

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, 2018 and June 30,
2017**

M A R K S P A N E T H

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 "Systems"), a fiduciary fund of The City of New York, as of June 30, 2018 and 2017, 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 Systems' 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 Systems' 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 Systems' 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 Systems as of June 30, 2018 and 2017, 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.

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

October 26, 2018

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
JUNE 30, 2018 AND 2017**

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, 2018 and 2017. 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 year. All changes affecting the assets/deferred outflow and liabilities/deferred inflow of the System are reflected on an accrual basis when the activity occurred, regardless of the timing of the related cash flows. In that regard, changes in the fair values of investments are included in the year's activity as net appreciation (depreciation) in fair value of investments.
- **The Notes to Combining Financial Statements** — provide additional information that is essential to a full understanding of the data provided in the 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.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
JUNE 30, 2018 AND 2017**

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 2018 QPP summary information of the employer groups.

	Members Active	Contribution Employer	Contribution Member	Members Retired	Pension Payments
DOE	115,000	\$ 3.7 billion	\$ 183 million	83,000	\$ 4.2 billion
CUNY	7,700	\$ 148 million	\$ 11 million	2,600	\$ 132 million
Charter Schools	600	\$ 7.4 million	\$ 1.2 million	less than 50	\$ 1.4 million

UFT Contract

The collective bargaining agreement of the United Federation of Teachers ("UFT"), the primary union for the DOE's employees, was ratified in June 2014 and expires in February 2019. The current agreement includes retroactive and regular wage increases. The wage increases impact employer contributions, member contributions, and payments to retirees.

FINANCIAL HIGHLIGHTS

QPP Fiduciary Net Position

The QPP's net position restricted for benefits is held in trust for the payment of future benefits to members and pensioners. The QPP's net position restricted for benefits was \$54.5 billion, \$50.1 billion, and \$43.6 billion as of June 30, 2018, 2017, and 2016, respectively. The System's employer contributions amounted to \$3.9 billion, \$3.9 billion, and \$3.8 billion, for Fiscal Years 2018, 2017, and 2016, respectively. The QPP's benefit payments totaled \$4.4 billion, \$4.2 billion, and \$4.1 billion, for Fiscal Years 2018, 2017, and 2016, respectively. Below is a summary of the QPP's net position and changes in net position.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
JUNE 30, 2018 AND 2017**

**QPP Fiduciary Net Position
June 30, 2018, 2017, and 2016
(In thousands)**

	2018	2017	2016
Cash	\$ 75,847	\$ 101,499	\$ 5,157
Receivables for investments sold	839,544	989,725	1,772,521
Receivables for accrued interest and dividends	273,387	164,163	151,330
Member loan receivables	312,219	298,146	275,704
Investments, at fair value	78,901,469	72,404,290	64,406,187
Collateral from securities lending	1,117,592	1,610,321	1,858,682
Other assets	62,852	38,932	49,873
	<u>81,582,910</u>	<u>75,607,076</u>	<u>68,519,454</u>
Total assets			
Accounts payable	643,567	529,059	417,408
Payable for investments purchased	1,568,064	1,353,803	2,308,523
Accrued benefits payable	13,858	13,987	12,563
Investments due to TDA Program	23,707,352	22,004,183	20,292,733
Payable for securities lending	1,117,593	1,610,321	1,858,682
	<u>27,050,434</u>	<u>25,511,353</u>	<u>24,889,909</u>
Total liabilities			
Net position restricted for benefits	<u>\$ 54,532,476</u>	<u>\$ 50,095,723</u>	<u>\$ 43,629,545</u>

Cash balances amounted to \$75.8 million at June 30, 2018, a decrease of \$25.7 million (-25.3%) from June 30, 2017. As of June 30, 2017, cash balances amounted to \$101.5 million, an increase of \$96.3 million (1,868.2%) from June 30, 2016. 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, 2018, the largest cash balances consisted of the International and Private Equity investment managers of the TRSNYC Pension fund with \$30.3 million and \$24.1 million, respectively. Large cash balances held by an investment manager are due to a recent sale or the general investment cycle. For example, Private Equity's investment cycle generally begins with cash from assets sold during the month and ends with subsequent purchases following month-end.

Receivables for investment securities sold amounted to \$839.5 million at June 30, 2018, a decrease of \$150.2 million (-15.2%) from June 30, 2017. Receivables for investment securities sold amounted to \$989.7 million at June 30, 2017, a decrease of \$782.8 million (-44.2%) from June 30, 2016. 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 decreases resulted primarily from timing differences between trade and settlement dates. Trades typically do not settle until a few days after the trade date.

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. Receivables for accrued interest and dividends amounted to \$164.2 million as of June 30, 2017, an increase of \$12.8 million (8.5%) from June 30, 2016.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
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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, 2018, member loan receivables amounted to \$312.2 million, an increase of \$14.1 million (4.7%) from the previous year. At June 30, 2017, member loan receivables amounted to \$298.1 million, an increase of \$22.4 million (8.1%) 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, 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, 2018, the QPP's total investment portfolio, including both the TRSNYC Pension and Variable-Return Funds, consisted of 54% equity investments, 35% fixed income securities and 11% alternative investments (primarily private equity and real estate investments). The \$6.5 billion annual increase in investments is the result of \$6.3 billion in net investment income plus a \$364.4 million net increase in the year-over-year payables for investment securities purchased and investment receivables sold. More generally, investments as of June 30, 2018, in comparison with investment values as of June 30, 2017, reflect the equity and fixed income market's annual returns. For the year ended June 30, 2018, the Russell 3000 Index, a broad measure of U.S. equity markets, returned 14.8%. The Morgan Stanley Capital International Index for Europe, Australasia and Far East ("MSCI EAFE") returned 7.7%. The NYC Core + 5, a composite index maintained by New York City's Office of the Comptroller and a broad measure of the U.S. fixed income markets, returned -0.5%. The Dow Jones U.S. Select Real Estate Securities Index returned 4.2%. Investments at June 30, 2017 were \$72.4 billion compared to \$64.4 billion at June 30, 2016, an increase of \$8.0 billion (12.4%) from June 30, 2016. As of June 30, 2017, the QPP's total investment portfolio consisted of 60% equity investments, 30% fixed income securities and 10% alternative investments (primarily private equity and real estate investments). For the twelve-month period ended June 30, 2017, the Russell 3000 Index returned 18.5%, the MSCI EAFE returned 20.8%, the NYC Core +5 returned -0.2%, and the Dow Jones Select Real Estate Securities Index returned -2.4%

Other assets at June 30, 2018 totaled \$62.9 million, a \$24.0 million (61.4%) increase from June 30, 2017. Other assets at June 30, 2017 totaled \$38.9 million, a \$10.9 million (-21.9%) decrease from June 30, 2016. The year-over-year change in other assets, as of June 30, 2018, was primarily due to an \$11.6 million City University of New York (CUNY) receivable, subsequently received in July 2018, and a \$10.0 million (83.6%) increase in assets allocated for future administrative expenses.

Accounts payable at June 30, 2018 amounted to \$643.6 million, a \$114.5 million (21.6%) increase from June 30, 2017. The \$114.5 million increase was primarily due to a \$319.3 million increase in balances due to depositories less a \$209.4 million decrease in accrued investment expenses. The \$319.3 million increase in balance due to depositories included \$284.8 million Electronic Fund Transaction (EFT) payments outstanding on Saturday, June 30th 2018, and subsequently paid on Monday, July 2nd 2018. 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%). Accounts payable at June 30, 2017 amounted to \$529.1 million, a \$111.7 million (26.7%) increase from June 30, 2016. Accounts payable as of June 30, 2017 consisted of accrued investment expenses (45.7%), balances due to depositories (28.3%), reserve for expenses (16.4%), unclaimed funds (5.4%), and other payables (4.2%). The \$111.7 million increase in accounts payable was primarily due to a \$16.0 million net increase in balances due to depositories and a \$96.1 million increase in accrued investment expenses.

Payables for investments purchased at June 30, 2018 amounted to \$1.6 billion, a \$214.3 million (15.8%) increase from June 30, 2017. Payables for investments purchased at June 30, 2017 amounted to \$1.4 billion, a \$954.7 million (-41.4%) decrease from June 30, 2016. 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.

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Accrued benefits payable at June 30, 2018 amounted to \$13.9 million, a \$129.0 thousand (-0.9%) decrease from June 30, 2017. The \$129.0 thousand decrease is primarily attributed to a decrease of pending refunds/withdrawals due at year-end. Accrued benefits payable at June 30, 2017 amounted to \$14.0 million, a \$1.4 million (11.3%) increase from June 30, 2016. The \$1.4 million increase is primarily attributed to an increase of pending benefits payable to new retirees at year-end.

