

# *Comprehensive Annual Financial Report*

*Fiscal Years Ended June 30, 2017 and June 30, 2016*

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

**A Fiduciary Fund of the City of New York**

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

**COMPREHENSIVE ANNUAL FINANCIAL REPORT  
FOR FISCAL YEARS ENDED JUNE 30, 2017 AND JUNE 30, 2016**

Prepared by Accounting Units for the

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

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Chief Accountant  
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**Ms. SHERRY S. CHAN**

Chief Actuary

**TEACHERS' RETIREMENT SYSTEM  
OF THE CITY OF NEW YORK**  
55 Water Street  
New York, NY 10041

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# *Introduction*

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**TEACHERS' RETIREMENT SYSTEM OF THE CITY OF NEW YORK**  
**55 Water Street, New York, NY 10041 • www.trsnyc.org • 1 (888) 8-NYC-TRS**

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**December 22, 2017**

Dear Members of the Board of Trustees:

We are pleased to present the Comprehensive Annual Financial Report of the Teachers' Retirement System of the City of New York (TRS) for the fiscal year ended June 30, 2017.

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

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

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

### **Member Profile**

Our programs impact more than 200,000 in-service members, retirees, and beneficiaries. Our membership includes individuals of varying ages, membership tiers, and employment status. And although many TRS members are currently in active service, over 40% of them have retired. As of June 30, 2017, there were approximately 122,000 in-service members and approximately 85,000 retired members and beneficiaries receiving monthly benefits.

### **Participating Employers**

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

### **Initiatives**

As we marked our centennial year, TRS completed the third phase of our modernization initiative: We implemented online enrollment for new members of the system, and we introduced a Partner Portal that employers use to provide member data efficiently and securely. During this year, we also completed key development work for later phases of this multiyear initiative that modernizes our operations, enhances our pension administration technology, and improves our business processes.

In this fiscal year, TRS also established a social media presence on Facebook, which provides us another channel for disseminating information.

## **Financial Statements**

The financial statements and notes along with Management's Discussion and Analysis in this report present and analyze the changes in TRS fiduciary net position for the fiscal year ended June 30, 2017. Since markets are dynamic and fluid, any judgment of the financial statements should also consider current market conditions.

## **Funding**

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

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

One measure of the QPP's funded status, the ratio of Actuarial Asset Value to Entry Age Actuarial Accrued Liability, determined as of June 30, 2015, is 56.4%. Please refer to the report's Actuarial Section for a detailed discussion of the Plan's measures of funded status.

Under Governmental Accounting Standards Board (GASB) Statement No. 67, *Financial Reporting for Pension Plans*, a defined-benefit pension plan is also required to report fiduciary net position as a percentage of the plan's total pension liability. This method reports assets at current fair value and, as such, is more sensitive to market volatility. As of June 30, 2017, the Qualified Pension Plan's fiduciary net position represents 68.3% of the QPP's total pension liability.

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

## **Management Responsibility for Financial Reporting and Internal Controls**

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

## Investments

Assets of the QPP and the TDA Program are invested together in the following investment funds: the Pension Fund, the Diversified Equity Fund, the Bond Fund, the International Equity Fund, the Inflation Protection Fund, and the Socially Responsive Equity Fund. The performance summary for Fiscal Year 2017 follows:

Rate of Return by Fund—Fiscal Year 2017		
Fund	ROR	Gross vs. Net Returns
Pension	12.66%	Net of Fees
Variable Fund	ROR	Gross vs. Net Returns
Diversified Equity Fund	18.09%	Net of Fees
Bond Fund	0.06%	Net of Fees
International Equity Fund	20.89%	Net of Fees
Inflation Protection Fund	1.43%	Net of Fees
Socially Responsive Equity Fund	18.43%	Net of Fees

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

The following table showing July unit values for 2017 and 2016 was based on the performance of the variable-return funds as of June 30. In addition to the changes in unit values, members' accounts are credited with a 4% increment factor increasing the number of units they hold, and their accounts are similarly discounted to offset this increase.

Unit Values for Fiscal Years 2017 and 2016		
Variable Fund	Unit Value July 2017	Unit Value July 2016
Diversified Equity Fund	\$88.681	\$78.102
Bond Fund	\$16.758	\$17.418
International Equity Fund	\$10.611	\$9.128
Inflation Protection Fund	\$10.185	\$10.443
Socially Responsive Equity Fund	\$16.308	\$14.323

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

## Actuarial Reports

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



## Statistical Reports

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

## Independent Audit & Professional Services

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

Investment professionals are appointed under the direction of the Teachers' Retirement Board. Investment administration services for the TRSNYC Pension Fund are provided by the New York City Office of the Comptroller. Investment administration services for TRS' Variable-Return Funds are performed by TRS. The Office of the Comptroller and TRS hire consultants and other investment professionals to perform additional investment services. The Summary of Investment Managers and Fees, as well as the Schedule of Payments of Commissions to Brokers, can be found at the end of the Investment Section.

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

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

## Awards

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to TRS for its Comprehensive Annual Financial Report for the Fiscal Year ended June 30, 2016. This was the 29th consecutive year that TRS was accorded this prestigious award. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized Comprehensive Annual Financial Report. This report must satisfy both the generally accepted accounting principles and the applicable legal requirements.

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

## Acknowledgements

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

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

Sincerely,



Patricia M. Reilly  
Executive Director



Paul J. Raucci  
Chief Accountant



Government Finance Officers Association

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

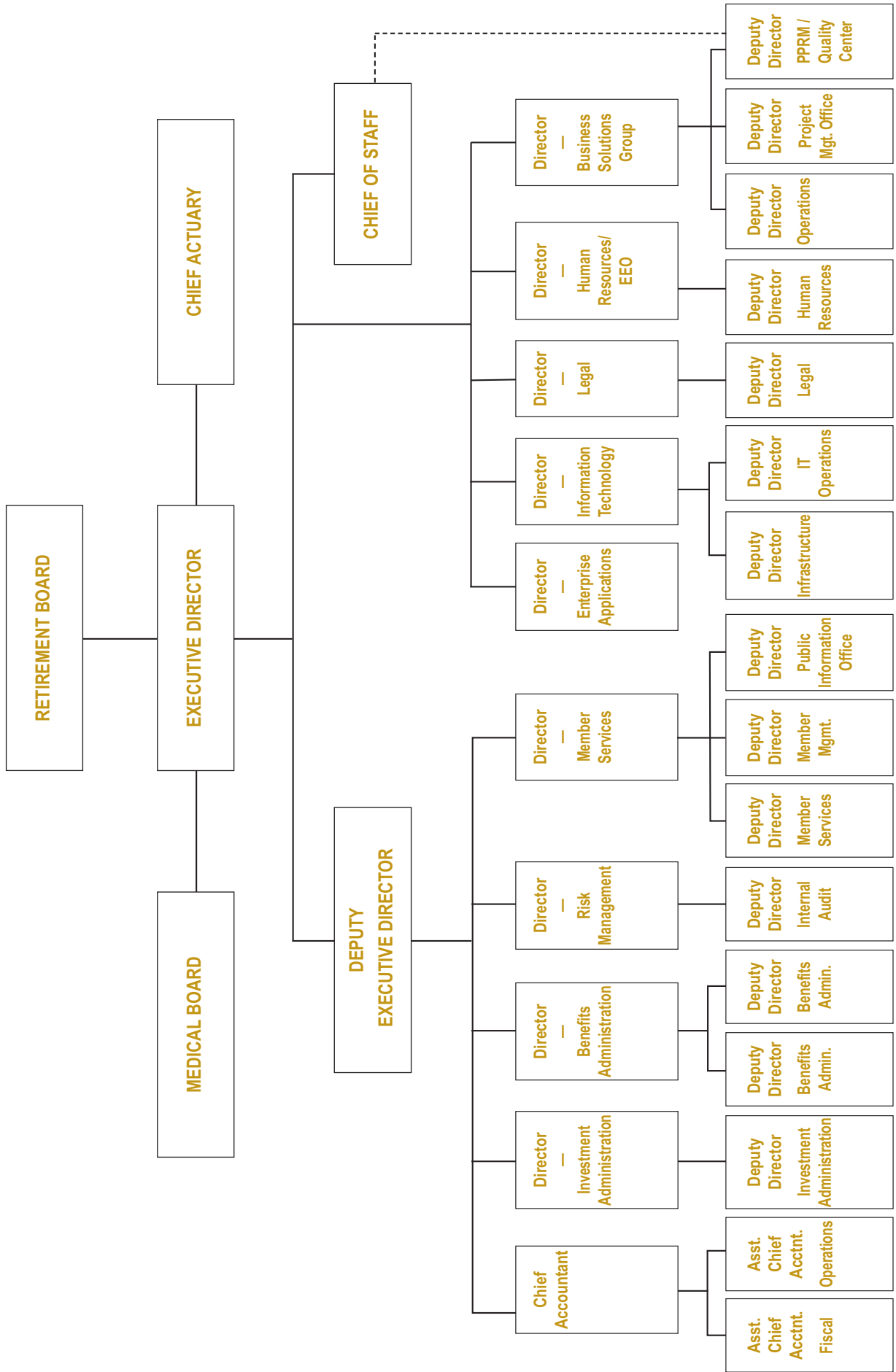
For its Comprehensive Annual  
Financial Report  
for the Fiscal Year Ended

**June 30, 2016**

Executive Director/CEO

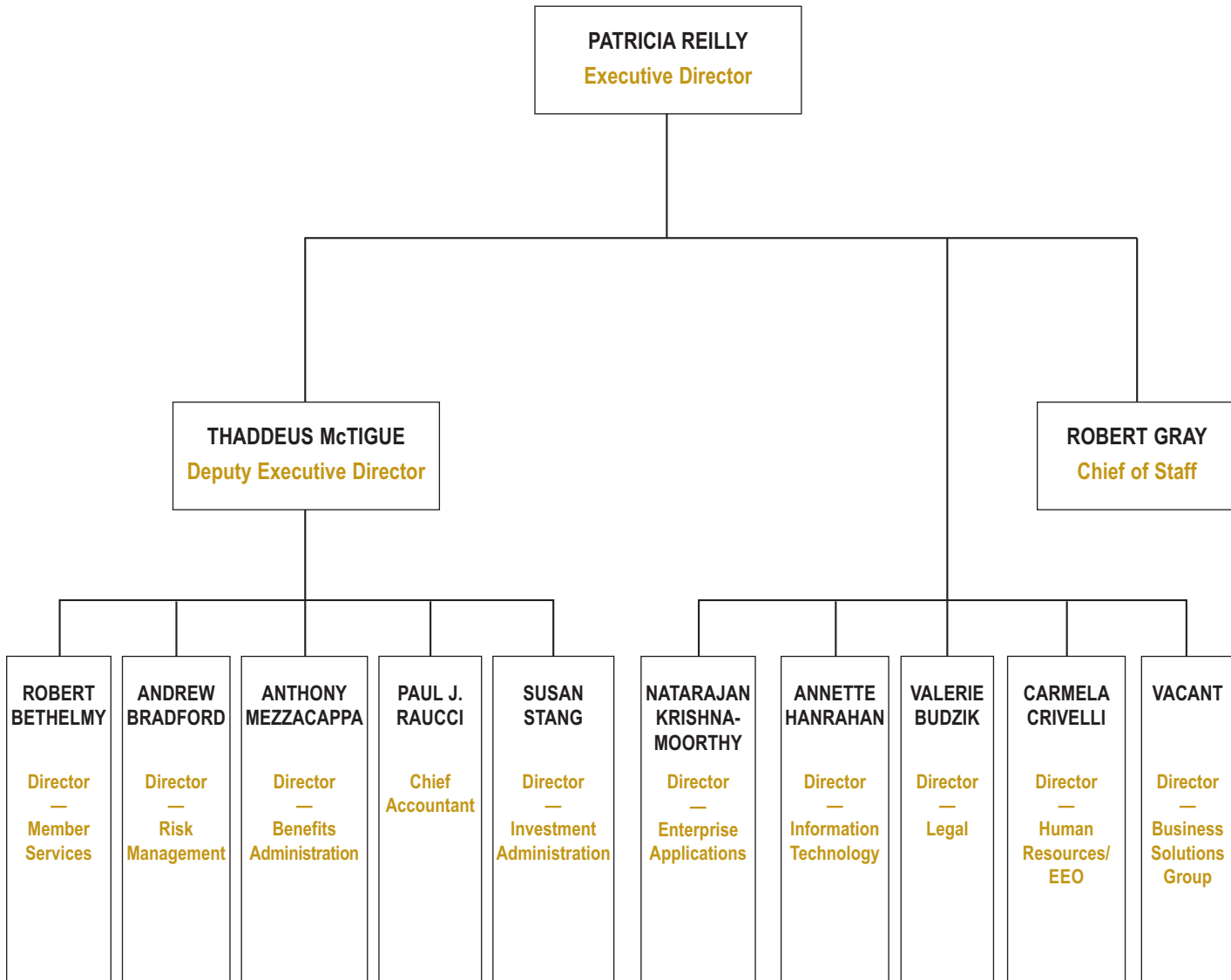
# ORGANIZATION CHART

as of June 30, 2017



# PRINCIPAL OFFICIALS

as of June 30, 2017



*Financial*

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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, 2017 and 2016, 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, 2017 and 2016, and the changes in combining fiduciary net position for the years then ended in accordance with accounting principles generally accepted in the United States of America.

**Other Matters**

*Required Supplementary Information*

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis, Schedule 1, 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 audits 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.

*Other Supplementary Information*

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

The Additional Supplementary Information, Schedule 4 and Schedule 5, as listed in the table of contents, is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic combining financial statements. Such information has been subjected to the auditing procedures applied in the audits of the basic combining financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic combining financial statements or to the basic combining financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion the Additional Supplementary Information is fairly stated, in all material respects, in relation to the basic combining financial statements taken as a whole.

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



October 27, 2017  
(except for the Other Supplementary Information,  
as to which the date is December 21, 2017)

**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)**  
**JUNE 30, 2017 AND 2016**

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, 2017 and 2016. 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.



**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)  
JUNE 30, 2017 AND 2016**

**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 2017 QPP summary information of the employer groups.

	<b>Members Active</b>	<b>Contribution Employer</b>	<b>Contribution Member</b>	<b>Members Retired</b>	<b>Pension Payments</b>
DOE	114,000	\$ 3.8 billion	\$ 168 million	82,500	\$ 4.0 billion
CUNY	7,300	\$ 123 million	\$ 11 million	2,600	\$ 127 million
Charter Schools	600	\$ 8.2 million	\$ 1.1 million	less than 50	\$ 1.3 million

**UFT Contract**

On June 30, 2014, the United Federation of Teachers ("UFT"), the primary union for the DOE's employees, ratified its new collective bargaining agreement. The contract is retroactive to November 2009 and, following a February 13, 2015 arbitration decision, runs through November 2018. The contract provides for retroactive and future wage increases. The wage increases impact employer and member contributions, as well as annual retirement 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 \$50.1 billion, \$43.6 billion, and \$44.3 billion as of June 30, 2017, 2016, and 2015, respectively. The System's employer contributions amounted to \$3.9 billion, \$3.8 billion, and \$3.3 billion, for Fiscal Years 2017, 2016, and 2015, respectively. The QPP's benefit payments totaled \$4.2 billion, \$4.1 billion and \$4.0 billion, for Fiscal Years 2017, 2016, and 2015, respectively.

**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)  
JUNE 30, 2017 AND 2016**

**QPP Fiduciary Net Position**  
**June 30, 2017, 2016, and 2015**  
**(In thousands)**

	2017	2016	2015
Cash	\$ 101,499	\$ 5,157	\$ 22,674
Receivables for investments sold	989,725	1,772,521	2,766,976
Receivables for accrued interest and dividends	164,163	151,330	145,968
Member loan receivables	298,146	275,704	257,043
Investments, at fair value	72,404,290	64,406,187	64,756,689
Collateral from securities lending	1,610,321	1,858,682	1,863,922
Other assets	38,932	49,873	27,855
	<u>75,607,076</u>	<u>68,519,454</u>	<u>69,841,127</u>
<b>Total assets</b>			
Accounts payable	529,059	417,408	391,945
Payable for investments purchased	1,353,803	2,308,523	4,616,284
Accrued benefits payable	13,987	12,563	14,979
Investments due to TDA Program	22,004,183	20,292,733	18,699,332
Payable for securities lending	1,610,321	1,858,682	1,863,923
	<u>25,511,353</u>	<u>24,889,909</u>	<u>25,586,463</u>
<b>Total liabilities</b>			
Net position restricted for benefits	<u>\$ 50,095,723</u>	<u>\$ 43,629,545</u>	<u>\$ 44,254,664</u>

Cash balances amounted to \$101.5 million at June 30, 2017, an increase of \$96.3 million (1,868.2%) from June 30, 2016. As of June 30, 2016, cash balances amounted to \$5.2 million, a decrease of \$17.5 million (-77.3%) from June 30, 2015. Cash balances consist of accounts used for advance funding of the System's 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. Also, Private Equity investment managers of the TRSNYC Pension Fund typically have the largest cash balances at month-end. Private Equity's large cash balance is due to the monthly investment cycle for Private Equity accounts where cash from assets sold during the month is reinvested following month-end. The \$96.3 million increase in the QPP's cash balance at year-end resulted mainly from large Private Equity sales in the month of June.

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. Receivables for investment securities sold amounted to \$1.8 billion at June 30, 2016, a decrease of \$994.5 million (-35.9%) from June 30, 2015. 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.

**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)  
JUNE 30, 2017 AND 2016**

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. Receivables for accrued interest and dividends amounted to \$151.3 million as of June 30, 2016, an increase of \$5.4 million (3.7%) from June 30, 2015. 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, 2017, member loan receivables amounted to \$298.1 million, an increase of \$22.4 million (8.1%) from the previous year. At June 30, 2016, member loan receivables amounted to \$275.7 million, an increase of \$18.7 million (7.3%) from the previous year. The increases primarily reflect the 7% 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, 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. The \$8.0 billion increase is the result of \$8.1 billion in net investment income less \$171.9 million of net decrease in the year-over-year amounts of payables for investment securities purchased and investment receivables sold. More generally, investments as of June 30, 2017, in comparison with investment values as of June 30, 2016 reflect the annual movement in equity and fixed income markets. Equity investments accounted for close to 60% of the QPP's total investment portfolio, Alternative Investments, including private equity, accounted for close to 10%, with the balance being fixed income investments. For the twelve-month period ended June 30, 2017, the Russell 3000 Index, a broad measure of U.S. equity markets, returned 18.5%. The Morgan Stanley Capital International Index for Europe, Australasia, and Far East ("MSCI EAFE") Index returned 20.83%. 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 -0.2%. Investments at June 30, 2016 were \$64.4 billion compared to \$64.8 billion at June 30, 2015, a decrease of \$350.5 million (-0.5%) from June 30, 2015. For the twelve-month period ended June 30, 2016, the Russell 3000 Index returned 2.1%, the MSCI EAFE" Index returned -3.3%, and the NYC Core + 5 returned 7.2%.

Other assets at June 30, 2017 totaled \$38.9 million, a \$10.9 million (-21.9%) decrease from June 30, 2016. Other assets at June 30, 2016 totaled \$49.9 million, a \$22.0 million (79.0%) increase from June 30, 2015. The year-over-year changes in other assets were primarily due to a \$21.6 million decrease in receivables from employer contributions, mainly from the City University of New York (CUNY) paid by September 2016 and a \$7.7 million increase in pension payroll reimbursements due from the TDA Program.

Accounts payable at June 30, 2017 amounted to \$529.1 million, a \$111.7 million (26.7%) increase from June 30, 2016. The QPP's practice is to fully invest its day-end cash balances in a pooled short-term fund. A typical benefit payment account would show an overdrawn balance due to depositories since funds deposited as outstanding benefit checks are presented to the bank for payment each day. These balances due to depositories are one of the main components (28.3%) of accounts payable. Other main components of accounts payable include accrued investment expenses (45.7%), 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. Accounts payable at June 30, 2016 amounted to \$417.4 million, a \$25.5 million (6.5%) increase from June 30, 2015. Balances due to depositories were a main component (32.0%) of accounts payable. Other main components of accounts payable included accrued investment expenses (35.0%), reserve for expenses (21.2%), unclaimed funds (7.1%), and other payables (4.7%). The \$25.5 million increase in accounts payable was primarily due to a \$30.1 million increase in accrued investment expenses and a \$4.0 million net decrease in balances due to depositories.

**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)**  
**JUNE 30, 2017 AND 2016**

Payables for investments purchased at June 30, 2017 amounted to \$1.4 billion, a \$954.7 million (-41.4%) decrease from June 30, 2016. Payables for investments purchased at June 30, 2016 amounted to \$2.3 billion, a \$2.3 billion (-50.0%) decrease from June 30, 2015. Investments purchased are accounted for on a trade-date basis. The increase resulted from timing differences between settlement dates and trade dates, similar to receivables for investments sold discussed earlier.

Accrued benefits payable at June 30, 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. Accrued benefits payable at June 30, 2016 amounted to \$12.6 million, a \$2.4 million (-16.1%) decrease from June 30, 2015. The \$2.4 million decrease is primarily attributed to a decrease of pending survivor benefits payable to beneficiaries at year-end.

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

**QPP Changes in Fiduciary Net Position**  
**Years Ended June 30, 2017, 2016, and 2015**  
(In thousands)

	2017	2016	2015
Additions:			
Member contributions	\$ 180,076	\$ 173,696	\$ 158,590
Employer contributions	3,945,768	3,760,714	3,325,528
Net receipts from other retirement systems	(2,291)	1,233	329
Net securities lending income	17,446	17,347	20,300
Net investment income	8,115,834	942,920	1,591,629
Payment of statutory-interest to TDA Program	<u>(1,466,615)</u>	<u>(1,354,207)</u>	<u>(1,248,988)</u>
Total additions	<u>10,790,218</u>	<u>3,541,703</u>	<u>3,847,388</u>
Deductions:			
Administrative expenses	60,790	59,367	58,391
TDA Rebalance	43,938	-	-
Benefits payments and withdrawals	<u>4,219,312</u>	<u>4,107,455</u>	<u>4,024,272</u>
Total deductions	<u>4,324,040</u>	<u>4,166,822</u>	<u>4,082,663</u>
Net (decrease) increase in net position	<u>\$ 6,466,178</u>	<u>\$ (625,119)</u>	<u>\$ (235,275)</u>
Net position restricted for benefits			
Beginning of year	<u>43,629,545</u>	<u>44,254,664</u>	<u>44,489,939</u>
End of year	<u>\$ 50,095,723</u>	<u>\$ 43,629,545</u>	<u>\$ 44,254,664</u>

**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)  
JUNE 30, 2017 AND 2016**

TRS received \$180.1 million in member contributions in Fiscal Year 2017, a \$6.4 million (3.7%) increase from Fiscal Year 2016. The \$6.4 million increase was primarily due to salary increases resulting from the 2014 UFT contract and a larger active Tier VI membership. TRS received \$173.7 million in member contributions in Fiscal Year 2016, a \$15.1 million (9.5%) increase from Fiscal Year 2015. The \$15.1 million increase was primarily due to salary increases resulting from the 2014 UFT contract, increased active membership as a five-year hiring freeze ended in June 2014, and a \$2.6 million increase in prior service purchases.

Employer contributions during Fiscal Year 2017 were \$3.9 billion, a \$185.1 million (4.9%) increase from Fiscal Year 2016. This is primarily due to increases in the amortization payments for the 2010 initial unfunded liability and a net actuarial loss. Employer contributions during Fiscal Year 2016 were \$3.8 billion, a \$435.2 million (13.1%) increase from Fiscal Year 2015. The increase in contributions in Fiscal Year 2016 were primarily due to a change in the post-retirement mortality rates and increases in the amortization payments for the 2010 initial unfunded liability and a net actuarial loss. The June 30, 2015 (Lag) actuarial valuation and June 30, 2014 (Lag) actuarial valuation were used to determine Fiscal Year 2017 and 2016 employer contributions, 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 net 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. The QPP's net investment income for Fiscal Year 2016 was \$942.9 million, a \$648.7 million (-40.8%) decrease from Fiscal Year 2015. The QPP's net investment income of \$942.9 million consisted of \$1.8 billion in dividend and interest income less a net loss of \$598.4 million on the depreciation in fair value of the QPP's investments less \$215.1 million in net 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 \$964.8 million, -\$23.2 million, \$1.6 million, -\$523.4 thousand, \$99.5 thousand, and \$197.2 thousand, respectively.

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. Payments of statutory-interest due to the TDA from its investment in the TRSNYC Pension Fund Assets (Fixed Return Fund) during Fiscal Year 2016 were \$1.4 billion, an increase of \$105.2 million (8.4%) from Fiscal Year 2015.

For Fiscal Year 2017, 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 \$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. For Fiscal Year 2016, the QPP's effective net investment income for the QPP portion of the TRSNYC Pension Fund decreased due to investment returns attributable to the TDA Program's TRSNYC Pension Fund assets. The TDA Fixed Return Fund program resulted in approximately \$1.0 billion fewer assets accruing to the QPP's Contingent Reserve Fund of Employer's Contributions, as a result of the TDA Program's investment returns being below the Statutory Rates. The table below displays the TDA Program's impact on the QPP's Contingent Reserve Fund of Employer's Contributions for Fiscal Years 2017, 2016, and 2015.

**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)**  
**JUNE 30, 2017 AND 2016**

**Revenue (Expense) to Contingent Reserve Fund**

**TRSNYC Pension Fund Assets (QPP)\***

**Years Ended 2017, 2016, and 2015**

**(in Thousands)**

	<b>2017</b>	<b>2016</b>	<b>2015</b>
Net Investment Income	\$ 7,327,841	\$ 981,061	\$ 1,457,153
TDA percent of Fixed Assets as of June 30	33.30%	32.69%	30.26%
TDA percent of Fixed Assets 6/30/14:			28.78%
TDA percent of Fixed Assets (average)	32.99%	31.47%	29.52%
Investment Income on account of TDA Investment	\$ 2,417,743	\$ 308,775	\$ 430,152
Less Statutory Interest to TDA	<u>(1,466,615)</u>	<u>(1,354,207)</u>	<u>(1,248,988)</u>
Revenue (Expense) to QPP Contingent Reserve	<u>\$ 951,128</u>	<u>\$ (1,045,432)</u>	<u>\$ (818,836)</u>

\*Includes security-lending income

Administrative expenses during Fiscal Year 2017 were \$60.8 million, an increase of \$1.4 million (2.4%) and \$2.4 million (4.1%) from Fiscal Years 2016 and 2015, respectively. 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 2017, the System updated its member enrollment process, enhanced its enterprise content management and member website platforms, and continued with other implementation initiatives. 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 2017 accounted for 64.1% of the System's administrative expenditures. The balance of \$34.0 million (35.9%) includes \$33.0 million expensed to the TDA Program and also \$1.0 million charged against incoming loan service charge revenues. Administrative expenses during Fiscal Year 2016 were \$59.4 million, an increase of \$976.0 thousand (1.7%) from Fiscal Year 2015. As of June 30, 2016, the System updated its person demographics, customer relationship management, enterprise content management, and member website platforms. The QPP's total administrative expenses for Fiscal Year 2016 accounted for 64.2% of the System's administrative expenditures. The balance of \$33.0 million (35.8%) includes \$32.6 million expensed to the TDA Program and also \$420.5 thousand charged against incoming loan service charge revenues. The System's administrative expenditures have been \$94.9 million, \$92.4 million, and \$84.4 million, for Fiscal Years 2017, 2016, and 2015, respectively.

The TDA rebalance during Fiscal Year 2017 resulted in \$43.9 million transfers from the TRSNYC Pension Fund to the TDA Fixed Return Program. The Administrative Code of the City of New York under sections 13-582 and 13-577 provide for certain internal transfer of funds. These transfers are intended to rebalance estimated actuarial liabilities with reported assets. 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. The \$3.8 billion 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).

Benefit payments and withdrawals during Fiscal Year 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 98.4% retirement benefits and 1.6% in refund/withdrawals and survivor benefits. Benefit payments and withdrawals during Fiscal Year 2016

**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)**  
**JUNE 30, 2017 AND 2016**

were \$4.1 billion, an \$83.2 million (2.1%) increase from Fiscal Year 2015. The \$83.2 million increase in benefit payments and withdrawals was primarily due to a \$103.9 million (2.6%) increase in payments to retirees. In total, benefit payments and withdrawals distributed during Fiscal Year 2016 were composed of 98.3% retirement benefits and 1.7% in refund/withdrawals and survivor benefits.

