Teachers’ Retirement System of The City of New York

A Fiduciary Fund of The City of New York

Combining Financial Statements and Supplementary Information (Together with Independent Auditors’ Report)

For the Years Ended June 30, 2019 and June 30, 2018

MARKS PANETH

ACCOUNTANTS & ADVISORS

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK

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INDEPENDENT AUDITORS' REPORT

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

Report on the Combining Financial Statements

We have audited the accompanying combining statements of fiduciary net position of the 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, which collectively comprise the Teachers' Retirement System of The City of New York, (the "System"), a fiduciary fund of the City of New York, as of June 30, 2019 and 2018, and the related combining statements of changes in fiduciary net position for the years then ended, and the related notes to the combining financial statements, which collectively comprise the System's basic combining financial statements as listed in the table of contents.

Management's Responsibility for the Combining Financial Statements

Management is responsible for the preparation and fair presentation of these 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 the combining financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

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

Opinions

In our opinion, the combining financial statements referred to above present fairly, in all material respects, the combining fiduciary net position of the System as of June 30, 2019 and 2018, and the changes in their combining fiduciary net position for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Morison KSi
Independent member

Other Matter

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis, Schedule 1, Schedule 2, and Schedule 3, as listed in the table of contents, be presented to supplement the basic combining financial statements. Such information, although not a part of the basic 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 combining financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic combining financial statements, and other knowledge we obtained during our audit of the basic 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.

Marks Paneth LLP

New York, NY
October 24, 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, 2019 and 2018. 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 accordance with Governmental Accounting Standards Board ("GASB") pronouncements and 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 years. 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 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")** — as required by GASB, the RSI includes the management discussion and analysis (this section) and information presented following the notes to the combining financial statements.

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 2019 QPP summary information of the employer groups.

	Members Active	Contribution Employer	Contribution Member	Members Retired	Pension Payments
DOE	115,500	$3.5 billion	$204 million	84,000	$ 4.3 billion
CUNY	8,000	$141 million	$12 million	2,600	$ 135 million
Charter Schools	600	$7.9 million	$1.3 million	less than 50	$ 1.7 million

UFT Contract

A new 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 new 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 a trust for the payment of future benefits to members and pensioners. The QPP's net position restricted for benefits was 58.0 billion, $54.5 billion, and $50.1 billion, as of June 30, 2019, 2018, and 2017, respectively. The System's employer contributions amounted to $3.8 billion, $3.9 billion, and $3.9 billion, for Fiscal Years 2019, 2018, and 2017, respectively. The QPP's benefit payments totaled $4.5 billion, $4.4 billion, and $4.2 billion, for Fiscal Years 2019, 2018, and 2017, respectively. Below is a summary of the QPP's net position and changes in net position.

QPP Fiduciary Net Position
June 30, 2019, 2018, and 2017
(In thousands)

	2019	2018	2017
Cash	$ 76,796	$ 75,847	$ 101,499
Receivables for investments sold	2,305,855	839,544	989,725
Receivables for accrued interest and dividends	290,228	273,387	164,163
Member loan receivables	320,976	312,219	298,146
Investments, at fair value	83,854,645	78,901,468	72,404,290
Collateral from securities lending	1,222,314	1,117,593	1,610,321
Other assets	42,615	62,852	38,932
Total assets	88,113,429	81,582,910	75,607,076
Accounts payable	646,918	643,567	529,059
Payable for investments purchased	2,574,584	1,568,064	1,353,803
Accrued benefits payable	77,154	13,858	13,987
Investments due to TDA Program	25,602,248	23,707,352	22,004,183
Payable for securities lending	1,222,314	1,117,593	1,610,321
Total liabilities	30,123,218	27,050,434	25,511,353
Net position restricted for benefits	$ 57,990,211	$ 54,532,476	$ 50,095,723

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 amounted to $75.8 million at June 30, 2018, a decrease of $25.7 million (-25.3%) from June 30, 2017. 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, 2019, the largest cash balances consisted of the International and Private Equity investment managers of the TRSNYC Pension fund with $34.4 million and $20.3 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 $2.3 billion at June 30, 2019, an increase of $1.5 billion (174.7%) from June 30, 2018. Receivables for investment securities sold amounted to $839.5 million at June 30, 2018, a decrease of $150.2 million (-15.2%) from June 30, 2017. 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.

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. Receivables for accrued interest and dividends amounted to $273.4 million as of June 30, 2018, an increase of $109.2 million (66.5%) from June 30,

2017. 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, 2019, member loan receivables amounted to $321.0 million, an increase of $8.8 million (2.8%) from the previous year. At June 30, 2018, member loan receivables amounted to $312.2 million, an increase of $14.1 million (4.7%) 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, 2019 were $83.9 billion, an increase of $5.0 billion (6.3%) from June 30, 2018. Investments at June 30, 2018 were $78.9 billion compared to $72.4 billion at June 30, 2017, an increase of $6.5 billion (9.0%) from June 30, 2017. As of June 30, 2019, the QPP's total investment portfolio, including both the TRSNYC Pension and Variable-Return Funds, consisted of 54% equity investments, 34% 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 $5.0 billion annual increase in investments is the result of $5.7 billion in net investment income less a $459.8 million net decrease in the year-over-year payables for investment securities purchased and investment receivables sold. More generally, investments as of June 30, 2019, in comparison with investment values as of June 30, 2018, reflect the equity and fixed income market's annual returns. 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%. As of June 30, 2018, the QPP's total investment portfolio consisted of 54% equity investments, 35% fixed income securities and 11% alternative investments (primarily private equity and real estate investments). For the year ended June 30, 2018, the Russell 3000 Index returned 14.8%, the MSCI Europe, Australasia and Far East ("EAFE") returned 7.7%, the NYC Core + 5 returned 0.5%, and the Dow Jones U.S. Select Real Estate Securities Index returned 4.2%,

Other assets at June 30, 2019 totaled $42.6 million, a $20.2 million (-32.2%) decrease from June 30, 2018. The year-over-year decrease in other assets, as of June 30, 2019, was primarily due to the receipt in July 2018 of a $11.6 million City University of New York (CUNY) employer contribution receivable, and a $7.6 million decrease in a cash flow reimbursements due from the TDA Program. Other assets at June 30, 2018 totaled $62.9 million, a $24.0 million (61.4%) increase from June 30, 2017. The year-over-year increase in other assets, as of June 30, 2018, was primarily due to the $11.6 million CUNY receivable, and a $10.0 million (83.6%) increase in assets allocated for future administrative expenses.

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%). Accounts payable at June 30, 2018 amounted to $643.6 million, a $114.5 million (21.6%) increase from June 30, 2017. Accounts payable as of June 30, 2018 consisted of balances due to depositories (72.9%), reserve for expenses (12.8%), accrued investment expenses (5.1%), unclaimed funds (4.2%), and other payables (5.0%).

Payables for investments purchased at June 30, 2019 amounted to $2.6 billion, a $1.0 billion (64.2%) increase from June 30, 2018. Payables for investments purchased at June 30, 2018 amounted to $1.6 billion, a $214.3 million (15.8%) increase from June 30, 2017. 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 investments sold (discussed earlier).

Accrued benefits payable at June 30, 2019 amounted to $77.2 million, a $63.3 million (456.7%) increase from June 30, 2018. The $63.3 million increase is primarily attributed to an increase of pending death benefits due to beneficiaries at year-end. Due to a system enhancement in Fiscal Year 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, 2018 amounted to $13.9 million, a $129.0 thousand (-0.9%) decrease from June 30, 2017.