Investments due to the TDA Program reflect the TDA Program's share of assets of the TRS NYC 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 TRS NYC 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, 2018, 2017, and 2016
(In thousands)**

	2018	2017	2016
Additions:			
Member contributions	\$ 195,241	\$ 180,076	\$ 173,696
Employer contributions	3,949,689	3,945,768	3,760,714
Net receipts from other retirement systems	(3,534)	(2,291)	1,233
Net securities lending income	15,325	17,446	17,347
Net investment income	6,259,790	8,115,834	942,920
Payment of statutory-interest to TDA Program	<u>(1,595,462)</u>	<u>(1,466,615)</u>	<u>(1,354,207)</u>
Total additions	<u>8,821,049</u>	<u>10,790,218</u>	<u>3,541,703</u>
Deductions:			
Administrative expenses	65,076	60,790	59,367
TDA Rebalance	(32,704)	43,938	-
Benefits payments and withdrawals	<u>4,351,924</u>	<u>4,219,312</u>	<u>4,107,455</u>
Total deductions	<u>4,384,296</u>	<u>4,324,040</u>	<u>4,166,822</u>
Net (decrease) increase in net position	<u>\$ 4,436,753</u>	<u>\$ 6,466,178</u>	<u>\$ (625,119)</u>
Net position restricted for benefits			
Beginning of year	<u>50,095,723</u>	<u>43,629,545</u>	<u>44,254,664</u>
End of year	<u>\$ 54,532,476</u>	<u>\$ 50,095,723</u>	<u>\$ 43,629,545</u>

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
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TRS received \$195.2 million in member contributions in Fiscal Year 2018, a \$15.1 million (8.4%) increase from Fiscal Year 2017. TRS received \$180.1 million in member contributions in Fiscal Year 2017, a \$6.4 million (3.7%) increase from Fiscal Year 2016. The \$15.1 million increase in Fiscal Year 2018 and the \$6.4 million increase in Fiscal Year 2017 were both primarily due to salary increases resulting from the 2014 UFT contract and a larger active Tier VI membership.

Employer contributions during Fiscal Year 2018 were \$3.9 billion, a \$3.9 million (0.1%) increase from Fiscal Year 2017. Employer contributions during Fiscal Year 2017 were \$3.9 billion, a \$185.1 million (4.9%) increase from Fiscal Year 2016. The increase was primarily due to increases in the amortization payments for the 2010 initial unfunded liability and a net actuarial gain. The June 30, 2016 (Lag) actuarial valuation and June 30, 2015 (Lag) actuarial valuation were used to determine Fiscal Year 2018 and 2017 employer contributions, 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. The QPP's net investment income for Fiscal Year 2017 was \$8.1 billion, a \$7.2 billion (760.7%) increase from Fiscal Year 2016. The QPP's net investment income of \$8.1 billion consisted of \$1.9 billion in dividend and interest income plus a net gain of \$6.5 billion on the appreciation in fair value of the QPP's investments less \$313.8 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 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 \$7.3 billion, \$796.9 million, \$906.6 thousand, \$2.3 million, \$84.2 thousand, and \$1.7 million, respectively.

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. Payments of statutory-interest due to the TDA from its investment in the TRSNYC Pension Fund Assets (Fixed Return Fund) during Fiscal Year 2017 were \$1.5 billion, an increase of \$112.4 million (8.3%) from Fiscal Year 2016.

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. For Fiscal Year 2017, the TDA Fixed Return Fund program resulted in approximately \$951.1 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 2018, 2017, and 2016.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
JUNE 30, 2018 AND 2017**

Revenue (Expense) to Contingent Reserve Fund

TRSNYC Pension Fund Assets (QPP)*

Years Ended 2018, 2017, and 2016

(In thousands)

	2018	2017	2016
Net Investment Income	\$ 5,541,133	\$ 7,327,841	\$ 981,061
TDA percent of Fixed Assets as of June 30	32.74%	33.30%	32.69%
TDA percent of Fixed Assets 6/30/15:			30.26%
TDA percent of Fixed Assets (average)	33.02%	32.99%	31.47%
Investment Income on account of TDA Investment	\$ 1,829,591	\$ 2,417,743	\$ 308,775
Less Statutory Interest to TDA	<u>(1,595,462)</u>	<u>(1,466,615)</u>	<u>(1,354,207)</u>
Revenue (Expense) to QPP Contingent Reserve	<u>\$ 234,129</u>	<u>\$ 951,128</u>	<u>\$ (1,045,432)</u>

*Includes security-lending income

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 2014, the System began a phased implementation to replace its outdated 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 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. Administrative expenses during Fiscal Year 2017 were \$60.8 million, an increase of \$1.4 million (2.4%) from Fiscal Year 2016. In Fiscal Year 2017, the System updated its member enrollment process, enhanced its enterprise content management and member website platforms, and continued with other implementation initiatives. The QPP's total administrative expenses for Fiscal Year 2017 accounted for 64.1% of the System's administrative expenditures. The balance of \$34.0 million (35.9%) included \$33.0 million expensed to the TDA Program and also \$1.0 million charged against incoming loan service charge revenues. The System's administrative expenditures have been \$87.5 million, \$94.9 million, and \$92.4 million, for Fiscal Years 2018, 2017, and 2016, respectively.

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. 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, \$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 Payables). In Fiscal Year 2017, following liability reviews conducted by the Actuary of the City of New York and in concert with the Office of the Comptroller of the City of New York, \$43.9 million was transferred due to a deficit in the TDA Program's Variable Annuity and Pension Reserve Funds. Also, \$3.8 billion was transferred to fully fund the QPP Program's Variable Annuity and Pension Reserve Funds.

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 98.43% in retirement benefits and 1.57% in refund/withdrawals and survivor benefits. Benefit payments and withdrawals during Fiscal Year

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MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
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2017 were \$4.2 billion, a \$111.9 million (2.7%) increase from Fiscal Year 2016. The \$111.9 million increase in benefit payments and withdrawals was primarily due to a \$110.3 million (2.7%) increase in payments to retirees. In total, benefit payments and withdrawals distributed during Fiscal Year 2017 were composed of 98.35% in retirement benefits and 1.65% in refund/withdrawals and survivor benefits.

TDA Program Financial Highlights — The TDA Program's net position restricted for benefits was \$33.4 billion, \$31.1 billion, and \$28.4 billion, as of June 30, 2018, 2017, and 2016, respectively. Member contributions amounted to \$856.3 million, \$743.7 million, and \$717.6 million, for Fiscal Years 2018, 2017, and 2016, respectively. Benefit payments and withdrawals totaled \$1.1 billion, \$1.0 billion, and \$917.2 million, for Fiscal Years 2018, 2017, and 2016, 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, 2018, 2017, and 2016**

(In thousands)	2018	2017	2016
Cash	\$ 7,371	\$ 3,952	\$ 4,699
Receivables for investments sold	7,250	23,956	29,686
Receivables for accrued interest and dividends	15,580	12,777	13,282
Member loan receivables	386,804	376,016	367,864
Investments, at fair value	9,427,324	8,838,152	7,946,654
Investment in TRSNYC Pension Fund	23,707,352	22,004,183	20,292,733
Collateral from securities lending	95,170	108,414	282,602
Other assets	18,613	16,296	13,429
Total assets	<u>33,665,464</u>	<u>31,383,746</u>	<u>28,950,949</u>
Accounts payable	85,715	96,908	103,283
Payable for investment securities purchased	12,473	43,416	29,597
Accrued benefits payable	91,124	82,915	91,127
Payable for securities lending transactions	95,170	108,414	282,602
Total liabilities	<u>284,482</u>	<u>331,653</u>	<u>506,609</u>
Net position held in trust for benefits	<u>\$ 33,380,982</u>	<u>\$ 31,052,093</u>	<u>\$ 28,444,340</u>

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 amounted to \$4.0 million at June 30, 2017, a decrease of \$747.0 thousand (-15.9%) from June 30, 2016. Cash balances consist of accounts used to reimburse the funds of the Variable-Annuity Program or accounts used for advance funding of the variable-return funds' investment managers.

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. Receivables for investment securities sold at June 30, 2017 amounted to \$24.0 million, a decrease of \$5.7 million (-19.3%) from June 30, 2016. 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, 2018 were \$15.6 million, an increase of \$2.8 million (21.9%) from June 30, 2017. Receivables for accrued earnings at June 30, 2017 were \$12.8 million, a decrease of \$505 thousand (-3.8%) from June 30, 2016. 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.