**TDA Program Financial Highlights** — The TDA Program's net position restricted for benefits was \$31.1 billion, \$28.4 billion, and \$27.3 billion, as of June 30, 2017, 2016, and 2015, respectively. Member contributions amounted to \$743.7 million, \$717.6 million, and \$662.6 million, for Fiscal Years 2017, 2016, and 2015, respectively. Benefit payments and withdrawals totaled \$1.0 billion, \$917.2 million, and \$861.3 million, for Fiscal Years 2017, 2016, and 2015, 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, 2017, 2016, and 2015**

(In thousands)	2017	2016	2015
Cash	\$ 3,952	\$ 4,699	\$ 3,316
Receivables for investments sold	23,956	29,686	89,541
Receivables for accrued interest and dividends	12,777	13,282	12,471
Member loan receivables	376,016	367,864	361,073
Investments, at fair value	8,838,152	7,946,654	8,470,979
Investment in TRSNYC Pension Fund	22,004,183	20,292,733	18,699,332
Collateral from securities lending	108,414	282,602	574,835
Other assets	16,296	13,429	3,725
Total assets	<u>31,383,746</u>	<u>28,950,949</u>	<u>28,215,272</u>
Accounts payable	96,908	103,283	117,700
Payable for investment securities purchased	43,416	29,597	93,595
Accrued benefits payable	82,915	91,127	95,560
Payable for securities lending transactions	108,414	282,602	574,835
Total liabilities	<u>331,653</u>	<u>506,609</u>	<u>881,690</u>
Net position held in trust for benefits	<u>\$ 31,052,093</u>	<u>\$ 28,444,340</u>	<u>\$ 27,333,582</u>

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 amounted to \$4.7 million at June 30, 2016, an increase of \$1.4 million (41.7%) from June 30, 2015. 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, 2017 amounted to \$24.0 million, a decrease of \$5.7 million (-19.3%) from June 30, 2016. Receivables for investment securities sold at June 30, 2016 amounted to \$29.7 million, a decrease of \$59.9 million (-66.9%) from June 30, 2015. 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, 2017 were \$12.8 million, a decrease of \$505 thousand (-3.8%) from June 30, 2016. Receivables for accrued earnings at June 30, 2016 were \$13.3 million, an increase of \$811 thousand (6.5%) from June 30, 2015. 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.

**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)**  
**JUNE 30, 2017 AND 2016**

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. Member loan receivables at June 30, 2016 amounted to \$367.9 million, an increase of \$6.8 million (1.9%) from June 30, 2015. For Fiscal Year 2016, loan disbursements amounted to \$176.4 million and principal and interest payments amounted to \$186.8 million.

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. The variable-return funds' investments at June 30, 2016, including collateral received for securities lending, were \$8.2 billion, a decrease of \$816.6 million (-9.0%) from June 30, 2015.

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 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. Assets of the TDA Program's Fixed Return Fund invested in the TRSNYC Pension Fund at June 30, 2016 were \$20.3 billion, an increase of \$1.6 billion (8.5%) from June 30, 2015. In addition to the 7% statutory return for Fiscal Year 2016, contributions, withdrawals and investment transfers to (from) the Fixed Return Fund totaled \$484.5 million, -\$677.6 million and \$402.0 million, respectively.

Other assets at June 30, 2017 were \$16.3 million, an increase of \$2.9 million (21.4%) over June 30, 2016. Other assets at June 30, 2016 were \$13.4 million, an increase of \$9.7 million (260.5%) over June 30, 2015. Other assets primarily represent assets already allocated for future administrative expenses.

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%. Accounts payable at June 30, 2016 amounted to \$103.3 million, compared to \$117.7 million at June 30, 2015, a decrease of -12.3%. 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, 2017 amounted to \$43.4 million, an increase of \$13.8 million (46.7%) from June 30, 2016. Payables for investment securities purchased at June 30, 2016 amounted to \$29.6 million, a decrease of \$64.0 million (-68.4%) from June 30, 2015. 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, 2017 amounted to \$82.9 million, a decrease of \$8.2 million (-9.0%) from June 30, 2016. Accrued benefits payable at June 30, 2016 amounted to \$91.1 million, a decrease of \$4.4 million (-4.6%) from June 30, 2015. 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.



**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)**  
**JUNE 30, 2017 AND 2016**

**Changes in TDA Program's Fiduciary Net Position**  
**Years Ended June 30, 2017, 2016, and 2015**  
**(In Thousands)**

	2017	2016	2015
Additions:			
Member contributions	\$ 743,663	\$ 717,566	\$ 662,601
Receipt of statutory-interest for portion of investment in TRSNYC Pension Fund	1,466,615	1,354,207	1,248,988
Net investment income	1,396,698	(14,858)	432,200
Net securities lending income	1,802	3,664	3,432
Total additions	<u>3,608,778</u>	<u>2,060,579</u>	<u>2,347,221</u>
Deductions:			
Administrative expenses	33,032	32,632	25,783
TDA rebalance	(43,938)		
Benefits payments	1,011,931	917,189	861,345
Total deductions	<u>1,001,025</u>	<u>949,821</u>	<u>887,128</u>
Net increase in net position	<u>\$ 2,607,753</u>	<u>\$ 1,110,758</u>	<u>\$ 1,460,093</u>
Net position restricted for benefits			
Beginning of year	<u>28,444,340</u>	<u>27,333,582</u>	<u>25,873,489</u>
End of year	<u>\$ 31,052,093</u>	<u>\$ 28,444,340</u>	<u>\$ 27,333,582</u>

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. The primary increase is due to growth in contributing memberships. TRS's TDA Program received \$717.6 million in member contributions during Fiscal Year 2016, an increase of \$55.0 million (8.3%) from Fiscal Year 2015. The primary increase is due to growth in contributing memberships.

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. Receipts of statutory-interest for the TDA Program's Fixed Return Fund portion in investments in the TRSNYC Pension Fund assets for Fiscal Year 2016 were \$1.4 billion, an increase of \$105.2 million (8.4%) from Fiscal Year 2015. Annual statutory-interest paid to the Fixed Return Fund exceeds a 7% rate (of prior year-end TDA Program's Fixed Return Fund value) when contributions and net investment transfers exceed withdrawals; see above "Investments in the TRSNYC Pension Fund" in the TDA Program's Fiduciary Net Position table.

Net investment income for the TDA Program's variable-return funds for Fiscal Year 2017 increased \$1.4 billion (gain) from Fiscal Year 2016. Net investment income for the TDA Program's variable-return funds for Fiscal Year 2016 decreased \$447.1 million (-103.4%) from Fiscal Year 2015. Net investment gain / 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, 2017 totaled \$33.0 million, an increase of \$400 thousand (1.2%) from Fiscal Year 2016. Administrative expenses for the Fiscal Year ended June 30, 2016 totaled \$32.6 million, an increase of \$6.8 million (26.6%) from Fiscal Year 2015. Similar to the QPP administrative expenses, the increase primarily reflects the System's continued efforts to modernize its pension database. The TDA Program accounted for a portion of the System's total administrative expenses; see QPP administrative expenses above and Note 8.

**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)**  
**JUNE 30, 2017 AND 2016**

The TDA rebalance during Fiscal Year 2017 resulted in a \$43.9 million transfer from the TRSNYC Pension Fund to the TDA's Variable Annuity Program. The Administrative Code of the City of New York under sections 13-582 and 13-577 provide for certain internal transfer of funds. These transfers are intended to rebalance estimated actuarial liabilities with reported assets; see Note 2, Intra-Fund Payables.

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 for the Fiscal Year ended June 30, 2016 totaled \$917.2 million, an increase of \$55.8 million (6.5%) from Fiscal Year 2015. 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, 2017	June 30, 2017	June 30, 2016	June 30, 2016	June 30, 2015	June 30, 2015
	QPP	TDA	QPP	TDA	QPP	TDA
Contributions	\$ 4,125,844	\$ 743,663	\$ 3,934,410	\$ 717,566	\$ 3,484,118	\$ 662,601
Contributions — Loan adj.	-	(157)	-	(195)	-	(118)
Loan repayments (cash)	131,640	192,340	122,050	186,774	114,940	177,613
401(a) receipts/(payments)	(2,291)	-	1,233	-	329	-
Interest income	932,169	34,368	860,223	33,469	758,526	32,627
Interest income — Loan adj.	(20,450)	(26,192)	(19,857)	(25,701)	(17,743)	(25,070)
Dividend income	981,087	138,237	896,208	128,383	889,231	126,867
Investment expenses (net)	(313,801)	5,518	(215,068)	5,645	(202,961)	(2,758)
Benefits/withdrawals	(4,219,312)	(1,011,931)	(4,107,455)	(917,189)	(4,024,272)	(861,345)
Withdrawals — Loan adj.	16,559	13,069	19,639	9,221	28,250	12,058
New loans	(149,750)	(186,684)	(140,000)	(176,403)	(141,771)	(176,125)
Administrative expenses	(60,790)	(33,032)	(59,367)	(32,632)	(58,391)	(25,783)
	<u>\$ 1,420,905</u>	<u>\$ (130,801)</u>	<u>\$ 1,292,016</u>	<u>\$ (71,062)</u>	<u>\$ 830,256</u>	<u>\$ (79,433)</u>

**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)**  
**JUNE 30, 2017 AND 2016**

**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, 2017	June 30, 2017	June 30, 2016	June 30, 2016	June 30, 2016	June 30, 2016
	QPP	TDA	QPP	TDA	QPP	TDA
TRSNYC Pension Fund	66.7%	33.3%	67.3%	32.7%	69.7%	30.3%
Variable-Return Funds:						
Diversified equity*	41.4%	55.2%	22.1%	73.4%	25.2%	70.6%
Bond	22.1%	77.9%	7.5%	92.5%	10.9%	89.1%
International equity	9.7%	90.3%	8.0%	92.0%	10.2%	89.8%
Inflation protection	8.8%	91.2%	8.9%	91.1%	11.1%	88.9%
Socially responsive equity	7.4%	92.6%	6.5%	93.5%	7.5%	92.5%

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

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

In addition to other indices, the "policy index" is used to monitor the complete TRSNYC Pension Fund. As of June 30, 2017, the policy index includes the following:

**TRSNYC Pension Fund Policy Index as of June 30, 2017\***

<u>Investment Type</u>	<u>Benchmark</u>	<u>Percent</u>
U.S. Equity	Russell 3000	33.1%
International Develop EAFE Markets	MSCI EAFE 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	5.0%
Private Real Estate - Core	NFI - ODCE Net	2.2%
Private Real Estate - Non Core	NFI - ODCE Net + 200 bps	1.3%
Infrastructure	CPI + 4%	0.6%
US Treasury Long Duration	Citigroup Treasury 10+	10.9%
Mortgage	Citigroup Mortgage Index	4.4%
ETI	ETI Custom Benchmark	0.9%
Investment Grade Credit	NYC - Investment Grade Credit	5.2%
High Yield	Citigroup BB&B	6.2%
Bank Loans	Credit Suisse Leveraged Loan	2.0%
TIPS	Lehman US TIPS	4.4%
Opportunistic Fixed	OFI - JPMGHY / CSFB 50/50 Blend Plus 300 b.p. per annum	2.5%
		<b>100.0%</b>

\*Source: Teachers' Retirement System of New York City Performance Overview as of June 30, 2017, prepared by State Street.

**MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)**  
**JUNE 30, 2017 AND 2016**

Variable-return funds are monitored using the Russell 3000, Standard & Poor's 500, MSCI EAFE, Barclays 1-5 Year Government/Credit, Barclays Capital US TIPS, CPI + 5% indices, as well as numerous other indices.

TRS earns additional investment income by lending its investment securities. The borrowers provide collateral to TRS that is valued in excess of the securities loaned, and the collateral is invested in short-term interest-bearing funds. For the Fiscal Year ended June 30, 2017, net securities lending income amounted to \$19.2 million, a decrease of \$1.7 million from Fiscal Year 2016. For the Fiscal Year ended June 30, 2016, net securities lending income amounted to \$21.0 million compared with \$23.7 million for Fiscal Year 2015. (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)**

	<b>2017</b>	<b>2016</b>	<b>2015</b>
Short-term investments	\$ 1,249,819	\$ 2,314,459	\$ 3,945,043
Debt securities	16,326,740	15,196,888	15,495,329
Equity securities	51,172,993	43,392,606	44,328,798
Alternative investments	7,523,885	6,872,850	6,002,260
Fixed income	4,969,005	4,576,038	3,456,238
Collateral from securities lending	<u>1,718,735</u>	<u>2,141,284</u>	<u>2,438,757</u>
Total	<u>\$ 82,961,177</u>	<u>\$ 74,494,125</u>	<u>\$ 75,666,425</u>

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

	<b>2017</b>	<b>2016</b>	<b>2015</b>
<b>TRSNYC Pension Fund</b>			
QPP	\$ 44,080,037	\$ 41,782,211	\$ 43,103,440
TDA	<u>22,004,183</u>	<u>20,292,733</u>	<u>18,699,332</u>
Total	66,084,220	62,074,944	61,802,772
<b>Variable-Return Funds</b>			
QPP	6,320,070	2,331,243	2,953,917
TDA	<u>8,838,152</u>	<u>7,946,654</u>	<u>8,470,979</u>
Total	15,158,222	10,277,897	11,424,896
<b>Collateral for Security Lending</b>			
QPP Pension Fund	1,530,310	1,774,456	1,663,710
QPP Variable-Return Funds	80,011	84,226	200,212
TDA Variable-Return Funds	<u>108,414</u>	<u>282,602</u>	<u>574,835</u>
Total	<u>1,718,735</u>	<u>2,141,284</u>	<u>2,438,757</u>
<b>Total Investments</b>	<u>\$ 82,961,177</u>	<u>\$ 74,494,125</u>	<u>\$ 75,666,425</u>

**CONTACT INFORMATION**

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

\* \* \* \* \*

**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>-</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>

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

**COMBINING STATEMENTS OF FIDUCIARY NET POSITION**  
**JUNE 30, 2016**  
(In Thousands)

	QPP	TDA	Eliminations	Total
<b>ASSETS:</b>				
Cash	\$ 5,157	\$ 4,699	\$ -	\$ 9,856
Receivables:			-	
Investment securities sold	1,772,521	29,686	-	1,802,207
Accrued interest and dividends	151,330	13,282	-	164,612
Member loans (Note 6)	275,704	367,864	-	643,568
Total receivables	<u>2,199,555</u>	<u>410,832</u>	<u>-</u>	<u>2,610,387</u>
Investments — at fair value (Notes 2 and 3):				
TRSNYC Pension Fund Assets (Fixed-Return Fund):				
Short-term investment:				
Commercial paper	1,070,574	-	-	1,070,574
Short-term investment fund	1,025,446	-	-	1,025,446
Discount notes	83,294	-	-	83,294
Debt securities:				
U.S. Government	5,924,318	-	-	5,924,318
Corporate and Other	8,730,691	-	-	8,730,691
Equity securities	22,284,584	-	-	22,284,584
Alternative Investments	6,872,850	-	-	6,872,850
Collective Trust Funds:				
International equity	11,507,149	-	-	11,507,149
Mortgage debt security	485,191	-	-	485,191
Treasury inflation protected securities	2,399,270	-	-	2,399,270
Fixed income	1,691,577	-	-	1,691,577
Collateral from securities lending (Fixed-Return Fund)	1,774,456	-	-	1,774,456
Diversified Equity Fund:				
Short-term investments	29,570	98,420	-	127,990
Equity securities	2,206,416	7,129,279	-	9,335,695
Debt securities	50,541	168,221	-	218,762
Bond Fund:				
Short-term investments	432	5,291	-	5,723
Debt securities	24,393	298,724	-	323,117
International Equity Fund:				
Short-term investments	75	859	-	934
International equity	8,012	91,945	-	99,957
Inflation Protection Fund:				
Short-term investments	12	119	-	131
Equity securities	3,960	40,403	-	44,363
Socially Responsive Equity Fund:				
Short-term investments	24	343	-	367
Equity securities	7,650	110,765	-	118,415
International equity	158	2,285	-	2,443
Collateral from securities lending (Variable-Return Funds)	84,226	282,602	-	366,828
Total investments	<u>66,264,869</u>	<u>8,229,256</u>	<u>-</u>	<u>74,494,125</u>
TDA Investment in TRSNYC Pension Fund	-	20,292,733	(20,292,733)	-
Other assets	49,873	13,429	(21,022)	42,280
Total assets	<u>68,519,454</u>	<u>28,950,949</u>	<u>(20,313,755)</u>	<u>77,156,648</u>
<b>LIABILITIES:</b>				
Accounts payable	417,408	103,283	(21,022)	499,669
Payable for investment securities purchased	2,308,523	29,597	-	2,338,120
Accrued benefits payable	12,563	91,127	-	103,690
Due to TDA Program's Fixed Return Fund	20,292,733	-	(20,292,733)	-
Securities lending (Note 2)	1,858,682	282,602	-	2,141,284
Total liabilities	<u>24,889,909</u>	<u>506,609</u>	<u>(20,313,755)</u>	<u>5,082,763</u>
<b>NET POSITION RESTRICTED FOR BENEFITS</b>				
Benefits to be provided by QPP	43,629,545	-	-	43,629,545
Benefits to be provided by TDA Program	-	28,444,340	-	28,444,340
Total net position restricted for benefits	<u>\$ 43,629,545</u>	<u>\$ 28,444,340</u>	<u>\$ -</u>	<u>\$ 72,073,885</u>

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

**COMBINING STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION**  
**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)	<u>60,790</u>	<u>33,032</u>	<u>93,822</u>
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>

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

**COMBINING STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION**  
**JUNE 30, 2016**  
(In Thousands)

	QPP	TDA	Total
ADDITIONS:			
Contributions:			
Member contributions (Note 4)	\$ 173,696	\$ 717,566	\$ 891,262
Employer contributions	3,702,569	-	3,702,569
Other employer contributions	58,145	-	58,145
Total contributions	<u>3,934,410</u>	<u>717,566</u>	<u>4,651,976</u>
Investment income (Note 2):			
Interest income	860,223	33,469	893,692
Dividend income	896,208	128,383	1,024,591
Net (depreciation) in fair value of investments	(598,443)	(182,355)	(780,798)
Total investment income	<u>1,157,988</u>	<u>(20,503)</u>	<u>1,137,485</u>
Less:			
Investment expenses	222,163	12,062	234,225
Net (decrease) in variable expense provision	(7,095)	(17,707)	(24,802)
Net investment income	<u>942,920</u>	<u>(14,858)</u>	<u>928,062</u>
Securities lending transactions:			
Securities lending income	18,742	4,054	22,796
Less securities lending fees	(1,395)	(390)	(1,785)
Net securities lending income	<u>17,347</u>	<u>3,664</u>	<u>21,011</u>
Net receipts from other retirement systems	<u>1,233</u>	<u>-</u>	<u>1,233</u>
Total additions	<u>4,895,910</u>	<u>706,372</u>	<u>5,602,282</u>
DEDUCTIONS:			
Benefit payments and withdrawals	4,107,455	917,189	5,024,644
Administrative expenses (Note 8)	59,367	32,632	91,999
Statutory-interest for TDA Program's Fixed Return Fund	1,354,207	(1,354,207)	-
Total deductions	<u>5,521,029</u>	<u>(404,386)</u>	<u>5,116,643</u>
NET INCREASE (DECREASE) IN NET POSITION	(625,119)	1,110,758	485,639
NET POSITION RESTRICTED FOR BENEFITS:			
Beginning of year	<u>44,254,664</u>	<u>27,333,582</u>	<u>71,588,246</u>
End of year	<u>\$ 43,629,545</u>	<u>\$ 28,444,340</u>	<u>\$ 72,073,885</u>

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



NOTES TO COMBINING FINANCIAL STATEMENTS  
YEARS ENDED JUNE 30, 2017 AND 2016**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 twelve 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 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").

**NOTES TO COMBINING FINANCIAL STATEMENTS  
YEARS ENDED JUNE 30, 2017 AND 2016**

**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**

At June 30, 2015 and June 30, 2014, the dates of the QPP's most recent completed actuarial valuations, the QPP's membership consisted of:

	<b>2015</b>	<b>2014</b>
Retirees and beneficiaries receiving benefits	82,777	80,419
Terminated vested members not yet receiving benefits	13,482	12,349
Other inactives*	7,347	8,702
Active members receiving salaries	<u>114,652</u>	<u>111,726</u>
Total	<u><u>218,258</u></u>	<u><u>213,196</u></u>

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

At June 30, 2015 and June 30, 2014, member participation of the TDA Program consisted of:

Retirees receiving a TDA annuity	2,991	3,036
Retirees or Inactive members with TDA deferral	50,854	49,594
Active members contributing to TDA	<u>81,184</u>	<u>77,705</u>
Total	<u><u>135,029</u></u>	<u><u>130,335</u></u>

**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

**NOTES TO COMBINING FINANCIAL STATEMENTS  
YEARS ENDED JUNE 30, 2017 AND 2016**

accumulated member contributions in excess of the minimum required balance and by any benefits attributable to Increased-Take-Home-Pay ("ITHP") contributions [accumulated after the twentieth year of member qualifying service]. ITHP represents amounts contributed by The City to members' QPP accounts in lieu of members' own contributions. These amounts reduce the contributions that members would have to make to the QPP during their service and thereby increase their take-home pay. Members have the choice of waiving their ITHP reduction, which would reduce their take-home pay, but provide them with increased benefits upon retirement.

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

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

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

Certain members of Tier I and Tier II have the right to make voluntary member contributions ("Voluntary Contributions") in excess of their required member contributions ("Required Contributions"). Both the investment of the Voluntary Contributions and the Required Contributions are directed by each member. A member may invest in: (1) the QPP's Fixed Return Fund in which it is credited with interest at the Statutory-Interest Rate (currently 8.25% for Tier I and Tier II contributions and 7.0% for UFT members and 8.25% for non-UFT members for TDA Contributions) and/or (2) in one or more of the QPP's variable-return funds (see note 2—Investment Programs). At the time of retirement or refund of contributions, a member's aggregate balance of actual Required Contributions and Voluntary Contributions, including the actual accumulated earnings thereon, less the outstanding balance of any member loans ("Net Actual Contributions"), may exceed ("Excess of Contributions") or fall short of ("Deficiency of Contributions") the member's Expected Balance. The Expected Balance is the sum of the Required Contributions which a member should have made during his or her credited service, plus the earnings that would have accumulated thereon at the Statutory Interest rate. The amount of the member's retirement annuity or the refund of contributions that he or she is entitled to is increased by any Excess of Contributions or reduced by any Deficiency of Contributions. The total value of active members' Excess of Contributions, net of all Deficiencies of Contributions, is \$62.5 and \$68.0 million, for the years ended June 30, 2017 and 2016, respectively. Actuarial estimates of the impact of Excesses and Deficiencies are incorporated into calculation of the QPP's net pension liability.

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

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

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

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

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

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for other eligible members is credited to the members' Annuity Savings Accumulation Fund ("ASAF").

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

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

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

During the spring 2000 session, the State Legislature approved and the State Governor ("Governor") authorized automatic Cost-of-Living Adjustments ("COLAs") for certain retirees and beneficiaries (Chapter 125 of the Laws of 2000). COLA is payable to all members who are either: (1) at least age 62 and have been retired for at least 5 years or (2) at least age 55 and have been retired for at least 10 years. Additionally, COLA is payable to members who retired for disability after being retired for 5 or more years and beneficiaries receiving accidental death benefits who have been receiving them for at least 5 years. 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). However, hardship withdrawals are limited to contributions only and if hardship withdrawal occurs, the member is not able to contribute for a six-month period.

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.

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

See “Investments” below for a discussion of TDA investment programs.

## 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

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

**Investment Valuation** — Investments are reported at fair value. Securities purchased pursuant to agreements to resell are carried at the contract price, exclusive of interest, at which the securities will be resold. Fair value is defined as the quoted market value on the last trading day of the period, except for the Short-Term Investment Fund (“STIF”) (a money market fund), International Investment Funds (the “IIF”), and Alternative Investment Funds (the “ALTINVF”). The IIF are private funds of publicly traded securities that are managed by various investment managers on behalf of the QPP and the TDA Program. Fair value is determined by TRS management based on information provided by the various investment managers. The investment managers determine fair value using the last available quoted price for each security owned adjusted by any contributions to or withdrawals from the fund during the period. The ALTINVF are investments for which exchange quotations are not readily available and are valued at estimated fair value as determined in good faith by the General Partner (“GP”). These investments are initially valued at cost with subsequent adjustments that reflect third-party transactions, financial operating results and other factors deemed relevant by the GP. Fair value is determined by the New York City Office of the Comptroller or TRS management based on information provided by the various GPs after review by an independent consultant and the custodial bank, State Street, for the System’s TRSNYC Pension Fund assets.

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

**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. As of January 1, 2012, the Stable-Value Fund became the Bond Fund. The Bond Fund objective is to seek current income by investing primarily in a portfolio of high-quality 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’ and 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

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New York State Legislature ("Statutory-Interest Rates"). Payment of the Statutory-Interest is an obligation of The City (NYC Admin. Code section 13-533). The Statutory-Interest Rates are as follows:

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

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

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

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

**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.

**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.

**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

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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. The reserve is currently \$86,637,932 for QPP and \$61,098,894 for TDA. The expense reserve, as well as investment expenses for 2017, were reduced by \$2,379,262 for QPP and \$17,995,764 for TDA. Similarly, in Fiscal Year 2016 the reserve for administrative and investment expenses totaled \$88,345,953 for QPP and \$78,789,567 for TDA. The expense reserve, as well as investment expenses for 2016, were reduced by \$7,095,378 for QPP and \$17,706,802 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 for overdrawn bank balances 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 an overdrawn balance, since funds are only deposited as outstanding benefit checks are presented to the banks for payment each day.

**Intra-fund Payables** — The QPP and TDA Program assets are reflected as of year-end, and intra-fund payables between the TRSNYC Pension Fund and the Variable-Return Funds are excluded. 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 2016, the System anticipated a substantial rebalancing from the QPP TRSNYC Pension Fund to the Variable-Return Program. In Fiscal Year 2017, \$3.8 billion was transferred from the QPP TRSNYC Pension Fund to the Variable-Return funds including \$43.9 million transferred from the QPP to the TDA Program.

**Payment of Statutory-Interest on the TDA Program 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), owed and transferred to the TDA Program is reported as a transfer payment (or receipt) of interest on the TDA Program Fixed Return Funds in the QPP and TDA Program.

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

**Securities-Lending Transactions** — State statutes and Board policies permit the Funds to lend their investments to broker-dealers and other entities for collateral, for the same securities in the future with a simultaneous agreement to return the collateral in the form of cash, Treasury and U.S. Government securities. The Funds' agent lends the following types of securities: short-term securities, common stocks, long-term corporate bonds, U.S. Government and U.S. Government agency bonds, asset-backed securities, and 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, 2017 and 2016, 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. In the situation when a borrower goes into default, the Agent will liquidate the collateral to purchase



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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 13.1 days for State Street's TRSNYC Pension Fund investments and 2.4 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 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.

During Fiscal Year 2016, net earnings from the securities-lending program were \$21.0 million. Earnings from the NYC Pension Fund securities-lending program were \$16.3 million, and earnings from the variable-return funds securities-lending program were \$4.7 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 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 12.1 days for State Street's TRSNYC Pension Fund investments and 1.4 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, 2017 and 2016, the values on loan by the TRSNYC Pension Fund were \$1.5 billion and \$1.8 billion, respectively, and the values on loan by the variable-return funds were \$183.4 million and \$357.0 million, respectively. Cash collateral received related to securities lending as of June 30, 2017 and 2016 was \$1.5 billion and \$1.8 billion, respectively, for the TRSNYC Pension Fund, and \$188.4 million and \$366.8 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 several investment managers to manage the long-term debt and equity portfolios. The managers are regularly reviewed, with regard to both their investment performance and their adherence to investment guidelines.

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

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QPP and TDA Program assets are diversified over a range of investments, and multiple strategies are used 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 Year 2017 and 2016 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**

<b>Investment Type</b>	<b>Asset Allocation Percentages</b>	
	<b>2017</b>	<b>2016</b>
Common stock	33.1%	33.7%
International investments – Non U.S.	12.2%	9.0%
International investments – Emerging Markets	9.1%	8.8%
Common stock – REITS	0.0%	3.0%
Alternative investments – Real Estate	3.5%	3.6%
Alternative investments – Private Equity	5.0%	5.0%
Alternative investments – Infrastructure	0.6%	0.0%
Alternative investments – Opportunistic Fixed Income	2.5%	2.4%
Fixed income	34.0%	34.5%
Total	100.0%	100.0%

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**Variable-Return Funds  
Target Asset Allocations**

<b>Investment Type</b>	<b>Asset Allocation</b>	
	<b>Percentages</b>	
	<b>2017</b>	<b>2016</b>
Diversified Equity (Variable A):		
Common stock – Passive	55.0%	50.0%
Common stock – Active	15.0%	20.0%
Common stock – Defensive	10.0%	15.0%
International investments	20.0%	15.0%
Bond Fund (Variable B):		
Fixed Income	100.0%	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 TRSNYC Pension Fund. JPMorgan Chase is currently the custodian for essentially all securities of the variable-return programs.