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 participants). 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, 2019, 2018, and 2017
(In thousands)

	2019	**2018**	**2017**
Additions:			
Member contributions	$ 217,205	$ 195,241	$ 180,076
Employer contributions	3,759,199	3,949,689	3,945,768
Net receipts from other retirement systems	1,222	(3,534)	(2,291)
Net securities lending income	12,132	15,325	17,446
Net investment income	5,709,178	6,259,790	8,115,834
Total additions	9,698,936	10,416,511	12,256,833
Deductions:			
Administrative expenses	64,291	65,076	60,790
TDA Rebalance	(27,449)	(32,704)	43,938
Benefits payments and withdrawals	4,487,680	4,351,924	4,219,312
Payment of statutory-interest to TDA Program	1,716,679	1,595,462	1,466,615
Total deductions	6,241,201	5,979,758	5,790,655
Net (decrease) increase in net position	$ 3,457,735	$ 4,436,753	$ 6,466,178
Net position restricted for benefits			
Beginning of year	54,532,476	50,095,723	43,629,545
End of year	$ 57,990,211	$ 54,532,476	$ 50,095,723

TRS received $217.2 million in member contributions in Fiscal Year 2019, a $22.0 million (11.2%) increase from Fiscal Year 2018. TRS received $195.2 million in member contributions in Fiscal Year 2018, a $15.1 million (8.4%) increase from Fiscal Year 2017. The $22.0 million increase in Fiscal Year 2019 and the $15.1 million increase in Fiscal Year 2018 were both primarily due to UFT salary increases and a larger active Tier VI membership.

Employer contributions during Fiscal Year 2019 were $3.8 billion, a $190.5 million (-4.8%) decrease from Fiscal Year 2018. Employer contributions during Fiscal Year 2018 were $3.9 billion, a $3.9 million (0.1%) increase from Fiscal Year 2017. The Fiscal Year 2019 decrease was primarily due to a net actuarial gain and changes in actuarial assumptions. The June 30, 2017 (Lag) actuarial valuation and June 30, 2016 (Lag) actuarial valuation were used to determine Fiscal Year 2019 and 2018 employer contributions, 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 Socially Responsive Fund totaled $5.3 billion, $415.5 million, $4.2 million, $386 thousand, $172 thousand, and $540 thousand, respectively. The QPP's net investment income for Fiscal Year 2018 was $6.3 billion, a $1.8 billion (-22.9%) decrease from Fiscal Year 2017. The QPP's net investment income of $6.3 billion consisted of $2.4 billion in dividend and interest income plus a net gain of $4.2 billion on the appreciation in fair value of the QPP's investments less $350.7 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 (before January 1, 2018 Bond Fund), QPP portion of the International Equity Fund, QPP portion of the Inflation Protection Fund, and QPP portion of the Socially Responsive Fund totaled $5.5 billion, $728.9 million, $927 thousand, $1.1 million, $354 thousand, and $1.6 million, respectively.

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. For Fiscal Year 2018, 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 $234.1 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 2019, 2018, and 2017.

Revenue (Expense) to Contingent Reserve Fund
TRSNYC Pension Fund Assets (QPP)*
Years Ended 2019, 2018, and 2017

(In thousands)	**2019**	**2018**	**2017**
Net Investment Income	$ 5,299,563	$ 5,541,133	$ 7,327,841
TDA percent of Fixed Assets as of June 30	32.95%	32.74%	33.30%
TDA percent of Fixed Assets 6/30/16:			32.69%
TDA percent of Fixed Assets (average)	32.85%	33.02%	32.99%
Investment Income on account of TDA Investment	$ 1,740,705	$ 1,829,591	$ 2,417,743
Less Statutory Interest to TDA	(1,716,679)	(1,595,462)	(1,466,615)
Revenue (Expense) to QPP Contingent Reserve	$ 24,026	$ 234,129	$ 951,128

*Includes security-lending income

Administrative expenses during Fiscal Year 2019 were $64.3 million, a decrease of $785 thousand (-1.2%) from Fiscal Year 2018. 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 2019, the System worked on updating its pension payroll module and also implemented a new death benefit-related processing module. 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 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. Administrative expenses during Fiscal Year 2018 were $65.1 million, an increase of $4.3 million (7.1%) from Fiscal Year 2017. In Fiscal Year 2018, the System primarily worked on modernizing death benefit-related processing. 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 2018 accounted for 74.3% of the System's administrative expenditures. The balance of $22.5 million (25.7%) was expensed to the TDA Program. The System's administrative expenditures have been $88.3 million, $87.5 million, and $94.9 million, for Fiscal Years 2019, 2018, and 2017, respectively.

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. 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, $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). The TDA rebalance during Fiscal Year 2018 resulted in $32.7 million 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, $83.4 million was transferred to fully fund the QPP Program's Variable Annuity and Pension Reserve Funds. The $83.4 million transfer reduced the investments held by the QPP's TRSNYC Pension Fund and increased 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).

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. Benefit payments and withdrawals during Fiscal Year 2018 were $4.4 billion, a $132.6 million (3.1%) increase from Fiscal Year 2017. The $132.6 million increase in benefit payments and withdrawals was primarily due to a $134.0 million (3.2%) increase in payments to retirees. In total, benefit payments and withdrawals distributed during Fiscal Year 2018 were composed of 98.4% in retirement benefits and 1.6% 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 2019 were $1.7 billion, an increase of $121.2 million (7.6%) from Fiscal Year 2018. Payments of statutory-interest due to the TDA from its investment in the TRSNYC Pension Fund Assets (Fixed Return Fund) during Fiscal Year 2018 were $1.6 billion, an increase of $128.8 million (8.8%) from Fiscal Year 2017.

TDA Program Financial Highlights — The TDA Program's net position restricted for benefits was $35.3 billion, $33.4 billion, and $31.1 billion, as of June 30, 2019, 2018, and 2017, respectively. Member contributions amounted to $995.0 million, $856.3 million, and $743.7 million, for Fiscal Years 2019, 2018, and 2017, respectively. Benefit payments and withdrawals totaled $1.4 billion, $1.1 billion, and $1.0 billion, for Fiscal Years 2019, 2018, and 2017, 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, 2019, 2018, and 2017

(In thousands)	**2019**	**2018**	**2017**
Cash	$ 9,533	$ 7,371	$ 3,952
Receivables for investments sold	55,994	7,250	23,956
Receivables for accrued interest and dividends	16,531	15,580	12,777
Member loan receivables	403,787	386,804	376,016
Investments, at fair value	9,591,018	9,427,324	8,838,152
Investment in TRSNYC Pension Fund	25,602,248	23,707,352	22,004,183
Collateral from securities lending	57,798	95,170	108,414
Other assets	20,813	18,613	16,296
Total assets	35,757,722	33,665,464	31,383,746
Accounts payable	68,740	85,715	96,908
Payable for investment securities purchased	59,678	12,473	43,416
Accrued benefits payable	238,111	91,124	82,915
Payable for securities lending transactions	57,798	95,170	108,414
Total liabilities	424,327	284,482	331,653
Net position held in trust for benefits	$ 35,333,395	$ 33,380,982	$ 31,052,093

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 amounted to $7.4 million at June 30, 2018, an increase of $3.4 million (86.5%) from June 30, 2017. 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.

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. Receivables for investment securities sold at June 30, 2018 amounted to $7.3 million, a decrease of $16.7 million (-69.7%) from June 30, 2017. 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, 2019 were $16.5 million, an increase of $1.0 million (6.1%) from June 30, 2018. Receivables for accrued earnings at June 30, 2018 were $15.6 million, an increase of $2.8 million (21.9%) from June 30, 2017. 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, 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. Member loan receivables at June 30, 2018 amounted to $386.8 million, an increase of $10.8 million (2.9%) from June 30, 2017. For Fiscal Year 2018, loan disbursements amounted to $189.7 million and principal and interest payments amounted to $197.5 million.

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. The variable-return funds' investments at June 30, 2018, including collateral received for securities lending, were $9.5 billion, an increase of $575.9 million (6.4%) from June 30, 2017.

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. Assets of the TDA Program's Fixed Return Fund invested in the TRSNYC Pension Fund at June 30, 2018 were $23.7 billion, an increase of $1.7 billion (7.7%) from June 30, 2017. In addition to the 7% statutory return for UFT members [and 8.25% for non-UFT members] for Fiscal Year 2018, contributions, withdrawals and investment transfers to (from) the Fixed Return Fund totaled $591.8 million, -$853.6 million and $382.3 million, respectively.

Other assets at June 30, 2019 were $20.8 million, an increase of $2.2 million (11.8%) over June 30, 2018. Other assets at June 30, 2018 were $18.6 million, an increase of $2.3 million (14.2%) over June 30, 2017. Other assets primarily represent assets already allocated for future administrative expenses.