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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. Member loan receivables at June 30, 2017 amounted to \$376.0 million, an increase of \$8.2 million (2.2%) from June 30, 2016. For Fiscal Year 2017, loan disbursements amounted to \$186.7 million and principal and interest payments amounted to \$192.3 million. 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. The variable-return funds' investments at June 30, 2017, including collateral received for securities lending, were \$8.9 billion, an increase of \$717.3 million (8.7%) from June 30, 2016.

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. Assets of the TDA Program's Fixed Return Fund invested in the TRSNYC Pension Fund at June 30, 2017 were \$22.0 billion, an increase of \$1.7 billion (8.4%) from June 30, 2016. In addition to the 7% statutory return for UFT members [and 8.25% for non-UFT members] for Fiscal Year 2017, contributions, withdrawals and investment transfers to (from) the Fixed Return Fund totaled \$515.6 million, -\$760.7 million and \$515.0 million, respectively.

Other assets at June 30, 2018 were \$18.6 million, an increase of \$2.3 million (14.2%) over June 30, 2017. Other assets at June 30, 2017 were \$16.3 million, an increase of \$2.9 million (21.4%) over June 30, 2016. Other assets primarily represent assets already allocated for future administrative expenses.

Accounts payable at June 30, 2018 amounted to \$85.7 million, a decrease of \$11.2 million (-11.6%) from June 30, 2017. Accounts payable at June 30, 2017 amounted to \$96.9 million, compared to \$103.3 million at June 30, 2016, a decrease of -6.2%. 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, 2018 amounted to \$12.5 million, a decrease of \$30.9 million (71.3%) from June 30, 2017. Payables for investment securities purchased at June 30, 2017 amounted to \$43.4 million, an increase of \$13.8 million (46.7%) from June 30, 2016. 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, 2018 amounted to \$91.1 million, an increase of \$8.2 million (9.9%) from June 30, 2017. Accrued benefits payable at June 30, 2017 amounted to \$82.9 million, a decrease of \$8.2 million (-9.0%) from June 30, 2016. Changes in accrued benefits payable are attributed to changes in TDA withdrawal amounts processed in July and August (an estimate is used for August) after year-end.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
JUNE 30, 2018 AND 2017**

**Changes in TDA Program's Fiduciary Net Position
Years Ended June 30, 2018, 2017, and 2016
(In Thousands)**

	2018	2017	2016
Additions:			
Member contributions	\$ 856,294	\$ 743,663	\$ 717,566
Receipt of statutory-interest for portion of investment in TRSNYC Pension Fund	1,595,462	1,466,615	1,354,207
Net investment income	1,053,660	1,396,698	(14,858)
Net securities lending income	<u>1,531</u>	<u>1,802</u>	<u>3,664</u>
Total additions	<u>3,506,947</u>	<u>3,608,778</u>	<u>2,060,579</u>
Deductions:			
Administrative expenses	22,456	33,032	32,632
TDA rebalance	32,704	(43,938)	-
Benefits payments	<u>1,122,898</u>	<u>1,011,931</u>	<u>917,189</u>
Total deductions	<u>1,178,058</u>	<u>1,001,025</u>	<u>949,821</u>
Net increase in net position	<u>\$ 2,328,889</u>	<u>\$ 2,607,753</u>	<u>\$ 1,110,758</u>
Net position restricted for benefits			
Beginning of year	<u>31,052,093</u>	<u>28,444,340</u>	<u>27,333,582</u>
End of year	<u>\$ 33,380,982</u>	<u>\$ 31,052,093</u>	<u>\$ 28,444,340</u>

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. TRS's TDA Program received \$743.7 million in member contributions during Fiscal Year 2017, an increase of \$26.1 million (3.6%) from Fiscal Year 2016. There were 83,856 members contributing in Fiscal Year 2017 compared to 81,112 members contributing in Fiscal Year 2016.

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. Receipts of statutory-interest for the TDA Program's Fixed Return Fund portion in investments in the TRSNYC Pension Fund assets for Fiscal Year 2017 were \$1.5 billion, an increase of \$112.4 million (8.3%) from Fiscal Year 2016.

Net investment income for the TDA Program's variable-return funds for Fiscal Year 2018 decreased \$343.0 million (-24.6%) from Fiscal Year 2017. Net investment income for the TDA Program's variable-return funds for Fiscal Year 2017 increased \$1.4 billion from Fiscal Year 2016. 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, 2018 totaled \$22.4 million, a decrease of \$10.6 million (-32.0%) from Fiscal Year 2017. Administrative expenses for the Fiscal Year ended June 30, 2017 totaled \$33.0 million, an increase of \$400 thousand (1.2%) from Fiscal Year 2016. 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 2018 resulted in a \$32.7 million transfer to the TRSNYC Pension Fund from the TDA Program. The TDA rebalance during Fiscal Year 2017 resulted in a \$43.9 million transfer from the TRSNYC Pension Fund to the TDA Program. The Administrative Code of the City of

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
JUNE 30, 2018 AND 2017**

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 Payables.

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 for the Fiscal Year ended June 30, 2017 totaled \$1.0 billion, an increase of \$94.7 million (10.3%) from Fiscal Year 2016. Benefit payments and withdrawals consist primarily of total and partial withdrawals.

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, 2018		June 30, 2017		June 30, 2016	
	QPP	TDA	QPP	TDA	QPP	TDA
Contributions	\$ 4,144,930	\$ 856,294	\$ 4,125,844	\$ 743,663	\$ 3,934,410	\$ 717,566
Contributions — Loan adj.	-	(16)	-	(157)	-	(195)
Loan repayments (cash)	140,129	197,528	131,640	192,340	122,050	186,774
401(a) receipts/(payments)	(3,534)	-	(2,291)	-	1,233	-
Interest income	1,330,009	35,177	932,169	34,368	860,223	33,469
Interest income — Loan adj.	(21,407)	(26,615)	(20,450)	(26,192)	(19,857)	(25,701)
Dividend income	1,056,636	146,932	981,087	138,237	896,208	128,383
Investment expenses (net)	(350,668)	(2,148)	(313,801)	5,518	(215,068)	5,645
Benefits/withdrawals	(4,351,924)	(1,122,898)	(4,219,312)	(1,011,931)	(4,107,455)	(917,189)
Withdrawals — Loan adj.	17,713	8,511	16,559	13,069	19,639	9,221
New loans	(150,066)	(189,680)	(149,750)	(186,684)	(140,000)	(176,403)
Administrative expenses	(65,076)	(22,456)	(60,790)	(33,032)	(59,367)	(32,632)
	<u>\$ 1,746,742</u>	<u>\$ (119,371)</u>	<u>\$ 1,420,905</u>	<u>\$ (130,801)</u>	<u>\$ 1,292,016</u>	<u>\$ (71,062)</u>

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
JUNE 30, 2018 AND 2017**

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, 2018		June 30, 2017		June 30, 2016	
	QPP	TDA	QPP	TDA	QPP	TDA
TRSNYC Pension Fund	67.3%	32.7%	66.7%	33.3%	67.3%	32.7%
Variable-Return Funds:						
Diversified equity*	40.6%	55.8%	41.4%	55.2%	22.1%	73.4%
Balanced fund**	18.8%	81.2%	22.1%	77.9%	7.5%	92.5%
International equity	7.9%	92.1%	9.7%	90.3%	8.0%	92.0%
Inflation protection	7.1%	92.9%	8.8%	91.2%	8.9%	91.1%
Socially responsive equity	6.3%	93.7%	7.4%	92.6%	6.5%	93.5%

* 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 used to monitor the complete TRS NYC Pension Fund. As of June 30, 2018, the policy index includes the following:

TRSNYC Pension Fund Policy Index as of June 30, 2018*

<u>Investment Type</u>	<u>Benchmark</u>	<u>Percent</u>
U.S. Equity	Russell 3000	32.7%
International Developed EAFE Markets	MSCI World ex USA IMI Net	11.8%
Emerging Markets	FTSE Custom NYC Teachers Emerging Markets	9.0%
International Emerging Managers FoF	NYC Blended Custom Benchmark for FoF	0.5%
Private Equity	Russell 3000 + 300 b.p per annum	5.3%
Private Real Estate - Core	NFI - ODCE Net	2.4%
Private Real Estate - Non Core	NFI - ODCE Net + 200 bps	1.3%
Infrastructure	CPI + 4%	0.8%
US Treasury Long Duration	FTSE Treasury 10+	10.8%
Mortgage	FTSE Mortgage Index	4.3%
ETI	ETI Custom Benchmark	0.9%
Investment Grade Credit	NYC - Investment Grade Credit	5.2%
High Yield	FTSE BB&B	6.2%
Bank Loans	Credit Suisse Leveraged Loan	2.0%
TIPS	BBG BARC Gbl Inf-Lk: US TIPS (Dly)	4.3%
Opportunistic Fixed	OFI - JPMGHY / CSFB 50/50 Blend Plus 300 b.p. per annum	2.5%
		100.0%

*Source: Teachers' Retirement System of New York City Performance Overview as of June 30, 2018, 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.

