755	60-64	389	23,265
65-69	106	24,605	65-69	442	22,410
70-74	130	27,072	70-74	349	22,598
75-79	69	26,190	75-79	204	19,101
80-84	27	22,965	80-84	105	17,509
85-89	10	26,271	85-89	48	16,272
90 & over	10	31,171	90 & over	38	20,655
<b>TOTAL</b>	<b>564</b>	<b>\$26,228</b>	<b>TOTAL</b>	<b>2,164</b>	<b>\$22,767</b>
TOTAL ANNUAL ALLOWANCES PAID \$14,792,490			TOTAL ANNUAL ALLOWANCES PAID \$49,268,737		

**SCHEDULE 15: ACCIDENT DISABILITY RETIREMENT ALLOWANCES—QPP***As of June 30, 2019*

MEN			WOMEN		
Age	Number of Retirees	Average Annual Allowance	Age	Number of Retirees	Average Annual Allowance
under 30	-	\$ -	under 30	-	\$ -
30-34	-	-	30-34	-	-
35-39	2	48,905	35-39	3	32,760
40-44	5	51,853	40-44	8	40,794
45-49	5	46,856	45-49	17	44,073
50-54	4	55,761	50-54	23	48,731
55-59	12	40,634	55-59	55	41,568
60-64	19	55,898	60-64	83	39,057
65-69	26	53,779	65-69	119	40,330
70-74	69	46,974	70-74	130	42,975
75-79	34	50,030	75-79	62	43,595
80-84	13	51,434	80-84	36	32,185
85-89	9	37,831	85-89	24	38,300
90 & over	7	44,841	90 & over	11	44,839
<b>TOTAL</b>	<b>205</b>	<b>\$48,915</b>	<b>TOTAL</b>	<b>571</b>	<b>\$41,126</b>
TOTAL ANNUAL ALLOWANCES PAID \$10,027,548			TOTAL ANNUAL ALLOWANCES PAID \$23,482,756		

**SCHEDULE 16: SURVIVORS' BENEFITS—QPP***As of June 30, 2019*

<b>MEN</b>			<b>WOMEN</b>		
<b>Age</b>	<b>Number of Beneficiaries</b>	<b>Average Annual Benefit</b>	<b>Age</b>	<b>Number of Beneficiaries</b>	<b>Average Annual Benefit</b>
under 30	4	\$27,220	under 30	16	\$27,176
30-34	8	20,716	30-34	6	30,612
35-39	11	27,498	35-39	21	26,318
40-44	20	22,617	40-44	23	22,634
45-49	22	30,798	45-49	28	18,259
50-54	29	17,708	50-54	44	16,731
55-59	46	20,774	55-59	95	24,748
60-64	73	25,057	60-64	136	30,068
65-69	124	30,863	65-69	259	38,035
70-74	238	35,059	70-74	475	44,314
75-79	228	35,815	75-79	624	43,119
80-84	202	29,163	80-84	537	42,224
85-89	182	29,573	85-89	549	40,100
90 & over	311	26,454	90 & over	644	34,030
<b>TOTAL</b>	<b>1,498</b>	<b>\$29,935</b>	<b>TOTAL</b>	<b>3,457</b>	<b>\$38,701</b>
<b>TOTAL ANNUAL BENEFITS PAID</b>		<b>\$44,842,336</b>	<b>TOTAL ANNUAL BENEFITS PAID</b>		<b>\$133,790,032</b>

**SCHEDULE 17: NUMBER AND COST OF INVESTMENT AND ADMINISTRATIVE SERVICES (QPP & TDA)**

<b>Year Ended</b>	<b>Investment Agent Count</b>	<b>Investment Expenses</b>	<b>TRS Employees Count*</b>	<b>Administrative Expenses</b>
2011	188	\$136,300,683	364	\$49,428,933
2012	221	\$122,647,913	368	\$50,064,502
2013	227	\$151,401,872	373	\$49,877,929
2014	230	\$169,736,553	376	\$63,230,181
2015	228	\$205,719,517	370	\$84,173,556
2016	230	\$209,422,244	365	\$91,998,934
2017	221	\$308,283,033	351	\$93,821,614
2018	227	\$352,816,375	347	\$87,532,002
2019	228	\$299,613,733	350	\$88,255,115
2020	230	\$291,433,988**	338	\$88,488,346

\* Employee count does not include Consultants, Temporary Employees, and Summer Interns.

\*\* 2020 details are found in the schedule: Summary of Investment Managers and Fees of the Investment Section.