Accounts payable at June 30, 2019 amounted to $68.7 million, a decrease of $17.0 million (-19.8%) from June 30, 2018. Accounts payable at June 30, 2018 amounted to $85.7 million, a decrease of $11.2 million (-11.6%) from June 30, 2017. 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, 2019 amounted to $59.7 million, an increase of $47.2 million (378.5%) from June 30, 2018. Payables for investment securities purchased at June 30, 2018 amounted to $12.5 million, a decrease of $30.9 million (71.3%) from June 30, 2017. 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).

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 is primarily attributed to an increase of pending death benefits due to beneficiaries at year-end. Due to a system enhancement in Fiscal Year 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, 2018 amounted to $91.1 million, an increase of $8.2 million (9.9%) from June 30, 2017. The $8.2 million increase in accrued benefits payable is attributed to changes in TDA withdrawal amounts processed in July and August (an estimate is used for August) after year-end.

Changes in TDA Program's Fiduciary Net Position
Years Ended June 30, 2019, 2018, and 2017
(In Thousands)

	2019	2018	2017
Additions:			
Member contributions	$ 995,035	$ 856,294	$ 743,663
Net investment income	668,269	1,053,660	1,396,698
Net securities lending income	1,271	1,531	1,802
Total additions	1,664,575	1,911,485	2,142,163
Deductions:			
Administrative expenses	23,964	22,456	33,032
TDA rebalance	27,449	32,704	(43,938)
Benefits payments	1,377,428	1,122,898	1,011,931
Receipt of statutory-interest for portion of investment in TRSNYC Pension Fund	(1,716,679)	(1,595,462)	(1,466,615)
Total deductions	(287,838)	(417,404)	(465,590)
Net increase in net position	$ 1,952,413	$ 2,328,889	$ 2,607,753
Net position restricted for benefits			
Beginning of year	33,380,982	31,052,093	28,444,340
End of year	$ 35,333,395	$ 33,380,982	$ 31,052,093

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. TRS's TDA Program received $856.3 million in member contributions during Fiscal Year 2018, an increase of $112.6 million (15.1%) from Fiscal Year 2017. There were 87,296 members contributing in Fiscal Year 2018 compared to 83,856 members contributing in Fiscal Year 2017.

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 income for the TDA Program's variable-return funds for Fiscal Year 2018 decreased by $343.0 million (-24.6%) from Fiscal Year 2017. 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.

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. Administrative expenses for the Fiscal Year ended June 30, 2018 totaled $22.4 million, a decrease of $10.6 million (-32.0%) from Fiscal Year 2017. 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 2019 resulted in a $27.4 million transfer to the TRSNYC Pension Fund from the TDA Program. The TDA rebalance during Fiscal Year 2018 resulted in a $32.7 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, 2019 totaled $1.4 billion, an increase of $254.5 million (22.7%) from Fiscal Year 2018. Benefit payments and withdrawals for the Fiscal Year ended June 30, 2018 totaled $1.1 billion, an increase of $111.0 million (11.0%) from Fiscal Year 2017. 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 2019 were $1.7 billion, an increase of $121.2 million (7.6%) from Fiscal Year 2018. Receipts of statutory-interest for the TDA Program's Fixed Return Fund portion in investments in the TRSNYC Pension Fund assets for Fiscal Year 2018 were $1.6 billion, an increase of $128.8 million (8.8%) from Fiscal Year 2017.

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, 2019 QPP	June 30, 2019 TDA	June 30, 2018 QPP	June 30, 2018 TDA	June 30, 2017 QPP	June 30, 2017 TDA
Contributions	$ 3,976,403	$ 995,035	$ 4,144,930	$ 856,294	$ 4,125,844	$ 743,663
Contributions -– Loan adj.	-	(393)	-	(16)	-	(157)
Loan repayments (cash)	147,934	205,573	140,129	197,528	131,640	192,340
401(a) receipts/(payments)	1,222	-	(3,534)	-	(2,291)	-
Interest income	1,148,789	33,155	1,330,009	35,177	932,169	34,368
Interest income -– Loan adj.	(13,738)	(27,699)	(21,407)	(26,615)	(20,450)	(26,192)
Dividend income	1,112,731	176,359	1,056,636	146,932	981,087	138,237
Investment expenses (net)	(301,437)	1,824	(350,668)	(2,148)	(313,801)	5,518
Benefits/withdrawals	(4,487,680)	(1,377,428)	(4,351,924)	(1,122,898)	(4,219,312)	(1,011,931)
Withdrawals -– Loan adj.	11,787	10,889	17,713	8,511	16,559	13,069
New loans	(154,367)	(204,811)	(150,066)	(189,680)	(149,750)	(186,684)
Administrative expenses	(64,291)	(23,964)	(65,076)	(22,456)	(60,790)	(33,032)
	$ 1,377,353	$ (211,460)	$ 1,746,742	$ (119,371)	$ 1,420,905	$ (130,801)

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, 2019 QPP	June 30, 2019 TDA	June 30, 2018 QPP	June 30, 2018 TDA	June 30, 2017 QPP	June 30, 2017 TDA
TRSNYC Pension Fund	67.0%	33.0%	67.3%	32.7%	66.7%	33.3%
Variable-Return Funds:						
Diversified equity*	39.0%	57.1%	40.6%	55.8%	41.4%	55.2%
Balanced fund**	15.9%	84.1%	18.8%	81.2%	22.1%	77.9%
International equity	6.9%	93.1%	7.9%	92.1%	9.7%	90.3%
Inflation protection	5.6%	94.4%	7.1%	92.9%	8.8%	91.2%
Socially responsive equity	5.4%	94.6%	6.3%	93.7%	7.4%	92.6%

* Remaining portion is held by Board of Education Retirement System.
** Bond Fund prior to January 1, 2018.

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

In addition to other indices, the "policy index" is a benchmark for the complete TRS NYC Pension Fund. As of June 30, 2019, the policy index includes the following:

TRSNYC Pension Fund Policy Index as of June 30, 2019*

Investment Type	Benchmark	Percent
U.S. Equity	Russell 3000	31.4%
International Developed EAFE Markets	MSCI World ex USA IMI Net	11.4%
Int'l Active- Global	MSCI World Net Dividends Index	0.4%
Emerging Markets	MSCI Custom TRS Emerging Markets (Net)	8.9%
International Emerging Managers FoF	NYC Blended Custom Benchmark for FoF	0.7%
Private Equity	Russell 3000 + 300 b.p per annum	6.0%
Private Real Estate - Core	NFI - ODCE Net	2.7%
Private Real Estate - Non Core	NFI - ODCE Net + 200 bps	1.4%
Infrastructure	CPI + 4%	1.3%
US Treasury Long Duration	FTSE Treasury 10+	10.7%
Mortgage	FTSE Mortgage Index	4.1%
ETI	ETI Custom Benchmark	0.9%
Investment Grade Credit	NYC - Investment Grade Credit	4.9%
High Yield	Bloomberg Barclays US High Yield 2% Issuer Capped	6.0%
Bank Loans	Credit Suisse Leveraged Loan	2.0%
TIPS	BBG BARC Gbl Inf-Lk: US TIPS (Dly)	4.2%
Opportunistic Fixed	OFI - JPMGHY / CSFB 50/50 Blend Plus 300 b.p. per annum	3.0%
		100.0%

*Source: Teachers' Retirement System of New York City Performance Overview as of June 30, 2019, prepared by State Street.

Variable-return funds are benchmarked using the Russell 3000, Standard & Poor's 500, 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, 2019, net securities lending income amounted to $13.4 million, a decrease of $3.5 million from Fiscal Year 2018. For the Fiscal Year ended June 30, 2018, net securities lending income amounted to $16.8 million, a decrease of $2.4 million from Fiscal Year 2017. (See Note 2.)

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)	**2019**	**2018**	**2017**
Short-term investments	$ 1,897,730	$ 1,971,516	$ 1,249,819
Debt securities and Fixed Income	26,671,698	26,117,272	21,295,745
Equity securities	54,807,149	51,313,246	51,172,993
Alternative investments	10,069,086	8,926,759	7,523,885
Collateral from securities lending	1,280,112	1,212,762	1,718,735
Total	$ 94,725,775	$ 89,541,555	$ 82,961,177

Investment Summary (by Plan) (in thousands)	**2019**	**2018**	**2017**
TRSNYC Pension Fund			
QPP	$ 52,091,309	$ 48,704,639	$ 44,080,037
TDA	25,602,248	23,707,352	22,004,183
Total	77,693,557	72,411,991	66,084,220
Variable-Return Funds			
QPP	6,161,088	6,489,478	6,320,070
TDA	9,591,018	9,427,324	8,838,152
Total	15,752,106	15,916,802	15,158,222
Collateral for Security Lending			
QPP Pension Fund	1,182,863	1,048,388	1,530,310
QPP Variable-Return Funds	39,451	69,204	80,011
TDA Variable-Return Funds	57,798	95,170	108,414
Total	1,280,112	1,212,762	1,718,735
Total Investments	$ 94,725,775	$ 89,541,555	$ 82,961,177

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.