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

**Concentrations** — The System's investment programs do not have any investments in any one entity that represent 5% or more of the assets in the QPP or TDA Program's net position.

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**Credit Risk** — Portfolios other than U.S. Government and related portfolios have credit rating limitations. Investment Grade portfolios are limited to mostly ratings of BBB- and above except that they are also permitted a 10% maximum exposure to BB & B rated securities. While non-investment grade managers are primarily invested in BB & B rated securities, they can also invest up to 7% of their portfolios in securities rated CCC or lower. Unrated securities, excluding short-term securities, are considered to be non-investment grade. 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, 2017 and 2016, are as follows:

Investment Type (in percent)	S&P Quality Ratings													CCC+ & Below	Not Rated	Total					
	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-				B+	B	B-		
U.S. Government	0.01%	1.12%	0.02%	0.03%	0.04%	0.00%	0.00%	0.12%	0.07%	0.07%	0.07%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	46.36%	47.85%	
Corporate bonds	0.30%	0.19%	0.21%	0.78%	0.77%	2.00%	2.55%	6.07%	4.75%	5.31%	3.49%	2.67%	4.19%	3.50%	2.67%	2.07%	1.09%	4.01%	46.62%	46.62%	
Short term	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.23%	1.23%
Commercial Paper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.99%	2.99%
Pooled Fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Discount Notes and	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Treasury-Bills	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.31%	1.31%
Percent of Rated Portfolio	0.31%	1.31%	0.23%	0.81%	0.81%	2.00%	2.55%	6.19%	4.82%	5.38%	3.49%	2.68%	4.19%	3.50%	2.67%	2.07%	1.09%	1.09%	55.90%	100.00%	

Investment Type	S&P Quality Ratings													CCC+ & Below	Not Rated	Total					
	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-				B+	B	B-		
U.S. Government	0.01%	0.82%	0.03%	0.00%	0.03%	0.00%	0.00%	0.16%	0.11%	0.01%	0.09%	0.02%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	35.14%	36.43%	
Corporate bonds	0.51%	0.71%	0.48%	0.99%	1.19%	2.70%	4.42%	6.68%	6.08%	6.51%	3.59%	2.97%	3.27%	2.69%	2.18%	1.62%	1.41%	3.84%	51.84%	51.84%	
Short-term:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.42%	6.42%
Commercial paper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.21%	5.21%
Pooled funds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Discount Notes and	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Treasury-Bills	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.10%	0.10%
Percent of Rated Portfolio	0.52%	1.53%	0.51%	0.99%	1.22%	2.70%	4.42%	6.84%	6.19%	6.52%	3.68%	2.99%	3.28%	2.69%	2.18%	1.62%	1.41%	1.41%	50.71%	100.00%	

\* 2016 was revised to include U.S. Government securities

NOTES TO COMBINING FINANCIAL STATEMENTS  
YEARS ENDED JUNE 30, 2017 AND 2016

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, 2017 and 2016 are as follows:

Investment Type	S&P Quality Ratings													Total					
	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-		B+	B	B-	CCC+ & Below	Not Rated
Variable Funds																			
June 30, 2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Government*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corporate bonds	2.05%	0.54%	0.41%	1.20%	1.81%	3.25%	2.54%	6.53%	4.13%	3.18%	2.19%	1.02%	1.96%	1.80%	0.57%	0.72%	0.32%	18.81%	53.03%
Yankee bonds	0.71%	0.62%	-	0.07%	-	-	0.24%	-	-	-	-	-	-	-	-	-	-	-	1.64%
Municipal Bonds	0.22%	0.02%	-	0.00%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.24%
U.S. Agencies	-	0.78%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.78%
Short-term:																			
Money Market Funds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44.31%
Percent of rated portfolio	2.98%	1.96%	0.41%	1.27%	1.81%	3.25%	2.54%	6.77%	4.13%	3.18%	2.19%	1.02%	1.96%	1.80%	0.57%	0.72%	0.32%	63.12%	100.00%

S&P Quality Ratings

Investment Type	S&P Quality Ratings													Total					
	AAA	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-		B+	B	B-	CCC+ & Below	Not Rated
Variable Funds																			
June 30, 2016**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Government*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corporate bonds	2.35%	0.03%	0.39%	0.94%	2.06%	1.24%	3.52%	5.48%	3.39%	3.53%	2.94%	1.63%	1.37%	0.98%	1.68%	0.15%	-	19.43%	51.11%
Yankee bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06%
Municipal Bonds	-	0.04%	0.21%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.25%
U.S. Agencies	-	1.37%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.37%
Short-term:																			
Money Market Funds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47.21%
Percent of rated portfolio	2.35%	1.44%	0.60%	0.94%	2.06%	1.24%	3.52%	5.48%	3.39%	3.53%	2.94%	1.63%	1.37%	0.98%	1.68%	0.15%	0.00%	66.70%	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 are not considered by JP Morgan Chase, the Variable-Return Funds Custodian, to have credit risk and are not included above.

\*\* 2016 was revised to include detailed credit rating

**NOTES TO COMBINING FINANCIAL STATEMENTS  
YEARS ENDED JUNE 30, 2017 AND 2016**

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

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

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

**Interest Rate Risk** — Interest rate risk is the risk that the 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.

**NOTES TO COMBINING FINANCIAL STATEMENTS**  
**YEARS ENDED JUNE 30, 2017 AND 2016**

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, 2017 and 2016, are as follows:

**Years to Maturity**

<b>June 30, 2017</b>	<b>Investment Maturities</b>				
	<b>Fair Value</b>	<b>Less than One Year</b>	<b>One to Five Years</b>	<b>Six to Ten Years</b>	<b>More than Ten Years</b>
<b>Investment Type</b>					
<b>Pension Fund</b>					
U.S. Government	47.85 %	0.93 %	8.38 %	7.75 %	30.79 %
Corporate	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	1.31	1.31	-	-	-
Percent of rated portfolio	<u>100.00 %</u>	<u>8.22 %</u>	<u>23.12 %</u>	<u>28.11 %</u>	<u>40.55 %</u>

<b>June 30, 2016</b>	<b>Investment Maturities</b>				
	<b>Fair Value</b>	<b>Less than One Year</b>	<b>One to Five Years</b>	<b>Six to Ten Years</b>	<b>More than Ten Years</b>
<b>Investment Type</b>					
<b>Pension Fund</b>					
U.S. Government	36.44 %	2.31 %	4.41 %	4.66 %	25.06 %
Corporate	51.84	1.01	17.37	20.62	12.84
Short-term:					
Commercial paper	6.42	6.42	-	-	-
Pooled funds	5.21	5.21	-	-	-
Discount Notes and Treasury	0.10	0.10	-	-	-
Percent of rated portfolio	<u>100.00 %</u>	<u>15.05 %</u>	<u>21.78 %</u>	<u>25.28 %</u>	<u>37.90 %</u>

**NOTES TO COMBINING FINANCIAL STATEMENTS**  
**YEARS ENDED JUNE 30, 2017 AND 2016**

The lengths of investment maturities (in years) of the variable-return funds', both QPP and TDA, investments, as shown by the percent of the rated portfolio, at June 30, 2017 and 2016, are as follows:

**Years to Maturity**

<b>June 30, 2017</b>	<b>Investment Maturities</b>				
	<b>Fair Value</b>	<b>Less than One Year</b>	<b>One to Five Years</b>	<b>Six to Ten Years</b>	<b>More than Ten Years</b>
<b>Investment Type</b>					
<b>Variable Funds</b>					
Government	21.19 %	0.73 %	19.34 %	1.12 %	- %
Corporate	41.79	3.75	28.81	4.93	4.30
Yankee bonds	1.29	-	1.29	-	-
Municipal bonds	0.19	-	0.19	-	-
US Agency	0.62	-	0.62	-	-
Short term:					
Money market	34.92	34.92	-	-	-
Percent of rated portfolio	100.00 %	39.40 %	50.25 %	6.05 %	4.30 %

<b>June 30, 2016</b>	<b>Investment Maturities</b>				
	<b>Fair Value</b>	<b>Less than One Year</b>	<b>One to Five Years</b>	<b>Six to Ten Years</b>	<b>More than Ten Years</b>
<b>Investment Type</b>					
<b>Variable Funds</b>					
Government	24.27 %	0.14 %	23.53 %	0.60 %	- %
Corporate	38.71	2.23	26.60	5.14	4.74
Yankee bonds	0.05	-	0.05	-	-
Municipal bonds	0.18	0.16	0.02	-	-
US Agency	1.04	-	1.04	-	-
Short term:					
Money market	35.75	35.75	-	-	-
Percent of rated portfolio	100.00 %	38.28 %	51.24 %	5.74 %	4.74 %

**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 have proven to be good diversifiers in a total portfolio context; therefore, the TRSNYC Pension Fund has numerous managers that invest globally. In general, currency exposure is viewed as a benefit for its diversification reasons and not as an inherent risk within the portfolio.



**NOTES TO COMBINING FINANCIAL STATEMENTS**  
**YEARS ENDED JUNE 30, 2017 AND 2016**

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, 2017 and 2016 are as follows (amounts in thousands of U.S. dollars):

<b>Trade Currency (in thousands)</b>	<b>Pension Fund June 30, 2017</b>	<b>Variable-Return Funds June 30, 2017</b>	<b>Pension Fund June 30, 2016</b>	<b>Variable-Return Funds June 30, 2016</b>
Euro Currency	\$ 2,768,970	\$ 203,980	\$ 1,751,683	\$ 171,952
Japanese Yen	1,896,715	109,155	1,211,772	101,422
British Pnd Sterling	1,540,467	106,423	1,047,296	103,393
South Korean Won	1,311,912	86,007	986,412	78,366
New Taiwan Dollar	1,036,049	51,731	827,942	50,026
Indian Rupee	945,837	53,586	762,247	51,387
Swiss Franc	789,798	69,747	542,480	59,634
South African Rand	578,274	24,009	531,048	26,115
Brazilian Real	484,833	15,283	381,188	20,695
Hong Kong Dollar	470,622	22,440	347,719	20,397
Canadian Dollar	313,530	32,829	97,285	22,110
Australian Dollar	306,102	19,785	197,137	20,122
Mexican Nuevo Peso	302,743	7,815	259,357	9,085
Swedish Krona	271,809	5,607	160,037	7,659
Indonesian Rupiah	227,390	3,187	171,225	-
Danish Krone	219,133	11,278	127,833	3,778
Thai Baht	192,893	14,567	168,968	6,499
Malaysian Ringgit	182,270	12,742	195,511	10,561
Turkish Lira	160,477	12,131	113,853	9,708
Singapore Dollar	135,264	16,597	103,043	16,518
Philippines Peso	130,522	1,993	126,656	1,607
Polish Zloty	122,453	2,213	108,411	3,371
Chilean Peso	95,645	893	85,709	29
Norwegian Krone	81,229	7,498	50,548	5,433
Colombian Peso	45,587	-	40,404	-
UAE Dirham	39,763	2,134	39,394	2,555
Hungarian Forint	38,518	-	34,102	-
Czech Koruna	22,318	113	25,097	6
Egyptian Pound	22,244	79	24,020	137
New Zealand Dollar	20,702	909	12,438	309
Qatari Rial	20,609	-	22,834	-
Israeli Shekel	17,907	2,713	6,328	3,495
Peruvian Nuevo Sol	9,845	-	10,324	-
<b>Total</b>	<b>\$ 14,802,430</b>	<b>\$ 897,444</b>	<b>\$ 10,570,301</b>	<b>\$ 806,369</b>

NOTES TO COMBINING FINANCIAL STATEMENTS  
YEARS ENDED JUNE 30, 2017 AND 2016

Securities Lending Transactions

Credit Risk — The quality ratings of investments held as collateral for Securities Lending by the TRSNYC Pension Fund at June 30, 2017 and 2016 are as follows (in thousands):

Investment Type and Fair Value of Securities Lending Transactions (in thousands)	S&P Quality Ratings										
	AAA+ & Below	AA	AA+	AA-	A	A-	BBB+ & Below	BB+ & Below	B+ & Below	CCC+ & Below	Total
Government	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Corporate	-	-	-	-	-	-	-	-	-	-	-
Short-term:	-	-	-	-	-	-	-	-	-	-	-
Repurchase agreements	-	-	-	-	-	-	-	-	-	-	-
Reverse repurchase agreements	-	-	-	-	-	-	-	-	-	-	-
Certificates of deposit	-	-	76,444	-	306,983	42,240	-	-	-	-	709,696
Commercial paper	-	-	-	-	-	-	-	-	-	-	-
Money market	-	-	-	-	-	-	-	-	-	-	-
Bank notes	8,000	-	-	-	-	-	-	-	-	-	8,000
U.S. agency	-	-	-	-	-	-	-	-	-	-	-
Time deposit	-	-	-	-	-	-	-	-	-	-	-
Cash equivalents	-	-	-	-	-	-	-	-	-	-	-
Payable/Receivable	-	-	-	-	152,222	-	-	-	-	-	152,222
Uninvested	-	-	-	-	-	-	-	-	-	-	1,572
Total	\$ 8,000	\$ -	\$ 76,444	\$ 234,127	\$ 306,983	\$ 42,240	\$ -	\$ -	\$ -	\$ -	\$ 862,516
Percent of Securities Lending Portfolio	0.52 %	- %	5.00 %	15.30 %	20.06 %	2.76 %	- %	- %	- %	- %	56.36 %

Investment Type and Fair Value of Securities Lending Transactions (in thousands)	S&P Quality Ratings										
	AAA+ & Below	AA	AA+	AA-	A	A-	BBB+ & Below	BB+ & Below	B+ & Below	CCC+ & Below	Total
Government	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Corporate	-	-	-	-	-	-	-	-	-	-	-
Short-term:	-	-	-	-	-	-	-	-	-	-	-
Repurchase agreements	-	-	-	-	-	-	-	-	-	-	-
Reverse repurchase agreements	-	-	-	-	-	-	-	-	-	-	-
Certificates of deposit	-	-	-	-	464,066	115,981	-	-	-	-	476,572
Commercial paper	-	-	-	-	-	-	-	-	-	-	-
Money market	-	-	-	-	-	-	-	-	-	-	-
Bank notes	70,361	-	-	-	-	-	-	-	-	-	70,361
U.S. agency	-	-	-	-	-	-	-	-	-	-	-
Time deposit	-	-	-	-	-	-	-	-	-	-	-
Cash equivalents	-	-	-	-	-	-	-	-	-	-	-
Payable/Receivable	-	-	-	-	176,681	-	-	-	-	-	176,681
Uninvested	-	-	-	-	-	-	-	-	-	-	1,572
Total	\$ 70,361	\$ -	\$ 88,509	\$ 98,832	\$ 640,747	\$ 115,981	\$ -	\$ -	\$ -	\$ -	\$ 1,774,456
Percent of Securities Lending Portfolio	3.96 %	- %	4.99 %	5.57 %	36.11 %	6.54 %	- %	- %	- %	- %	42.83 %

\* 2016 was revised to include detailed credit rating

NOTES TO COMBINING FINANCIAL STATEMENTS  
YEARS ENDED JUNE 30, 2017 AND 2016

The quality ratings of investments held as collateral for Securities Lending under the variable-return funds at June 30, 2017 and 2016 are as follows (in thousands):

Investment Type and Fair Value of  
Securities Lending Transactions  
(In thousands)  
June 30, 2017

	S&P Quality Ratings							Total
	AAA	AA+	AA & Below	BBB+ & Below	CCC+ & Below	Short Term	Not Rated	
Government	\$ -	\$ 43,264	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 43,264
Corporate	-	-	-	-	-	-	-	-
Short-term:								
Repurchase agreements	29,961	115,200	-	-	-	-	-	145,161
Reversal purchase agreements	-	-	-	-	-	-	-	-
Certificates of deposit	-	-	-	-	-	-	-	-
Commercial paper	-	-	-	-	-	-	-	-
Variable rate demand notes	-	-	-	-	-	-	-	-
U.S. treasury	-	-	-	-	-	-	-	-
U.S. agency	-	-	-	-	-	-	-	-
Time deposit	-	-	-	-	-	-	-	-
Uninvested	-	-	-	-	-	-	-	-
Total	\$ 29,961	\$ 158,464	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 188,425
Percent of securities lending portfolio	15.90 %	84.10 %	- %	- %	- %	- %	- %	100.00 %

June 30, 2016 \*

	S&P Quality Ratings							Total
	AAA	AA+	AA & Below	BBB+ & Below	CCC+ & Below	Short Term	Not Rated	
Government	\$ -	\$ 102,928	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 102,928
Corporate	-	-	-	-	-	-	-	-
Short-term:								
Repurchase agreements	201,775	62,078	-	-	-	-	-	263,853
Reversal purchase agreements	-	-	-	-	-	-	-	-
Certificates of deposit	-	-	-	-	-	-	-	-
Commercial paper	-	-	-	-	-	-	-	-
Variable rate demand notes	-	-	-	-	-	-	-	-
U.S. treasury	-	-	-	-	-	-	-	-
U.S. agency	-	-	-	-	-	-	-	-
Time deposit	-	-	-	-	-	-	-	-
Uninvested	-	-	-	-	-	-	47	47
Total	\$ 201,775	\$ 165,006	\$ -	\$ -	\$ -	\$ -	\$ 47	\$ 366,828
Percent of securities lending portfolio	55.01 %	44.98 %	- %	- %	- %	- %	0.01 %	100.00 %

\* 2016 was revised to include detailed credit rating

**NOTES TO COMBINING FINANCIAL STATEMENTS**  
**YEARS ENDED JUNE 30, 2017 AND 2016**

*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, 2017 and 2016 are as follows (in thousands):

**Years to Maturity**

Investment Type 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	-	-	-	-	-
Short-term:	-	-	-	-	-
Repurchase agreements	-	-	-	-	-
Reverse repurchase agreements	1,217,268	1,217,268	-	-	-
Certificates of deposit	-	-	-	-	-
Commercial paper	-	-	-	-	-
Money market	8,000	8,000	-	-	-
Bank notes	-	-	-	-	-
U.S. agency	149,982	149,982	-	-	-
Time deposit	-	-	-	-	-
Cash equivalents	152,222	152,222	-	-	-
Payable/Receivable	1,572	1,572	-	-	-
Uninvested	1,266	1,266	-	-	-
Total	<u>\$ 1,530,310</u>	<u>\$ 1,530,310</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Percent of Securities Lending Portfolio	<u>100.00 %</u>	<u>100.00 %</u>	<u>- %</u>	<u>- %</u>	<u>- %</u>

Investment Type June 30, 2016	Investment Maturities				
	Fair Value	Less Than One Year	One to Five Years	Six to Ten Years	More Than Ten Years
Government	\$ -	\$ -	\$ -	\$ -	\$ -
Corporate	-	-	-	-	-
Short-term:	-	-	-	-	-
Repurchase agreements	-	-	-	-	-
Reverse repurchase agreements	1,243,960	1,243,960	-	-	-
Certificates of deposit	-	-	-	-	-
Commercial paper	-	-	-	-	-
Money market	70,361	70,361	-	-	-
Bank notes	-	-	-	-	-
U.S. agency	280,470	280,470	-	-	-
Time deposit	-	-	-	-	-
Cash equivalents	176,681	176,681	-	-	-
Payable/Receivable	1,572	1,572	-	-	-
Uninvested	1,412	1,412	-	-	-
Total	<u>\$ 1,774,456</u>	<u>\$ 1,774,456</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Percent of Securities Lending Portfolio	<u>100.00 %</u>	<u>100.00 %</u>	<u>- %</u>	<u>- %</u>	<u>- %</u>

**NOTES TO COMBINING FINANCIAL STATEMENTS**  
**YEARS ENDED JUNE 30, 2017 AND 2016**

The lengths of investment maturities (in years) of the collateral for Securities Lending held under the variable-return funds at June 30, 2017 and 2016 are as follows (in thousands):

**Years to Maturity**

Investment Type (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	-	-	-	-	-
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>

Investment Type (in thousands) June 30, 2016	Investment Maturities				
	Fair Value	Less Than One Year	One to Five Years	Six to Ten Years	More Than Ten Years
Government	\$ 102,928	\$ 26,913	\$ 33,418	\$ 23,393	\$ 19,204
Corporate	-	-	-	-	-
Short-term:					
Repurchase agreements	263,853	263,853	-	-	-
Reversal purchase agreements	-	-	-	-	-
Certificates of deposit	-	-	-	-	-
Commercial paper	-	-	-	-	-
Variable rate demand notes	-	-	-	-	-
U.S. treasury	-	-	-	-	-
U.S. agency	-	-	-	-	-
Time deposit	-	-	-	-	-
Uninvested	47	47	-	-	-
Totals	<u>\$ 366,828</u>	<u>\$ 290,813</u>	<u>\$ 33,418</u>	<u>\$ 23,393</u>	<u>\$ 19,204</u>
Percent of securities lending portfolio	<u>100.00 %</u>	<u>79.28 %</u>	<u>9.11 %</u>	<u>6.38 %</u>	<u>5.23 %</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.

**NOTES TO COMBINING FINANCIAL STATEMENTS**  
**YEARS ENDED JUNE 30, 2017 AND 2016**

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:

**GASB 72 Disclosure (Pension Fund)**

(In thousands)

	<b>2017</b>			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
Collateral from securities lending	-	1,530,310	-	1,530,310
	<u>-</u>	<u>1,530,310</u>	<u>-</u>	<u>1,530,310</u>
Total Pension Fund investments	<u>\$ 36,492,872</u>	<u>\$ 21,426,021</u>	<u>\$ 9,695,637</u>	<u>\$ 67,614,530</u>

**NOTES TO COMBINING FINANCIAL STATEMENTS**  
**YEARS ENDED JUNE 30, 2017 AND 2016**

**GASB 72 Disclosure (Pension Fund)**  
**(In thousands)**

	<b>2016</b>			
	Level One	Level Two	Level Three	Total
INVESTMENTS — At fair value				
Short-term investments:				
Commercial paper	\$ -	\$ 1,070,574	\$ -	\$ 1,070,574
Short-term investment fund	-	1,025,446	-	1,025,446
U.S. treasury bills and agencies	-	-	-	-
Discount notes	-	83,294	-	83,294
Debt securities:				
U.S. government and agency	-	5,924,318	-	5,924,318
Corporate and other	-	8,559,905	170,786	8,730,691
Equity securities	22,284,584	-	-	22,284,584
Alternative investments	-	-	6,872,850	6,872,850
Collective trust funds:				
International equity	11,014,289	492,860	-	11,507,149
Fixed income	9,873	233,348	1,448,356	1,691,577
Domestic equity	-	-	-	-
Mortgage debt security	-	97,606	387,585	485,191
Treasury inflation protected securities	-	2,399,270	-	2,399,270
Collateral from securities lending	-	1,774,456	-	1,774,456
	<u>\$ 33,308,746</u>	<u>\$ 21,661,077</u>	<u>\$ 8,879,577</u>	<u>\$ 63,849,400</u>
Total Pension Fund investments	<u>\$ 33,308,746</u>	<u>\$ 21,661,077</u>	<u>\$ 8,879,577</u>	<u>\$ 63,849,400</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

**NOTES TO COMBINING FINANCIAL STATEMENTS  
YEARS ENDED JUNE 30, 2017 AND 2016**

in the interim, if significant developments relating to such portfolio company or industry occur which may suggest a material change in value, the GP should value each investment by applying generally accepted valuation methods including: (1) the market approach (such as market transaction and comparable public company multiples, which are based on a measurement of the company's historical and projected financial performance with typical metrics including enterprise value/latest 12 months EBITDA or projected fiscal year EBITDA) or (2) the income or discounted cash flow approach.

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

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

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



**NOTES TO COMBINING FINANCIAL STATEMENTS**  
**YEARS ENDED JUNE 30, 2017 AND 2016**

**Variable-Return Funds****GASB 72 Disclosure**

As of June 30, 2017

(in thousands)

	<b>2017</b>			Total
	Level One	Level Two	Level Three	
Diversified Equity Fund:				
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
Collateral from securities lending (Variable-Return Funds)	-	188,425	-	188,425
<b>Total Variable-Return Funds Investments</b>	<b><u>\$ 11,942,389</u></b>	<b><u>\$ 3,402,211</u></b>	<b><u>\$ 2,047</u></b>	<b><u>\$ 15,346,647</u></b>

**NOTES TO COMBINING FINANCIAL STATEMENTS**  
**YEARS ENDED JUNE 30, 2017 AND 2016**

**Variable-Return Funds****GASB 72 Disclosure**

As of June 30, 2016

(in thousands)

	2016			
	Level One	Level Two	Level Three	Total
<b>Diversified Equity Fund:</b>				
Short-term investments	\$ -	\$ 127,990	\$ -	\$ 127,990
Equity securities	8,238,607	1,096,641	447	9,335,695
Debt Securities	-	218,762	-	218,762
<b>Bond Fund:</b>				
Short-term investments	-	5,723	-	5,723
Debt Securities	-	323,117	-	323,117
<b>International Equity Fund:</b>				
Short-term investments	-	934	-	934
International equity	89,751	10,201	5	99,957
<b>Inflation Protection Fund:</b>				
Short-term investments	-	131	-	131
Equity securities	44,363	-	-	44,363
<b>Socially Responsive Equity Fund:</b>				
Short-term investments	-	367	-	367
Equity securities	118,415	-	-	118,415
International equity	2,443	-	-	2,443
Collateral from securities lending (Variable-Return Funds)	-	366,828	-	366,828
<b>Total Variable-Return Funds Investments</b>	<b>\$ 8,493,579</b>	<b>\$ 2,150,694</b>	<b>\$ 452</b>	<b>\$ 10,644,725</b>

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.

**NOTES TO COMBINING FINANCIAL STATEMENTS  
YEARS ENDED JUNE 30, 2017 AND 2016**

**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, 2017, based on an actuarial valuation as of June 30, 2015, was \$3,888 million, and the Statutory Contribution for the year ended June 30, 2016, based on an actuarial valuation as of June 30, 2014, was \$3,703 million. The Statutory Contributions for Fiscal Years 2017 and 2016 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.

**NOTES TO COMBINING FINANCIAL STATEMENTS  
YEARS ENDED JUNE 30, 2017 AND 2016**

**5. QPP NET PENSION LIABILITY**

The components of the net pension liability of the Employers at June 30, 2017 and 2016 were as follows:

	<b>(in millions)</b>	
	<b>2017</b>	<b>2016</b>
Total pension liability	\$73,323	\$70,001
Fiduciary net position *	\$50,096	\$43,630
Employers' net pension liability	\$23,227	\$26,371
Fiduciary net position as a percentage of the total pension liability	68.3%	62.3%

\*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, 2017 and 2016 were determined by actuarial valuations as of June 30, 2015 and June 30, 2014, 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:

**NOTES TO COMBINING FINANCIAL STATEMENTS**  
**YEARS ENDED JUNE 30, 2017 AND 2016**

<b>Asset Class</b>	<b>Target Asset Allocation</b>	<b>Long-Term Expected Real Rate of Return</b>
U.S. Public Markets Equities	29.00%	5.70%
International Public Markets Equities	12.00%	6.10%
Emerging Public Markets Equities	9.00%	7.60%
Private Market Equities	6.00%	8.10%
Fixed Income (Core, TIPS, High Yield, Opportunistic, Convertibles)	33.00%	3.00%
Alternatives (Real Assets, Hedge Funds)	11.00%	4.70%
Total	100.00%	

**Discount Rate**

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

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

<b>(in thousands)</b>	<b>1% Decrease (6%)</b>	<b>Discount Rate (7%)</b>	<b>1% Increase (8%)</b>
Employers' Net Pension Liability — June 30, 2017	\$ 30,901,066	\$ 23,227,707	\$ 16,811,033

**6. MEMBER LOANS**

The balance of member loans receivable for the QPP at June 30, 2017 and 2016 is \$298.1 million and \$275.7 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, 2017 and 2016 is \$376.0 million and \$367.9 million, respectively. Members of the TDA Program are permitted to borrow up to

**NOTES TO COMBINING FINANCIAL STATEMENTS  
YEARS ENDED JUNE 30, 2017 AND 2016**

75% of their own contributions, including accumulated interest. TDA Program members supplement their member loans' interest payments (7.0% for UFT, 8.25% for all other members) with a 0.3% ("APR") insurance fee. This fee funds a reserve, which is used to repay members' loan balances outstanding in case of death. Upon termination of employment before retirement, members are entitled to refunds of their own contributions, including accumulated interest, less any loans outstanding.