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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, 2018, net securities lending income amounted to \$16.8 million, a decrease of \$2.4 million from Fiscal Year 2017. For the Fiscal Year ended June 30, 2017, net securities lending income amounted to \$19.2 million, a decrease of \$1.7 million from Fiscal Year 2016. (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)**

	2018	2017	2016
Short-term investments	\$ 1,971,516	\$ 1,249,819	\$ 2,314,459
Debt securities	20,607,574	16,326,740	15,196,888
Equity securities	51,313,246	51,172,993	43,392,606
Alternative investments	8,926,759	7,523,885	6,872,850
Fixed income	5,509,698	4,969,005	4,576,038
Collateral from securities lending	<u>1,212,762</u>	<u>1,718,735</u>	<u>2,141,284</u>
Total	<u>\$ 89,541,555</u>	<u>\$ 82,961,177</u>	<u>\$ 74,494,125</u>

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

	2018	2017	2016
TRSNYC Pension Fund			
QPP	\$ 48,704,639	\$ 44,080,037	\$ 41,782,211
TDA	<u>23,707,352</u>	<u>22,004,183</u>	<u>20,292,733</u>
Total	<u>72,411,991</u>	<u>66,084,220</u>	<u>62,074,944</u>

Variable-Return Funds

QPP	6,489,478	6,320,070	2,331,243
TDA	<u>9,427,324</u>	<u>8,838,152</u>	<u>7,946,654</u>
Total	<u>15,916,802</u>	<u>15,158,222</u>	<u>10,277,897</u>

Collateral for Security Lending

QPP Pension Fund	1,048,388	1,530,310	1,774,456
QPP Variable-Return Funds	69,204	80,011	84,226
TDA Variable-Return Funds	<u>95,170</u>	<u>108,414</u>	<u>282,602</u>
Total	<u>1,212,762</u>	<u>1,718,735</u>	<u>2,141,284</u>

Total Investments	<u>\$ 89,541,555</u>	<u>\$ 82,961,177</u>	<u>\$ 74,494,125</u>
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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, 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	<u>1,425,150</u>	<u>409,634</u>	<u>-</u>	<u>1,834,784</u>
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	<u>80,019,061</u>	<u>9,522,494</u>	<u>-</u>	<u>89,541,555</u>
TDA Investment in TRSNYC Pension Fund	-	23,707,352	(23,707,352)	-
Other assets	62,852	18,613	(32,538)	48,927
Total assets	<u>81,582,910</u>	<u>33,665,464</u>	<u>(23,739,890)</u>	<u>91,508,484</u>
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	<u>27,050,434</u>	<u>284,482</u>	<u>(23,739,890)</u>	<u>3,595,026</u>
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	<u>\$ 54,532,476</u>	<u>\$ 33,380,982</u>	<u>\$ -</u>	<u>\$ 87,913,458</u>

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
COMBINING STATEMENTS OF FIDUCIARY NET POSITION
JUNE 30, 2017
(In Thousands)

ASSETS:	QPP	TDA	Eliminations	Total
Cash	\$ 101,499	\$ 3,952	\$-	\$ 105,451
Receivables:				
Investment securities sold	989,725	23,956	-	1,013,681
Accrued interest and dividends	164,163	12,777	-	176,940
Member loans (Note 6)	298,146	376,016	-	674,162
Total receivables	<u>1,452,034</u>	<u>412,749</u>	<u>-</u>	<u>1,864,783</u>
Investments — at fair value (Notes 2 and 3):				
TRSNYC Pension Fund Assets (Fixed-Return Fund):				
Short-term investment:				
Commercial paper	230,093	-	-	230,093
Short-term investment fund	557,945	-	-	557,945
Discount notes	282,248	-	-	282,248
Debt securities:				
U.S. Government	7,947,669	-	-	7,947,669
Corporate and Other	7,753,224	-	-	7,753,224
Equity securities	21,086,002	-	-	21,086,002
Alternative Investments	7,523,885	-	-	7,523,885
Collective Trust Funds:				
International equity	15,734,149	-	-	15,734,149
Mortgage debt security	495,540	-	-	495,540
Treasury inflation protected securities	2,682,432	-	-	2,682,432
Fixed income	1,791,033	-	-	1,791,033
Collateral from securities lending (Fixed-Return Fund)	1,530,310	-	-	1,530,310
Diversified Equity Fund:				
Short-term investments	65,825	87,693	-	153,518
Equity securities	6,031,258	7,978,749	-	14,010,007
Debt securities	106,307	141,623	-	247,930
Bond Fund:				
Short-term investments	3,576	12,643	-	16,219
Debt securities	83,333	294,584	-	377,917
International Equity Fund:				
Short-term investments	53	490	-	543
International equity	12,436	115,770	-	128,206
Inflation Protection Fund:				
Short-term investments	23	240	-	263
Equity securities	4,761	49,088	-	53,849
Socially Responsive Equity Fund:				
Short-term investments	662	8,328	-	8,990
Equity securities	11,320	142,456	-	153,776
International equity	516	6,488	-	7,004
Collateral from securities lending (Variable-Return Funds)	80,011	108,414	-	188,425
Total investments	<u>74,014,611</u>	<u>8,946,566</u>	<u>-</u>	<u>82,961,177</u>
TDA Investment in TRSNYC Pension Fund	-	22,004,183	(22,004,183)	-
Other assets	38,932	16,296	(27,165)	28,063
Total assets	<u>75,607,076</u>	<u>31,383,746</u>	<u>(22,031,348)</u>	<u>84,959,474</u>
LIABILITIES:				
Accounts payable	529,059	96,908	(27,165)	598,802
Payable for investment securities purchased	1,353,803	43,416	-	1,397,219
Accrued benefits payable	13,987	82,915	-	96,902
Due to TDA Program's Fixed Return Fund	22,004,183	-	(22,004,183)	-
Securities lending (Note 2)	1,610,321	108,414	-	1,718,735
Total liabilities	<u>25,511,353</u>	<u>331,653</u>	<u>(22,031,348)</u>	<u>3,811,658</u>
NET POSITION RESTRICTED FOR BENEFITS				
Benefits to be provided by QPP	50,095,723	-	-	50,095,723
Benefits to be provided by TDA Program	-	31,052,093	-	31,052,093
Total net position restricted for benefits	<u>\$ 50,095,723</u>	<u>\$ 31,052,093</u>	<u>\$ -</u>	<u>\$81,147,816</u>

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	<u>4,144,930</u>	<u>856,294</u>	<u>5,001,224</u>
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	<u>6,610,458</u>	<u>1,055,808</u>	<u>7,666,266</u>
Less:			
Investment expenses	356,269	10,436	366,705
Net (decrease) in variable expense provision	<u>(5,601)</u>	<u>(8,288)</u>	<u>(13,889)</u>
Net investment income	<u>6,259,790</u>	<u>1,053,660</u>	<u>7,313,450</u>
Securities lending transactions:			
Securities lending income	16,654	1,706	18,360
Less - securities lending fees	<u>(1,329)</u>	<u>(175)</u>	<u>(1,504)</u>
Net securities lending income	<u>15,325</u>	<u>1,531</u>	<u>16,856</u>
Total additions	<u>10,420,045</u>	<u>1,911,485</u>	<u>12,331,530</u>
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	<u>5,983,292</u>	<u>(417,404)</u>	<u>5,565,888</u>
NET INCREASE IN NET POSITION	4,436,753	2,328,889	6,765,642
NET POSITION RESTRICTED FOR BENEFITS:			
Beginning of year	<u>50,095,723</u>	<u>31,052,093</u>	<u>81,147,816</u>
End of year	<u>\$ 54,532,476</u>	<u>\$ 33,380,982</u>	<u>\$ 87,913,458</u>

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
COMBINING STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION
YEAR ENDED JUNE 30, 2017
(In Thousands)