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

ASSETS:	QPP	TDA	Eliminations	Total
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
	88,113,429	35,757,722	(25,629,864)	98,241,287
LIABILITIES:				
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
NET POSITION RESTRICTED FOR BENEFITS				
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

* Corporate and Other for 2019 includes $324,258 Mortgage debt security and $923,739 other Fixed Income of collective trust funds

** Alternative Investments for 2019 includes $185,400 Fixed Income of collective trust funds.

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, 2018
(In Thousands)

ASSETS:	QPP	TDA	Eliminations	Total
Cash	$ 75,847	$ 7,371	$ -	$ 83,218
Receivables:				
Investment securities sold	839,544	7,250	-	846,794
Accrued interest and dividends	273,387	15,580	-	288,967
Member loans (Note 6)	312,219	386,804	-	699,023
Total receivables	1,425,150	409,634	-	1,834,784
Investments — at fair value (Notes 2 and 3):				
TRSNYC Pension Fund Assets (Fixed-Return Fund):				
Short-term investment:				
Commercial paper	6,487	-	-	6,487
Short–term investment fund	1,578,263	-	-	1,578,263
Discount notes	111,733	-	-	111,733
Debt securities:				
U.S. Government	13,288,993	-	-	13,288,993
Corporate and Other	7,016,574	-	-	7,016,574
Equity securities	20,536,514	-	-	20,536,514
Alternative Investments	8,926,759	-	-	8,926,759
Collective Trust Funds:				
International equity	15,436,970	-	-	15,436,970
Mortgage debt security	555,508	-	-	555,508
Treasury inflation protected securities	3,106,109	-	-	3,106,109
Fixed income	1,848,081	-	-	1,848,081
Collateral from securities lending (Fixed-Return Fund)	1,048,388	-	-	1,048,388
Diversified Equity Fund:				
Short-term investments	135,558	126,684	-	262,242
Equity securities	6,125,780	8,424,180	-	14,549,960
Debt securities	127,150	174,857	-	302,007
Balanced Fund (formerly the Bond Fund):			-	
Short-term investments	849	3,667	-	4,516
Equity securities	70,562	304,711		375,273
Debt securities	-	-	-	-
International Equity Fund:				
Short-term investments	80	927	-	1,007
International equity	12,076	140,561	-	152,637
Inflation Protection Fund:				
Short-term investments	3	45	-	48
Equity securities	4,596	60,120	-	64,716
Socially Responsive Equity Fund:				
Short-term investments	453	6,767	-	7,220
Equity securities	11,654	174,104	-	185,758
International equity	717	10,701	-	11,418
Collateral from securities lending (Variable-Return Funds)	69,204	95,170	-	164,374
Total investments	80,019,061	9,522,494	-	89,541,555
TDA Investment in TRSNYC Pension Fund	-	23,707,352	(23,707,352)	-
Other assets	62,852	18,613	(32,538)	48,927
Total assets	81,582,910	33,665,464	(23,739,890)	91,508,484
LIABILITIES:				
Accounts payable	643,567	85,715	(32,538)	696,744
Payable for investment securities purchased	1,568,064	12,473	-	1,580,537
Accrued benefits payable	13,858	91,124	-	104,982
Due to TDA Program's Fixed Return Fund	23,707,352	-	(23,707,352)	-
Securities lending (Note 2)	1,117,593	95,170	-	1,212,763
Total liabilities	27,050,434	284,482	(23,739,890)	3,595,026
NET POSITION RESTRICTED FOR BENEFITS				
Benefits to be provided by QPP	54,532,476	-	-	54,532,476
Benefits to be provided by TDA Program	-	33,380,982	-	33,380,982
Total net position restricted for benefits	$ 54,532,476	$ 33,380,982	$ -	$87,913,458

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	3,976,404	995,035	4,971,439
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	6,010,615	666,445	6,677,060
Less:			
Investment expenses	307,370	9,527	316,897
Net (decrease) in variable expense provision	(5,933)	(11,351)	(17,284)
Net investment income	5,709,178	668,269	6,377,447
Securities lending transactions:			
Securities lending income	13,416	1,412	14,828
Less - securities lending fees	(1,284)	(141)	(1,425)
Net securities lending income	12,132	1,271	13,403
Other:			
Net receipts to other retirement systems	1,222	-	1,222
Total additions	9,698,936	1,664,575	11,363,511
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	(27,449)	27,449	
Total deductions	6,241,201	(287,838)	5,953,363
NET INCREASE IN NET POSITION	3,457,735	1,952,413	5,410,148
NET POSITION RESTRICTED FOR BENEFITS:			
Beginning of year	54,532,476	33,380,982	87,913,458
End of year	$ 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, 2018
(In Thousands)

	QPP	TDA	Total
ADDITIONS:			
Contributions:			
Member contributions (Note 4)	$ 195,241	$ 856,294	$ 1,051,535
Employer contributions	3,889,710	-	3,889,710
Other employer contributions	59,979	-	59,979
Total contributions	4,144,930	856,294	5,001,224
Investment income (Note 2):			
Interest income	1,330,009	35,177	1,365,186
Dividend income	1,056,636	146,932	1,203,568
Net appreciation in fair value of investments	4,223,813	873,699	5,097,512
Total investment income	6,610,458	1,055,808	7,666,266
Less:			
Investment expenses	356,269	10,436	366,705
Net (decrease) in variable expense provision	(5,601)	(8,288)	(13,889)
Net investment income	6,259,790	1,053,660	7,313,450
Securities lending transactions:			
Securities lending income	16,654	1,706	18,360
Less - securities lending fees	(1,329)	(175)	(1,504)
Net securities lending income	15,325	1,531	16,856
Total additions	10,420,045	1,911,485	12,331,530
DEDUCTIONS:			
Benefit payments and withdrawals	4,351,924	1,122,898	5,474,822
Administrative expenses (Note 8)	65,076	22,456	87,532
Other:			
Net receipts to other retirement systems	3,534	-	3,534
Statutory Interest for TDA Program's Fixed Return Fund	1,595,462	(1,595,462)	-
TDA Rebalance	(32,704)	32,704	-
Total deductions	5,983,292	(417,404)	5,565,888
NET INCREASE IN NET POSITION	4,436,753	2,328,889	6,765,642
NET POSITION RESTRICTED FOR BENEFITS:			
Beginning of year	50,095,723	31,052,093	81,147,816
End of year	$ 54,532,476	$ 33,380,982	$ 87,913,458

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

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 Fund ("POLICE"), and The New York City Fire Pension Fund ("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.

Membership Data

The QPP's and TDA Program's membership, at June 30, 2019 and June 30, 2018 consisted of:

QPP	**2019 ***	**2018**
Retirees and beneficiaries receiving benefits	87,000	86,295
Terminated vested members not yet receiving benefits	17,000	16,433
Other inactives**	10,000	9,416
Active members	124,000	121,764
Total	238,000	233,908

TDA Program	**2019 ***	**2018**
Retirees receiving a TDA annuity	2,700	2,811
Retirees or Inactive members with TDA deferral	58,000	55,874
Active members with TDA	97,000	90,648
Total	157,700	149,333

*Preliminary.

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

The QPP's and TDA Program's membership, at June 30, 2017 and June 30, 2016, the dates of the membership data used in determining Fiscal Year 2019 and Fiscal Year 2018 employer contributions, consisted of:

QPP	**2017**	**2016**
Retirees and beneficiaries receiving benefits	84,770	84,093
Terminated vested members not yet receiving benefits	15,229	14,393
Other inactives*	7,997	7,401
Active members	120,826	118,201
Total	228,822	224,088

TDA Program	**2017**	**2016**
Retirees receiving a TDA annuity	2,866	2,930
Retirees or Inactive members with TDA deferral	54,448	52,722
Active members with TDA	87,694	84,907
Total	145,008	140,559

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

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").