**7. RELATED PARTIES**

The Comptroller has been appointed by law as custodian for the assets of the QPP and TDA Program with discretionary authority. Securities are held by certain banks under custodial agreements with the Comptroller. The Comptroller, the Financial Information Services Agency ("FISA"), and the Office of Payroll Administration ("OPA") provide cash receipt and cash disbursement services and financial services; the Office of Management and Budget ("OMB") provides budget review services; and the City's Corporation Counsel provides legal services to TRS. The cost of providing such services amounted to \$10.9 million and \$7.7 million in Fiscal Years 2017 and 2016, 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, net of loan service charge revenue reserves, 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 \$93.8 million and \$92.0 million for Fiscal Years 2017 and 2016, 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.

**9. CONTINGENT LIABILITIES AND OTHER MATTERS**

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

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

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

NOTES TO COMBINING FINANCIAL STATEMENTS  
YEARS ENDED JUNE 30, 2017 AND 2016

**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.

**Investment Fund Change** —

As of January 1, 2018, following notice to participants in Fiscal Year 2017, the System's Bond Fund will become the Balanced Fund. The Balanced Fund will be a moderately conservative balanced investment option that includes exposure to both stocks and bonds.

\* \* \* \* \*

**REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)**  
**QUALIFIED PENSION PLAN**  
**SCHEDULE OF CHANGES IN THE EMPLOYERS' NET PENSION LIABILITY AND RELATED RATIOS**  
(In Thousands)

	<b>SCHEDULE 1</b>			
	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Total pension liability:				
Service cost	\$ 1,386,674	\$ 1,274,308	\$ 1,223,158	\$ 1,205,662
Interest	5,147,042	4,131,177	4,027,139	4,407,702
Changes of benefit terms	-	-	-	-
Differences between expected and actual experience	1,008,249	1,229,501	1,507,964	-
Changes of assumptions	-	2,432,878	-	-
Benefit payments/withdrawals	(4,219,312)	(4,107,455)	(4,024,272)	(3,818,248)
Net change in total pension liability	3,322,653	4,960,409	2,733,989	1,795,116
Total pension liability – beginning	70,000,777	65,040,368	62,306,379	60,511,262
Total pension liability – ending (a)	73,323,430	70,000,777	65,040,368	62,306,378
Plan fiduciary net position:				
Contributions - Employer	3,888,399	3,760,714	3,325,528	3,054,424
Contributions - Other Employer*	57,369	n/a	n/a	n/a
Contributions - Employee	180,076	173,696	158,590	154,962
Net investment income	8,133,280	960,267	1,611,929	9,435,906
Benefit payments/withdrawals	(4,219,312)	(4,107,455)	(4,024,272)	(3,818,248)
Payment of Interest on TDA Fixed Funds	(1,466,615)	(1,354,207)	(1,248,988)	(1,147,923)
Administrative expenses	(60,790)	(59,367)	(58,391)	(46,042)
Other Changes	(46,229)	1,233	329	404
Net change in plan fiduciary net position	6,466,178	(625,119)	(235,275)	7,633,483
Plan fiduciary net position – beginning	43,629,545	44,254,664	44,489,939	36,856,456
Plan fiduciary net position – ending (b)**	50,095,723	43,629,545	44,254,664	44,489,939
Employer's net pension liability – ending (a)-(b)	\$ 23,227,707	\$ 26,371,232	\$ 20,785,704	\$ 17,816,440
Plan fiduciary net position as a percentage of the total pension liability	68.30%	62.30%	68.04%	71.41%
Covered Employee Payroll	\$ 8,818,537	\$ 8,256,100	\$ 8,074,522	\$ 7,996,942
TRS' Net Pension Liability as a Percentage of covered-employee payroll	263.40%	319.42%	257.42%	222.79%

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

\*Includes amounts for 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.



SCHEDULE 2

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)  
 QUALIFIED PENSION PLAN  
 SCHEDULE OF EMPLOYERS' CONTRIBUTIONS

(In Thousands)

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Actuarially determined contribution	\$ 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	\$ 1,916,520
Contributions in relation to the actuarially determined contribution	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	1,916,520
Contribution deficiency (excess)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Covered-employee payroll	\$ 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	\$ 6,998,174
Contributions as a percentage of covered-employee payroll <sup>1</sup>	44.093%	44.846%	40.498%	37.498%	36.455%	33.747%	31.114%	31.604%	30.792%	27.386%

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

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 2017 contributions were determined using an actuarial valuation as of June 30, 2015). The methods and assumptions used to determine the actuarially determined contributions are as follows:

See Independent Auditors' report.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)  
 QUALIFIED PENSION PLAN  
 SCHEDULE OF EMPLOYERS' CONTRIBUTIONS

NOTES TO SCHEDULE  
 SCHEDULE 2 (CONTINUED)

Valuation Dates	June 30, 2015	June 30, 2014	June 30, 2013	June 30, 2012	June 30, 2011	June 30, 2010	June 30, 2009- June 30, 2006
Actuarial cost method	Entry Age	Entry Age	Entry Age	Entry Age	Entry Age	Entry Age	Frozen Initial Liability <sup>1</sup>
Amortization method for Unfunded Actuarial Accrued Liabilities:							
Initial Unfunded	Increasing Dollar	Increasing Dollar	Increasing Dollar	Increasing Dollar	Increasing Dollar	Increasing Dollar	NA <sup>2</sup>
Post-2010 Unfunded	Level Dollar	Level Dollar	Level Dollar	Level Dollar	Level Dollar	Level Dollar	NA <sup>2</sup>
Remaining amortization period:							
Initial Unfunded	17 years (closed)	18 years (closed)	19 years (closed)	20 years (closed)	21 years (closed)	22 years (closed)	NA <sup>2</sup>
2010 ERI	1 year (closed)	2 years (closed)	3 years (closed)	4 years (closed)	5 years (closed)	NA	NA <sup>2</sup>
2011 Actuarial Gain/Loss	11 years (closed)	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA <sup>2</sup>
2012 Actuarial Gain/Loss	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA <sup>2</sup>
2013 Actuarial Gain/Loss	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA	NA <sup>2</sup>
2014 Actuarial Gain/Loss	14 years (closed)	15 years (closed)	NA	NA	NA	NA	NA <sup>2</sup>
2015 Actuarial Gain/Loss	15 years (closed)	NA	NA	NA	NA	NA	NA <sup>2</sup>
Actuarial Asset Valuation (AAV) Method	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.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 1999.

See Independent Auditors' report.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)  
 QUALIFIED PENSION PLAN  
 SCHEDULE OF EMPLOYERS' CONTRIBUTIONS

NOTES TO SCHEDULE

SCHEDULE 2 (CONTINUED)

Valuation Dates	June 30, 2015	June 30, 2014	June 30, 2013	June 30, 2012	June 30, 2011	June 30, 2010	June 30, 2009- June 30, 2006
Actuarial assumptions:							
Assumed rate of return <sup>3</sup>	net of investment expenses	net of investment expenses	net of investment expenses	net of investment expenses	of investment expenses	gross of investment expenses	gross of investment expenses <sup>3</sup>
Post-retirement mortality	Tables adopted by Retirement Board	Tables adopted by Retirement Board	Tables adopted by Retirement Board	Tables adopted by Retirement Board	Tables adopted by Retirement Board	Tables adopted by Retirement Board	Tables adopted by Retirement Board
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 2006	Tables adopted by Retirement Board during Fiscal Year 2000
Salary increases <sup>3</sup>	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year.	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year. <sup>3</sup>
Cost-of-Living Adjustments <sup>3</sup>	1.5% per annum for Auto Cola. 2.5% per annum for Escalation.	1.5% per annum for Auto Cola. 2.5% per annum for Escalation.	1.5% per annum for Auto Cola. 2.5% per annum for Escalation.	1.5% per annum for Auto Cola. 2.5% per annum for Escalation.	1.5% per annum for Auto Cola. 2.5% per annum for Escalation.	1.5% per annum for Auto Cola. 2.5% per annum for Escalation.	1.3% per annum <sup>3</sup>

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<sup>2</sup>

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.

**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 four fiscal years:

<b>Fiscal Year-Ended</b>	<b>Money-weighted Rate of Return</b>
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.

See Independent Auditors' report.

**ADDITIONAL SUPPLEMENTARY INFORMATION  
SCHEDULE OF ADMINISTRATIVE EXPENSES  
Year Ended June 30, 2017**

## SCHEDULE 4

	Total	QPP	TDA	Expense Reserve****
<b>PERSONNEL SERVICES</b>				
Staff Salaries	\$ 30,402,961	\$ 22,945,084	\$ 6,934,946	\$ 522,931
Social Security	1,730,385	1,305,919	394,703	29,763
Insurance (Health)	4,641,767	3,503,137	1,058,792	79,838
Welfare Benefit Fund	1,196,620	903,088	272,950	20,582
TOTAL PERSONNEL SERVICES	<u>37,971,733</u>	<u>28,657,228</u>	<u>8,661,391</u>	<u>653,114</u>
<b>PROFESSIONAL SERVICES</b>				
Data Processing Support and Licenses	2,754,829	2,079,067	628,379	47,383
Temporary and Consultant Staffing	4,550,427	3,434,203	1,037,957	78,267
Outside Professional Services	431,043	325,308	98,321	7,414
TOTAL PROFESSIONAL SERVICES	<u>7,736,299</u>	<u>5,838,578</u>	<u>1,764,657</u>	<u>133,064</u>
<b>MODERNIZATION INITIATION</b>				
Personnel Services	99,790	44,238	55,552	-
Consultants and Temporary Costs	13,780,794	6,109,178	7,671,616	-
IT Vendor Development Costs	15,428,853	6,839,781	8,589,072	-
QA Vendor Non-IT Costs	3,956,845	1,754,113	2,202,732	-
Equipment Costs	1,340,989	594,475	746,514	-
Other Expenses	70,576	31,287	39,289	-
TOTAL MODERNIZATION INITIATION	<u>34,677,847</u>	<u>15,373,072</u>	<u>19,304,775</u>	<u>-</u>
<b>RENTALS</b>				
Office Space	9,610,449	7,252,996	2,192,153	165,300
Equipment Leasing	163,178	123,150	37,221	2,807
TOTAL RENTALS	<u>9,773,627</u>	<u>7,376,146</u>	<u>2,229,374</u>	<u>168,107</u>
<b>COMMUNICATION</b>				
Telephone	145,025	109,450	33,080	2,495
Postage	330,039	249,080	75,282	5,677
Local Traveling Expenses *	45,401	34,264	10,356	781
Non-Local Traveling Expenses **	100,324	75,715	22,884	1,725
TOTAL COMMUNICATION	<u>620,789</u>	<u>468,509</u>	<u>141,602</u>	<u>10,678</u>
<b>OTHER OPERATING EXPENSES</b>				
Utilities	560,818	423,249	127,923	9,646
Supplies and Materials	127,036	95,874	28,977	2,185
Maintenance, Repairs, and Services	609,261	459,809	138,973	10,479
Office Equipment and Furniture	13,715	10,350	3,129	236
Storage	111,776	84,357	25,496	1,923
Printing	953,159	719,348	217,417	16,394
Training Programs	138,345	104,409	31,557	2,379
Dues and Subscriptions	29,951	22,604	6,832	515
Office Renovation	1,506,586	1,137,019	343,654	25,913
Miscellaneous	25,748	19,432	5,873	443
TOTAL OTHER OPERATING EXPENSES	<u>4,076,395</u>	<u>3,076,451</u>	<u>929,831</u>	<u>70,113</u>
<b>TOTAL ADMINISTRATIVE EXPENSES ***</b>	<u>\$ 94,856,690</u>	<u>\$ 60,789,984</u>	<u>\$ 33,031,630</u>	<u>\$ 1,035,076</u>

\* Total TRS Local Traveling Expenses includes Local Travel Fare \$26,948, and Meals & Refreshments \$18,453.

\*\* Total TRS Non-Local Traveling Expenses includes Hotels & Meals \$50,985, Travel Fare \$25,933, and Conferences \$23,406.

\*\*\*The schedule shows total expenses paid by TRS. Other administrative expenses of \$ 10,871,969 were paid on TRS' behalf by other City agencies under Regulation 85 of the New York State Superintendent of Insurance Regulations.

\*\*\*\*Expense Reserve is funded by loan service charge revenues. QPP and TDA loan service charge revenues for FY 2017 were \$571,699 and \$463,377 respectively.

See Note 8 of Financial Statements for Administrative Expenses

See Independent Auditors' report.

**ADDITIONAL SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF INVESTMENT EXPENSES AND SERVICES (QPP & TDA)**  
Year Ended June 30, 2017

## SCHEDULE 5

INVESTMENT CATEGORY	ASSETS UNDER MANAGEMENT	INVESTMENT EXPENSES
Pension Fund	\$ 66,084,220,426	\$ 304,035,617
Diversified Equity and Int'l Equity Funds	14,540,204,445	16,605,613
Bond Value Fund	394,136,349	517,491
Inflation Protection Fund	54,111,863	271
Socially Responsive Equity Fund	169,770,374	673,758
Other Investment Services		
Consultant		6,092,718
Legal		732,629
Provision for Expense Reduction		(20,375,064)
	<u>\$ 81,242,443,457</u>	<u>\$ 308,283,033</u>

\* Excludes \$1,718,735,040 in securities lending

See Independent Auditors' report.

# *Investment*

trsnyc



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

**Prepared by Rocaton Investment Advisors, LLC,  
Investment Consultant to the Teachers' Retirement System of the City of New York**

As of June 30, 2017, TRS offered six investment program options to its membership: the Fixed Return Fund, the Diversified Equity Fund, the Bond Fund, the International Equity Fund, the Inflation-Protection Fund, and the Socially Responsive Equity Fund. State Street and JP Morgan Chase are the custodians of the assets of these investment programs. The custodian calculates the return information using time-weighted compound return. The structure of each of these programs differs depending upon its investment objective. These six programs and their objectives are described below.

The TRSNYC Pension Fund includes a) all funds that Tier I/II members invested in the Fixed Return Fund and b) Employer Contribution assets for Tier I/II members c) all Tier III/IV/VI QPP funds d) all TDA funds invested in the Fixed Return Fund. The Fixed Return Fund currently provides Tier I/II participants with an 8.25% return. Tier III/IV/VI members are credited 5% in their QPP accounts. UFT members and non UFT members with TDA funds invested in the Fixed Return Fund are provided with 7.0% and 8.25% returns, respectively. The combined QPP and TDA Fixed Return Funds assets totaled \$66.1 billion as of June 30, 2017. The overall Pension Fund had a net of fee return of 12.66% for the fiscal year ending June 30, 2017. As of June 30, 2017, the Fund had 30% U.S. equity investments, 22% non-U.S. equity investments, 5% private equity investments, 3% private real estate, 1% private infrastructure, 3% REITs, 35% fixed income investments and short-term investments (due to rounding, percentages do not add to 100%). The Fund's long-term asset allocation policy is based on the Fund's long-term investment horizon of more than 20 years. The investment structure has a significant emphasis on risk control. For example, as of June 30, 2017, approximately 98% of U.S. equity assets were invested in indexed or risk-controlled strategies. This emphasis on indexed and risk-controlled strategies also enables the program to more effectively control costs. The Fund's fixed-income holdings are primarily high-quality U.S. securities with smaller allocations to sectors such as enhanced yield and convertibles securities.

The Diversified Equity Fund's objective is to provide participants with a diversified equity investment portfolio. As of June 30, 2017, the Diversified Equity Fund, including both QPP and TDA assets, had \$14.4 billion in assets and had a net of fee return of 18.1% for the fiscal year ending June 30, 2017. This portfolio's target structure is a mixture of U.S. equities (70%), non-U.S. equities (20%), and defensive strategies (10%). The defensive sector is made up of convertible bond strategies, conservatively-oriented equity strategies and a tactical asset allocation strategy. Tactical asset allocation strategies shift allocations to and within asset classes such as stocks, bonds and cash depending upon the managers' analysis of market conditions. The diversification of this portfolio beyond U.S. equities is intended to broaden diversification and help protect participants against significant market downturns within a single asset class (*i.e.*, U.S. stocks). Again, risk control and cost-effectiveness are a very important focus of the investment structure. For example, as of June 30, 2017, 56% of the assets within the Diversified Equity Fund were invested in indexed strategies.

The Bond Fund invests primarily in a portfolio or portfolios of high-quality bonds that provide for participant transactions at market value. These bonds include Treasuries, Agencies, Corporates, Mortgages, and other types of fixed-income instruments. As of June 30, 2017, the combined QPP and TDA Bond Funds' assets totaled \$394.1 million and the Fund earned a net of fee return of 0.1% for the fiscal year ending June 30, 2017.

The International Equity Fund invests primarily in the stocks of non-U.S. companies located in both developed and emerging markets. The objective of this fund is to provide a return comparable to the return of the non-U.S. developed equity markets over a full market cycle. As of June 30, 2017, the combined QPP and TDA International Equity Funds' assets totaled \$128.7 million. For the fiscal year ending June 30, 2017, the International Equity Fund returned 20.9%, net of fees.

The Inflation Protection Fund seeks exposure to multiple asset classes and markets. The objective of this fund is to provide a rate of return that exceeds inflation over a full market cycle. As of June 30, 2017, the combined TDA and QPP Inflation Protection Funds' assets totaled \$54.1 million. For the fiscal year ending June 30, 2017, the Inflation Protection Fund returned 1.4%, net of fees.



The Socially Responsive Equity Fund invests primarily in stocks of large and mid-cap U.S. and non-U.S. companies that meet certain financial and social criteria. The objective of this fund is to provide a rate of return comparable to the broad equity market while reflecting social priorities. As of June 30, 2017, the combined QPP and TDA Socially Responsive Equity Funds' assets totaled \$169.8 million. For the fiscal year ending June 30, 2017, the Socially Responsive Equity Fund returned 18.4%, net of fees.

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

### **ECONOMIC REVIEW**

Interest rates rose in the U.S. during the one-year period ending June 30, 2017, with the 10-year Treasury note yielding 2.3% at the end of June, an increase of 82 basis points from June 30, 2016. The returns of investment grade fixed-income sectors generated mixed results over the trailing one-year period, with corporates returning 2.3% while treasuries returned -2.3%. Developed and emerging equity markets had strong performance during the one-year period ending June 30, 2017. U.S. equities (proxied by the S&P 500) gained 17.9% during the trailing one-year period, underperforming non-U.S. developed markets (proxied by the MSCI EAFE Index), which returned 20.3%. Additionally, emerging market equities (proxied by the MSCI Emerging Markets Index) posted a return of 23.8% for the one-year period ending June 30, 2017. The broad fixed-income market (proxied by the Bloomberg Barclays U.S. Aggregate Bond Index) provided a negative return during the trailing one-year period, returning -0.3%. High-yield fixed income (below investment grade bonds) outperformed higher-quality domestic fixed income during the one-year period ending June 30, 2017, returning 12.7% (proxied by the Bloomberg Barclays U.S. High Yield Index), while emerging markets debt (proxied by the J.P. Morgan EMBI Global Diversified Index) underperformed high-yield fixed income, returning 6.0%.

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

Most major domestic equity indices rose during the one-year period ending June 30, 2017 with smaller market capitalization companies, as represented by the Russell 2000 Index, outperforming their larger counterparts, as represented by the Russell 1000 Index, as the Russell 2000 Index returned 24.6% during the one-year period ending June 30, 2017 versus the Russell 1000 Index return of 18.0% for the same period. The Russell 3000 Index, a broad measure of the U.S. equity markets, returned 18.5% for the one-year period ending June 30, 2017. For the 12 months ending June 30, 2017 growth stocks outperformed value stocks as the Russell 3000 Growth Index returned 20.7% versus the Russell 3000 Value Index's return of 16.2% over the same period.

For the year ending June 30, 2017, the Bloomberg Barclays U.S. Aggregate Bond Index, a broad index of U.S. investment grade bonds, returned -0.3%.

### **INTERNATIONAL MARKETS REVIEW**

The return for the MSCI EAFE Index, a measure of the developed international equity markets, was 20.3% in U.S. dollar terms for the one-year period ending June 30, 2017. Of the following four regions: Japan, Pacific ex-Japan, U.K. and Europe ex-U.K., Europe ex-U.K. had the strongest performance for the one-year period, with a return of 24.4%. Pacific ex-Japan followed with a return of 19.4% for the one-year period while the Japan and U.K. markets returned 19.2%, and 13.4%, respectively. International small-cap stocks outperformed foreign large-cap companies for the 12-month period ending June 30, 2017 with the MSCI EAFE Small Cap Index's return of 23.2%. The MSCI Emerging Markets Index returned 23.8% for the one-year period ending June 30, 2017. All of the performance information regarding non-U.S. markets is provided from the perspective of U.S.-based investors and, as such, were translated at fiscal year-end and reviewed as U.S. dollar denominations.

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

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## INVESTMENT OPTIONS

Below is a depiction of the investment programs in the QPP and the TDA Program available to members. The programs' portfolios are structured differently to allow members to diversify their investments. Please see pages 77-81 for detailed descriptions of the investment programs.

PENSION FUND	DIVERSIFIED EQUITY FUND	BOND FUND
(Member Contributions, Pension Reserve Funds & ITHP Contributions)	(Member Contributions & ITHP Contributions)	(Member Contributions & ITHP Contributions)
Tiers I/II QPP funds in the Fixed Return Fund + All Tiers III/IV/VI QPP Funds + All Tiers' TDA funds in the Fixed Return Fund	Tiers I/II QPP funds in the Diversified Equity Fund + All Tiers' TDA funds in the Diversified Equity Fund	Tiers I/II QPP funds in the Bond Fund + All Tiers' TDA funds in the Bond Fund
INTERNATIONAL EQUITY FUND	INFLATION PROTECTION FUND	SOCIALLY RESPONSIVE EQUITY FUND
(Member Contributions & ITHP Contributions)	(Member Contributions & ITHP Contributions)	(Member Contributions & ITHP Contributions)
Tiers I/II QPP funds in the International Equity Fund + All Tiers' TDA funds in the International Equity Fund	Tiers I/II QPP funds in the Inflation Protection Fund + All Tiers' TDA funds in the Inflation Protection Fund	Tiers I/II QPP funds in the Socially Responsive Equity Fund + All Tiers' TDA funds in the Socially Responsive Equity Fund

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

The table below compares accumulations as of June 30, 2017, based on assumed contributions of \$100.00 per month into each of the Fixed Return, Diversified Equity, Bond, International Equity, Inflation Protection, and Socially Responsive Equity Funds.

**10-YEAR COMPARISON OF ACCUMULATIONS  
IN TRS' INVESTMENT PROGRAMS**  
*As of June 30, 2017*

MONTHS OF PARTICIPATION	12	24	36	48	60	72	84	96	108	120
<b>Fixed Return Fund (TDA/UFT)<sup>1</sup></b>	\$ 1,239	\$ 2,564	\$ 3,982	\$ 5,499	\$ 7,122	\$ 8,859	\$ 10,720	\$ 12,709	\$ 14,859	\$ 17,188
<b>Fixed Return Fund (All others)<sup>1</sup></b>	\$ 1,245	\$ 2,594	\$ 4,053	\$ 5,633	\$ 7,343	\$ 9,194	\$ 11,197	\$ 13,366	\$ 15,688	\$ 18,211
<b>Diversified Equity Fund<sup>2</sup></b>	\$ 1,312	\$ 2,769	\$ 4,213	\$ 5,851	\$ 7,856	\$ 10,157	\$ 12,618	\$ 15,457	\$ 18,715	\$ 20,918
<b>Bond Fund<sup>3</sup></b>	\$ 1,205	\$ 2,430	\$ 3,671	\$ 4,930	\$ 6,191	N/A	N/A	N/A	N/A	N/A
<b>International Equity Fund<sup>4</sup></b>	\$ 1,341	\$ 2,781	\$ 4,139	\$ 5,551	\$ 7,217	\$ 9,029	\$ 10,805	\$ 12,776	\$ 15,211	N/A
<b>Inflation Protection Fund<sup>5</sup></b>	\$ 1,208	\$ 2,485	\$ 3,681	\$ 4,926	\$ 6,202	\$ 7,609	\$ 9,086	\$ 10,771	\$ 12,723	N/A
<b>Socially Responsive Equity Fund<sup>6</sup></b>	\$ 1,305	\$ 2,764	\$ 4,233	\$ 5,912	\$ 8,044	\$ 10,411	\$ 12,912	\$ 15,909	\$ 19,294	N/A

**1 Fixed Return Fund**

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

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

**2** Based on July 2017 unit value of \$88.681

**3** Based on July 2017 unit value of \$16.758

**4** Based on July 2017 unit value of \$10.611

**5** Based on July 2017 unit value of \$10.185

**6** Based on July 2017 unit value of \$16.308

## PENSION FUND Fund Summary Fiscal Year 2017

**Return: 12.66%**

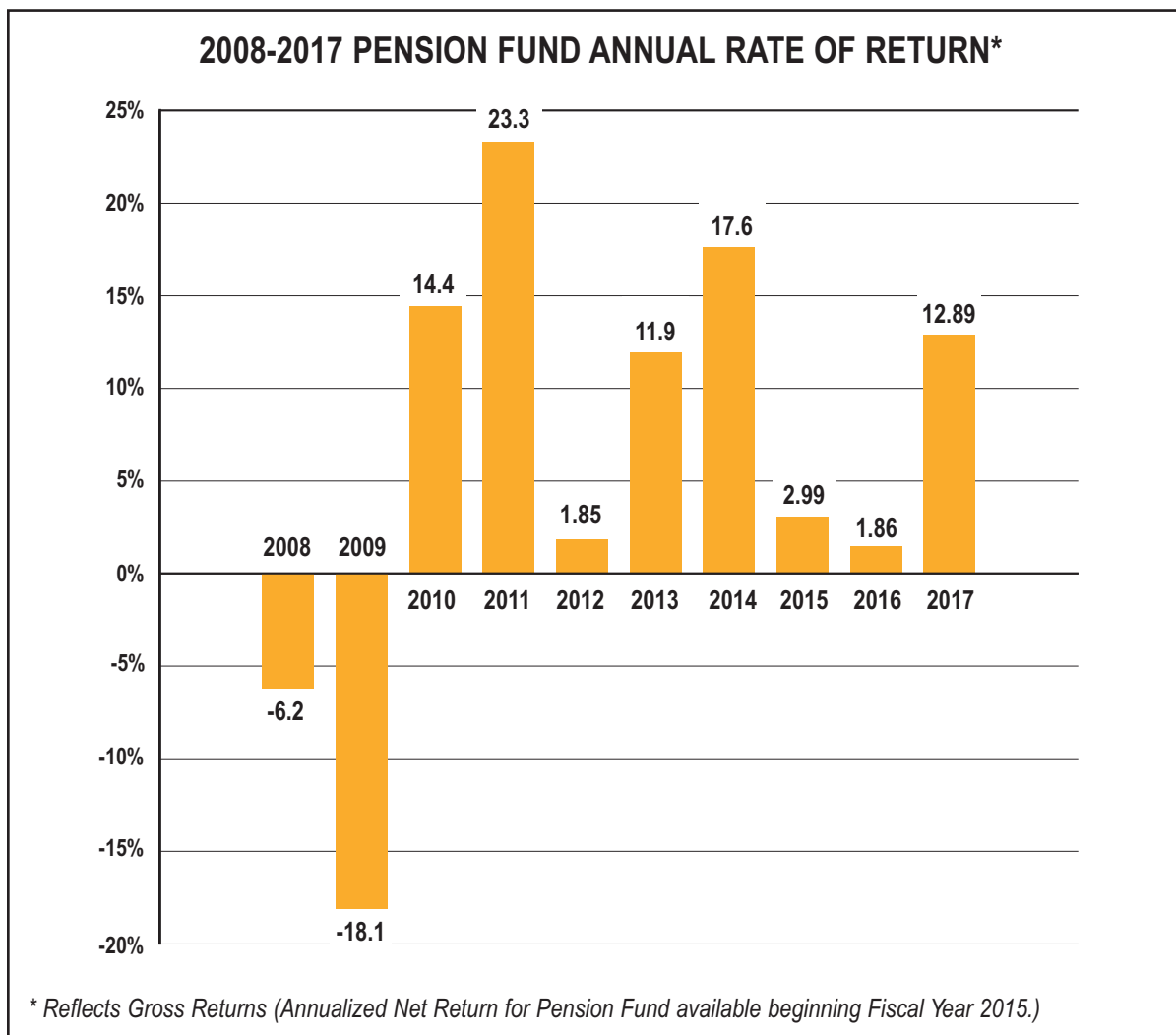
**Total Investments: \$66.084 Billion**

During Fiscal Year 2017, the Pension Fund’s portfolio, consisting primarily of equities and fixed-income investments, yielded a net return of 12.66% and a gross return of 12.89%. The 12.89% gross return was an increase from the 1.86% return for Fiscal Year 2016.

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

funds invested in the Fixed Return Fund. The Fixed Return Fund provides an annual rate of return that is set by the New York State Legislature in accordance with applicable laws. The combined QPP and TDA Fixed Return Fund assets totaled \$66.084 billion as of June 30, 2017.