	QPP	TDA	Total
ADDITIONS:			
Contributions:			
Member contributions (Note 4)	\$ 180,076	\$ 743,663	\$ 923,739
Employer contributions	3,888,399	-	3,888,399
Other employer contributions	57,369	-	57,369
Total contributions	<u>4,125,844</u>	<u>743,663</u>	<u>4,869,507</u>
Investment income (Note 2):			
Interest income	932,169	34,368	966,537
Dividend income	981,087	138,237	1,119,324
Net appreciation in fair value of investments	6,516,379	1,218,575	7,734,954
Total investment income	<u>8,429,635</u>	<u>1,391,180</u>	<u>9,820,815</u>
Less:			
Investment expenses	316,180	12,478	328,658
Net (decrease) in variable expense provision	<u>(2,379)</u>	<u>(17,996)</u>	<u>(20,375)</u>
Net investment income	<u>8,115,834</u>	<u>1,396,698</u>	<u>9,512,532</u>
Securities lending transactions:			
Securities lending income	18,806	2,014	20,820
Less - securities lending fees	<u>(1,360)</u>	<u>(212)</u>	<u>(1,572)</u>
Net securities lending income	<u>17,446</u>	<u>1,802</u>	<u>19,248</u>
Total additions	<u>12,259,124</u>	<u>2,142,163</u>	<u>14,401,287</u>
DEDUCTIONS:			
Benefit payments and withdrawals	4,219,312	1,011,931	5,231,243
Administrative expenses (Note 8)	60,790	33,032	93,822
Other:			
Net receipts to other retirement systems	2,291	-	2,291
Statutory-interest for TDA Program's Fixed Return Fund	1,466,615	(1,466,615)	-
TDA Rebalance	<u>43,938</u>	<u>(43,938)</u>	<u>-</u>
Total deductions	<u>5,792,946</u>	<u>(465,590)</u>	<u>5,327,356</u>
NET INCREASE IN NET POSITION	6,466,178	2,607,753	9,073,931
NET POSITION RESTRICTED FOR BENEFITS:			
Beginning of year	43,629,545	28,444,340	72,073,885
End of year	<u>\$ 50,095,723</u>	<u>\$ 31,052,093</u>	<u>\$ 81,147,816</u>

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
NOTES TO COMBINING FINANCIAL STATEMENTS
JUNE 30, 2018 AND 2017

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").

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
NOTES TO COMBINING FINANCIAL STATEMENTS
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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, 2018 and June 30, 2017 consisted of:

QPP	2018 *	2017
Retirees and beneficiaries receiving benefits	86,000	84,770
Terminated vested members not yet receiving benefits	16,000	15,279
Other inactives**	8,000	7,997
Active members	<u>123,000</u>	<u>120,826</u>
Total	<u>233,000</u>	<u>228,872</u>
TDA Program	2018 *	2017
Retirees receiving a TDA annuity	2,800	2,866
Retirees or Inactive members with TDA deferral	56,000	54,448
Active members with TDA	<u>95,000</u>	<u>87,694</u>
Total	<u>153,800</u>	<u>145,008</u>

*Preliminary.

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

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
NOTES TO COMBINING FINANCIAL STATEMENTS
JUNE 30, 2018 AND 2017

The QPP's and TDA Program's membership, at June 30, 2016 and June 30, 2015, the dates of the membership data used in determining Fiscal Year 2018 and Fiscal Year 2017 employer contributions, consisted of:

QPP	2016	2015
Retirees and beneficiaries receiving benefits	84,093	82,777
Terminated vested members not yet receiving benefits	14,393	13,482
Other inactives*	7,401	7,347
Active members	118,201	114,652
Total	<u>224,088</u>	<u>218,258</u>
TDA Program	2016	2015
Retirees receiving a TDA annuity	2,930	2,991
Retirees or Inactive members with TDA deferral	52,722	50,854
Active members with TDA	84,907	81,184
Total	<u>140,559</u>	<u>135,029</u>

* 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.

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
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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 \$56.0 million and \$62.5 million, for the years ended June 30, 2018 and 2017, 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

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
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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.

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
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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 restrict 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.

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.

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
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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.

For Fiscal Year ended June 30, 2018, \$77.1 million and \$46.3 million of local securities from the QPP and TDA Program, respectively, were included with the short-term investments of the Diversified Equity Fund. For Fiscal Year ended June 30, 2017, \$84.6 million and \$56.6 million of local securities from the QPP and TDA Program, respectively, were included with the equity securities investments of the Diversified Equity Fund.

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
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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 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.

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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, 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. Similarly, in Fiscal Year 2017 the reserve for administrative and investment expenses totaled \$86,637,932 for QPP and \$61,098,894 for TDA. The expense reserve and net investment expenses for 2017 were reduced by \$2,379,262 for QPP and \$17,995,764 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 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. In Fiscal Year 2017, \$3.8 billion was transferred from the QPP TRSNYC Pension Fund to the QPP Variable-Return funds. In Fiscal Year 2017, \$43.9 million was transferred from the QPP TRSNYC Pension Fund to 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

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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, 2018 and 2017, 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 53.3 days for State Street's TRSNYC Pension Fund investments and 1.6 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 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.

During Fiscal Year 2017, net earnings from the securities-lending program were \$19.2 million. Net earnings from QPP were \$17.4 million, including \$16.1 million from TRSNYC Pension Fund and \$1.3 million from variable-return funds. The TDA net earnings from the Variable-Return funds securities-lending program amounted to \$ 1.8 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 52.3 days for State Street's TRSNYC Pension Fund investments and 0.6 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, 2018 and 2017, the values on loan by the TRSNYC Pension Fund were \$1.1 billion and \$1.5 billion, respectively, and the values on loan by the variable-return funds were \$160.0 million and \$183.4 million, respectively. Collateral received related to securities lending as of June 30, 2018 and 2017 was \$1.1 billion (including \$1.0 billion of cash collateral) and \$1.5 billion, respectively, for the TRSNYC Pension Fund, and \$164.4 million and \$188.48 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.

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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 2018 and 2017 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 *	
	2018	2017
Common stock	32.6%	33.1%
International investments – Non U.S.	12.2%	12.2%
International investments – Emerging Markets	9.1%	9.1%
Common stock – REITS	0.0%	0.0%
Alternative investments – Real Estate	3.6%	3.5%
Alternative investments – Private Equity	5.3%	5.0%
Alternative investments – Infrastructure	0.9%	0.6%
Alternative investments – Opportunistic Fixed Income	2.6%	2.5%
Fixed income	33.7%	34.0%
Total	100.0%	100.0%

* Represents adjusted target policy percentages.

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**Variable-Return Funds
Target Asset Allocations**

Investment Type	Asset Allocation	
	Percentages	
	2018	2017
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):		
Balanced Fund Investments	100.0%	0.0%
Fixed Income	0.0%	100.0%
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 TRS NYC 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.

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Credit Risk — Portfolios other than U.S. Government and related portfolios have credit rating limitations. The quality ratings of the TRSNYC Pension Fund, by percentage of the rated portfolio, as described by nationally recognized statistical rating organizations, at June 30, 2018 and 2017, are as follows:

Investment Type Pension Fund June 30, 2018	Moody's Quality Ratings																Caa1 & Below	Not Rated	Total	
	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3				
Investment Type (in percent)																				
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%	

Investment Type Pension Fund June 30, 2017	Moody's Quality Ratings																Caa1 & Below	Not Rated	Total	
	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3				
Investment Type (in percent)																				
U.S. Government	31.82%	0.05%	0.03%	-	-	0.01%	0.11%	-	0.08%	0.07%	0.01%	-	-	-	-	-	-	-	15.67%	47.85%
Corporate bonds	0.52%	0.21%	0.37%	0.45%	1.30%	1.38%	2.68%	4.54%	4.13%	4.87%	2.72%	1.97%	4.27%	3.26%	2.56%	3.62%	2.29%	5.48%	46.62%	
Short-term:																				
Commercial Paper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.23%	1.23%
Pooled Fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.99%	2.99%
Discount Notes & T-Bills	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.31%	1.31%
Percent of Rated Portfolio	32.34%	0.26%	0.40%	0.45%	1.30%	1.39%	2.79%	4.54%	4.21%	4.94%	2.73%	1.97%	4.27%	3.26%	2.56%	3.62%	2.29%	26.68%	100.00%	

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The quality ratings of the variable-return fund investments, both QPP and TDA, by percentage of the rated portfolio, as described by nationally recognized statistical rating organizations, at June 30, 2018 and 2017 are as follows:

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%

Investment Type Variable Funds June 30, 2017 *	Moody's Quality Ratings																			
	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 bonds	1.45%	0.93%	0.68%	0.66%	3.39%	2.15%	3.71%	3.78%	2.20%	3.21%	0.29%	1.10%	0.60%	0.16%	0.60%	0.26%	0.00%	0.06%	27.80%	53.03%
Yankee bonds	1.33%	-	0.07%	-	-	-	-	-	-	0.24%	-	-	-	-	-	-	-	-	-	1.64%
Municipal bonds	0.02%	0.22%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.24%
U.S Agencies	0.78%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.78%
Short-term:																				
Money Market	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44.31%	44.31%
Cash Equivalent	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent of rated portfolio	3.58%	1.15%	0.75%	0.66%	3.39%	2.15%	3.71%	3.78%	2.20%	3.45%	0.29%	1.10%	0.60%	0.16%	0.60%	0.26%	0.00%	0.06%	72.11%	100.00%

* U.S. Treasury Bonds and other securities that are obligations of the U.S. government or explicitly guaranteed by the U.S. government in 2017 were not considered by JP Morgan Chase, the Variable-Return Funds' Custodian, to have credit risk and are not included above.