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 $53.7 million and $56.0 million, for the years ended June 30, 2019 and 2018, 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"). 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. The monthly supplemental contribution of $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 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.

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.

Investment Valuation — Investments are reported at fair value. Securities purchased pursuant to agreements to resell are carried at the contract price, exclusive of interest, at which the securities will be resold. Fair value is defined as the quoted market value on the last trading day of the period, except for the Short-Term Investment Fund ("STIF") (a money market fund), International Investment Funds (the "IIF"), and Alternative Investment Funds (the "ALTINVF"). The IIF are private funds of publicly traded securities that are managed by various investment managers on behalf of the QPP and the TDA Program. Fair value is determined by TRS management based on information provided by the various investment managers. The investment managers determine fair value using the last available quoted price for each security owned adjusted by any contributions to or withdrawals from the fund during the period. The ALTINVF are 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 the New York City Office of the Comptroller or TRS management based on information provided by the various GPs after review by an independent consultant and the custodial bank, State Street, for the System's TRSNYC Pension Fund assets.

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* requires the System to use valuation techniques which are appropriate under the circumstances and are either a market approach, a cost approach, or income approach. GASB 72 establishes a hierarchy of inputs used to measure fair value consisting of three levels. 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 objective is to seek current income and some capital appreciation by investing in a portfolio that includes both stocks and bonds. The six investment programs are collectively referred to as the 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', ITHP contributions and TDA program investments.

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 Plan'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 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 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 DOE supplemental contributions for the ASAF and ASF funds. 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, 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. As of June 30, 2018, the reserve was $82,384,850 for QPP and $53,442,554 for TDA. The expense reserve and net investment expenses for 2018 were reduced by $5,600,764 for QPP and $8,288,135 for TDA.

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 TRSNYC 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 2019, $115.7 million was transferred from the QPP Variable-Return funds to the QPP TRSNYC Pension Fund. In addition, in Fiscal Year 2019 $27.4 million was transferred to the QPP from the TDA Program. In Fiscal Year 2018, $83.4 million was transferred from the QPP TRSNYC Pension Fund to the Variable-Return funds. In addition, in Fiscal Year 2018 $32.7 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 TRSNYC 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, 2019 and 2018, 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. The contracts with the Funds' Custodian require the Securities Lending 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 44.4 days for State Street's TRSNYC Pension Fund investments and 1.9 days for JP Morgan 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.

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.

During Fiscal Year 2018, net earnings from the securities-lending program were $16.8 million. Net earnings from QPP were $15.3 million including $14.2 million from TRSNYC Pension Fund and $1.1 million from variable-return funds. The TDA net earnings from the Variable-Return funds securities-lending program amounted to $ 1.5 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 43.3 days for State Street's TRSNYC Pension Fund investments and 0.9 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, 2019 and 2018, the values on loan by the TRSNYC Pension Fund were $1.2 billion and $1.1 billion, respectively, and the values on loan by the variable-return funds were $94.6 million and $160.0 million, respectively. Collateral received related to securities lending as of June 30, 2019 and 2018 was $ 1.3 billion (including $1.2 billion of cash collateral) and $1.1 billion, respectively, for the TRSNYC Pension Fund, and $97.2 million and $164.4 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.

The State Retirement and Social Security Law ("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 2019 and 2018 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.

TRSNYC Pension Fund
Target Asset Allocations

Investment Type	Asset Allocation Percentages* 2019	Asset Allocation Percentages* 2018
Common stock	32.5%	32.6%
International investments – Non U.S.	12.2%	12.2%
International investments – Emerging Markets	9.0%	9.1%
Common stock – REITS	0.0%	0.0%
Alternative investments – Real Estate	3.7%	3.6%
Alternative investments – Private Equity	5.4%	5.3%
Alternative investments – Infrastructure	1.1%	0.9%
Alternative investments – Opportunistic Fixed Income	2.8%	2.6%
Fixed income	33.3%	33.7%
Total	100.0%	100.0%

* Represents adjusted target policy percentages.

Variable-Return Funds

Target Asset Allocations

Investment Type	**Asset Allocation Percentages 2019**	**Asset Allocation Percentages 2018**
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 (Variable D):		
Inflation Protection Fidelity Strategic Real Return Mutual Fund	100.0%	100.0%
Socially Responsible (Variable E):		
Socially Responsible NB SRF	100.0%	100.0%

State Street is currently the custodian for essentially all securities of the TRSNYC Pension Fund. JPMorgan Chase is currently the custodian for essentially all 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 — The System's investment programs do not have investments in any one entity that represent 5% or more of the assets in the QPP or TDA Program's net position, with the exception of U.S. Government securities.

Credit Risk — The plausible risk of a loss or default resulting from a borrower's inability to repay a loan or fulfill its contractual debt obligations. To manage credit risk, the Plan's Portfolios other than U.S. Government and related portfolios, have credit rating limitations. Investment Grade portfolios are limited to mostly ratings, of Baa2 and above, except that they are also permitted a 10% maximum exposure to Ba2 & B2 rated securities. While High Yield non-investment grade managers primarily invest in Ba2& B2 rated securities, they can also invest up to 10% of their portfolio in securities rated 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, 2019 and 2018, are as follows:

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%

Investment Type
Pension Fund
June 30, 2018

	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	60.49%	0.02%	0.03%	0.01%	0.02%	0.01%	0.08%	-	0.10%	-	-	-	-	-	-	-	-	0.31%	61.07%
Corporate bonds	0.70%	0.12%	0.12%	0.20%	0.53%	0.85%	1.74%	2.15%	2.14%	2.20%	1.73%	2.01%	3.27%	3.37%	2.68%	2.66%	1.63%	4.13%	32.23%
Short-term:																			
Commercial Paper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.12%	2.12%
Discount Notes & T-Bills	0.36%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.71%	1.07%
Pooled Fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.51%	3.51%
Percent of Rated Portfolio	61.55%	0.14%	0.15%	0.21%	0.55%	0.86%	1.82%	2.15%	2.24%	2.20%	1.73%	2.01%	3.27%	3.37%	2.68%	2.66%	1.63%	10.78%	100.00%

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, 2019 and 2018 are as follows:

Investment Type
Variable Funds
June 30, 2019

	Moody's Credit Rating																			
	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Not Rated	Total
U.S. Government	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corporate	-	-	-	-	-	0.49%	-	0.42%	-	0.72%	0.30%	-	0.74%	0.22%	0.30%	-	-	-	49.53%	52.72%
Yankee bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Municipal bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
U.S Agencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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%	0.00%	0.00%	0.00%	0.00%	0.49%	0.00%	0.42%	0.00%	0.72%	0.30%	0.00%	0.74%	0.22%	0.30%	0.00%	0.00%	0.00%	96.51%	100.00%

Investment Type
Variable Funds
June 30, 2018

	Moody's Quality Rating																			
	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa1	Caa2	Not Rated	Total
U.S. Government *	0.54%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.54%
Corporate bonds	-	-	-	-	-	0.98%	0.18%	-	0.31%	0.46%	-	0.29%	1.27%	0.25%	-	0.49%	0.39%	-	46.40%	51.02%
Yankee bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Municipal bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
U.S Agencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Short-term:																				
Money Market	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48.33%	48.33%
Cash Equivalent	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.11%	0.11%
Percent of rated portfolio	0.54%	-	-	-	-	0.98%	0.18%	-	0.31%	0.46%	-	0.29%	1.27%	0.25%	-	0.49%	0.39%	-	94.84%	100.00%

* Includes U.S. Treasury Bills

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, the QPP and TDA Program will not be able to recover the value of their 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 uninsured, are not registered in the name of the System or QPP and TDA Program and are held by either the counterparty or the counterparty's trust department or agent, but not in the System's name.

Investments are held by the TRSNYC Pension Fund and variable-return funds' custodians and registered in the System's or QPP and TDA Program's name.

All of the System's deposits are insured by the Federal Deposit Insurance Corporation or collateralized by securities held by a financial institution separate from their respective depository financial institution.

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.