**SCHEDULE 18: NET POSITION AND CHANGES IN NET POSITION—TDA PROGRAM***In Thousands*

Year Ended	Pension Fund	Diversified Equity	Balanced Fund*	International Equity	Inflation Protection**	Sustainable Equity***	U.S. Equity Index****	International Equity Index****	Net Position	Changes in Net Position
2011	\$13,118,153	\$6,293,322	\$308,666	\$71,674	\$19,833	\$22,145	\$ -	\$ -	\$19,833,793	\$2,579,968
2012	14,554,722	5,975,066	301,727	57,905	22,590	30,087	-	-	20,942,097	1,108,304
2013	16,021,066	6,762,476	304,675	71,621	28,001	41,837	-	-	23,229,676	2,287,579
2014	17,450,769	7,909,321	304,788	96,028	37,488	75,095	-	-	25,873,489	2,643,813
2015	18,922,602	7,869,896	302,816	97,942	39,437	100,889	-	-	27,333,582	1,460,093
2016	20,511,536	7,365,430	312,613	96,081	41,444	117,236	-	-	28,444,340	1,110,758
2017	22,223,301	8,194,607	310,195	120,211	50,138	153,641	-	-	31,052,093	2,607,753
2018	23,963,722	8,704,088	316,507	143,858	60,281	192,526	-	-	33,380,982	2,328,889
2019	25,745,844	8,804,658	340,687	156,367	67,024	218,815	-	-	35,333,395	1,952,413
2020	27,638,167	8,481,059	432,171	162,175	-	290,399	16,492	3,062	37,023,525	1,690,130

\*\* Bond Fund prior to January 1, 2018 and Stable-Value Fund prior to January 1, 2012

\*\* Fund discontinued as of April 1, 2020

\*\*\* Socially Responsive Equity Fund prior to October 1, 2019

\*\*\*\*New fund established as of January 1, 2020

**SCHEDULE 19: CHANGES IN NET POSITION—TDA PROGRAM***In Thousands*

Year Ended	1 Net Member Contributions	2 Fixed Interest from TRS NYC Pension Fund	3 Net Investment Income	5 Withdrawals	6 Other Benefits*	7 Annuitized Payments	8 Administrative Expenses	9 Change in Net Position
2011	\$631,840	\$854,073	\$1,585,111	(\$369,370)	(\$80,565)	(\$31,241)	(\$9,880)	\$2,579,968
2012	627,159	945,967	109,651	(431,412)	(98,606)	(34,103)	(10,352)	1,108,304
2013	633,900	1,047,979	1,216,793	(460,659)	(104,402)	(35,837)	(10,195)	2,287,579
2014	638,979	1,147,923	1,631,411	(577,102)	(139,759)	(40,451)	(17,188)	2,643,813
2015	662,601	1,248,988	435,632	(658,504)	(157,994)	(44,847)	(25,783)	1,460,093
2016	717,566	1,354,207	(11,194)	(708,466)	(164,389)	(44,334)	(32,632)	1,110,758
2017	743,663	1,466,615	1,398,500	(781,276)	(139,690)**	(47,027)	(33,032)	2,607,753
2018	856,294	1,595,462	1,055,191	(882,994)	(220,931)**	(51,677)	(22,456)	2,328,889
2019	995,035	1,716,679	669,540	(996,830)	(356,090)**	(51,957)	(23,964)	1,952,413
2020	1,029,758	1,846,173	327,613	(972,178)	(505,244)**	(12,035)	(23,957)	1,690,130

\* Other Benefits consists of active death payments and delayed interest payments.

\*\* Includes \$43,938 positive, \$32,704 negative, \$27,449 negative, and \$42,651 negative adjustments in 2017, 2018, 2019, and 2020, respectively, of TDA rebalance transfers.