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Custodial Credit Risk — Deposits are exposed to custodial credit risk if they are uninsured and uncollateralized. Custodial credit risk is the risk that, in the event of a failure of the counterparty, 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 TRS NYC 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 fair value of investments could be adversely affected by the change in interest rates. Duration limits are used to control the portfolios' exposure to interest rate changes. In the investment grade core Fixed Income portfolios, duration is limited to a range of one year shorter than the benchmark duration to 0.75 years longer than the duration of the benchmark indices. Duration range is a measure of the overall portfolio, while statements of the stated maturity reflect the specific maturities of the individual securities held. TRS possesses investment policy statements for its QPP and TDA Program and investment risk management is an inherent function of the asset allocation process.

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The lengths of investment maturities (in years) of TRSNYC Pension Fund investments, both QPP and TDA, as shown by the percent of the rated portfolio, at June 30, 2018 and 2017, are as follows:

Years to Maturity

June 30, 2018	Investment Maturities				
	Fair Value	Less than One Year	One to Five Years	Six to Ten Years	More than Ten Years
Investment Type					
Pension Fund					
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	<u>1.07</u>	<u>1.07</u>	<u>-</u>	<u>-</u>	<u>-</u>
Percent of rated portfolio	<u>100.00 %</u>	<u>7.81 %</u>	<u>33.46 %</u>	<u>26.58 %</u>	<u>32.15 %</u>

June 30, 2017	Investment Maturities				
	Fair Value	Less than One Year	One to Five Years	Six to Ten Years	More than Ten Years
Investment Type					
Pension Fund					
U.S. Government	47.85 %	0.93 %	8.38 %	7.75 %	30.79 %
Corporate bonds	46.62	1.76	14.74	20.36	9.76
Short-term:					
Commercial paper	1.23	1.23	-	-	-
Pooled funds	2.99	2.99	-	-	-
Discount Notes and Treasury	<u>1.31</u>	<u>1.31</u>	<u>-</u>	<u>-</u>	<u>-</u>
Percent of rated portfolio	<u>100.00 %</u>	<u>8.22 %</u>	<u>23.12 %</u>	<u>28.11 %</u>	<u>40.55 %</u>

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The lengths of investment maturities (in years) of the variable-return funds' for QPP and TDA, as shown by the percent of the rated portfolio, at June 30, 2018 and 2017, are as follows:

Years to Maturity

June 30, 2018	Investment Maturities (in years)				
	Fair Value	Less than One Year	One to Five Years	Six to Ten Years	More than Ten Years
Investment Type					
Variable Funds					
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	<u>100.00 %</u>	<u>51.87 %</u>	<u>27.60 %</u>	<u>15.20 %</u>	<u>5.33 %</u>

Years to Maturity

June 30, 2017	Investment Maturities (in years)				
	Fair Value	Less than One Year	One to Five Years	Six to Ten Years	More than Ten Years
Investment Type					
Variable Funds					
U.S. Government	21.19 %	0.73 %	19.34 %	1.12 %	- %
Corporate bonds	41.79	3.75	28.81	4.93	4.30
Yankee bonds	1.29	-	1.29	-	-
Municipal bonds	0.19	-	0.19	-	-
U.S. Agencies	0.62	-	0.62	-	-
Short-term:					
Money Market Funds	34.92	34.92	-	-	-
Cash Equivalent	-	-	-	-	-
Percent of rated portfolio	<u>100.00 %</u>	<u>39.40 %</u>	<u>50.25 %</u>	<u>6.05 %</u>	<u>4.30 %</u>

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 stock and/or bonds. The currency markets are diversifiers in a total portfolio context; therefore, the TRS NYC Pension Fund has numerous managers that invest globally. In general, currency exposure is viewed as a benefit for its diversification reasons and not as an inherent risk within the portfolio.

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In addition, the TRSNYC Pension Fund and variable-return funds have investments in foreign stocks and/or bonds denominated in foreign currencies. Foreign currency exposures as of June 30, 2018 and 2017 are as follows (amounts in thousands of U.S. dollars):

Trade Currency (in thousands)	Pension Fund June 30, 2018	Variable-Return Funds June 30, 2018	Pension Fund June 30, 2017	Variable-Return Funds June 30, 2017
Euro Currency	\$ 2,923,910	\$ 779,856	\$ 2,768,970	\$ 203,980
Japanese Yen	1,964,182	544,484	1,896,715	109,155
British Pnd Sterling	1,604,375	438,376	1,540,467	106,423
South Korean Won	1,284,166	75,314	1,311,912	86,007
Indian Rupee	966,612	52,587	945,837	53,586
New Taiwan Dollar	979,440	42,043	1,036,049	51,731
Swiss Franc	751,385	201,809	789,798	69,747
South African Rand	646,706	28,719	578,274	24,009
Brazilian Real	498,524	15,757	484,833	15,283
Canadian Dollar	408,646	23,176	313,530	32,829
Hong Kong Dollar	364,691	83,457	470,622	22,440
Australian Dollar	280,588	141,509	306,102	19,785
Mexican Nuevo Peso	271,175	6,807	302,743	7,815
Thai Baht	256,975	17,512	192,893	14,567
Danish Krone	239,095	39,163	219,133	11,278
Indonesian Rupiah	228,356	6,328	227,390	3,187
Swedish Krona	213,840	51,730	271,809	5,607
Malaysian Ringgit	191,489	12,626	182,270	12,742
Singapore Dollar	139,334	37,241	135,264	16,597
Turkish Lira	131,251	9,865	160,477	12,131
Polish Zloty	130,079	3,688	122,453	2,213
Philippines Peso	111,469	1,840	130,522	1,993
Chilean Peso	105,781	1,946	95,645	893
Norwegian Krone	104,159	21,193	81,229	7,498
Colombian Peso	48,093	-	45,587	-
UAE Dirham	38,464	2,350	39,763	2,134
Hungarian Forint	37,077	2,130	38,518	-
Czech Koruna	26,853	116	22,318	113
Qatari Rial	26,162	-	20,609	-
Egyptian Pound	20,455	213	22,244	79
Israeli Shekel	18,089	6,129	17,907	2,713
Peruvian Nuevo Sol	12,122	-	9,845	-
New Zealand Dollar	8,356	4,333	20,702	909
Total	\$ 15,031,899	\$ 2,652,297	\$ 14,802,430	\$ 897,444

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Securities Lending Transactions

Credit Risk — The quality ratings of investments held as collateral for Securities Lending by the TRSNYC Pension Fund at June 30, 2018 and 2017 are as follows (in thousands):

**Investment Type and Fair Value
of Securities Lending Transactions - Pension Fund
(in thousands)
June 30, 2018**

	Moodys Quality Ratings							Total
	Aaa	Aa3	A1	A2	A3	Baa2	Not Rated	
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
US Treasury	-	-	-	-	-	-	-	-
US 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	<u>11.40%</u>	<u>0.00%</u>	<u>9.55%</u>	<u>0.38%</u>	<u>18.51%</u>	<u>5.15%</u>	<u>55.01%</u>	<u>100.00%</u>

June 30, 2017

	Moodys Quality Ratings							Total
	Aaa	Aa3	A1	A2	A3	Baa2	Not Rated	
Government	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Corporate bonds	-	-	-	-	-	-	-	-
Yankee bonds	-	-	-	-	-	-	-	-
Short-term:								
Repurchase Agreements	-	-	-	-	-	-	-	-
Reverse Repurchase Agreements	-	151,446	-	320,634	109,206	-	635,982	1,217,268
Money Market	8,000	-	-	-	-	-	-	8,000
US Treasury	-	-	-	-	-	-	-	-
US Agency	-	-	-	-	-	-	149,982	149,982
Cash Equivalent	-	-	152,222	-	-	-	-	152,222
Payable/Receivable	-	-	-	-	-	-	1,572	1,572
Uninvested	-	-	-	-	-	-	1,266	1,266
Total	\$ 8,000.00	\$ 151,446	\$ 152,222	\$ 320,634	\$ 109,206	\$ -	\$ 788,802	\$ 1,530,310
Percent of securities lending portfolio	<u>0.52%</u>	<u>9.89%</u>	<u>9.95%</u>	<u>20.95%</u>	<u>7.14%</u>	<u>0.00%</u>	<u>51.55%</u>	<u>100.00%</u>