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, 2019 and 2018, are as follows:

Years to Maturity

June 30, 2019	Investment Maturities				
Investment Type Pension Fund	**Fair Value**	**Less than One Year**	**One to Five Years**	**Six to Ten Years**	**More than Ten Years**
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	1.10	1.10	-	-	-
Percent of rated portfolio	100.00 %	5.58 %	33.19 %	23.52 %	37.71 %

June 30, 2018	Investment Maturities				
Investment Type Pension Fund	**Fair Value**	**Less than One Year**	**One to Five Years**	**Six to Ten Years**	**More than Ten Years**
U.S. Government	61.07 %	0.51 %	22.53 %	11.31 %	26.72 %
Corporate bonds	32.23	0.60	10.93	15.27	5.43
Short-term:					
Commercial paper	2.12	2.12	-	-	-
Pooled funds	3.51	3.51	-	-	-
Discount Notes and Treasury	1.07	1.07	-	-	-
Percent of rated portfolio	100.00 %	7.81 %	33.46 %	26.58 %	32.15 %

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, 2019 and 2018, are as follows:

Years to Maturity

June 30, 2019	**Investment Maturities (in years)**				
Investment Type Variable Funds	**Fair Value**	**Less than One Year**	**One to Five Years**	**Six to Ten Years**	**More than Ten Years**
U.S. Government	- %	- %	- %	- %	- %
Corporate bonds	52.72	1.83	33.77	13.31	3.81
Yankee bonds	-	-	-	-	-
Municipal bonds	-	-	-	-	-
U.S. Agencies	-	-	-	-	-
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 %

Years to Maturity

June 30, 2018	**Investment Maturities (in years)**				
Investment Type Variable Funds	**Fair Value**	**Less than One Year**	**One to Five Years**	**Six to Ten Years**	**More than Ten Years**
U.S. Government *	0.54 %	0.54 %	- %	- %	- %
Corporate bonds	51.02	2.89	27.60	15.20	5.33
Yankee bonds	-	-	-	-	-
Municipal bonds	-	-	-	-	-
U.S. Agencies	-	-	-	-	-
Short-term:					
Money Market Funds	48.33	48.33	-	-	-
Cash Equivalent	0.11	0.11	-	-	-
Percent of rated portfolio	100.00 %	51.87 %	27.60 %	15.20 %	5.33 %

* Includes U.S. Treasury Bills

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.

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, 2019 and 2018 are as follows (amounts in thousands of U.S. dollars):

Trade Currency	Pension Fund 2019 June 30, 2019	Variable-Return Funds June 30, 2019	Pension Fund June 30, 2018	Variable-Return Funds June 30, 2018
(in thousands)				
Euro Currency	$ 3,412,071	$ 796,132	$ 2,923,910	$ 779,856
Japanese Yen	1,978,864	548,934	1,964,182	544,484
British Pnd Sterling	1,694,782	417,881	1,604,375	438,376
South Korean Won	1,185,756	65,598	1,284,166	75,314
Indian Rupee	1,034,745	59,524	966,612	52,587
New Taiwan Dollar	931,014	36,902	979,440	42,043
Swiss Franc	800,191	238,287	751,385	201,809
Brazilian Real	670,123	31,595	498,524	15,757
South African Rand	575,411	23,473	646,706	28,719
Canadian Dollar	482,512	27,037	408,646	23,176
Hong Kong Dollar	400,094	93,064	364,691	83,457
Australian Dollar	338,378	146,905	280,588	141,509
Thai Baht	279,009	15,217	256,975	17,512
Indonesian Rupiah	275,906	7,067	228,356	6,328
Mexican Nuevo Peso	256,320	7,093	271,175	6,807
Danish Krone	244,099	44,257	239,095	39,163
Swedish Krona	210,046	55,456	213,840	51,730
Malaysian Ringgit	183,919	7,996	191,489	12,626
Singapore Dollar	159,356	38,070	139,334	37,241
Polish Zloty	148,865	6,384	130,079	3,688
Turkish Lira	110,208	10,044	131,251	9,865
Norwegian Krone	108,206	20,033	104,159	21,193
Philippines Peso	102,166	56	111,469	1,840
Chilean Peso	90,138	1,938	105,781	1,946
Qatari Rial	57,802	-	26,162	-
UAE Dirham	51,012	5,784	38,464	2,350
Hungarian Forint	43,308	2,651	37,077	2,130
Colombian Peso	40,193	-	48,093	-
Israeli Shekel	25,017	6,948	18,089	6,129
Czech Koruna	21,542	82	26,853	116
Egyptian Pound	14,088	902	20,455	213
New Zealand Dollar	13,560	5,112	8,356	4,333
Peruvian Nuevo Sol	5,405	-	12,122	-
Total	$ 15,944,106	$ 2,720,422	$ 15,031,899	$ 2,652,297

Securities Lending Transactions

Credit Risk — The quality ratings of investments held as collateral for Securities Lending by the TRSNYC Pension Fund at June 30, 2019 and 2018 are as follows (in thousands):

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

June 30, 2019	Moodys Quality Ratings						
	Aaa & Below	A1	A2	A3	Baa2	Not Rated	Total
Government	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Corporate bonds	-	-	-	-	-	-	-
Yankee bonds	-	-	-	-	-	-	-
Short-term:							
Repurchase Agreements	-	-	-	-	-	-	-
Reverse Repurchase Agreements	-	-	77,184	137,323	8,040	470,720	693,267
Money Market	113,702	-	-	-	-	88,578	202,280
U.S. Treasury	-	-	-	-	-	-	-
U.S. Agency	-	-	-	-	-	171,848	171,848
Cash or Cash Equivalent	-	113,896	-	-	-	-	113,896
Payable/Receivable	-	-	-	-	-	-	-
Uninvested	-	-	-	-	-	1,572	1,572
Total	$113,702	$113,896	$77,184	$137,323	$ 8,040	$ 732,718	$1,182,863
Percent of securities lending portfolio	9.61%	9.63%	6.53%	11.61%	0.68%	61.94%	100.00%

June 30, 2018	Moodys Quality Ratings						
	Aaa & Below	A1	A2	A3	Baa2	Not Rated	Total
Government	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Corporate bonds	-	-	-	-	-	-	-
Yankee bonds	-	-	-	-	-	-	-
Short-term:							
Repurchase Agreements	-	-	-	-	-	-	-
Reverse Repurchase Agreements	-	-	3,961	194,097	54,048	283,390	535,496
Money Market	119,471	-	-	-	-	-	119,471
U.S. Treasury	-	-	-	-	-	-	-
U.S. Agency	-	-	-	-	-	291,751	291,751
Cash or Cash Equivalent	-	100,098	-	-	-	-	100,098
Payable/Receivable	-	-	-	-	-	-	-
Uninvested	-	-	-	-	-	1,572	1,572
Total	$119,471	$100,098	$ 3,961	$194,097	$54,048	$ 576,713	$1,048,388
Percent of securities lending portfolio	11.40%	9.55%	0.38%	18.51%	5.15%	55.01%	100.00%

The quality ratings of investments held as collateral for Securities Lending under the variable-return funds at June 30, 2019 and 2018 are as follows (in thousands):

Investment Type and Fair Value of
Securities Lending Transactions - Variable Return Funds
(In thousands)
June 30, 2019

	Moody's Quality Ratings			
	Aaa	**A3**	**Not Rated**	**Total**
Government	$ 20,977	$ -	$ -	$ 20,977
Corporate bonds	-	-	-	-
Yankee bonds	-	-	-	-
Short-term:				-
Repurchase Agreements	66,060	-	7,963	74,023
Reverse Repurchase Agreements	-	-	-	-
Money Market	-	-	-	-
U.S. Treasury	2,249	-	-	2,249
U.S. Agency	-	-	-	-
Cash Equivalent	-	-	-	-
Payable/Receivable	-	-	-	-
Uninvested	-	-	-	-
Total	$ 89,286	$ -	$ 7,963	$ 97,249
Percent of securities lending portfolio	91.81%	0.00%	8.19%	100.00%

June 30, 2018

	Moody's Quality Ratings			
	Aaa	**A3**	**Not Rated**	**Total**
Government *	$ 22,299	$ -	$ -	$ 22,299
Corporate bonds	-	-	-	-
Yankee bonds	-	-	-	-
Short-term:				
Repurchase Agreements	32,763	19,273	90,029	142,065
Reverse Repurchase Agreements	-	-	-	-
Money Market	-	-	-	-
U.S. Agency	-	-	-	-
Cash Equivalent	-	-	-	-
Payable/Receivable	-	-	-	-
Uninvested	-	-	10	10
Total	$ 55,062	$ 19,273	$ 90,039	$ 164,374
Percent of securities lending portfolio	33.50%	11.73%	54.77%	100.00%