**SCHEDULE 20: 2020 CHANGES IN NET POSITION—TDA PROGRAM***In Thousands*

	Pension Fund	Diversified Equity	Balanced Fund	International Equity	Inflation Protection	Sustainable Equity	U.S. Equity Index*	International Equity Index*	Total
2019 Net Position	\$25,745,844	\$8,804,658	\$340,687	\$156,367	\$67,024	\$218,815	\$ -	\$ -	\$35,333,395
Member Contributions	718,153	223,879	29,933	20,019	7,534	28,916	998	326	1,029,758
Payment of interest on TDA fixed return funds	1,846,173	-	-	-	-	-	-	-	1,846,173
Interest & Misc Income	28,573	4,079	48	358	173	67	-	-	33,298
Dividend Income	-	148,836	7,382	6,026	2,212	2,020	20	-	166,496
Realized Profit/Loss	-	239,463	93	(7,509)	(8,707)	33,605	109	10	257,064
Unrealized Profit/Loss	-	(156,082)	9,823	(3,171)	-	18,787	1,687	274	(128,682)
Benefit Payments	(462,820)	(19,190)	(339)	(72)	(34)	(113)	(5)	(1)	(482,574)
Refunds & Withdrawals	(766,583)	(180,433)	(8,604)	(2,859)	(1,516)	(4,195)	(25)	(17)	(964,232)
Interfund Transfer	510,935	(502,759)	55,789	(6,800)	(66,601)	(6,748)	13,713	2,471	-
TDA Rebalance	17,892	(59,340)	(1,617)	6	-	408	-	-	(42,651)
Provision for Expenses**	-	(22,052)	(1,024)	(190)	(85)	(1,163)	(5)	(1)	(24,520)
<b>2020 Net changes</b>	<b>\$1,892,323</b>	<b>(\$323,599)</b>	<b>\$91,484</b>	<b>\$5,808</b>	<b>(\$67,024)</b>	<b>\$71,584</b>	<b>\$16,492</b>	<b>\$3,062</b>	<b>\$1,690,130</b>
<b>2020 Net Position</b>	<b>\$27,638,167</b>	<b>\$8,481,059</b>	<b>\$432,171</b>	<b>\$162,175</b>	<b>\$ -</b>	<b>\$290,399</b>	<b>\$16,492</b>	<b>\$3,062</b>	<b>\$37,023,525</b>

\* New fund as of January 1, 2020

\*\* Includes Administrative and Investment Expenses

**SCHEDULE 21: TDA PROGRAM SUMMARY (EXCLUDES ANNUITANTS)**

Year	As of July 1	Contributors Registered	Payroll Status Changes	Contributors Withdrawn	As of June 30th
2010	75,149	458	3,041	(2,731)	75,917
2011	75,917	845	2,617	(3,022)	76,357
2012	76,357	1,435	2,965	(3,513)	77,244
2013	77,244	1,834	2,095	(3,400)	77,773
2014	77,773	1,914	1,587	(3,569)	77,705
2015	77,705	2,751	3,168	(2,440)	81,184
2016	81,184	3,367	3,464	(3,108)	84,907
2017	84,907	2,851	3,037	(3,101)	87,694
2018	87,694	2,774	3,436	(3,256)	90,648
2019	90,648	2,179	3,934	(3,161)	93,600

*Active membership summary is based on latest valuation reports.*

### SCHEDULE 22: TDA PROGRAM ANNUITANTS SUMMARY

Year	As of July 1	Annuitants Registered	Payroll Status Changes	Annuitants Withdrawn	As of June 30th
2010	3,604	63	(81)	(167)	3,419
2011	3,419	86	10	(264)	3,251
2012	3,251	140	(42)	(165)	3,184
2013	3,184	97	(50)	(176)	3,055
2014	3,055	120	(5)	(134)	3,036
2015	3,036	105	(18)	(132)	2,991
2016	2,991	86	16	(163)	2,930
2017	2,930	97	3	(164)	2,866
2018	2,866	91	28	(174)	2,811
2019	2,811	64	74	(122)	2,827

*Annuitant membership summary is based on latest valuation reports.*

### SCHEDULE 23: MEMBERSHIP BY AGE (ACTIVE, DEFERRAL & BENEFICIARY ACCOUNTS AS OF JUNE 30, 2020)—TDA PROGRAM

Age	Contributing		Non-Contributing		Deferred*		Beneficiary		Loans**	
	Count	Fund Balance	Count	Fund Balance	Count	Fund Balance	Count	Fund Balance	Count	Loan Balance
=<25	7,881	\$121,625,582	501	\$3,278,100	-	\$ -	23	\$2,100,213	696	\$3,113,946
30	12,392	383,641,808	1,080	25,632,363	17	743,967	27	4,795,059	2,665	15,856,612
35	13,852	877,305,371	1,652	78,269,890	201	12,057,668	15	1,792,759	5,870	41,030,753
40	13,880	1,386,596,803	1,293	82,410,652	383	26,995,152	37	7,693,875	8,895	62,756,487
45	12,953	1,792,638,715	883	69,441,183	493	47,267,582	52	15,057,786	9,581	66,603,084
50	11,797	2,143,219,871	814	77,697,106	623	79,327,061	74	17,314,514	8,910	62,789,000
55	8,958	1,765,253,821	646	76,517,217	3,208	975,359,400	135	27,191,762	7,339	56,100,846
60	6,127	1,323,678,594	404	50,644,749	6,678	2,197,849,072	143	30,896,935	5,263	40,384,476
65	2,434	602,184,715	207	17,996,568	11,661	4,519,654,655	131	39,160,334	3,601	30,078,141
70	642	204,642,868	87	9,521,650	16,258	7,949,495,624	179	58,184,352	2,652	24,627,386
75	118	58,192,689	34	6,270,341	10,527	4,961,904,449	186	61,164,572	1,217	10,459,581
80	35	25,906,849	12	2,998,839	5,484	2,304,877,664	130	41,987,025	424	3,725,118
85	8	7,204,664	5	1,731,223	2,871	1,017,540,561	89	21,429,484	130	1,065,644
90	-	-	3	304,843	1,232	297,972,910	46	9,595,694	25	288,705