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
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The quality ratings of investments held as collateral for Securities Lending under the variable-return funds at June 30, 2018 and 2017 are as follows (in thousands):

**Investment Type and Fair Value of
Securities Lending Transactions - Variable Return Funds
(In thousands)
June 30, 2018**

	Moody's Quality Ratings			Total
	Aaa	A3	Not Rated	
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	-	-	-	-
US Treasury	-	-	-	-
US Agency	-	-	-	-
Cash Equivalent	-	-	-	-
Payable/Receivable	-	-	-	-
Uninvested	-	-	10	10
Total	\$ 55,062	\$ 19,273	\$ 90,039	\$ 164,374
Percent of securities lending portfolio	<u>33.50%</u>	<u>11.73%</u>	<u>54.77%</u>	<u>100.00%</u>

June 30, 2017

	Moody's Quality Ratings			Total
	Aaa	A3	Not Rated	
Government	\$ 43,264	\$ -	\$ -	\$ 43,264
Corporate bonds	-	-	-	-
Yankee bonds	-	-	-	-
Short-term:				
Repurchase Agreements	131,442	-	13,719	145,161
Reverse Repurchase Agreements	-	-	-	-
Money Market	-	-	-	-
US Treasury	-	-	-	-
US Agency	-	-	-	-
Cash Equivalent	-	-	-	-
Payable/Receivable	-	-	-	-
Uninvested	-	-	-	-
Total	\$ 174,706	\$ -	\$ 13,719	\$ 188,425
Percent of securities lending portfolio	<u>92.72%</u>	<u>0.00%</u>	<u>7.28%</u>	<u>100.00%</u>

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Interest Rate Risk— The lengths of investment maturities (in years) of the collateral for Securities Lending held by the TRSNYC Pension Fund at June 30, 2018 and 2017 are as follows (in thousands):

Years to Maturity

Investment Type - Pension Fund June 30, 2018	Investment Maturities				
	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 %	- %	- %	- %

Investment Type - Pension Fund June 30, 2017	Investment Maturities				
	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	1,217,268	1,217,268	-	-	-
Money market	8,000	8,000	-	-	-
U.S. Agency	149,982	149,982	-	-	-
Cash equivalents	152,222	152,222	-	-	-
Payable/Receivable	1,572	1,572	-	-	-
Uninvested	1,266	1,266	-	-	-
Total	\$ 1,530,310	\$ 1,530,310	\$ -	\$ -	\$ -
Percent of Securities Lending Portfolio	100.00 %	100.00 %	- %	- %	- %

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
NOTES TO COMBINING FINANCIAL STATEMENTS
YEARS ENDED JUNE 30, 2018 AND 2017

The lengths of investment maturities (in years) of the collateral for Securities Lending held under the variable-return funds at June 30, 2018 and 2017 are as follows (in thousands):

Years to Maturity

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	<u>\$ 164,374</u>	<u>\$ 148,654</u>	<u>\$ 11,423</u>	<u>\$ 2,008</u>	<u>\$ 2,289</u>
Percent of securities lending portfolio	<u>100.00 %</u>	<u>90.44 %</u>	<u>6.95 %</u>	<u>1.22 %</u>	<u>1.39 %</u>

Investment Type - Variable Return Funds (in thousands) June 30, 2017	Investment Maturities				
	Fair Value	Less Than One Year	One to Five Years	Six to Ten Years	More Than Ten Years
Government	\$ 43,264	\$ 6,007	\$ 17,249	\$ 10,856	\$ 9,152
Corporate Bonds	-	-	-	-	-
Short-term:					
Repurchase agreements	145,161	145,161	-	-	-
Reversal purchase agreements	-	-	-	-	-
Certificates of deposit	-	-	-	-	-
Commercial paper	-	-	-	-	-
Variable rate demand notes	-	-	-	-	-
U.S. Treasury	-	-	-	-	-
U.S. Agency	-	-	-	-	-
Time deposit	-	-	-	-	-
Uninvested	-	-	-	-	-
Totals	<u>\$ 188,425</u>	<u>\$ 151,168</u>	<u>\$ 17,249</u>	<u>\$ 10,856</u>	<u>\$ 9,152</u>
Percent of securities lending portfolio	<u>100.00 %</u>	<u>80.23 %</u>	<u>9.15 %</u>	<u>5.76 %</u>	<u>4.86 %</u>

Rate of Return — For the years ended June 30, 2017 and 2016, the annual money-weighted rate of return on the TRSNYC Pension Fund was 12.50% and 1.66%, 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, 2017 and June 30, 2016:

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NOTES TO COMBINING FINANCIAL STATEMENTS
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GASB 72 Disclosure (Pension Fund)

June 30, 2018

(In thousands)

	2018			Total
	Level One	Level Two	Level Three	
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
	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Total Pension Fund investments	<u>\$ 36,034,670</u>	<u>\$ 27,061,374</u>	<u>\$ 9,315,947</u>	<u>\$ 72,411,991</u>

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
NOTES TO COMBINING FINANCIAL STATEMENTS
YEARS ENDED JUNE 30, 2018 AND 2017

GASB 72 Disclosure (Pension Fund)

June 30, 2017

(In thousands)

	2017			Total
	Level One	Level Two	Level Three	
INVESTMENTS — at fair value				
Short-term investments:				
Commercial paper	\$ -	\$ 230,093	\$ -	\$ 230,093
Short-term investment fund	-	557,945	-	557,945
Discount notes	-	282,248	-	282,248
Debt securities:				
U.S. Government	-	7,947,669	-	7,947,669
Corporate and Other	-	7,588,353	164,871	7,753,224
Equity securities	21,084,444	135	1,423	21,086,002
Alternative investments	-	-	7,523,885	7,523,885
Collective trust funds:				
International equity	15,407,833	315,906	10,410	15,734,149
Mortgage debt security	-	95,737	399,803	495,540
Treasury inflation protected securities	-	2,682,432	-	2,682,432
Fixed income	595	195,193	1,595,245	1,791,033
Total Pension Fund investments	<u>\$ 36,492,872</u>	<u>\$ 19,895,711</u>	<u>\$ 9,695,637</u>	<u>\$ 66,084,220</u>

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

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
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YEARS ENDED JUNE 30, 2018 AND 2017

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.

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GASB 72 Disclosure
Variable-Return Funds
June 30, 2018

(in thousands)

INVESTMENTS- at fair value

Diversified Equity Fund:

Short-term investments

Equity securities

Debt securities

Balanced Fund:

Short-term investments

Equity securities

International Equity Fund:

Short-term investments

International equity

Inflation Protection Fund:

Short-term investments

Equity securities

Socially Responsive Equity Fund:

Short-term investments

Equity securities

International equity

Total Variable-Return Funds Investments

	2018			
	Level One	Level Two	Level 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	<u>\$ 14,627,085</u>	<u>\$ 1,288,136</u>	<u>\$ 1,581</u>	<u>\$ 15,916,802</u>

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
NOTES TO COMBINING FINANCIAL STATEMENTS
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GASB 72 Disclosure

Variable-Return Funds

June 30, 2017

(in thousands)

INVESTMENTS- at fair value

Diversified Equity Fund:

	Level One	Level Two	Level Three	Total
Short-term investments	\$ -	\$ 153,518	\$ -	\$ 153,518
Equity securities	11,620,340	2,389,568	99	14,010,007
Debt Securities	-	245,983	1,947	247,930

Bond Fund:

Short-term investments	-	16,219	-	16,219
Debt Securities	-	377,917	-	377,917

International Equity Fund:

Short-term investments	-	543	-	543
International equity	107,420	20,785	1	128,206

Inflation Protection Fund:

Short-term investments	-	263	-	263
Equity securities	53,849	-	-	53,849

Socially Responsive Equity Fund:

Short-term investments	-	8,990	-	8,990
Equity securities	153,776	-	-	153,776
International equity	7,004	-	-	7,004

Total Variable-Return Funds Investments

	<u>\$ 11,942,389</u>	<u>\$ 3,213,786</u>	<u>\$ 2,047</u>	<u>\$ 15,158,222</u>
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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's, 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.