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



## DIVERSIFIED EQUITY FUND

### Fund Summary

Fiscal Year 2017

**Return: 18.09%**

**Total Investments: \$14.411 Billion**

For the 12-month period ending June 30, 2017, the U.S. equity market, as measured by the Russell 3000 Index, returned 18.51%. The Russell 3000 Index includes no fees and provides a passive representation of the overall U.S. stock market. For the same 12-month period ending June 30, 2017, the Diversified Equity Fund returned 18.09%, after fees. The Fund invests in a diversified blend of investment strategies that historically have made the Diversified Equity Fund less volatile over long time periods than the overall U.S. equity market. The Hybrid Benchmark, which includes no fees, is constructed based upon a passive reflection of the Diversified Equity Fund's target asset allocation among domestic stocks, domestic fixed-income securities, and international equities. As of June 30, 2017, the Hybrid Benchmark was 70% Russell 3000 Index, 20% International Composite Benchmark, and 10% Defensive Strategies benchmark. Over the 12-month period ending June 30, 2017, the Diversified Equity Fund underperformed the Hybrid Benchmark's return of 18.60%.

For the three-year period ending June 30, 2017, the Diversified Equity Fund returned 7.16% on an annualized basis after fees, trailing the Russell 3000 Index's annualized return of 9.10% and the Hybrid Benchmark's annualized returns of 7.95% over the same period. For the five-year period ending June 30, 2017, the Diversified Equity Fund returned 12.79%, annualized after fees, behind the Russell 3000 Index's annualized return of 14.59% and the Hybrid Benchmark's annualized return of 13.38%. Due to its diversified structure, the Diversified Equity Fund has exhibited less performance volatility than the Russell 3000 Index over the same five-year period.

As of June 30, 2017, approximately 75% of the Diversified Equity Fund's portfolio was invested in the U.S. common stock market. The Diversified Equity Fund's portfolio also contained approximately

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

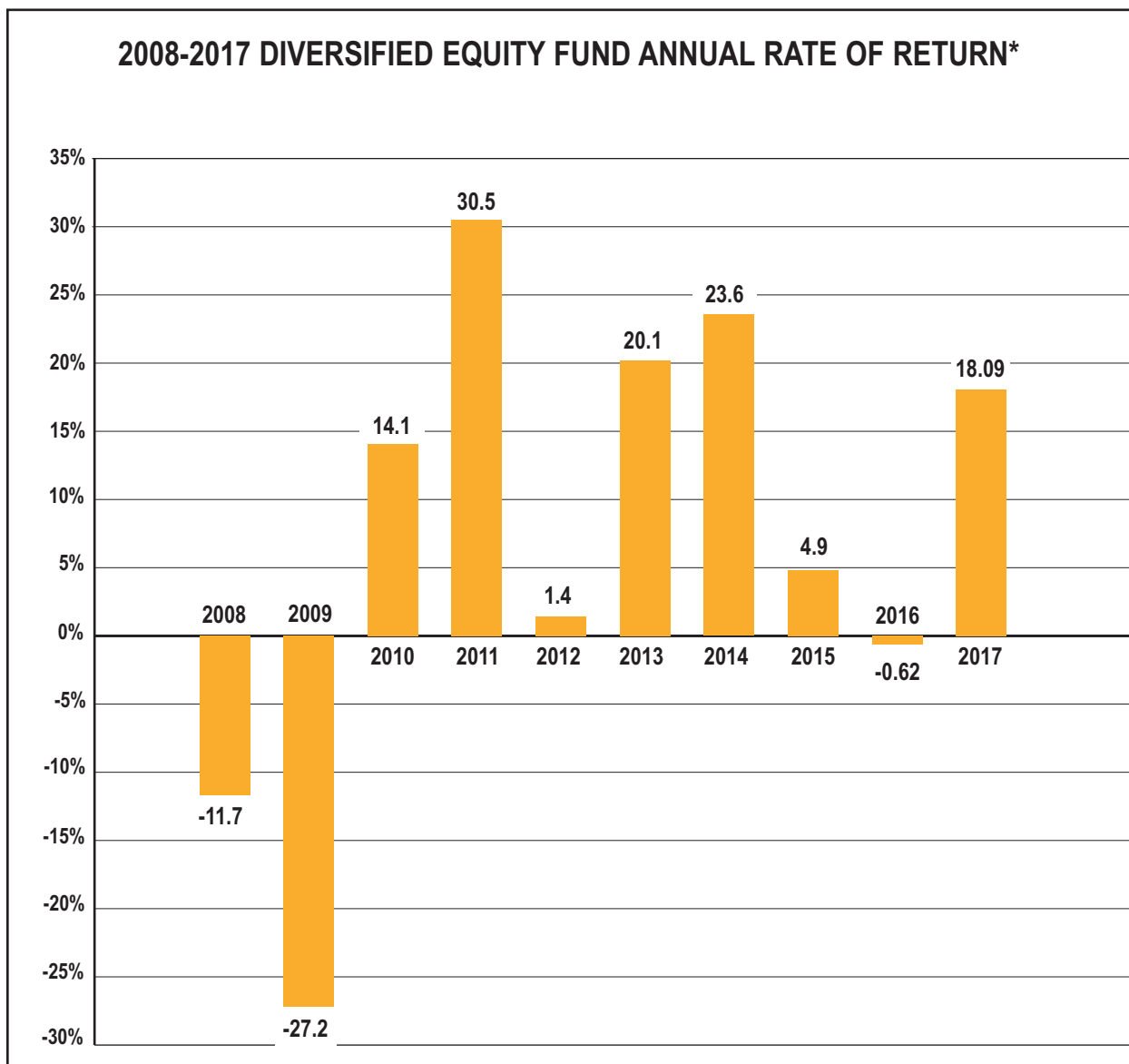
The Diversified Equity Fund utilizes a number of different investment strategies managed by professional money management firms. These strategies are classified into the component sectors described here. Returns after fees for all of the Diversified Equity Fund's component sectors for the one-year period ending June 30, 2017 are as follows:

- The Passive Core (or index) sector earned a return of 18.61%, modestly outperforming the Russell 3000 Index's return of 18.51%.
- The Active Domestic Equity sector is comprised of strategies focused on particular market capitalization ranges and investment styles. For the one-year period ending June 30, 2017, the Active Domestic Equity composite returned 18.38%, modestly underperforming the Russell 3000 Index return of 18.51%.
- The Defensive Strategies sector returned 11.64%, underperforming the Defensive Strategies benchmark (currently 30% Russell 1000/24.8% Russell 3000/15.2% Citigroup WGBI/8.9% BofAML Convertibles Yield Index/ 8.9% BofAML All Convertibles/8.7% MSCI EAFE/3.5% Barclays Gov/Credit), which returned 14.35%. The Defensive Strategies sector is designed to provide a diversification benefit to the overall fund and has generally been beneficial to the fund during periods of market decline. The Tactical Asset Allocation manager within this sector, which can modify its mix of equity, bonds, and cash equivalents, was positioned with approximately 58% equity exposure and approximately 42% fixed income exposure in their portfolio as of June 30, 2017. In early 2011, two low expected volatility equity strategies were added to the Defensive Strategies sector. These strategies invest primarily in lower beta stocks with the

objective of offering equity-like performance with lower volatility over market cycles. During the first half of 2013, a defensively oriented mutual fund was added to the Defensive Strategies sector. The convertible bond portfolios within this sector provide exposure that has a hybrid of equity and fixed income characteristics. In June 2017, one additional Global Allocation mutual fund was added. The fund aims to deliver equity-like returns with two-thirds of the volatility of the equity market. The mutual target allocation is approximately 60% equities and 40% fixed income. The fixed income exposure of the

overall Diversified Equity Fund comes from the Defensive Strategies sector.

- The International Equity sector earned 21.55%, while its benchmark, the International Composite Benchmark, returned 20.58%. During 2016, two emerging market managers were added. The International Benchmark Composite consists of 86.5% MSCI EAFE/3.1% S&P Developed ex US Small Cap Index/10.4% Custom MSCI Emerging Markets Index. Prior to January 2017, it was 74% MSCI EAFE/6% S&P Developed ex US Small Cap/20% Custom MSCI EM Index. Prior to January 2016, it was the MSCI EAFE Index.



\* After expenses

**BOND FUND**  
**Fund Summary**  
**Fiscal Year 2017**

**Return: 0.06%**

**Total Investments: \$394.136 Million**

The Bond Fund invests primarily in a portfolio of high-quality bonds that will provide for participant transactions at market value. These bonds may include Treasuries, Agencies, Corporates, Mortgages, and other types of fixed-income instruments.

During the one-year period ending June 30, 2017, the Bond Fund returned 0.06%,

underperforming its benchmark, the Barclays 1-5 Year Government/Credit Index, which returned 0.11% over the same time period. For the three-year period ending June 30, 2017, the Bond Fund returned 1.32%, trailing the benchmark return of 1.35%. For the five-year period ending June 30, 2017, the Bond Fund returned 1.17%, trailing the benchmark return of 1.29%.

**INTERNATIONAL EQUITY FUND**  
**Fund Summary**  
**Fiscal Year 2017**

**Return: 20.89%**

**Total Investments: \$128.749 Million**

As of June 30, 2017, the International Equity Fund was primarily comprised of a mix of active and passive management, implemented by one passive and seven active non-U.S. equity managers which invest primarily in the stocks of non-U.S. companies located in developed markets. For the one-year period ending June 30, 2017, the International Equity Fund returned 20.89%, after fees, outperforming the International Composite

Benchmark, which returned 20.58%. For the three-year period ending June 30, 2017, the International Equity Fund returned 2.73% versus the benchmark return of 2.59%. Over the longer five-year period ending June 30, 2017, the International Equity Fund has returned 9.06%, trailing the benchmark return of 9.80%. The total return of this option reflects performance of the underlying managers as well as the impact of cash flows into and out of the fund.

## INFLATION PROTECTION FUND

### Fund Summary

Fiscal Year 2017

**Return: 1.43%**

**Total Investments: \$54.112 Million**

The Inflation Protection Fund primarily invests in an actively managed mutual fund that seeks exposure to multiple asset classes including, but not limited to, various real return strategies, with a goal of providing, over a full market cycle, a real rate of return that exceeds inflation over a full market cycle. For the one-year period ending June 30, 2017, the Inflation Protection Fund returned 1.43%, after fees, versus the Inflation Protection Fund Benchmark's return of -0.06%. The Inflation Protection Fund Benchmark reflects a composition of 25% Bloomberg Commodity Index, 25% S&P/LSTA Leveraged Loan Index, 30% Barclays US TIPS Index, 12% Dow Jones

Wilshire Real Estate Securities Index, and 8% BofAML US Real Estate Corporate Bond Index beginning December 2014. Prior to December 2014, the Inflation Protection Fund Benchmark reflects the Barclays Capital US TIPS 1-10 Year Index. For the three-year period ending June 30, 2017, the Inflation Protection Fund returned -1.00%, underperforming the benchmark return of -0.74%. Over the longer five-year period ending June 30, 2017, the Inflation Protection Fund has outperformed the benchmark by 303 basis points, returning 2.65%. The total return of this option reflects performance of the underlying manager as well as the impact of cash flows into and out of the fund.

## SOCIALLY RESPONSIVE EQUITY FUND

### Fund Summary

Fiscal Year 2017

**Return: 18.43%**

**Total Investments: \$169.770 Million**

The Socially Responsive Equity Fund primarily invests in an actively managed separate account, with the goal of providing a return comparable to the large capitalization U.S. equity market over a full market cycle while reflecting social priorities. For the one-year period ending June 30, 2017, the Socially Responsive Equity Fund returned 18.43%, after fees, versus the S&P 500 Index's return

of 17.90%. For the three-year period ending June 30, 2017, the Socially Responsive Equity Fund returned 8.24%, underperforming the S&P 500 Index return of 9.61% for the same period. Over the longer five-year period ending June 30, 2017, the Socially Responsive Equity Fund has trailed the benchmark by 21 basis points with a return of 14.42%. The total return of this option reflects performance of the underlying manager as well as the impact of cash flows into and out of the fund.



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

As of June 30, 2017

	Current Year 2017	3 Year	Annualized 5 Year	10 Year
<b>TRS Pension Fund<sup>2</sup></b>	12.89%	5.80%	9.29%	5.57%
Benchmark: Policy Index <sup>3</sup>	13.09%	6.09%	9.42%	5.71%
<b>TRS Diversified Equity Fund</b>	18.09%	7.16%	12.79%	5.89%
Hybrid Benchmark <sup>4</sup>	18.60%	7.95%	13.38%	6.66%
Benchmark: Russell 3000	18.51%	9.10%	14.59%	7.26%
<b>TRS Bond Fund</b>	0.06%	1.32%	1.17%	N/A
Benchmark: Barclays 1-5 Year Government/Credit Index	0.11%	1.35%	1.29%	2.97%
<b>TRS International Equity Fund</b>	20.89%	2.73%	9.06%	N/A
Benchmark: International Equity Composite Benchmark <sup>5</sup>	20.58%	2.59%	9.80%	1.79%
<b>TRS Inflation Protection Fund</b>	1.43%	-1.00%	2.65%	N/A
Benchmark: Inflation Protection Fund Benchmark <sup>6</sup>	-0.06%	-0.74%	-0.38%	3.23%
<b>TRS Socially Responsive Equity Fund</b>	18.43%	8.24%	14.42%	N/A
Benchmark: Standard & Poor's 500	17.90%	9.61%	14.63%	7.18%

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

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

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

4 The Hybrid Benchmark is rebalanced monthly to Variable A's target weights of 70% Russell 3000/20% International Equity Composite Benchmark/10% Defensive Strategies' Composite Benchmark. Prior to January 2017, they were 70% Russell 3000/15% International Equity Composite Benchmark/15% Defensive Strategies' Composite Benchmark. No fees reflected.

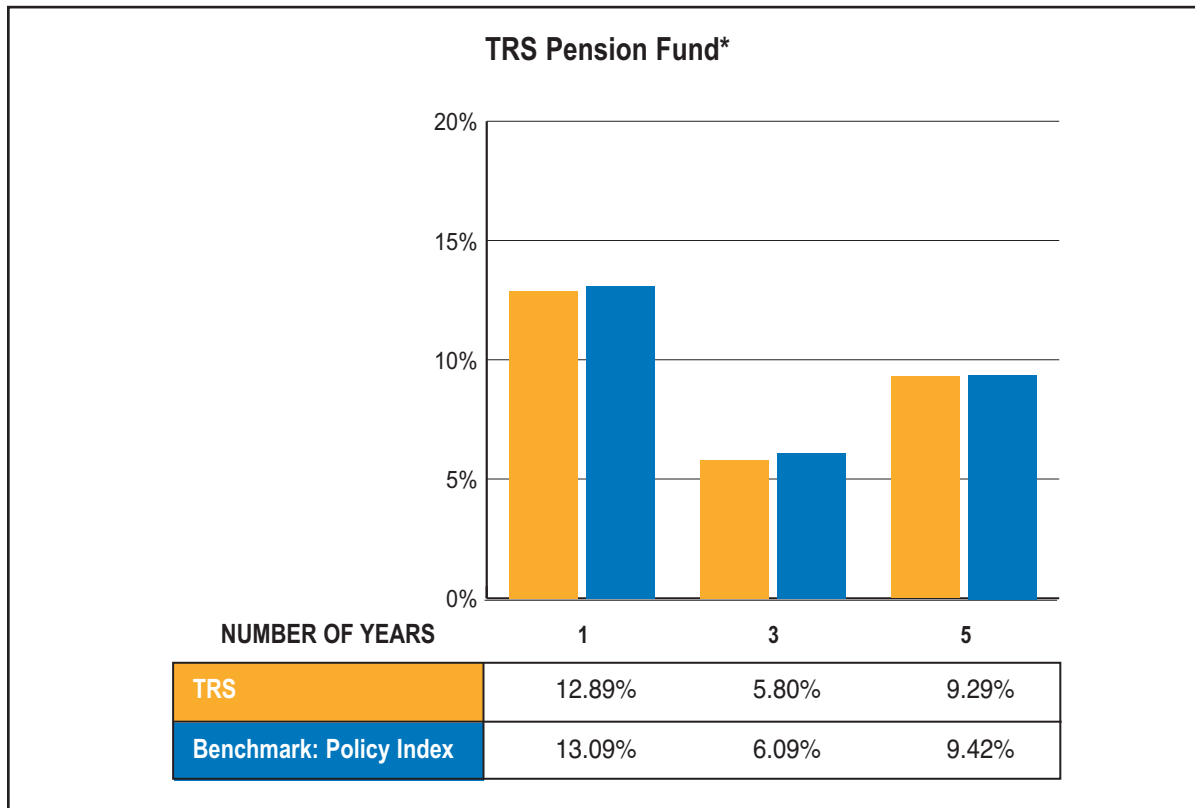
5 The International Equity Composite Benchmark is 86.5% MSCI EAFE/3.1% S&P Developed ex US Small Cap Index/10.4% Custom MSCI Emerging Markets Index. Prior to January 2016, it was the MSCI EAFE Index. No fees reflected.

6 The Inflation Protection Fund Benchmark is currently comprised of 25% Bloomberg Commodity Index, 25% S&P/LSTA Leveraged Loan Index, 30% Barclays US TIPS Index, 12% Dow Jones Wilshire Real Estate Securities Index, and 8% BofAML US Real Estate Corporate Bond Index since December 2014. Prior to December 2014, Inflation Protection Fund Benchmark was Barclays US TIPS 1-10yr.

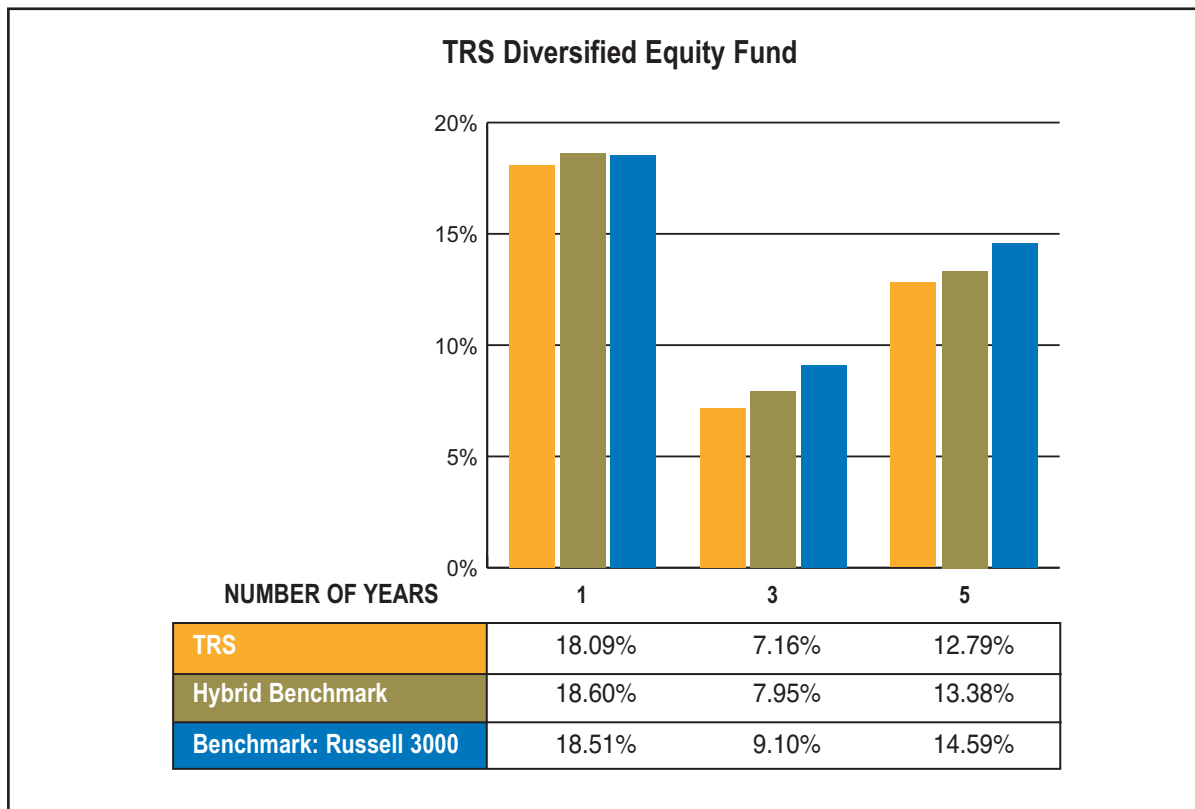
The above information has been gathered from reliable sources, but TRS can only take responsibility for the accuracy of the information concerning its own investment programs.

## ANNUALIZED INVESTMENT RESULTS

As of June 30, 2017

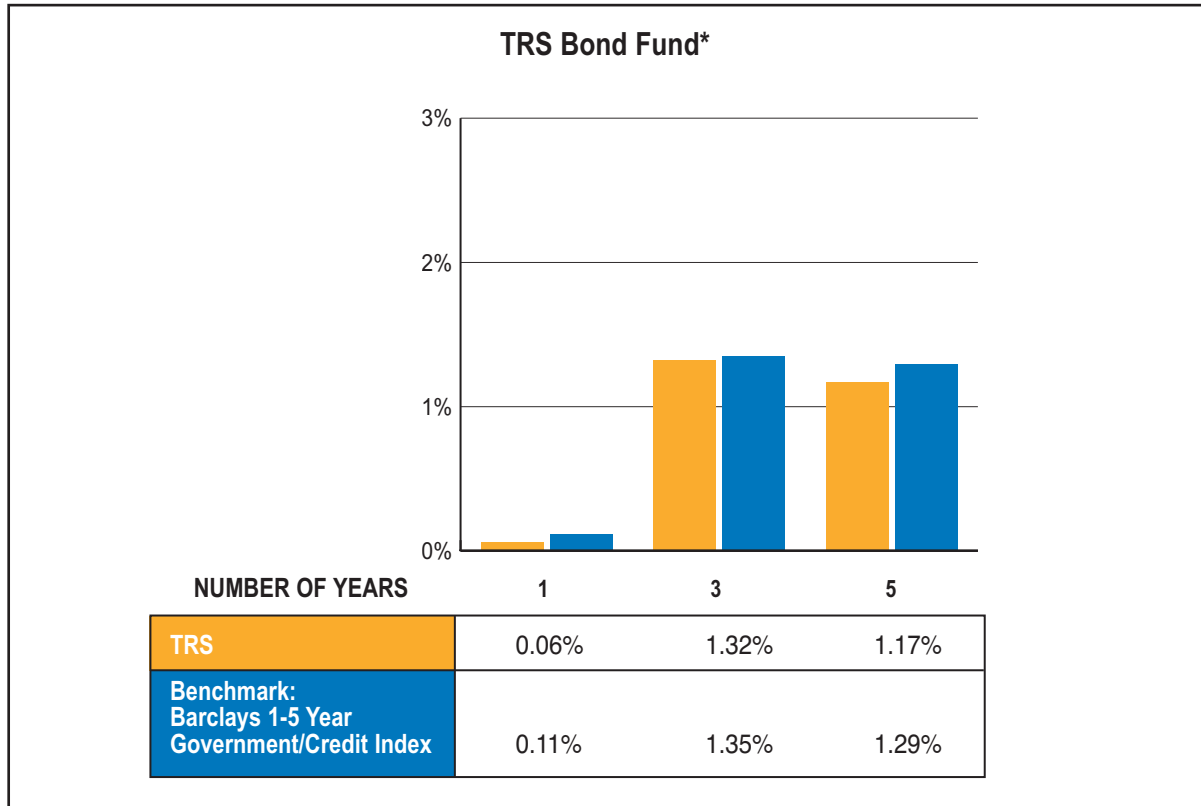


\* Reflects TRS Pension Fund's Gross Return.

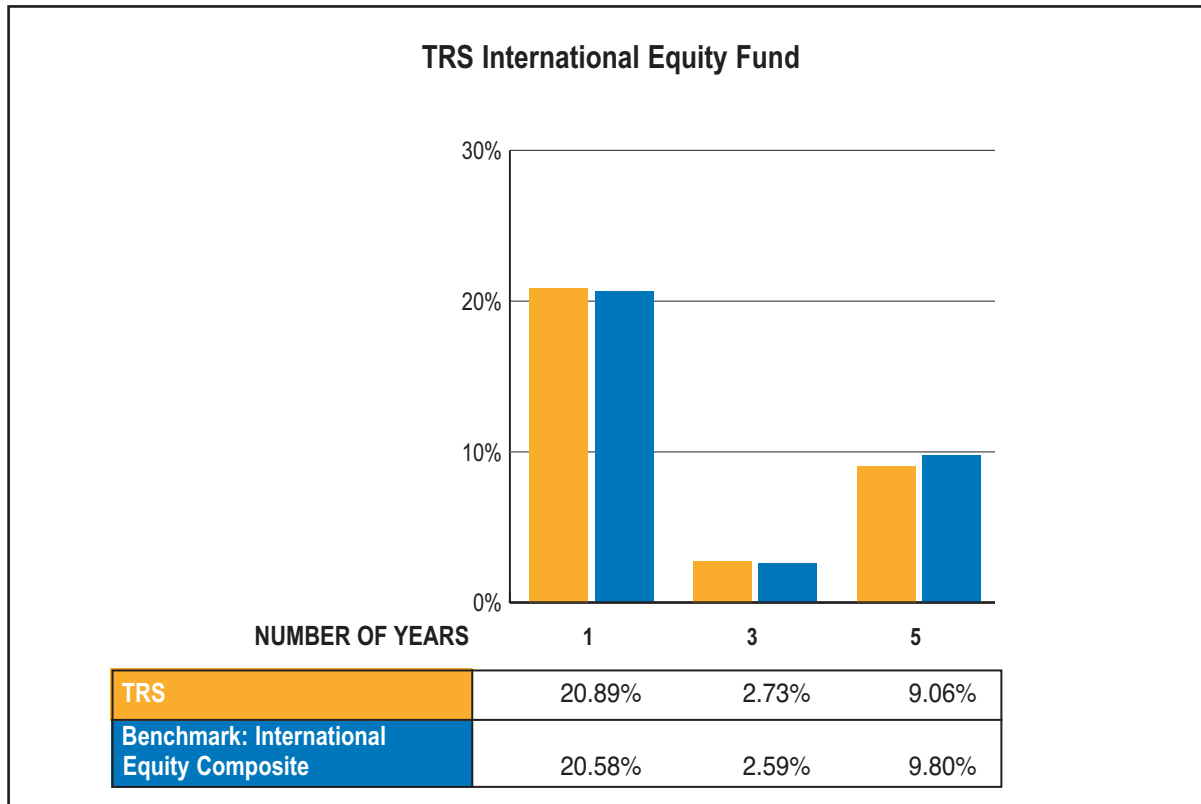


## ANNUALIZED INVESTMENT RESULTS (Continued)

As of June 30, 2017

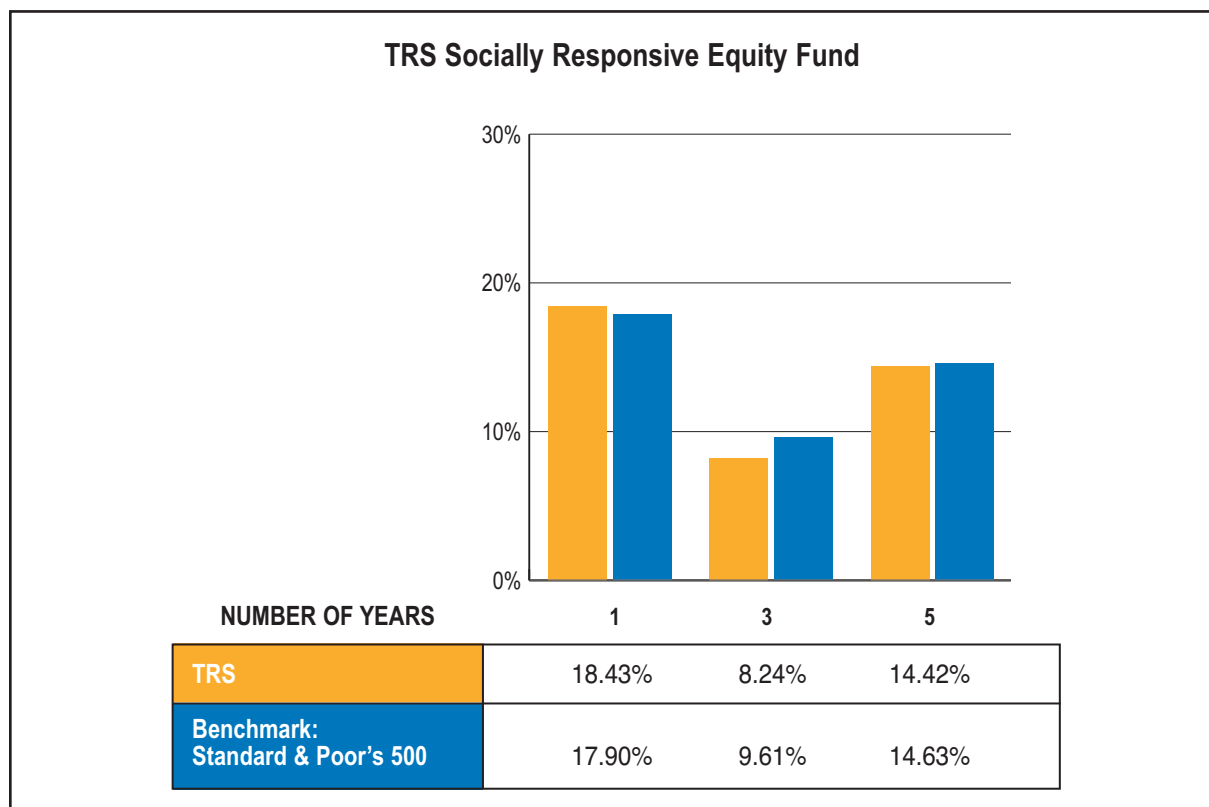
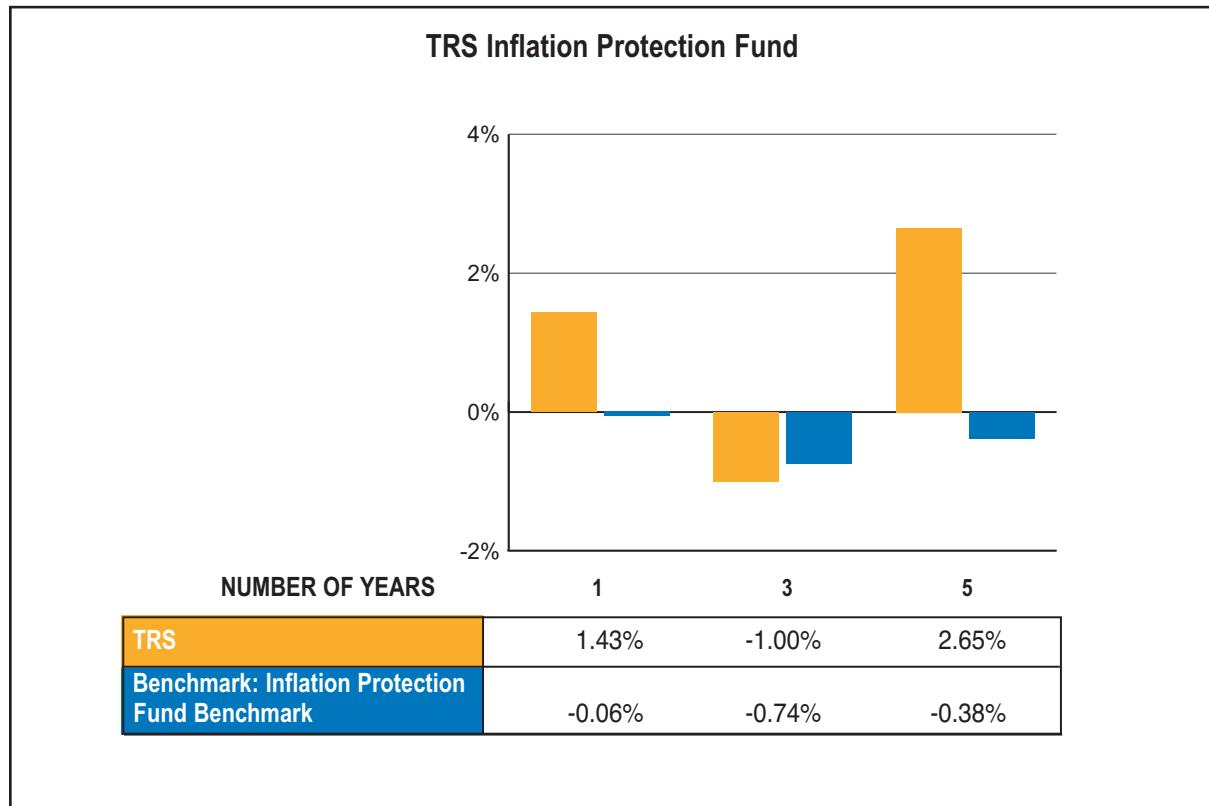


\*Reflects annualized performance beginning July 1, 2012. (As of January 1, 2012, the Stable-Value Fund became the Bond Fund.)