Source: TRS query reports.

\* Includes inactive memberships.

\*\* Loan balances include interest and insurance receivable amounts.

### SCHEDULE 24: WITHDRAWALS BY AGE (FROM ACTIVE, DEFERRAL & BENEFICIARY ACCOUNTS, FISCAL YEAR 2020)—TDA PROGRAM

Age	Partial Withdrawals*		401(a) Service Purchase		RMD Withdrawals**		Total Withdrawals***		Survivors' Payments****	
	Count	Distribution	Count	Distribution	Count	Distribution	Count	Distribution	Count	Distribution
=<25	32	\$336,132	3	\$14,897	13	\$16,411	138	\$1,475,760	6	\$11,590
30	95	918,373	12	64,427	16	30,694	250	4,545,690	8	40,284
35	213	3,475,350	28	103,050	9	20,321	226	7,202,353	24	473,987
40	325	7,234,530	42	165,486	25	109,859	154	5,616,107	42	1,569,660
45	379	10,396,563	56	324,656	33	283,807	98	3,326,995	48	2,650,350
50	337	9,742,721	69	460,661	44	301,500	78	3,879,814	122	7,584,774
55	1,798	36,490,664	82	453,159	79	574,570	115	9,444,273	116	12,473,316
60	4,293	62,243,213	74	427,016	80	612,596	156	8,221,675	146	15,031,113
65	4,150	55,957,601	30	168,876	62	728,763	135	11,593,526	225	33,345,042
70	3,901	63,457,266	7	60,691	11,391	220,637,633	120	14,927,139	349	96,375,063
75	1,876	32,734,434	-	-	7,818	177,135,399	52	8,661,805	350	92,810,648
80	586	12,367,401	-	-	4,188	110,307,626	27	5,238,643	334	86,026,154
85	285	5,080,118	-	-	2,066	59,707,983	18	4,151,514	283	74,780,549
90	70	1,675,829	-	-	757	21,816,262	9	476,071	198	43,209,661

Source: TRS query reports.

\* Category includes 134 Partial Withdrawals to Beneficiaries.

\*\* Category includes 749 RMD Withdrawals to Beneficiaries.

\*\*\* Category includes 28 Total Withdrawals to Beneficiaries.

\*\*\*\*Category includes the establishment of 121 new Beneficiary accounts.