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
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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, 2018, based on an actuarial valuation as of June 30, 2016, was \$3,890 million, and the Statutory Contribution for the year ended June 30, 2017, based on an actuarial valuation as of June 30, 2015, was \$3,888 million. The Statutory Contributions for Fiscal Years 2018 and 2017 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.

**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
NOTES TO COMBINING FINANCIAL STATEMENTS
YEARS ENDED JUNE 30, 2018 AND 2017**

5. QPP NET PENSION LIABILITY

The components of the net pension liability of the Employers at June 30, 2018 and 2017 were as follows:

	(in millions)	
	2018	2017
Total pension liability	\$73,244	\$73,323
Fiduciary net position *	\$54,533	\$50,096
Employers' net pension liability	\$18,711	\$23,227
Fiduciary net position as a percentage of the total pension liability	74.5%	68.3%

*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, 2018 and 2017 were determined by actuarial valuations as of June 30, 2016 and June 30, 2015, respectively, that were rolled forward to develop the total pension liability to the respective fiscal year-end. The following actuarial assumptions were applied to all periods included in the measurement:

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

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

Mortality tables for Service and Disability pensioners were developed from an experience study of the QPP and the predecessor QPP's pensioners. The mortality tables for beneficiaries were developed from an experience review.

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:

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YEARS ENDED JUNE 30, 2018 AND 2017

Asset Class	Target Asset Allocation	Long-Term Expected Real Rate of Return
U.S. Public Markets Equities	29.0%	6.3%
International Public Markets Equities	12.0%	7.0%
Emerging Public Markets Equities	9.0%	9.5%
Private Market Equities	6.0%	10.4%
Fixed Income (Core, TIPS, High Yield, Opportunistic, Convertibles)	33.0%	2.2%
Alternatives (Real Assets, Hedge Funds)	11.0%	5.5%
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, 2018	\$ 27,250,531	\$ 18,711,455	\$ 11,480,118

6. MEMBER LOANS

The balance of member loans receivable for the QPP at June 30, 2018 and 2017 is \$312.2 million and \$298.1 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 7.0% APR with a 0.2% ("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, 2018 and 2017 is \$386.8 million and \$376.0 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

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
NOTES TO COMBINING FINANCIAL STATEMENTS
YEARS ENDED JUNE 30, 2018 AND 2017

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 \$11.8 million and \$10.9 million in Fiscal Years 2018 and 2017, 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 \$87.5 million and \$93.8 million for Fiscal Years 2018 and 2017, 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
2019	\$ 8,018,000
2020	8,760,000
2021	8,760,000
2022	8,760,000
2023	9,480,000
Thereafter	190,314,000

Rent expenses under the lease agreement for the years ended June 30, 2018 and 2017, were approximately \$7.9 million, less \$1.9 million rent credit, and \$7.4 million, respectively.

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.

TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK
NOTES TO COMBINING FINANCIAL STATEMENTS
YEARS ENDED JUNE 30, 2018 AND 2017

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 recent reports were issued by Segal and Hay in February 2012 and by Gabriel, Roeder, Smith & Company (GRS) in October 2015. A current study is being undertaken by Bolton Partners.

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.

* * * * *

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

(In Thousands)

SCHEDULE 1

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Total pension liability:					
Service cost	\$ 1,436,617	\$ 1,386,674	\$ 1,274,308	\$ 1,223,158	\$ 1,205,662
Interest	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	(2,235,673)	1,008,249	1,229,501	1,507,964	-
Changes of assumptions	-	-	2,432,878	-	-
Benefit payments/withdrawals	(4,351,924)	(4,219,312)	(4,107,455)	(4,024,272)	(3,818,248)
Net change in total pension liability	(79,499)	3,322,653	4,960,409	2,733,989	1,795,116
Total pension liability – beginning	73,323,430	70,000,777	65,040,368	62,306,379	60,511,262
Total pension liability – ending (a)	<u>73,243,931</u>	<u>73,323,430</u>	<u>70,000,777</u>	<u>65,040,368</u>	<u>62,306,378</u>
Plan fiduciary net position:					
Contributions - Employer	3,889,710	3,888,399	3,760,714	3,325,528	3,054,424
Contributions - Other Employer*	59,979	57,369	n/a	n/a	n/a
Contributions - Employee	195,241	180,076	173,696	158,590	154,962
Net investment income	6,275,115	8,133,280	960,267	1,611,929	9,435,906
Benefit payments/withdrawals	(4,351,924)	(4,219,312)	(4,107,455)	(4,024,272)	(3,818,248)
Payment of Interest on TDA Fixed Funds	(1,595,462)	(1,466,615)	(1,354,207)	(1,248,988)	(1,147,923)
Administrative expenses	(65,076)	(60,790)	(59,367)	(58,391)	(46,042)
Other Changes	29,170	(46,229)	1,233	329	404
Net change in plan fiduciary net position	4,436,753	6,466,178	(625,119)	(235,275)	7,633,483
Plan fiduciary net position – beginning	50,095,723	43,629,545	44,254,664	44,489,939	36,856,456
Plan fiduciary net position – ending (b)**	<u>54,532,476</u>	<u>50,095,723</u>	<u>43,629,545</u>	<u>44,254,664</u>	<u>44,489,939</u>
Employer's net pension liability – ending (a)-(b)	<u>\$ 18,711,455</u>	<u>\$ 23,227,707</u>	<u>\$ 26,371,232</u>	<u>\$ 20,785,704</u>	<u>\$ 17,816,440</u>
Plan fiduciary net position as a percentage of the total pension liability	<u>74.45%</u>	<u>68.32%</u>	<u>62.33%</u>	<u>68.04%</u>	<u>71.41%</u>
Covered Payroll	<u>\$ 9,200,180</u>	<u>\$ 8,818,537</u>	<u>\$ 8,256,100</u>	<u>\$ 8,074,522</u>	<u>\$ 7,996,942</u>
TRS' Net Pension Liability as a Percentage of covered payroll	<u>203.38%</u>	<u>263.40%</u>	<u>319.42%</u>	<u>257.42%</u>	<u>222.79%</u>

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

*Includes amounts for member'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

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>
Actuarially determined contribution	\$ 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	\$ 2,223,644
Contributions in relation to the actuarially determined contribution	<u>3,889,710</u>	<u>3,888,399</u>	<u>3,702,569</u>	<u>3,270,007</u>	<u>2,998,694</u>	<u>2,855,640</u>	<u>2,673,078</u>	<u>2,468,973</u>	<u>2,484,074</u>	<u>2,223,644</u>
Contribution deficiency (excess)	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Covered payroll	\$ 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	\$ 7,221,499
Contributions as a percentage of covered-employee payroll ¹	42.279%	44.093%	44.846%	40.498%	37.498%	36.455%	33.747%	31.114%	31.604%	30.792%

¹The Employer Rate of Contribution equals the Statutory Contribution as a percentage of the salaries of members who were on payroll or projected to be on payroll (under One-Year Lag Methodology) as of the preceding June 30 adjusted, where appropriate, consistent with collective bargaining agreements estimated to be achieved.

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 2018 contributions were determined using an actuarial valuation as of June 30, 2016). 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, 2016	June 30, 2015	June 30, 2014	June 30, 2013	June 30, 2012	June 30, 2011	June 30, 2010	June 30, 2009- June 30, 2007
Actuarial cost method	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	NA ²
Post-2010 Unfundeds	Level Dollar	Level Dollar	Level Dollar	Level Dollar	Level Dollar	Level Dollar	Level Dollar	NA ²
Remaining amortization period:								
Initial Unfunded	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	1 year (closed)	2 years (closed)	3 years (closed)	4 years (closed)	5 years (closed)	NA	NA ²
2011 Actuarial Gain/Loss	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	11 years (closed)	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA ²
2013 Actuarial Gain/Loss	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA	NA ²
2014 Actuarial Gain/Loss	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA	NA	NA ²
2015 Actuarial Gain/Loss	14 years (closed)	15 years (closed)	NA	NA	NA	NA	NA	NA ²
2016 Actuarial Gain/Loss	15 years (closed)	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, 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, 2016	June 30, 2015	June 30, 2014	June 30, 2013	June 30, 2012	June 30, 2011	June 30, 2010	June 30, 2009- June 30, 2007
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	8.0% per annum, gross of investment expenses
Post-retirement mortality	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 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.
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.	1.3% 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 Developed using a long-term Consumer Price Inflation assumption of 2.5% per year.

⁴ As of the June 30, 2014 (Lag) valuation, the AAV is constrained to be no more than 20% from Fair Value.

See Independent Auditors' report.

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

SCHEDULE 3

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

Fiscal Year-Ended	Money-weighted Rate of Return
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.