## ANNUALIZED INVESTMENT RESULTS (Continued)

As of June 30, 2017



### INVESTMENT SUMMARY (QPP & TDA)

As of June 30, 2017

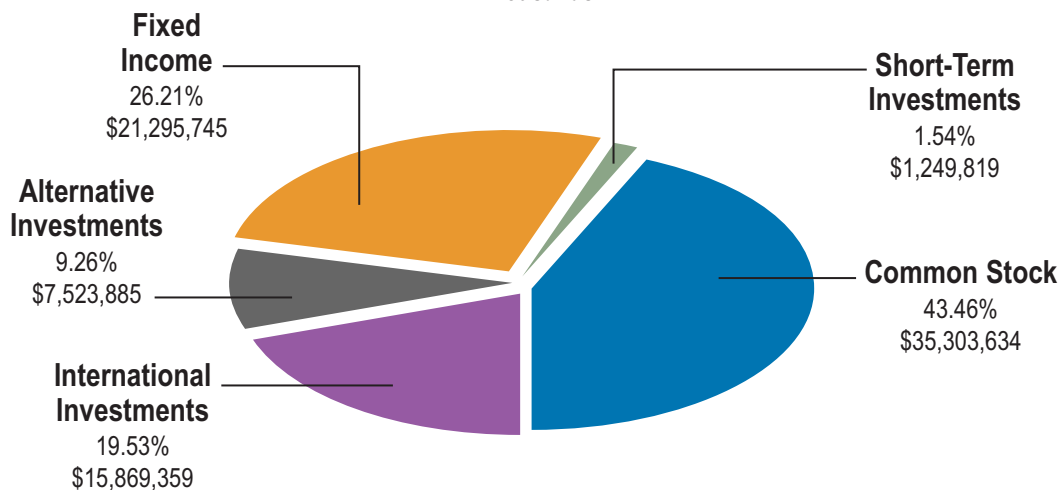
Type of Investment	Fair Value <i>In Thousands</i>	Percent of Total Fair Value
Fixed Income:		
Government Bonds	\$ 7,947,669	9.78%
Corporate Bonds	8,379,071	10.31
TIPS	2,682,432	3.30
Mortgages	495,540	0.61
Misc. Fixed Income	1,791,033	2.21
<b>Total Fixed Income</b>	<b>\$21,295,745</b>	<b>26.21%</b>
Common Stock:		
Financial & Utility	\$ 9,100,113	11.20%
Basic Industry	7,378,860	9.09
Consumer & Service	10,554,210	12.99
Technological	4,769,691	5.87
Miscellaneous	3,500,760	4.31
<b>Total Common Stock</b>	<b>\$35,303,634</b>	<b>43.46%</b>
<b>International Investments</b>	<b>\$15,869,359</b>	<b>19.53%</b>
<b>Alternative/Private-Equity Investments</b>	<b>\$7,523,885</b>	<b>9.26%</b>
<b>Short-Term Investments</b>	<b>\$1,249,819</b>	<b>1.54%</b>
<b>Total Investments</b>	<b>\$81,242,442*</b>	<b>100.00%</b>

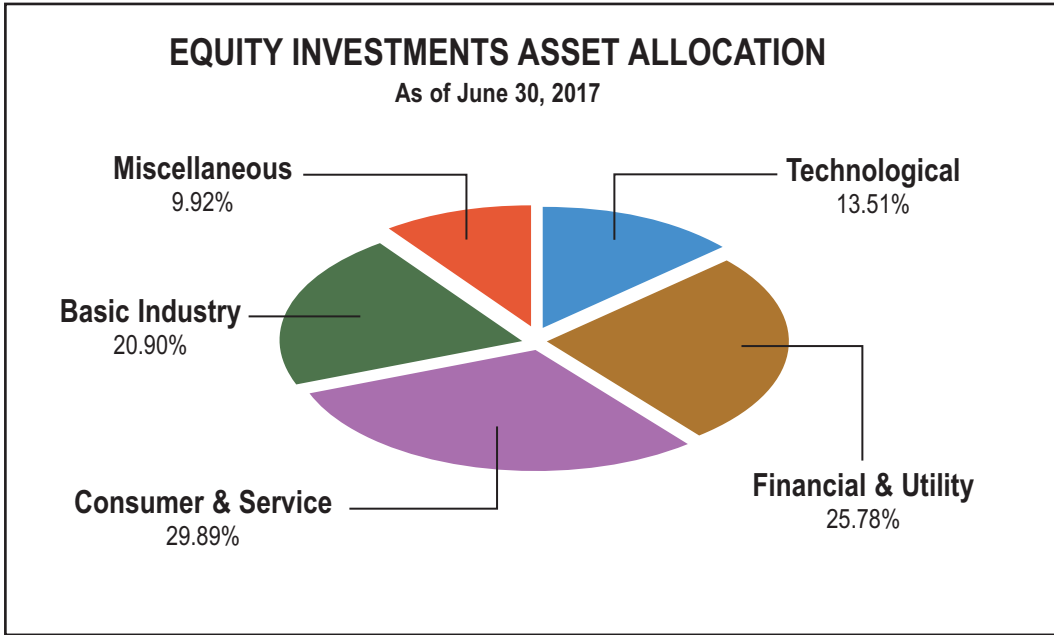
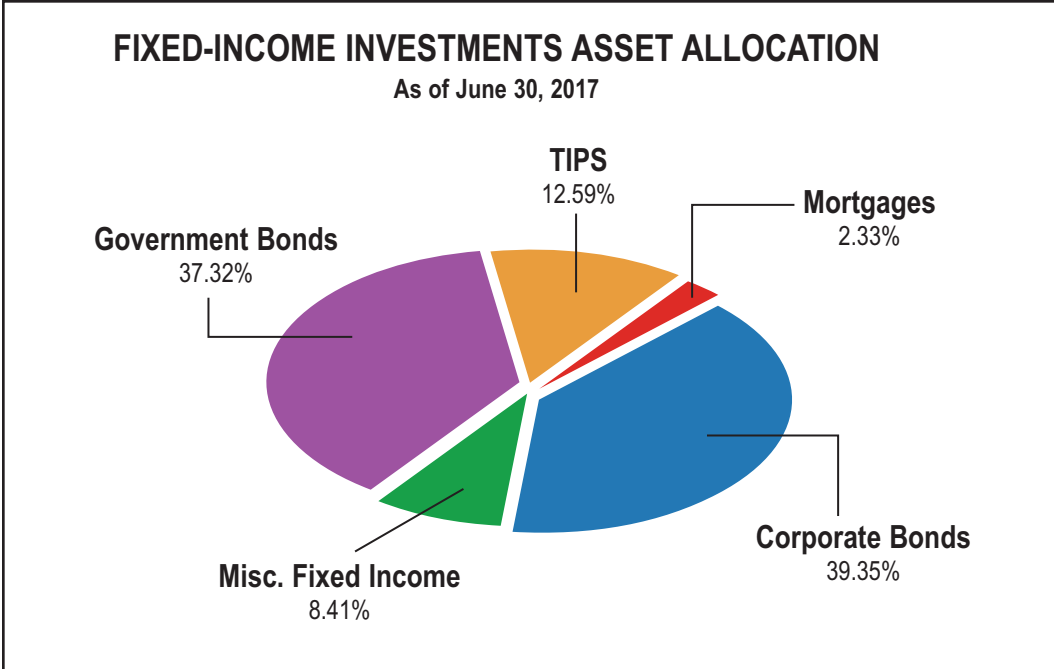
\* Excludes \$1,718,735 in securities lending.

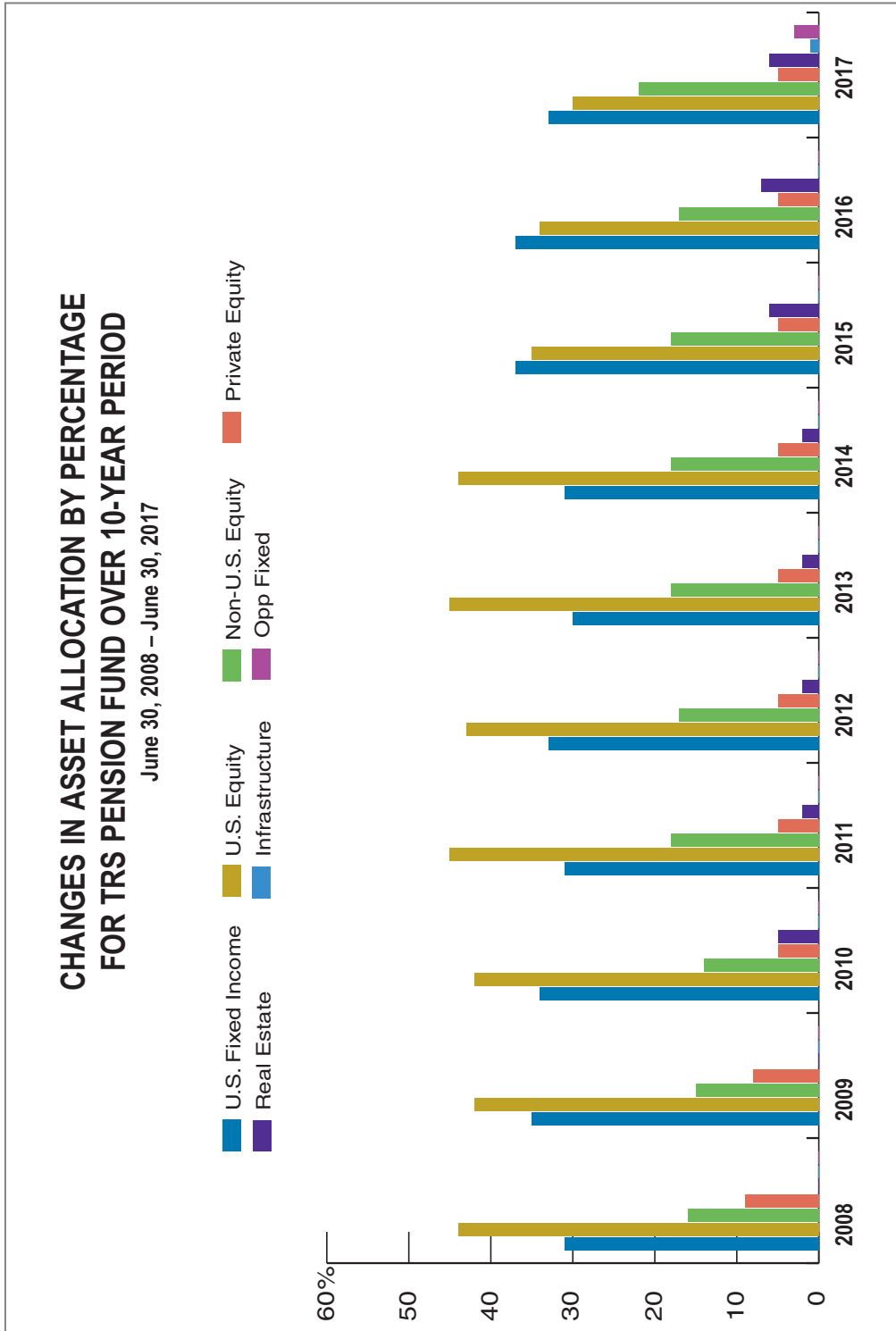
### TOTAL INVESTMENTS ASSET ALLOCATION\*

As of June 30, 2017

*In Thousands*







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

As of June 30, 2017

Par Value		Interest Rate	Due Date	Fair Value
\$205,075,000	United States Treasury Notes	3.375%	05/15/44	\$226,552,505
165,460,000	United States Treasury Notes	3.750	11/15/43	194,499,885
136,210,000	United States Treasury Notes	2.250	12/31/23	137,566,652
124,000,000	Govt Nat Mtg Assn II TBA 30YR	3.000	02/20/47	125,249,920
116,630,000	United States Treasury Notes	3.000	02/15/47	120,310,843
128,675,000	United States Treasury Notes	2.500	05/15/46	119,712,786
110,890,000	United States Treasury Notes	2.500	02/15/45	103,486,984
93,525,000	United States Treasury Notes	2.875	05/15/43	94,431,257
88,305,000	United States Treasury Notes	3.000	11/15/45	90,950,618
87,411,008	Govt Nat Mtg Assn II Pool	3.500	04/20/47	90,633,852
85,720,000	United States Treasury Notes	3.000	11/15/44	88,452,754
82,765,000	United States Treasury Notes	3.000	05/15/45	85,283,539
96,700,000	United States Treasury Notes	2.250	08/15/46	85,133,713

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

As of June 30, 2017

Company Name	Shares	Fair Value
Apple Inc	5,980,118	\$861,256,594
Microsoft Corp	9,099,320	627,216,128
Amazon.Com Inc	450,896	436,467,328
Facebook Inc	2,719,777	410,631,931
Johnson & Johnson	3,059,623	404,757,527
Exxon Mobil Corp	4,681,086	377,904,073
Berkshire Hathaway Inc	2,197,420	372,177,025
JPMorgan Chase & Co	4,012,455	366,738,387
Alphabet Inc - CL A	362,075	336,613,886
Alphabet Inc - CL C	351,652	319,556,722
Bank Of America Corp	11,417,851	276,997,065
Wells Fargo & Co	4,957,775	274,710,313
General Electric Co	9,887,031	267,048,707
AT&T Inc	7,034,103	265,396,706
Comcast Corp	6,732,598	262,032,714
Procter & Gamble Co	2,979,617	259,673,622
Unitedhealth Group Inc	1,365,029	253,103,677
Pfizer Inc	7,116,840	239,054,656
Citigroup Inc	3,328,722	222,624,927
Chevron Corp	2,090,232	218,073,905
Philip Morris International Inc	1,819,782	213,733,396
Merck & Co Inc	3,292,965	211,046,127
Verizon Communications Inc	4,716,082	210,620,222
Home Depot Inc	1,362,427	208,996,302
Visa Inc	2,201,798	206,484,616

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



<b>SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP &amp; TDA)</b>			
<b>YEAR ENDED JUNE 30, 2017</b>			
<b>INVESTMENT MANAGERS</b>		<b>QPP</b>	<b>TOTAL</b>
<b>FIXED ANNUITY PROGRAM</b>			
<b>Fixed Income</b>			
Advent	Investment Manager	\$2,438,305	\$2,438,305
Amundi Smith Breeden	Investment Manager	382,785	382,785
Babson BL	Investment Manager	1,352,656	1,352,656
Barrow Hanley	Investment Manager	748,684	748,684
Blackrock	Investment Manager	1,163,338	1,163,338
Credit Suisse	Investment Manager	927,198	927,198
Fort Washington	Investment Manager	399,966	399,966
GIA Partners	Investment Manager	115,491	115,491
Goldman Sachs	Investment Manager	380,235	380,235
Guggenheim BL	Investment Manager	1,638,854	1,638,854
Hillswick	Investment Manager	40,507	40,507
Integrity	Investment Manager	35,973	35,973
Loomis Sayles	Investment Manager	1,198,102	1,198,102
Neuberger Berman	Investment Manager	2,798,847	2,798,847
New Century Advisors	Investment Manager	107,463	107,463
Oaktree	Investment Manager	1,286,970	1,286,970
Penn	Investment Manager	666,566	666,566
Prudential	Investment Manager	571,210	571,210
Pugh Capital Management	Investment Manager	124,513	124,513
Ramirez Asset Management	Investment Manager	101,984	101,984
Shenkman Capital	Investment Manager	1,070,884	1,070,884
SSGA	Investment Manager	534,312	534,312
Stone Harbor	Investment Manager	1,756,712	1,756,712
T. Rowe Price	Investment Manager	3,576,310	3,576,310
Taplin Canida	Investment Manager	900,111	900,111
Victory	Investment Manager	933,201	933,201
Voya	Investment Manager	825,042	825,042
Wellington Management	Investment Manager	229,225	229,225
Wells	Investment Manager	726,020	726,020
<b>Domestic Equity</b>			
Adelante Capital Management	Investment Manager	1,147,139	1,147,139
Attucks Asset Management - AF	Investment Manager	331,510	331,510
Blackrock	Investment Manager	454,007	454,007
Brown AM	Investment Manager	3,430,583	3,430,583
Capital Prospects - CP	Investment Manager	343,450	343,450
Center Square Investment Management	Investment Manager	1,079,837	1,079,837
Cohen & Steers	Investment Manager	1,054,600	1,054,600
Dean Capital Management	Investment Manager	19,981	19,981
Essex Investment Management	Investment Manager	15,978	15,978
FIS	Investment Manager	736,036	736,036
Legato	Investment Manager	47,493	47,493
Pacific View Asset Management	Investment Manager	13,765	13,765
Progress Asset Management - PIM	Investment Manager	633,834	633,834
Security Capital	Investment Manager	1,064,335	1,064,335
SSGA	Investment Manager	581,104	581,104
Walden Asset Management	Investment Manager	377,351	377,351
<b>International Fund</b>			
Acadian	Investment Manager	1,251,894	1,251,894
Algert Investment Advisors	Investment Manager	2,716,611	2,716,611

Continued on page 91

**SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)**  
**YEAR ENDED JUNE 30, 2017 (Continued)**

INVESTMENT MANAGERS		QPP	TOTAL
Baillie Gifford	Investment Manager	\$11,769,957	\$11,769,957
BIV	Investment Manager	181,692	181,692
Causeway	Investment Manager	4,321,108	4,321,108
CONY	Investment Manager	18,949,576	18,949,576
DFA	Investment Manager	10,662,527	10,662,527
Eaton Vance Em MTA	Investment Manager	9,047,394	9,047,394
F & C	Investment Manager	1,008,077	1,008,077
FIS	Investment Manager	142,609	142,609
LEI	Investment Manager	206,099	206,099
LM Capital	Investment Manager	110,199	110,199
MS (Morgan Stanley)	Investment Manager	3,081,991	3,081,991
Pyramis	Investment Manager	2,048,010	2,048,010
SSGA	Investment Manager	2,000,275	2,000,275
<b>TIPS MTA Fund</b>			
Blackrock	Investment Manager	332,423	332,423
SSGA	Investment Manager	88,826	88,826
<b>Alternative Investment</b>			
Acon	Investment Manager	183,781	183,781
ACS Capital	Investment Manager	222,087	222,087
Actis Energy	Investment Manager	952,875	952,875
AFL-CIO	Investment Manager	1,117,624	1,117,624
Aisling Capital	Investment Manager	605,708	605,708
Almanac Realty Securities	Investment Manager	1,777,182	1,777,182
Altaris Capital Partners	Investment Manager	388,534	388,534
American Securities Partners	Investment Manager	4,278,368	4,278,368
Ampersand	Investment Manager	313,156	313,156
Angelo Gordon Ptnrs	Investment Manager	2,637,738	2,637,738
Apax	Investment Manager	3,942,828	3,942,828
Apollo	Investment Manager	5,583,430	5,583,430
Ardian	Investment Manager	1,073,379	1,073,379
ARES	Investment Manager	11,552,242	11,552,242
Arsenal Capital	Investment Manager	1,447,527	1,447,527
Artemis Co-Investment	Investment Manager	158,585	158,585
ASF	Investment Manager	1,939,518	1,939,518
Aurora Equity Partners	Investment Manager	2,922	2,922
Avanath Capital	Investment Manager	133,443	133,443
Avenue Special Situation Fund	Investment Manager	217,154	217,154
Avista Capital Partners	Investment Manager	3,654,356	3,654,356
AXA	Investment Manager	622,018	622,018
BC	Investment Manager	726,049	726,049
BDCM	Investment Manager	698,940	698,940
Blackstone	Investment Manager	9,202,623	9,202,623
Blue Wolf	Investment Manager	54,129	54,129
Bridgepoint	Investment Manager	1,773,865	1,773,865
Brightwood	Investment Manager	2,720,453	2,720,453
Brookfield	Investment Manager	6,104,666	6,104,666
Canyon Johnson Urban	Investment Manager	92,193	92,193
Capital Partners	Investment Manager	114,474	114,474
Carlyle	Investment Manager	8,546,917	8,546,917
Carpenter	Investment Manager	172,112	172,112
Catterton	Investment Manager	343,515	343,515

*Continued on page 92*

**SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)**  
**YEAR ENDED JUNE 30, 2017 (Continued)**

INVESTMENT MANAGERS		QPP	TOTAL
CCMP Capital	Investment Manager	\$684,377	\$684,377
Centerbridge Capital	Investment Manager	1,165,900	1,165,900
City Investment Fund (The)	Investment Manager	94,669	94,669
Co-Investment Partners	Investment Manager	117,692	117,692
Coller Capital	Investment Manager	177,743	177,743
Constellation Venture	Investment Manager	166,007	166,007
Contrarian Capital	Investment Manager	1,087,958	1,087,958
Craton Equity	Investment Manager	60,518	60,518
Credit Suisse	Investment Manager	609,684	609,684
Crestview Partners	Investment Manager	1,567,046	1,567,046
CVC Capital Partners	Investment Manager	2,975,908	2,975,908
Divco West	Investment Manager	3,894,354	3,894,354
DRA	Investment Manager	2,499,552	2,499,552
Emmes Asset Mgmt	Investment Manager	647,347	647,347
EQT	Investment Manager	662,339	662,339
Exeter Fund	Investment Manager	85,310	85,310
Fairview Capital Partners	Investment Manager	146,968	146,968
FDG Capital Partners II	Investment Manager	473,684	473,684
First Reserve	Investment Manager	1,456,281	1,456,281
Fortress Ptnrs	Investment Manager	2,979,087	2,979,087
Fourth Cinven Fund (The)	Investment Manager	58,539	58,539
Freeman Spogli	Investment Manager	21,391	21,391
FT Ventures	Investment Manager	893,969	893,969
G I Partners	Investment Manager	547,856	547,856
GF Capital Private Equity Fund	Investment Manager	140,768	140,768
Global Infrastructure Management	Investment Manager	2,538,016	2,538,016
Goldentree	Investment Manager	1,307,862	1,307,862
Green Equity Investors	Investment Manager	2,626,976	2,626,976
Grey Mountain Partners	Investment Manager	146,918	146,918
GSC Recovery	Investment Manager	32,501	32,501
GSO Capital	Investment Manager	391,402	391,402
H/2 Capital Partners	Investment Manager	1,713,335	1,713,335
Halyard Capital	Investment Manager	105,762	105,762
Heitman America	Investment Manager	285,358	285,358
Hudson Separate Account	Investment Manager	764,803	764,803
ICV Partners	Investment Manager	654,092	654,092
IFM GL Infrastructure	Investment Manager	1,522,258	1,522,258
Incline Equity Partners	Investment Manager	1,436,405	1,436,405
Intermedia Partners	Investment Manager	404,159	404,159
Jamestown	Investment Manager	676,616	676,616
JP Morgan	Investment Manager	1,952,488	1,952,488
KKR	Investment Manager	1,157,193	1,157,193
KTR Capital Partners	Investment Manager	3,897	3,897
Landmark Partners	Investment Manager	2,153,614	2,153,614
Lasalle Investment Management	Investment Manager	338,301	338,301
Leeds Equity Partners	Investment Manager	83,545	83,545
Levine Leichtman Capital Partners	Investment Manager	49,084	49,084
Lexington Capital Partners	Investment Manager	2,417,256	2,417,256
Lincolnshire Management	Investment Manager	274,823	274,823
Lion Industrial Trust	Investment Manager	355,522	355,522
Lone Star	Investment Manager	9,139,998	9,139,998
Marathon Centre Street Partnership	Investment Manager	5,837,409	5,837,409

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**SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP & TDA)**  
**YEAR ENDED JUNE 30, 2017 (Continued)**