## SCHEDULE 25: FUND CONVERSION OF INVESTMENT BALANCES BY AGE (FISCAL YEAR 2020 )—TDA PROGRAM

From	To	=<25	30	35	40	45	50	55	60	65	70	75	80	85	90+
FX	VA	3.5%	7.3%	3.9%	7.4%	4.6%	1.7%	4.0%	2.1%	1.6%	2.5%	3.8%	5.9%	0.6%	0.0%
FX	VB	0.1%	0.3%	0.2%	0.2%	0.4%	0.2%	0.0%	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%
FX	VC	0.1%	0.2%	0.2%	0.3%	0.1%	0.3%	0.0%	0.1%	0.2%	0.0%	0.1%	0.0%	0.0%	2.0%
FX	VD	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
FX	VE	2.7%	1.3%	0.7%	0.7%	1.5%	0.7%	0.3%	0.2%	0.0%	0.2%	0.5%	0.6%	0.5%	0.0%
FX	VF	1.1%	1.0%	0.9%	1.3%	0.6%	0.2%	0.1%	0.3%	1.2%	0.0%	0.1%	0.6%	0.1%	0.0%
FX	VG	0.1%	0.1%	0.3%	0.1%	0.1%	0.2%	0.0%	0.0%	0.1%	0.0%	0.1%	0.6%	0.2%	0.0%
VA	FX	12.5%	15.4%	33.9%	44.7%	62.8%	79.8%	80.8%	79.6%	75.2%	84.4%	80.1%	70.2%	70.8%	75.7%
VA	VB	0.0%	0.1%	0.1%	0.4%	0.6%	0.4%	0.1%	0.5%	0.0%	0.6%	2.1%	1.6%	2.3%	0.0%
VA	VC	0.0%	0.1%	0.2%	0.0%	0.3%	0.5%	0.1%	0.1%	0.1%	0.2%	0.0%	0.2%	2.3%	0.0%
VA	VD	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%	0.0%	0.4%	2.3%	0.0%
VA	VE	1.2%	0.1%	0.2%	1.6%	0.7%	0.6%	0.2%	0.6%	0.1%	0.1%	2.3%	0.3%	3.0%	0.0%
VA	VF	1.2%	1.0%	0.3%	0.6%	0.4%	1.1%	0.3%	0.4%	4.1%	2.0%	0.8%	0.0%	0.9%	7.0%
VA	VG	0.2%	0.0%	0.0%	0.1%	0.0%	0.3%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%
VB	FX	1.7%	1.7%	1.8%	2.2%	3.1%	2.1%	2.1%	3.7%	1.9%	1.0%	0.8%	1.2%	0.9%	1.9%
VB	VA	0.1%	0.3%	0.3%	0.3%	0.4%	0.2%	0.4%	0.1%	0.1%	0.0%	0.0%	0.0%	0.5%	0.0%
VB	VC	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
VB	VD	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
VB	VE	0.1%	0.0%	0.1%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VB	VF	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
VB	VG	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VC	FX	2.1%	2.7%	4.4%	2.8%	1.7%	1.1%	1.2%	1.3%	0.9%	0.5%	0.4%	1.8%	1.6%	0.0%
VC	VA	0.3%	0.3%	0.8%	0.3%	0.2%	0.1%	0.3%	0.0%	0.3%	0.2%	0.0%	0.2%	0.0%	0.0%
VC	VB	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
VC	VD	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
VC	VE	0.0%	0.2%	0.3%	0.2%	0.3%	0.1%	0.1%	0.0%	0.1%	0.0%	0.2%	0.0%	0.0%	0.0%
VC	VF	0.2%	0.2%	0.3%	0.0%	0.1%	0.1%	0.1%	0.1%	0.3%	0.1%	0.0%	0.6%	0.0%	0.0%
VC	VG	0.1%	0.4%	0.1%	0.1%	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VD	FX	3.7%	5.6%	3.8%	2.4%	1.4%	0.8%	0.8%	1.1%	0.7%	1.2%	0.3%	0.6%	2.5%	0.0%
VD	VA	2.2%	1.9%	1.9%	0.7%	0.6%	0.3%	0.5%	0.2%	0.2%	0.3%	0.4%	0.3%	0.0%	0.8%
VD	VB	58.9%	53.3%	36.8%	27.5%	13.6%	6.5%	5.0%	6.6%	4.2%	3.8%	6.8%	13.8%	11.5%	10.6%
VD	VC	0.3%	0.6%	0.4%	0.1%	0.1%	0.1%	0.0%	0.0%	0.1%	0.2%	0.0%	0.1%	0.0%	0.2%
VD	VE	0.9%	1.5%	0.8%	0.6%	0.4%	0.1%	0.1%	0.4%	0.1%	0.2%	0.0%	0.9%	0.0%	0.0%
VD	VF	0.5%	0.7%	0.7%	0.4%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.2%	0.0%	0.0%	0.0%
VD	VG	0.3%	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	1.8%
VE	FX	3.3%	2.8%	5.8%	3.7%	5.2%	1.8%	2.4%	1.8%	6.7%	1.7%	0.4%	0.1%	0.0%	0.0%
VE	VA	0.7%	0.3%	0.5%	0.4%	0.2%	0.2%	0.2%	0.5%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%
VE	VB	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.3%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
VE	VC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VE	VD	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
VE	VF	1.6%	0.3%	0.1%	0.2%	0.1%	0.0%	0.2%	0.0%	0.0%	0.1%	0.3%	0.0%	0.0%	0.0%
VE	VG	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VF	FX	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VF	VB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VG	FX	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VG	VF	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: TRS query reports

FX refers to the Fixed Return Fund

VA refers to the Diversified Equity Fund

VB refers to the Balanced Fund

VC refers to the International Equity Fund

VD refers to the Inflation Protection Fund

VE refers to the Sustainable Equity Fund

VF refers to the U.S. Equity Index Fund

VG refers to the International Equity Index Fund



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55 Water Street, New York, NY 10041

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