* includes $5,729 in U.S. Treasury Bills

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, 2019 and 2018 are as follows (in thousands):

Years to Maturity

	Investment Maturities				
Investment Type - Pension Fund June 30, 2019	**Fair Value**	**Less Than One Year**	**One to Five Years**	**Six to Ten Years**	**More Than Ten Years**
Government	$ -	$ -	$ -	$ -	$ -
Corporate bonds	-	-	-	-	-
Short-term:					
Repurchase agreements	-	-	-	-	-
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	-	-	-
Payable/Receivable	-	-	-	-	-
Uninvested	1,572	1,572	-	-	-
Total	$ 1,182,863	$ 1,182,863	$ -	$ -	$ -
Percent of Securities Lending Portfolio	100.00 %	100.00 %	- %	- %	- %

	Investment Maturities				
Investment Type - Pension Fund June 30, 2018	**Fair Value**	**Less Than One Year**	**One to Five Years**	**Six to Ten Years**	**More Than Ten Years**
Government	$ -	$ -	$ -	$ -	$ -
Corporate bonds	-	-	-	-	-
Short-term:					
Repurchase agreements	-	-	-	-	-
Reverse repurchase agreements	535,496	535,496	-	-	-
Money market	119,471	119,471	-	-	-
U.S. Agency	291,751	291,751	-	-	-
Cash equivalents	100,098	100,098	-	-	-
Payable/Receivable	-	-	-	-	-
Uninvested	1,572	1,572	-	-	-
Total	$ 1,048,388	$ 1,048,388	$ -	$ -	$ -
Percent of Securities Lending Portfolio	100.00 %	100.00 %	- %	- %	- %

The lengths of investment maturities (in years) of the collateral for Securities Lending held under the variable-return funds at June 30, 2019 and 2018 are as follows (in thousands):

Years to Maturity

Investment Type - Variable Return Funds (in thousands) June 30, 2019	Investment Maturities Fair Value	Less Than One Year	One to Five Years	Six to Ten Years	More Than Ten Years
Government	$ 20,977	$ 1,192	$ 14,877	$ 2,868	$ 2,040
Corporate Bonds	-	-	-	-	-
Short-term:					
Repurchase agreements	74,023	74,023	-	-	-
Reversal purchase agreements	-	-	-	-	-
Certificates of deposit	-	-	-	-	-
Commercial paper	-	-	-	-	-
Variable rate demand notes	-	-	-	-	-
U.S. Treasury	2,249	2,249	-	-	-
U.S. Agency	-	-	-	-	-
Time deposit	-	-	-	-	-
Uninvested	-	-	-	-	-
Totals	$ 97,249	$ 77,464	$ 14,877	$ 2,868	$ 2,040
Percent of securities lending portfolio	100.00 %	79.65 %	15.30 %	2.95 %	2.10 %

Investment Type - Variable Return Funds (in thousands) June 30, 2018	Investment Maturities Fair Value	Less Than One Year	One to Five Years	Six to Ten Years	More Than Ten Years
Government *	$ 22,299	$ 6,579	$ 11,423	$ 2,008	$ 2,289
Corporate Bonds	-	-	-	-	-
Short-term:					
Repurchase agreements	142,065	142,065	-	-	-
Reversal purchase agreements	-	-	-	-	-
Certificates of deposit	-	-	-	-	-
Commercial paper	-	-	-	-	-
Variable rate demand notes	-	-	-	-	-
U.S. Treasury	-	-	-	-	-
U.S. Agency	-	-	-	-	-
Time deposit	-	-	-	-	-
Uninvested	10	10	-	-	-
Totals	$ 164,374	$ 148,654	$ 11,423	$ 2,008	$ 2,289
Percent of securities lending portfolio	100.00 %	90.44 %	6.95 %	1.22 %	1.39 %

* includes $5,729 in US Treasury Bills

Rate of Return — For the years ended June 30, 2019 and 2018, the annual money-weighted rate of return on the TRSNYC Pension Fund was 7.50% and 8.14%, 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 Statement No. 72 ("GASB 72"), *Fair Value Measurement and Application*. GASB 72 was issued to address accounting and financial reporting issues related to fair value measurements.

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, 2019 and June 30, 2018:

GASB 72 - Disclosure (Pension Fund)
June 30, 2019
(In thousands)

	2019			
	Level One	**Level Two**	**Level Three**	**QPP Total**
INVESTMENTS — At fair value (Notes 2 and 3):				
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
Total Pension Fund Investments	**$39,602,652**	**$27,680,271**	**$10,410,634**	**$77,693,557**

GASB 72 Disclosure (Pension Fund)
June 30, 2018
(In thousands)

	2018			
	Level One	Level Two	Level Three	Total
INVESTMENTS — at fair value				
Short-term investments:				
Commercial paper	$ -	$ 6,487	$ -	$ 6,487
Short-term investment fund	48,888	1,529,375	-	1,578,263
Discount notes	-	111,733	-	111,733
Debt securities:				
U.S. Government	-	13,288,993	-	13,288,993
Corporate and Other	-	7,016,306	268	7,016,574
Equity securities	20,534,746	56	1,712	20,536,514
Alternative investments	14,652	-	8,912,107	8,926,759
Collective trust funds:				
International equity	15,436,384	-	586	15,436,970
Mortgage debt security	-	154,234	401,274	555,508
Treasury inflation protected securities	-	3,106,109	-	3,106,109
Fixed income	-	1,848,081	-	1,848,081
Total Pension Fund investments	$ 36,034,670	$ 27,061,374	$ 9,315,947	$ 72,411,991

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. These are 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. The assets in our Alternative Investment program are classified 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 using one or more valuation methodologies outlined in ASC 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.

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.

Certain alternative investments have additional future commitments. Others have redemption notice requirements and redemption restrictions. Management does not believe these commitments, notice requirements and redemption restrictions have a material effect on the fair value of the portfolio investments.

GASB 72 Disclosure
Variable-Return Funds
June 30, 2019

(in thousands) **INVESTMENTS- at fair value**	2019 Level One	Level Two	Level Three	Total
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
Total Variable-Return Funds Investments	$ 14,159,672	$ 1,418,257	$ 174,177	$ 15,752,106

GASB 72 Disclosure
Variable-Return Funds

June 30, 2018	**2018**			
(in thousands)	Level	Level	Level	
INVESTMENTS- at fair value	One	Two	Three	Total
Diversified Equity Fund:				
Short-term investments	$ -	$ 262,242	$ -	$ 262,242
Equity securities	14,216,058	332,339	1,563	14,549,960
Debt securities	-	302,005	2	302,007
Balanced Fund:				
Short-term investments	-	4,516	-	4,516
Equity securities	-	375,273	-	375,273
International Equity Fund:				
Short-term investments	-	1,007	-	1,007
International equity	149,135	3,486	16	152,637
Inflation Protection Fund:				
Short-term investments	-	48	-	48
Equity securities	64,716	-	-	64,716
Socially Responsive Equity Fund:				
Short-term investments	-	7,220	-	7,220
Equity securities	185,758	-	-	185,758
International equity	11,418	-	-	11,418
Total Variable-Return Funds Investments	$ 14,627,085	$ 1,288,136	$ 1,581	$ 15,916,802

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

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.

Employer Contributions — Statutorily-required contributions ("Statutory Contributions") to the QPP, determined by the City's Chief Actuary of the Office of the Actuary (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, 2019, based on an actuarial valuation as of June 30, 2017, was $3,697 million, and the Statutory Contribution for the year ended June 30, 2018, based on an actuarial valuation as of June 30, 2016, was $3,890 million. The Statutory Contributions for Fiscal Years 2019 and 2018 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, 2019 and 2018 were as follows:

	(in millions)	
	2019	**2018**
Total pension liability	$73,347	$73,244
Fiduciary net position *	$57,990	$54,533
Employers' net pension liability	$15,357	$18,711
Fiduciary net position as a percentage of the total pension liability	79.1%	74.5%

*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, 2019 was determined by an actuarial valuation as of June 30, 2018 that was rolled forward to develop the total pension liability at the fiscal year-end. Last year, the total pension liability as of June 30, 2018 was determined by an actuarial valuation as of June 30, 2016 that was rolled forward two years to the 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.