INVESTMENT MANAGERS		QPP	TOTAL
Met Life Core Property	Investment Manager	\$657,816	\$657,816
Metro Workforce Housing Fd	Investment Manager	123,952	123,952
Midocean Partners	Investment Manager	406,084	406,084
Mill City Capital	Investment Manager	250,446	250,446
Montreux Equity Partners	Investment Manager	309,544	309,544
Nautic Partners	Investment Manager	1,199,526	1,199,526
New MainStream Capital	Investment Manager	327,313	327,313
New Mountain Partners	Investment Manager	1,162,702	1,162,702
New York Fairview Emerging Managers	Investment Manager	171,574	171,574
NGN Biomed Opportunity	Investment Manager	172,923	172,923
Oak Hill	Investment Manager	1,801,624	1,801,624
Oaktree	Investment Manager	1,583,679	1,583,679
Olympus Partners	Investment Manager	2,326,020	2,326,020
ONEX Partners	Investment Manager	2,676,760	2,676,760
Pacific Corporate Group Asset Management	Investment Manager	36,900	36,900
Paladin	Investment Manager	614,929	614,929
Palladium Equity Partners	Investment Manager	726,429	726,429
Patriot Partners	Investment Manager	204,554	204,554
Pegasus Partners	Investment Manager	1,228,276	1,228,276
Pine Brook Capital Partners	Investment Manager	335,704	335,704
Platinum Equity Capital Partners	Investment Manager	3,626,320	3,626,320
Pramerica VI	Investment Manager	1,553,483	1,553,483
PRE Amer Value	Investment Manager	120,432	120,432
PRE Colony Realty Partners	Investment Manager	687,300	687,300
Prisa	Investment Manager	394,119	394,119
Prologis Targeted US Logistics Holdings	Investment Manager	73,661	73,661
Prudential	Investment Manager	823,446	823,446
Psilos Group Partners	Investment Manager	32,909	32,909
PW Real Estate Fund III	Investment Manager	1,118,834	1,118,834
Quadrangle	Investment Manager	2,897	2,897
Quaker Bioventures	Investment Manager	155,313	155,313
Raine Partners	Investment Manager	138,899	138,899
RFM NYCERS Sandy	Investment Manager	7,295,743	7,295,743
RLJ Equity Partners	Investment Manager	1,137,682	1,137,682
RRE Ventures	Investment Manager	375,903	375,903
RREEF Amer. II	Investment Manager	456,386	456,386
SCP Partners	Investment Manager	289,330	289,330
Silverpeak Real Estate	Investment Manager	58,672	58,672
Siris Partners	Investment Manager	358,150	358,150
Snow Phipps Group	Investment Manager	262,948	262,948
Solera Partners	Investment Manager	55,684	55,684
Starvest Prtnrs	Investment Manager	184,099	184,099
Stellex Capital Management	Investment Manager	1,087,393	1,087,393
Stockbridge Real Estate	Investment Manager	112,251	112,251
Taconic Investment Partners	Investment Manager	254,622	254,622
Terra Firma Capital Partners	Investment Manager	60,272	60,272
Thomas, McNerney & Partners	Investment Manager	353,494	353,494
Thor Equities	Investment Manager	104,086	104,086
Torchlight	Investment Manager	2,931,476	2,931,476
Trilantic Capital Partners	Investment Manager	1,485,210	1,485,210
Tristan Capital Partners	Investment Manager	933,754	933,754
UBS	Investment Manager	1,430,405	1,430,405

*Continued on page 94*

<b>SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP &amp; TDA)</b>				
<b>YEAR ENDED JUNE 30, 2017 (Continued)</b>				
<b>INVESTMENT MANAGERS</b>		<b>QPP</b>		<b>TOTAL</b>
United States Power Fund	Investment Manager	\$636,780		\$636,780
Urban America II	Investment Manager	4,598		4,598
USAA Eagle Real Estate Fund	Investment Manager	378,405		378,405
Valor Equity	Investment Manager	386,791		386,791
Vista Equity Partners	Investment Manager	8,848,291		8,848,291
VSS Communications Partners	Investment Manager	10,459		10,459
Warburg Pincus Private Equity XI	Investment Manager	1,898,127		1,898,127
Webster Capital III	Investment Manager	378,573		378,573
Welsh, Carson, Anderson & Stowe XI	Investment Manager	2,164,174		2,164,174
Westbrook	Investment Manager	3,773,753		3,773,753
Yucaipa Companies	Investment Manager	694,003		694,003
Avista Capital Partners	Fee Refund	(122,863)		(122,863)
Cypress Merchant Banking Partners	Fee Refund	(17,332)		(17,332)
New Mountain Partners	Fee Refund	(158,733)		(158,733)
Prudential	Fee Refund	(23,101)		(23,101)
Trident	Fee Refund	(865,973)		(865,973)
Trilantic Capital Partners	Fee Refund	(744,278)		(744,278)
Ernst and Young	Purchase Fees	7,168		7,168
Pricewaterhouse Coopers Taiwan	Purchase Fees	12,375		12,375
SSB - Tax adjustments	Purchase Fees	107,713		107,713
Cox Castle Nicholson	Legal Fees	88,061		88,061
Day Pintney	Legal Fees	26,732		26,732
Foster Pepper	Legal Fees	102,948		102,948
Herrick Feinstein and Rivera Colon	Legal Fees	209		209
Morgan Lewis Bockius	Legal Fees	217,464		217,464
Nixon Peabody	Legal Fees	40,126		40,126
Pillsbury Winthrop Shaw Pittman	Legal Fees	16,000		16,000
Reinhart Boerner Van Dueren	Legal Fees	76,500		76,500
Seward Kissel	Legal Fees	44,571		44,571
BAM - Subscriptions	Consultant Fees	109,483		109,483
Courtland Partners	Consultant Fees	141,825		141,825
Hamilton Lane Advisors	Consultant Fees	1,000,000		1,000,000
Institutional Shareholders Services	Consultant Fees	7,100		7,100
NYC Office of the Comptroller - BAM	Consultant Fees	3,106,168		3,106,168
Principles for Responsible Investments	Consultant Fees	5,098		5,098
Rocaton Investment	Consultant Fees	473,333		473,333
Shareholder Research Services	Consultant Fees	144,013		144,013
Stepstone Group	Consultant Fees	136,000		136,000
Townsend Holdings	Consultant Fees	474,435		474,435
State Street Bank & Trust	Custodial Bank	1,174,095		1,174,095
<b>DIVERSIFIED EQUITY FUND AND INTERNATIONAL EQUITY FUND</b>			<b>TDA</b>	
Acadian	Investment Manager	\$274,109	\$543,606	\$817,714
Advent	Investment Manager	205,053	406,656	611,709
Amalgamated Bank	Investment Manager	16,628	32,976	49,604
Analytic Investors	Investment Manager	141,548	280,715	422,263
Aronson Johnson Ortiz	Investment Manager	17,641	34,986	52,628
Baillie Gifford	Investment Manager	198,962	394,577	593,540
Blackrock	Investment Manager	124,628	247,159	371,787
Cardinal Capital Management	Investment Manager	203,367	403,313	606,681
Clearbridge Investments	Investment Manager	441,163	874,904	1,316,067

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<b>SUMMARY OF INVESTMENT MANAGERS AND FEES (QPP &amp; TDA)</b>				
<b>YEAR ENDED JUNE 30, 2017</b>				
<b>INVESTMENT MANAGERS</b>		<b>QPP</b>	<b>TDA</b>	<b>TOTAL</b>
Delaware Inv Management	Investment Manager	\$646,287	\$1,281,701	\$1,927,988
Diamond Hill Capital Management	Investment Manager	160,020	317,349	477,369
GMO	Investment Manager	14,078	27,920	41,998
Intech	Investment Manager	221,435	439,144	660,579
MCM	Investment Manager	52,091	103,305	155,395
MFS Investment Advisors Intl Equity	Investment Manager	262,797	521,173	783,969
New South Capital Management	Investment Manager	427,251	847,315	1,274,566
Pyramis	Investment Manager	259,517	514,668	774,186
Shapiro Capital Management	Investment Manager	286,765	568,706	855,472
Sound Shore Management	Investment Manager	170,004	337,148	507,152
Sprucegrove	Investment Manager	112,480	223,068	335,548
Walter Scott	Investment Manager	162,507	322,280	484,788
Wasatch Advisors	Investment Manager	337,038	668,406	1,005,444
Wellington Management	Investment Manager	261,710	519,018	780,728
Zazove Conv Bond	Investment Manager	421,034	834,985	1,256,019
Groom Law Group	Legal Fees	36,307	78,596.22	114,903
Principles for Responsible Investments	Consultant Fees	1,592	3,447	5,039
Rocaton Investment Advisers	Consultant Fees	148,230	320,886	469,116
JP Morgan Chase Bank	Custodian Bank	148,306	294,116	442,422
<b>BOND FUND</b>				
NISA Investment Advisors	Investment Manager	127,671	386,589	514,260
Groom Law Group	Legal Fees	756	3,423	4,179
Principles for Responsible Investments	Consultant Fees	33	150	183
Rocaton Investment Advisers	Consultant Fees	3,087	13,975	17,062
JPMorgan Chase Bank	Custodian Bank	802	2,429	3,231
<b>INFLATION PROTECTION FUND</b>				
Fidelity Strategic R. Fund	Mutual Fund	-	-	-
Groom Law Group	Legal Fees	67	322	389
Principles for Responsible Investments	Consultant Fees	3	14	17
Rocaton Investment Advisers	Consultant Fees	274	1,313	1,588
JPMorgan Chase Bank	Custodian Bank	29	241	271
<b>SOCIALLY RESPONSIVE EQUITY FUND</b>				
Neuberger Berman	Investment Manager	48,210	623,746	671,956
Groom Law Group	Legal Fees	72	475	547
Principles for Responsible Investments	Consultant Fees	3	21	24
Rocaton Investment Advisers	Consultant Fees	294	1,940	2,234
JPMorgan Chase Bank	Custodian Bank	129	1,673	1,802
<b>Investment Expenses</b>	<b>Subtotal:</b>	<b>\$316,179,663</b>	<b>\$12,478,433</b>	<b>\$328,658,096</b>
Provision for Administrative Expenses	Administrative Fees	7,536,732	15,035,829	22,572,561
Reserve Transfer to Administrative expenses	Fund Transfer	(9,915,994)	(33,031,630)	(42,947,624)
<b>Net (decrease) in variable expense provision</b>	<b>Subtotal:</b>	<b>(\$2,379,262)</b>	<b>(\$17,995,801)</b>	<b>(\$20,375,063)</b>
<b>Total Investment Expenses</b>		<b>\$313,800,401</b>	<b>(\$5,517,368)</b>	<b>\$308,283,033</b>

**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)  
FISCAL YEAR ENDED JUNE 30, 2017**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
ABG Securities As (Stockholm)	36,488	\$0.02	\$862
ABG Securities Limited	28,153	0.01	377
Able Noser	758,784	0.01	10,290
ABN Amro Clearing Bank N.V.	414,973	0.01	3,448
Academy Securities Inc	110,650	0.02	2,174
American Portfolios Financial	2,744	0.05	137
Arctic Securities Asa Sluttsted	26,300	0.00	122
Autonomous LLP	1,585	0.02	35
Autonomous Research US LP	138,986	0.02	3,113
Autrepat-Div Re	34,115	0.05	1,582
Avondale Partners LLC	18,199	0.03	607
B. Riley & Co., LLC	66,517	0.03	2,296
Banco Itau SA	669,600	0.02	12,495
Banco Pactual S.A.	2,101,800	0.00	10,194
Banco Santander Central Hispano	3,167,626	0.00	15,303
Bank J. Vontobel Und Co. Ag	57,040	0.19	10,898
Bank of Nova Scotia-Scusa	29,601	0.00	15
Barclays Capital	17,841,530	0.00	61,080
Barclays Capital Inc.	443,509	0.04	15,609
Barclays Capital Inc./Le	2,909,777	0.01	15,291
Barclays Capital Le	2,548,711	0.03	65,374
Barclays Capital Securities Limited	97,001	0.01	903
Barrington Research Associates	3,090	0.03	97
BB&T Securities, LLC	12,340	0.03	336
Blaylock Robert Van LLC	592,397	0.02	12,561
Bloomberg Tradebook LLC	184,784	0.02	3,696
BMO Capital Markets	446,481	0.02	9,429
BNP Paribas Peregrine Securities	191,715	0.14	27,432
BNP Paribas Securities (Asia) LTD.	265,030	0.08	22,430
BNP Paribas Securities Services	13,562,816	0.00	35,836
BNP Paribas Securities Services Austr Br	288,038	0.00	1,185
BNP Paribas Securities Services SA	208,113,600	0.00	100,341
BNY Convergen Execution Solutions LLC	5,703,610	0.00	24,806
Bradesco S.A. Ctm	448,121	0.01	3,719
Brean Capital LLC	18,784	0.02	299
Broadcort Capital (Thru MI)	1,791	0.03	54
Btig, LLC	72,086	0.03	1,820
Buckingham Research Group Inc	20,910	0.04	836
Cabrera Capital Markets	35,678	0.02	869
Canaccord Genuity Inc.	161,901	0.04	5,817
Canaccord Genuity Limited	26,864	0.01	137
Canadian Imperial Bank of Commerce	3,890,460	0.00	7,258
Cantor Clearing Services	16,322	0.02	326
Cantor Fitzgerald & Co.	827,642	0.02	16,929
Cantor Fitzgerald & Co/Castleoak Sec	424,255	0.01	3,830
Cantor Fitzgerald Europe	115,603	0.01	1,210
Cantor Fitzgerald/Cantor Clearing Serv	5,139,306	0.02	99,547
Capital Institutional Svcs Inc Equities	287,981	0.04	11,579
Carnegie Bank A.S.	1,700	0.03	45

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2017 (Continued)**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
Carnegie Investment Bank Ab	13,562	\$0.03	\$357
Carnegie Securities Finland	35,400	0.02	534
Ceska Sportelna	303,591	0.03	10,585
Cheevers & Co. Inc.	1,105,153	0.03	30,685
China International Capital Co	1,934,600	0.00	9,035
Cibc World Mkts Inc	146,280	0.03	5,091
Citation Group	118,604	0.05	5,537
Citibank Canada	120,900	0.02	2,769
Citibank N.A.	89,206	0.03	2,368
Citibank of Colombia	936,705	0.00	1,387
Citigroup Global Market Korea Secs LTD	50,223	1.16	58,011
Citigroup Global Markets Asia LTD	133,743	0.01	1,208
Citigroup Global Markets Australia Pty	74,142	0.00	121
Citigroup Global Markets Inc	31,119,348	0.01	176,561
Citigroup Global Markets India	1,306,423	0.02	24,910
Citigroup Global Markets Limited	33,732,655	0.01	197,996
Citigroup Global Markets Taiwan	593,000	0.00	549
CJS Securities Inc	7,540	0.04	329
CL Securities Taiwan Company Limited	11,344,000	0.00	14,377
CLSA Australia Pty LTD	916,117	0.00	3,031
CLSA Securities Korea LTD.	3,759	0.23	871
CLSA Singapore Pte LTD.	5,961,816	0.01	41,196
Compass Point Research & Trading, LLC	61,021	0.04	2,355
Convergex Execution Solutions LLC	64,062,772	0.00	304,257
Convergex LLC	221,195	0.03	6,194
Cornerstone Macro LLC	4,510	0.05	226
Correval S.A.	7,264,458	0.00	12,201
Cowen And Company, LLC	269,453	0.03	6,939
Craig-Hallum	86,387	0.03	2,767
Credibolsa Sociedad Agente	407,696	0.00	1,048
Credit Lyonnais Securities (Asia)	33,426,191	0.00	71,221
Credit Lyonnais Securities (USA) Inc	589,200	0.00	2,371
Credit Lyonnais Securities India	2,542,508	0.01	30,695
Credit Suisse First Boston	32,038,400	0.00	30,416
Credit Suisse First Boston (Europe)	212,941	0.05	11,317
Credit Suisse Secs India Private LTD	3,210,645	0.01	25,504
Credit Suisse Securities (Europe) LTD	4,247,497	0.01	53,541
Credit Suisse Securities (USA) LLC	51,389,199	0.00	100,320
CS First Boston (Hong Kong) Limited	698,682	0.00	2,631
CSFB Australia Equities LTD	910,848	0.00	3,219
Cuttone & Co.	6,838	0.02	137
D Carnegie Ag	6,258	0.01	35
Daewoo Securities Co LTD	35,865	0.01	296
Daiwa Sbcm Europe	174,000	0.03	5,518
Daiwa Securities (HK) LTD.	1,265,013	0.00	1,554
Daiwa Securities America Inc	1,033,893	0.03	27,343
Daiwa Securities Sb Capital Markets	53,971	0.04	2,324
Danske Bank A.S.	223,221	0.04	8,892
Davidson D.A. & Company Inc.	47,587	0.03	1,590

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2017 (Continued)**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
Davy Stockbrokers	495,952	\$0.01	\$4,884
DBS Vickers (Hong Kong) Limited	271,600	0.01	3,688
DBS Vickers Securities (Singapore)	611,121	0.01	3,497
Den Norske Bank	405,533	0.00	918
Deutsche Bank Ag London	8,249,866	0.01	50,071
Deutsche Bank Securities Inc	16,467,155	0.01	93,230
Deutsche Eq In Prvt Lim Db	139,358	0.01	1,603
Deutsche Morgan Grenfell Secs	378,499	0.00	1,249
Deutsche Securities Asia LTD	4,253,827	0.01	25,040
Dougherty & Company LLC	89,131	0.03	2,937
Drexel Hamilton LLC	15,939	0.02	384
DSP Merrill Lynch LTD	1,221,972	0.03	31,563
Erste Bank Befektetesi Rt.	1,557,309	0.02	25,851
Euromobiliare Sim S.P.A.	46,300	0.01	241
Exane S.A.	1,377,545	0.01	19,175
FBR Capital Markets & Co.	200,331	0.03	5,418
Federated Managed Growth & Income	845,463	0.01	6,340
Fidelity Capital Markets	863	0.02	17
FIG Partners LLC	9,244	0.02	185
Financial Brokerage Group	9,596,101	0.00	2,468
First Analysis Securities Corp	6,272	0.03	184
FIS Brokerage & Securities Services LLC	17,425	0.02	349
Flow Corretora De Mercadorias LTDa.	1,470,300	0.01	10,389
Frank Russell Sec/Broadcort Cap Clearing	95,347	0.03	2,384
Goldman Sachs & Co	44,255,952	0.01	242,618
Goldman Sachs (Asia) LLC	166,714	0.01	1,291
Goldman Sachs (India)	2,718,812	0.00	9,826
Goldman Sachs Do Brasil Corretora	173,400	0.02	3,399
Goldman Sachs International	5,400,309	0.00	20,335
Goodbody Stockbrokers	1,864,244	0.00	4,625
Green Street Advisors (UK) LTD	104,075	0.01	1,533
Green Street Trading, LLC	1,501,244	0.04	55,682
Greentree Brokerage Services Inc	51,650	0.02	1,033
Guzman And Company	72,425	0.02	1,449
Hongkong And Shanghai Banking Corp	13,842,454	0.00	9,692
HSBC Bank Plc	2,240,053	0.02	45,735
HSBC Bank USA	24,318	0.01	194
HSBC Brokerage (USA) Inc.	947,100	0.02	18,942
HSBC Mexico S A Institucion De Banca Mlt	4,101,772	0.00	5,056
HSBC Securities (USA) Inc.	5,674,760	0.01	28,697
HSBC Securities India Holdings	1,402,866	0.01	8,200
Icap Do Brasil DtvM LTDa	15,153,362	0.00	61,948
ICBC Fincl Svcs, Equity Clearance	2,045,810	0.00	6,138
IM Trust S.A. Corredores De Bolsa	78,525,480	0.00	14,093
Imperial Capital LLC	14,813	0.04	521
Industrial And Commercial Bank	10,135	0.03	254
Instinet	2,759,670	0.01	14,933
Instinet Australia Clearing Srvc Pty LTD	875,170	0.00	1,545
Instinet LLC	32,765,199	0.00	71,823

*Continued on page 99*

**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2017 (Continued)**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
Instinet Pacific Limited	115,985,146	\$0.00	\$65,961
Instinet Singapore Services Pt	6,987,798	0.00	5,463
Instinet U.K. LTD	37,634,667	0.01	216,928
Investec Bank Plc	831,895	0.01	4,780
Investec Securities LTD	1,854,967	0.00	5,186
Investment Technology Group Inc.	1,384,383	0.01	20,644
Investment Technology Group LTD	8,917,069	0.00	40,401
ISI Group Inc	946,898	0.03	29,803
Itau USA Securities Inc	311,800	0.04	12,472
ITG Australia LTD.	21,259,139	0.00	21,823
ITG Canada	443,491	0.01	3,715
ITG Inc.	640,913	0.01	8,476
ITG Securities (HK) LTD	52,896,246	0.00	17,883
IVY Securities, Inc.	3,727,381	0.04	134,623
J P Morgan India Private LTD	773,832	0.01	10,579
J P Morgan Securities Inc	3,615,432	0.00	6,788
J.P. Morgan Clearing Corp.	2,822,747	0.02	43,965
J.P. Morgan Securities (Taiwan) LTD	1,881,000	0.01	9,947
J.P. Morgan Securities Inc.	1,574,546	0.03	49,400
J.P. Morgan Securities Limited	158,532	0.01	1,057
J.P.Morgan Securities (Far East) LTD Seoul	753,721	0.02	14,672
Janney Montgomery, Scott Inc	56,968	0.04	2,049
Jefferies & Company Inc	20,454,100	0.01	141,724
Jefferies India Private Limited	14,561,264	0.00	37,181
Jefferies International LTD	197,436,541	0.00	75,623
JMP Securities	55,749	0.03	1,764
JNK Securities Inc	12,437	0.04	497
Joh Berenberg Gossler And Co	251,849	0.05	13,769
Johnson Rice & Company LLC	122,242	0.03	3,481
Jonestrading Institutional Services LLC	1,825,496	0.03	46,613
JP Morgan Securities Australia LTD	1,514,837	0.00	3,007
JP Morgan Securities Plc	10,805,636	0.01	93,773
JP Morgan Securities (Asia Pacific) LTD	10,514,107	0.00	10,069
Kas-Associatie N.V.	453,763	0.00	1,952
KB Securities N V	32,519	0.01	247
KCG Americas LLC	647,983	0.01	4,766
Keefe Bruyette & Woods Inc	360,175	0.03	10,221
Kempen & Co N.V.	182,641	0.02	4,262
Kepler Equities Paris	59,254	0.04	2,566
Keybank Capital Markets Inc	678,484	0.03	23,203
King, Cl,& Associates, Inc	849,221	0.03	24,596
Knight Equity Markets L.P.	247,094	0.02	4,965
Knight Securities International	134,327	0.00	474
Korea Investment And Securities Co., LTD	413,988	0.06	26,494
Ladenburg Thalman & Co	13,990	0.02	309
Larrain Vial	16,646,231	0.00	3,425
Leerink Partners LLC	57,119	0.03	1,845
Liberum Capital Limited	40,772	0.04	1,497
Liquidnet Europe Limited	18,565	0.07	1,315

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2017 (Continued)**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
Liquidnet Inc	4,673,592	\$0.02	\$97,694
Loop Capital Markets	15,029,862	0.02	248,001
Loop Capital Markets LLC	3,439,306	0.01	27,237
Luminex Trading And Analytics	941	0.00	2
Lumens Trading And Analytics LLC	11,656	0.00	29
Macquarie Bank Limited	10,079,924	0.01	50,503
Macquarie Capital (Europe) LTD	72,451	0.03	2,358
Macquarie Capital (USA) Inc.	759,062	0.01	9,405
Macquarie Sec Nz LTD	310,266	0.00	214
Macquarie Securities (India) Pvt LTD	419,114	0.04	18,014
Macquarie Securities (USA) Inc	155,217	0.04	5,989
Macquarie Securities Korea Limited	55,935	0.03	1,619
Macquarie Securities Limited	5,897,900	0.00	1,462
Mainfirst Bank De	3,229	0.37	1,194
Maxim Group	10,775	0.03	338
Merrill Lynch And Co Inc	374,319	0.02	8,051
Merrill Lynch International	88,192,296	0.00	408,390
Merrill Lynch Pierce Fenner & Smith Inc	55,959,802	0.01	429,912
Merrill Lynch Professional Clearing Corp	3,399	0.03	107
Mirae Asset Daewoo Co., LTD.	3,513	0.06	221
Mischler Financial Group, Inc-Equities	627,957	0.01	6,766
Mitsubishi UFJ Securities	9,225	0.04	369
Mitsubishi UFJ Securities (USA)	12,200	0.02	265
Mitsubishi UFJ Securities Int Plc	20,700	0.05	1,035
Mizuho International Plc	543,341	0.03	18,617
Mizuho Securities Asia Limited	200	0.02	4
Mizuho Securities USA Inc.	692,783	0.02	13,495
MKM Partners LLC	455,144	0.04	18,097
Montrose Securities Equities	43,600	0.01	341
Morgan Stanley And Co Intl Taipei Metro	117,000	0.00	260
Morgan Stanley And Co. International	34,058,535	0.00	64,413
Morgan Stanley Co Incorporated	74,090,695	0.00	272,032
Morgan Stanley India Company Pvt LTD	2,142,092	0.01	12,568
Morgan Stanley Taiwan Limited	14,644,000	0.00	22,167
National Financial Services Corp.	716,119	0.02	11,026
National Financial Services LLC	77,731	0.02	1,745
Natixis Securities	32,883	0.19	6,145
Needham And Company LLC	380,731	0.03	12,728
Nesbitt Burns	233,746	0.02	5,595
NH Investment And Securities Co.,LTD.	195,476	0.01	1,866
Noble International Investments Inc.	11,778	0.03	327
Nomura Financial Advisory & Sec India	4,129,857	0.00	13,189
Nomura Financial Investment Korea Co LTD	351,385	0.00	1,477
Nomura Securities International Inc	32,500	0.01	270
Nordea Bank Ab (Publ), Finnish Branch	54,236	0.00	260
Nordea Bank Finland Plc	96,109	0.01	908
North South Capital LLC	64,334	0.04	2,321
Northland Securities Inc.	50,819	0.03	1,358
Numis Securities Limited	209,551	0.00	716

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2017 (Continued)**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
O'Neil, William And Co. Inc/Bcc Clrg	6,303	\$0.04	\$252
Oppenheimer & Co. Inc.	59,603	0.04	2,500
Ord Minnett Limited	8,310	0.01	64
Parel	210,185	0.03	6,031
Pavilion Global Markets LTD	425,445	0.01	6,314
Peel Huntllp	226,440	0.00	999
Penserra Securities	2,294,469	0.03	67,910
Penserra Securities LLC	178,521	0.01	948
Pershing LLC	5,565,807	0.00	26,621
Pershing Securities Limited	10,016,620	0.00	5,052
Piper Jaffray	139,755	0.03	4,478
R.B.C. Dominion Securities Corporation	12,992	0.01	78
Rafferty Capital Markets LLC	4,350	0.01	44
Raymond James And Associates Inc	1,081,719	0.03	32,495
RBC Capital Markets	925,861	0.02	21,016
RBC Dominion Securities Inc.	3,107,410	0.01	39,001
Redburn Partners LLP	2,879,543	0.01	20,121
Robert W. Baird Co. Incorporate	876,340	0.03	24,249
Rosenblatt Securities LLC	10,557	0.02	204
Roth Capital Partners LLC	23,169	0.03	706
Royal Bank of Canada Europe LTD	1,569,925	0.02	32,894
Samsung Securities Co LTD	396,103	0.09	35,604
Samuel A Ramirez & Company Inc	267,788	0.01	2,008
Sandler Oneill And Partners L.P.	83,798	0.03	2,700
Sanford C Bernstein Co LLC	1,481,192	0.02	23,486
Sanford C. Bernstein And Co. LLC	615,636	0.01	3,756
Sanford C. Bernstein LTD	4,316,813	0.02	67,966
Scotia Capital Inc	1,590,800	0.01	9,151
Seaport Group Securities, LLC	160,938	0.02	3,368
SG Americas Securities LLC	786,645	0.00	3,042
SG Asia Securities (Inoia) Pvt LTD	12,950,535	0.00	45,314
SG Securities (London) LTD.	23,289,557	0.00	8,900
SG Securities HK	97,990,674	0.00	53,649
Sidoti & Company LLC	72,725	0.04	2,706
Siebert Cisneros Shank & Co, LLC	1,199	0.03	36
Skandinaviska Enskilda Banken	13,500	0.01	116
Skandinaviska Enskilda Banken London	14,862	0.01	202
SMBC Nikko Capital Markets Limited	30,100	0.04	1,314
SMBC Nikko Securities (Honk Kong) LTD	7,969	0.00	21
SMBC Securities Inc	234	3.91	914
Societe Generale London Branch	17,737,945	0.00	77,283
State Street Bank And Trust Co	36,426	0.02	750
State Street Bank And Trust Company	273,894	0.02	4,108
State Street Global Markets	6,187	0.02	124
State Street Global Markets, LLC	95,989	0.01	1,049
Stephens, Inc.	181,563	0.04	7,004
Sterne Agee & Leach Inc.	16,181	0.05	781
Stifel Nicolaus & Co Inc	3,091,166	0.03	88,763
Stifel Nicolaus Europe Limited	121,131	0.01	764