Mortality tables for Service and Disability pensioners and beneficiaries were developed from an experience study of the QPP.

The Fiscal Year 2019 results reflect changes in the actuarial assumptions and methods since the prior year. The changes are primarily the result of an experience study performed by Bolton, Inc., which compared actual experience of the systems for the four and ten-year periods ending June 30, 2017 to that expected based on the prior set of actuarial assumptions and methods. These new actuarial assumptions and methods were adopted by the TRS Retirement Board during Fiscal Year 2019.

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.

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:

Asset Class	Target Asset Allocation	Long-Term Expected Real Rate of Return
U.S. Public Markets Equities	29.0%	5.6%
International Public Markets Equities	12.0%	7.1%
Emerging Public Markets Equities	9.0%	9.9%
Private Market Equities	6.0%	10.3%
Fixed Income (Core, TIPS, High Yield, Opportunistic, Convertibles)	33.0%	3.4%
Alternatives (Real Assets, Hedge Funds)	11.0%	6.3%
Total	100.0%	

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:

(in thousands)	1% Decrease (6%)	Discount Rate (7%)	1% Increase (8%)
Employers' Net Pension Liability — June 30, 2019	$ 23,630,238	$ 15,356,639	$ 8,426,189

6. MEMBER LOANS

The balance of member loans receivable for the QPP at June 30, 2019 and 2018 was $321.0 million and $312.2 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% ("APR") 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, 2019 and 2018 is $403.8 million and $386.8 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 the 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 $12.3 million and $11.8 million in Fiscal Years 2019 and 2018, 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 is 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 $88.3 million and $87.5 million for Fiscal Years 2019 and 2018, respectively. In addition to TRS' administrative expenses, other City agencies attribute the cost for services rendered by them during the fiscal year; see Note 7 above.

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:

Years Ending June 30,		**Amount**
2020	$	8,760,000
2021		8,760,000
2022		8,760,000
2023		9,480,000
2024		9,559,000
Thereafter		180,754,000

Rent expense under the lease agreement for the year ended June 30, 2019, was approximately $7.9 million, and for year ended June 30, 2018, was approximately $7.9 million, less $1.9 million rent credit.

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.

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.

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 had to have been rendered for a service purchase pursuant to New York State Retirement and Social Security Law ("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.

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.

* * * * * *

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)
QUALIFIED PENSION PLAN
SCHEDULE OF CHANGES IN THE EMPLOYER NET PENSION LIABILITY AND RELATED RATIOS
(In Thousands)

SCHEDULE 1

	2019	2018	2017	2016	2015	2014
Total pension liability:						
Service cost	$ 1,691,144	$ 1,436,617	$ 1,386,674	$ 1,274,308	$ 1,223,158	$ 1,205,662
Interest	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	(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	(4,487,680)	(4,351,924)	(4,219,312)	(4,107,455)	(4,024,272)	(3,818,248)
Net change in total pension liability	102,919	(79,499)	3,322,653	4,960,409	2,733,989	1,795,116
Total pension liability – beginning	73,243,931	73,323,430	70,000,777	65,040,368	62,306,379	60,511,262
Total pension liability – ending (a)	73,346,850	73,243,931	73,323,430	70,000,777	65,040,368	62,306,378
Plan fiduciary net position:						
Contributions - Employer	3,696,686	3,889,710	3,888,399	3,760,714	3,325,528	3,054,424
Contributions - Other Employer*	62,513	59,979	57,369	n/a	n/a	n/a
Contributions - Employee	217,205	195,241	180,076	173,696	158,590	154,962
Net investment income	5,721,310	6,275,115	8,133,280	960,267	1,611,929	9,435,906
Benefit payments/withdrawals	(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	(1,716,679)	(1,595,462)	(1,466,615)	(1,354,207)	(1,248,988)	(1,147,923)
Administrative expenses	(64,291)	(65,076)	(60,790)	(59,367)	(58,391)	(46,042)
Other Changes	28,671	29,170	(46,229)	1,233	329	404
Net change in plan fiduciary net position	3,457,735	4,436,753	6,466,178	(625,119)	(235,275)	7,633,483
Plan fiduciary net position – beginning	54,532,476	50,095,723	43,629,545	44,254,664	44,489,939	36,856,456
Plan fiduciary net position – ending (b)**	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)	$ 15,356,639	$ 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	79.06%	74.45%	68.32%	62.33%	68.04%	71.41%
Covered Payroll	$ 10,404,404	$ 9,200,180	$ 8,818,537	$ 8,256,100	$ 8,074,522	$ 7,996,942
TRS' Net Pension Liability as a Percentage of covered payroll	147.60%	203.38%	263.40%	319.42%	257.42%	222.79%

Additionally, in accordance with GASB No. 67, paragraph 50, such information was not readily available for periods prior to 2014.

*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 Independent Auditors' Report.

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

SCHEDULE 2

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Actuarially determined contribution	$ 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	$ 2,484,074
Contributions in relation to the actuarially determined contribution	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	2,484,074
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Covered payroll [1]	$10,404,404	$ 9,200,180	$ 8,818,537	$ 8,256,100	$ 8,074,522	$ 7,996,942	$ 7,833,329	$ 7,920,935	$ 7,935,248	$ 7,859,999
Contributions as a percentage of covered payroll	35.530%	42.279%	44.093%	44.846%	40.498%	37.498%	36.455%	33.747%	31.114%	31.604%

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

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 2019 contributions were determined using an actuarial valuation as of June 30, 2017). The methods and assumptions used to determine the actuarially determined contributions are as follows:

See Independent Auditors' Report.

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

(In Thousands)

SCHEDULE 2 (CONTINUED)

Valuation Dates	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	Frozen Initial Liability[1]
Amortization method for Unfunded Actuarial Accrued Liabilities:									
Initial Unfunded	Increasing Dollar	Increasing Dollar	Increasing Dollar	Increasing Dollar	Increasing Dollar	Increasing Dollar	Increasing Dollar	Increasing Dollar	NA[2]
Post-2010 Unfundeds	Level Dollar	Level Dollar	Level Dollar	Level Dollar	Level Dollar	Level Dollar	Level Dollar	Level Dollar	NA[2]
Remaining amortization period:									
Initial Unfunded	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[2]
2010 ERI	0	0	1 year (closed)	2 years (closed)	3 years (closed)	4 years (closed)	5 years (closed)	NA	NA[2]
2011 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[2]
2012 Actuarial Gain/Loss	10 years (closed)	11 years (closed)	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA[2]
2013 Actuarial Gain/Loss	11 years (closed)	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA	NA[2]
2014 Actuarial Gain/Loss	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA	NA	NA[2]
2015 Actuarial Gain/Loss	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA	NA	NA	NA[2]
2016 Actuarial Gain/Loss	14 years (closed)	15 years (closed)	NA	NA	NA	NA	NA	NA	NA[2]
2017 Actuarial Gain/Loss	15 years (closed)	NA	NA	NA	NA	NA	NA	NA	NA[2]
2017 ASAF Method Change	20 years (closed)	NA	NA	NA	NA	NA	NA	NA	NA[2]
2017 Method Change	20 years (closed)	NA	NA	NA	NA	NA	NA	NA	NA[2]
2017 Assumption Change	20 years (closed)	NA	NA	NA	NA	NA	NA	NA	NA[2]
Actuarial Asset Valuation (AAV) Method[3]	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AAV 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 AAV 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 AAV 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 AAV 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 AAV 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 AAV 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 AAV 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 AAV 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 Independent Auditors' Report.

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

(In Thousands)

SCHEDULE 2 (CONTINUED)

Valuation Dates	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[4]	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 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 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[4]	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[4]	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

[1] 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·

[2] 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.

[3] As of the June 30, 2014 (Lag) valuation, the AAV is constrained to be no more than 20% from Fair Value.

[4] Developed using a long-term Consumer Pric3e Inflation assumption of 2.5% per year.

See Independent Auditors' Report.

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 six fiscal years:

Fiscal Year-Ended	Money-weighted Rate of Return
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 GASB No. 67, paragraph 50, such information was not readily available for periods prior to 2014.