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (PENSION FUND)**  
**FISCAL YEAR ENDED JUNE 30, 2017 (Continued)**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
Stock Distribution	19,307	\$0.05	\$965
Stuart Frankel & Co Inc	530	0.03	16
Suntrust Capital Markets, Inc.	548,677	0.03	15,146
Svenska Handelsbanken	10,047	0.03	348
Taiwan Depository Clearing Corporation	16,869,000	0.00	29,490
Telsey Advisory Group LLC	622,053	0.04	23,559
Tera Menkul Degerler A.S.	1,860,019	0.00	1,658
Toronto Dominion Bank	136,300	0.01	1,842
Toronto Dominion Securities Inc	1,286,200	0.01	7,392
Tullett Prebon Financial Services LLC	6,471	0.02	129
UBS Ag	30,620,478	0.00	106,028
UBS Limited	34,164,619	0.01	211,942
UBS Securities Asia LTD	23,887,732	0.00	60,879
UBS Securities Canada Inc	541,002	0.01	3,207
UBS Securities India Private LTD	1,499,619	0.01	7,613
UBS Securities LLC	20,716,501	0.01	119,804
UBS Securities Pte. LTD	2,739,000	0.00	12,214
UBS Securities Pte. LTD., Seoul	11,923	0.00	39
UBS Warburg Australia Equities	7,836,133	0.00	8,941
Vandham Securities Corp	7,477	0.03	224
Vertical Trading Group (The)	10,003	0.04	400
Warburg Dillon Read Securities Co	1,511,400	0.00	198
Wedbush Morgan Securities Inc	128,899	0.02	2,719
Weeden & Co.	5,355,323	0.02	132,675
Wells Fargo Securities, LLC	1,654,329	0.03	56,893
William Blair & Company L.L.C	380,918	0.04	13,377
Williams Capital Group LP (The)	7,959,533	0.01	54,681
Wunderlich Securities Inc	18,484	0.03	477
Xp Investimentos Cctvm SA	318,410	0.00	1,008
Yamner & Co Inc	121,398	0.01	1,214

**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)  
FISCAL YEAR ENDED JUNE 30, 2017**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
Abel Noser Corp	2,016,653	\$0.04	\$71,179
ABG Securities Stockholm	5,939	0.01	40
Arctic Securities Asa	8,400	0.00	39
Auerbach Grayson & Co. Inc.	37,856	0.01	446
Autonomous	243,178	0.01	1,463
Banco Pactual S.A. Rio De Janeiro	238,400	0.00	1,156
Banco Santander Central NY	84,799	0.01	442
Banco Santander S.A. New York	275,525	0.00	1,299
Bank J Vontobel Und Co	4,620	0.18	833
Bank of New York (Bony)/Goldman	2,967,619	0.02	52,680
Bank of New York Brussels	13,872	0.02	317
Barclays Bank London	559,097	0.01	3,626
Barclays Capital Inc	178,856	0.00	629
Barclays Capital Inc/Le	555,770	0.02	9,954
Barclays Capital Le	981,279	0.02	14,818
Barclays Capital Securities LTD	2,563,570	0.00	12,640
Baypoint Trading LLC	563,575	0.03	15,973
Bear Stearns & Co Inc	1,691,901	0.02	28,562
Berenberg Bank Hamburg	74,873	0.01	468
Bloomberg Tradebook Europe Limited	276,000	0.00	22
Bloomberg Tradebook LLC	384,786	0.03	11,387
BMO Capital Markets Corp	113,561	0.01	615
BNP Paribas Securities (Asia) LTD	54,800	0.04	2,099
BNP Paribas Securities India Privat	7,908	0.08	658
BNP Paribas Securities Services	225,246	0.01	2,163
BNP Paribas Security Svcs London	29,550	0.07	1,921
BNY Convergen Execution Solutions	548,998	0.01	5,313
Bradesco S.A.	735,395	0.00	2,853
Briley & Co., LLC	46,130	0.05	2,307
Broad Court Cap Corp Sub Div Merrill	118,550	0.03	3,557
Brockhouse & Cooper Inc Montreal	73,090	0.02	1,546
Canaccord Capital Corp Vancouver	6,200	0.03	163
Cantor Clearing Services	20,536	0.02	411
Cantor Fitzgerald & Co Inc	311,965	0.02	7,696
Cantor Fitzgerald Europe London	3,422	0.02	64
Cap Institutional Services Inc-Eq	606,153	0.03	15,534
Carnegie Bank Copenhagen	2,190	0.10	229
Carnegie Secs Helsinki	15,300	0.02	231
China Intl Capital Corp HK Secs LTD	6,000	0.01	56
CIBC London	13,960	0.04	494
CIBC New York	5,500	0.03	147
CIBC World Markets Toronto	118,171	0.01	1,527
CIMB Securities (USA) Inc	15,084	0.04	635
Citibank Canada Toronto	171,900	0.01	1,314
Citibank Frankfurt	34,938	0.05	1,700
Citibank N.A.	1,377,758	0.01	10,437
Citibank N.A. London	7,320	0.01	67
Citibank New York	1,840,426	0.00	7,153
Citigroup Global Markets Inc	6,692,223	0.01	35,077
Citigroup Global Markets Limited	2,593,955	0.01	18,973

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2017 (Continued)**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
Citigroup Global Mkt Ind Pvt LTD	794,330	\$0.00	\$1,472
CJS Securities Inc	6,410	0.05	321
CLSA Australia Pty LTD	159,738	0.00	506
CLSA India LTD	442,031	0.01	3,237
CLSA LTD Hong Kong	982,251	0.00	2,676
Collins Stewart LLC	15,015	0.02	300
Compass Point Research & Trading	99,195	0.03	3,100
Convergex LLC	1,734,803	0.04	70,122
Cornerstone Macro LLC	42,136	0.02	843
Cowen And Company LLC	137,191	0.02	3,226
Craig-Hallum	110,710	0.04	3,902
Credit Lyonnais Sec (USA) Inc NY	1,255,700	0.00	1,057
Credit Lyonnais Sec Seoul	215	0.84	180
Credit Lyonnais Secs (Asia) Taipei	77,000	0.01	539
Credit Lyonnais Secs Singapore	38,283	0.03	1,029
Credit Suisse Equities (Australia)	67,485	0.01	682
Credit Suisse First Boston, Euroclear	89,716	0.01	626
Credit Suisse First Boston HK	21,000	0.01	184
Credit Suisse First Boston SA	69,800	0.01	453
Credit Suisse Securities (Europe)	2,313,945	0.02	46,718
Credit Suisse Securities (USA) LLC	2,504,860	0.01	24,398
CS First Boston (Europe)	325,668	0.00	1,004
CSFB (Europe) LTD Seoul Secs Brnch	23,351	0.05	1,244
CSFB India (Secs) Pvt LTD Mumbai	171,362	0.02	3,510
CSFB Taipei Branch Taipei	3,647,000	0.00	3,422
D Carnegie Ab Stockholm	198,324	0.01	1,129
D.A. Davidson & Co (Davidson)	75,226	0.04	3,307
Daewoo Securities Co., LTD	661	0.05	34
Daiwa Capital Markets America Inc	248,744	0.01	3,444
Daiwa Capital Markets Hong Kong	10,100	0.03	334
Davy Stockbrokers	396,459	0.00	927
DBS Vickers Ballas Hong Kong LTD	43,200	0.01	587
DBS Vickers Secs (Sing) Pte LTD	58,000	0.01	316
Desjardins Secs Inc Quebec	2,100	0.03	72
Deutsche Bank (Intl Eq) Ldn	657,073	0.01	5,626
Deutsche Bank Securities Inc NY	4,193,133	0.01	44,062
Deutsche Bk Ag (Cust Svcs) Frankfrt	215,436	0.05	11,457
Deutsche Secs Asia LTD Hong Kong	1,003,431	0.00	2,716
Deutsche Secs Asia Seoul	297	0.82	245
Deutsche Secs Aust LTD Sydney	62,512	0.01	434
Deutsche Secs New Zealand Auckland	13,363	0.01	154
Dougherty & Company LLC	15,545	0.05	777
Drexel Hamilton LLC	7,166	0.02	143
DSP Merrill Lynch LTD Mumbai	81,815	0.03	2,381
Euromobiliare Spa	7,400	0.01	38
Exane New York	22,926	0.04	921
Exane Paris	226,680	0.01	2,696
Exane SA	48,843	0.02	1,199
Fidelity Capital Markets	121,792	0.01	1,601
Fidelity Clearing Canada ULC	29,300	0.02	603

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2017 (Continued)**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
First Analysis Securities Corp	12,654	\$0.02	\$253
First New York Securities LLC	204	0.03	6
First Union Capital Markets	113,305	0.04	4,532
Flow Corretora De Mercadorias LTDa	116,600	0.00	482
Frank Russell Secs/Broadcort Cap Secs	163,570	0.02	3,271
French American Banking Corporation	166,504	0.03	4,995
Friedman Billings & Ramsey	150,841	0.05	7,194
Goldman Sachs (India) Securities	5,572	0.02	120
Goldman Sachs International	113,152	0.01	1,245
Goldman Sachs Intl London	583,872	0.00	1,992
Goldman Sachs New York	3,229,580	0.01	20,819
Goodbody Stockbrokers Dublin	2,091,837	0.00	1,644
Griffiths Mcburney & Ptrs Toronto	4,200	0.02	78
Group Credit Agricole	8	0.00	0
Guzman & Company	1,105,992	0.02	16,654
HSBC Bank Plc London	512,149	0.01	4,110
HSBC Brokerage (USA) Inc	165,810	0.03	4,922
HSBC Mexico S.A.	206,517	0.00	531
HSBC Secs & Cap Mkts India Privltd	58,922	0.01	402
HSBC Secs Taipei	6,028,850	0.00	8,861
HSBC Securities Brokers (Asia) LTD	3,938,593	0.00	1,870
HSBC Securities USA	3,544,200	0.00	3,425
Icap Do Brasil Dtvn LTDa	159,300	0.01	1,784
Icici Brokerage Services Mumbai	267,834	0.00	1,028
Industrial And Commercial Bank of China	11,600	0.01	160
Instinet	2,282,555	0.01	22,130
Instinet Australia Clearing Svcs	75,106	0.00	271
Instinet Clearing Services Inc	800,026	0.02	12,835
Instinet Corp New York	545,720	0.00	2,634
Instinet Europe Limited	1,733,690	0.00	7,853
Instinet France SA Paris	844	0.01	9
Instinet Pacific LTD Hong Kong	2,311,174	0.00	6,290
Instinet Singapore Services Pte LTD	236,000	0.00	386
Investec Henderson Crosthwaite Secs	400,878	0.00	906
Investment Technology Group Dublin	5,484,794	0.00	11,238
Investment Technology Group Inc	1,786,000	0.01	15,240
ISI Group Inc	1,043,933	0.02	24,966
ITG Australia Limited Melbourne	9,956	0.00	38
ITG Canada Corp Toronto	63,359	0.02	1,103
ITG Hong Kong	779,000	0.00	275
ITG Inc	130,108	0.02	2,648
ITG London	156,498	0.01	1,815
IXIS Securities	187,036	0.01	1,007
James Brennan	803	0.01	6
Janney Montgomery Scott Inc	73,451	0.05	3,673
Jefferies & Company	1,156,268	0.03	29,527
Jefferies International	5,060	0.01	65
Jefferies International London	475,652	0.01	4,485
Jefferies Intl, Euroclear	1,372	0.00	4
JM Financial Institutional	114,280	0.01	869

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**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2017 (Continued)**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
JM Morgan Stanley Secs Pvt LTD	116,723	\$0.01	\$887
JNK Securities Inc	78,583	0.01	982
Johnson Rice & Company LLC	331,100	0.03	9,933
Jones Trading Institutional Services	1,194,043	0.03	37,355
JP Morgan Chase/Cust Jpmcc	624,026	0.03	18,042
JP Morgan India Private LTD	5,501	0.06	339
JP Morgan Securities Australia	262,820	0.00	737
JP Morgan Securities Limited	2,171,752	0.01	20,971
JPM Securities	33,029	0.02	685
JPMorgan Chase Bank	1,527,962	0.02	28,166
JPMorgan Clearing Corp NY	13,723	0.01	137
JPMorgan Secs Inc NY	10,885	0.01	82
JPMorgan Secs London	60,519	0.02	980
JPMorgan Secs Taiwan LTD Taipei	2,431,000	0.00	3,094
JPMorgan Securities (Asia Pacific)	530,426	0.01	5,151
JPMorgan Securities (Far East) LTD	6,216	0.14	895
KCG Europe Limited	1,490	0.10	143
Keefe Bruyette & Woods Inc	3,387	0.03	92
Kempen And Co NV	17,849	0.02	317
Kepler Capital Markets	4,299	0.11	464
Kepler Equities Paris	107,811	0.03	3,194
Keybanc Capital Markets Inc	91,945	0.05	4,597
Kim Eng Secs Hong Kong	26,800	0.01	331
King C L & Associates Inc (Pershing)	36,653	0.05	1,833
KM Partners LLC	8,260	0.03	248
Knight Equity Markets LP	325,747	0.03	8,200
Knight Execution & Clearing Services	447,127	0.00	1,181
Korea Investment And Securities Co	46,076	0.06	2,887
Leerink Swann And Company	56,016	0.03	1,927
Liquidnet Asia Limited Hong Kong	463,100	0.00	957
Liquidnet Canada Inc	248,053	0.03	6,440
Liquidnet Europe LTD London	1,290,151	0.00	4,391
Liquidnet Inc	1,392,306	0.03	42,798
Luminex Trading And Analytics LLC	36,092	0.00	97
Macquarie Bank Limited	3,654,754	0.00	7,838
Macquarie Capital (Europe) LTD Ldn	295,462	0.01	2,040
Macquarie Capital (USA) Inc	10,590	0.02	242
Macquarie Securities (USA) Inc	315,589	0.01	3,263
Macquarie Securities Indian Pvt LTD	49,924	0.04	2,146
Macquarie Securities LTD Seoul	2,337	0.08	190
Macquarie Securities New Zealand	217,144	0.00	865
Mainfirst Bank Ag	6,279	0.13	838
Merrill Lynch & Co Inc (Atlas Gbl) NY	262,863	0.00	776
Merrill Lynch And Co Inc	8,171	0.06	465
Merrill Lynch International	137,563	0.02	2,769
Merrill Lynch International London	11,912,883	0.00	37,888
Merrill Lynch P F & S NY	16,836	0.02	358
Merrill Lynch Pierce Fenner & Smith	4,473,064	0.01	37,285
Mirae Asset Securities	45	0.41	18
Mitsubishi UFJ Securities (USA)	61,787	0.03	1,651

Continued on page 107

**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2017 (Continued)**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
Mizuho Securities Asia LTD	8,000	\$0.02	\$169
Mizuho Securities Inc	118,258	0.01	797
Morgan Stanley & Co	9,259,112	0.01	88,318
Morgan Stanley & Co Intl Ldn, Euroclear	87,172	0.01	688
Morgan Stanley And Co International	208,951	0.00	810
Morgan Stanley And Co Intl Taipei	1,670,000	0.00	2,547
Morgan Stanley Intl Seoul	3,454	0.25	858
MS & Co Intl London	38,200	0.01	484
National Financial Services LLC	418,755	0.01	3,472
National Fincl Svcs Corp	391,397	0.02	7,480
NBC Clearing Services Inc	54,000	0.03	1,468
Needham And Company LLC	35,143	0.05	1,681
Nesbitt Burns Toronto	179,904	0.02	4,238
Nomura Financial Advisory And Securities (India)	1,463,074	0.00	2,660
Nomura Financial And Investment (Korea)	39,015	0.04	1,380
Nomura Secs Intl New York	25,200	0.02	490
Nomura Securities	122,499	0.01	1,318
Nomura Securities Taipei	1,818,000	0.00	1,503
Nordea Bank Finland Plc	14,278	0.01	105
Northern Trust CO (The)	12,782,542	0.00	23,550
Northern Trust Securities Inc	8,433,205	0.01	63,276
Northland Securities Inc	26,750	0.03	803
Numis Securities London	237,414	0.00	770
Oddo Et Cie Paris	14,413	0.02	264
Oppenheimer & Co Inc	116,378	0.05	5,777
Ord Minnett Limited	2,689	0.01	21
Parel Paris	56,336	0.06	3,161
Penserra Securities	52,058	0.00	130
Pershing LLC	2,448,968	0.03	68,103
Pershing Securities	715,404	0.00	885
Peters & Co Calgary Canada	16,100	0.03	478
Piper Jaffray & Co	216,245	0.03	7,069
Raymond James & Associates Inc	738,019	0.02	16,506
Raymond James And Assoc St P'Sburg	23,200	0.03	745
RBC Capital Markets Corporation	38,518	0.04	1,534
RBC Dominion Secs Toronto	326,532	0.02	7,705
Redburn Partners LLP London	443,789	0.01	2,579
Robert W Baird & Co	369,035	0.04	14,578
Rosenblatt Securities Inc	66,400	0.02	1,061
Rosenblatt Securities LLC	641,732	0.02	15,423
Roth Capital Partners LLC	1,680	0.05	84
Royal Bank of Canada Sydney	416,305	0.00	1,845
Salomon Bros, Euroclear	837	0.00	2
Salomon Smith Barney Taipei Brch	472,000	0.00	864
Samsung Securities	37,876	0.07	2,694
Sandler O'Neill & Partners L.P.	28,610	0.04	1,283
Sanford C Bernstein & Co Inc	1,999,766	0.02	36,916
Sanford C Bernstein LTD London	474,883	0.01	6,989
Sanford C. Bernstein And Co., LLC	2,081,563	0.00	3,173
Scotia Capital Mkts Toronto	40,003	0.01	392

Continued on page 108

**SCHEDULE OF PAYMENTS OF COMMISSIONS TO BROKERS (VARIABLE-RETURN FUNDS)**  
**FISCAL YEAR ENDED JUNE 30, 2017 (Continued)**

<b>BROKERAGE FIRM</b>	<b>NO. OF SHARES TRADED</b>	<b>COMMISSION PER SHARE</b>	<b>COMMISSION PAID</b>
Scotia Corredora De Bolsa	11,344	\$0.01	\$155
Scotia Mcleod New York	230,837	0.03	7,628
Seaport Group Securities LLC	226	0.02	5
SEB (Enskilda Securities) London	35,675	0.06	2,169
SG Americas Securities LLC (Sgas)	1,635,597	0.01	16,832
SG Asia Sec (India) Prvt LTD Mumbai	653,680	0.00	323
SG Secs (London) LTD Taipei	13,000	0.00	10
SG Securities (HK) LTD Hong Kong	17,554,181	0.00	16,914
Sidoti & Company LLC	71,517	0.03	2,146
SJ Levinson & Sons LLC	92,013	0.00	230
Skandinaviska Enskilda Banken	86,093	0.01	1,082
SMBC Securities Inc	74,575	0.02	1,255
Societe Generale London Branch	1,754,014	0.01	11,470
Societe Generale Secs Corp New York	853,391	0.01	5,708
State Street Bank Europe London	6,114	0.03	186
State Street Global Markets LLC	35,685	0.02	728
Stephens Inc	289,216	0.04	11,843
Stifel Nicolaus & Co Inc	654,364	0.04	24,552
Suntrust Capital Markets Inc	122,168	0.05	5,600
Svenska Handelsbanken	7,175	0.02	142
Taiwan Depository Clearing Corporat	1,908,000	0.00	3,385
Tera Menkul Degerler A.S.	20,903	0.00	46
Themis Trading LLC	175,829	0.01	2,198
Toronto Dominion Secs Toronto	34,892	0.03	957
UBS (International) LTD	1,346,712	0.01	13,655
UBS Ag (London Equities) London	3,116,338	0.00	9,287
UBS Ag Stamfordct	398,234	0.01	3,070
UBS Limited	987,590	0.00	3,483
UBS Securities Asia LTD	3,201,536	0.00	10,457
UBS Securities Australia LTD	88,620	0.00	262
UBS Securities Canada Inc	13,096	0.01	79
UBS Securities Hong Kong LTD	114,000	0.00	19
UBS Securities LLC (Warburg)	976,573	0.02	22,563
UBS Warburg Secs India Pvt Mumbai	429,776	0.00	1,463
UBS Warburg Securities LTD Seoul	722	0.03	22
UBS Warburg Securities Taiwan	22,000	0.00	9
Wall St Access	669	0.01	5
Wedbush Morgan Securities Inc	22,398	0.03	729
Weeden And Co	5,175,479	0.01	54,153
Wells Fargo Securities LLC	64,342	0.04	2,574
William Blair & Company	588,387	0.03	19,404
Wolfe Trahan Securities	36,200	0.03	1,086
Woori Investment And Securities	11,554	0.01	82
Wunderlich Securities Inc	8,460	0.05	423
XP Investimentos Cctvm SA	1,570,153	0.01	11,631

*Actuarial*

trsnyc





## OFFICE OF THE ACTUARY

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**SHERRY S. CHAN**  
 CHIEF ACTUARY

December 8, 2017

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

Re: Actuarial Information for the Comprehensive Annual Financial Report (CAFR) for the  
 Fiscal Year Ended June 30, 2017

Dear Members of the Retirement Board:

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

An actuarial valuation of the Plan is performed annually as of the second June 30 preceding each fiscal year to determine the Employer Contributions to be paid for that fiscal year (i.e. June 30, 2015 (Lag) actuarial valuation to determine Fiscal Year 2017 Employer Contributions (the Actuarial Contributions)).

Employers are required to contribute statutorily-required contributions (Statutory Contributions) and these contributions are generally funded by Employers within the appropriate fiscal year.

For Fiscal Year 2017, the Actuarial Contributions to TRS, are equal to those recommended by the Actuary of the New York City Pension Funds and Retirement Systems (the Actuary) and represent the Statutory Contributions.

During June 2012 the Governmental Accounting Standards Board (GASB) released two accounting standards for public pension plans, Statement No. 67 (GASB67) and Statement No. 68 (GASB68), collectively "GASB 67/68."

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Teachers' Retirement System of the City of New York  
December 8, 2017  
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On September 29, 2017 the Actuary published the "GASB67/68 Report for the City of New York and the New York City Retirement Systems for Fiscal Year Ended June 30, 2017" (the Fiscal Year 2017 GASB67/68 Report). Appendix B of the Fiscal Year 2017 GASB67/68 Report contains information developed in accordance with GASB67 for TRS.

### **Actuarial Assumptions and Methods**

The Actuary issued a Report entitled "Proposed Changes in Actuarial Assumptions and Methods for Determining Employer Contributions for Fiscal Years Beginning on and After July 1, 2011 for the New York City Teachers' Retirement System," dated February 10, 2012. Components of the Actuary's proposed changes required the enactment of legislation by the New York State Legislature and the Governor.

The Retirement Board of TRS adopted those changes that require Board approval during Fiscal Year 2012. The New York State Legislature and the Governor enacted Chapter 3 of the Laws of 2013 (Chapter 3/13) to provide for those changes in actuarial assumptions and methods that require legislation, including the Actuarial Interest Rate (AIR) assumption of 7.0% per annum, net of investment expenses. Together, this package of actuarial assumptions and methods is referred to as the "2012 A&M."

In Fiscal Year 2016, the Actuary proposed and the Retirement Board adopted, revised post-retirement mortality assumptions for use in determining employer contributions beginning in Fiscal Year 2016. In addition, beginning in Fiscal Year 2016, the Actuary revised the Actuarial Asset Valuation Method by constraining the Actuarial Value of Assets to be no more than 20% from the Market Value of Assets. The 2012 A&M reflecting these revisions is referred to herein as the "2016 A&M."

The "Summary of Actuarial Assumptions and Methods in Effect for the June 30, 2015 (Lag) Actuarial Valuation" provided later in this Actuarial Section of the CAFR presents the 2016 A&M. There were no changes to any of the actuarial assumptions and methods since the prior year. These actuarial assumptions and methods (2016 A&M) used for funding purposes meet the parameters set by the Actuarial Standards of Practice (ASOPs).

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### **Benefits and Census Data**

A summary of the benefits applicable to Plan members included in the June 30, 2015 (Lag) actuarial valuation is shown later in this Actuarial Section of the CAFR. There are no changes in any of the plan provisions since the prior year.

Census data is submitted by the Plan's administrative staff and by the employers' payroll facilities and is reviewed by the Office of the Actuary (OA) for consistency and reasonability.

A summary of the census data used in the June 30, 2015 (Lag) actuarial valuation is included in this CAFR. A summary of the census data used in the June 30, 2014 (Lag) actuarial valuation of the Plan is available in the Fiscal Year 2016 CAFR.

### **Funded Status**

The Funded Status of the Plan is usually expressed by the relationship of Assets to Liabilities.

With respect to the Funded Status of the Plan, included in the Actuarial Section of the CAFR is a schedule of Funded Status based on the Entry Age Normal cost method (Table 10).

Also included in the Actuarial Section of the CAFR is a Solvency Test (i.e. Comparative Summary of Accrued Liabilities Funded by Actuarial Value of Assets) (Table 11), as prescribed by the Government Finance Officers Association (GFOA). This Solvency Test represents an alternative approach to describing progress toward funding objectives.

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Teachers' Retirement System of the City of New York  
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### **Presentation Style and Sources of Information**

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

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

- Summary of Actuarial Assumptions and Methods in Effect for the June 30, 2015 (Lag) Actuarial Valuation.
- Active Member Valuation Data.
- Summary of Plan Membership.
- Retirees and Beneficiaries Added to and Removed from Rolls.
- Statutory vs. Actuarial Contributions.
- Funded Status Based on Entry Age Normal Cost Method.
- Comparative Summary of Accrued Liabilities Funded by Actuarial Value of Assets - Solvency Test.
- Summary of Plan Provisions.
- Contributions.

Some items in the Financial Section and Statistical Section of the CAFR were also prepared by the OA.

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




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Teachers' Retirement System of the City of New York  
December 8, 2017  
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### Acknowledgment of Qualification

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

Respectfully submitted,



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

SSC/eh

Att.

cc: Mr. Edward Hue - New York City Office of the Actuary  
Ms. Marlene Markoe-Boyd - New York City Office of the Actuary  
Mr. Thad McTigue - New York City Teachers' Retirement System  
Mr. Paul Raucci - New York City Teachers' Retirement System  
Ms. Patricia Reilly - New York City Teachers' Retirement System  
Mr. Sam Rumley - New York City Office of the Actuary  
Mr. Michael Samet - New York City Office of the Actuary  
Keith Snow, Esq. - New York City Office of the Actuary

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
IN EFFECT FOR THE JUNE 30, 2015 (LAG) ACTUARIAL VALUATION

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

Also, in accordance with the Administrative Code of the City of New York (ACNY), 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 Actuary issued a Report entitled "Proposed Changes in Actuarial Assumptions and Methods for Determining Employer Contributions for Fiscal Years Beginning on and After July 1, 2011 for the New York City Teachers' Retirement System," dated February 10, 2012. Components of the Actuary's proposed changes required the enactment of legislation by the New York State Legislature and the Governor.

The Retirement Board adopted those changes that require Board approval during Fiscal Year 2012. The New York State Legislature and the Governor enacted Chapter 3 of the Laws of 2013 (Chapter 3/13) to provide for those changes in actuarial assumptions and methods that require legislation, including the Actuarial Interest Rate (AIR) assumption of 7.0% per annum, net of investment expenses. Together, this package of actuarial assumptions and methods is referred to as the "2012 A&M."

In Fiscal Year 2016, the Actuary proposed and the Retirement Board adopted, revised post-retirement mortality assumptions for use in determining employer contributions beginning in Fiscal Year 2016. In addition, beginning in Fiscal Year 2016, the Actuary revised the Actuarial Asset Valuation Method by constraining the Actuarial Value of Assets to be no more than 20% from the Market Value of Assets. The 2012 A&M reflecting these revisions is referred to herein as the "2016 A&M."

The actuarial assumptions and methods in effect for the June 30, 2015 (Lag) actuarial valuation are unchanged from those used in the June 30, 2014 (Lag) actuarial valuation.

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
IN EFFECT FOR THE JUNE 30, 2015 (LAG) ACTUARIAL VALUATION  
(Cont'd)

- (2) The investment rate of return assumption is 7.0% per annum, net of investment expenses (4.0% per annum for benefits payable under the Variable Annuity Programs).
- (3) The mortality tables for service and disability pensioners were based primarily on the experience of TRS (the Base Tables) and the application of Mortality Improvement Scale MP-2015, published by the Society of Actuaries in October 2015. Sample probabilities are shown in Table 1a. Mortality tables for beneficiaries were also developed from experience review and application of Mortality Improvement Scale 2015. Sample probabilities are shown in Table 1b.
- (4) Active Service tables are used to estimate various withdrawals from Active Service. Sample probabilities are shown in Table 2 for members withdrawing from Active Service due to Death or Disability, in Table 3 for members withdrawing for Other Than Death, Disability, or Service Retirement, and in Tables 4a and 4b for members withdrawing from Active Service after eligibility for Service Retirement.
- (5) A Salary Scale is used to estimate salaries at termination, retirement, or death. Sample percentage increases are shown in Table 5. The Salary Scale includes a General Wage Increase (GWI) assumption of 3.0% per annum.
- (6) The economic assumptions (i.e. the assumed investment return rate, GWI rate, and Cost-of-Living Adjustments (COLA)) were developed assuming a long-term Consumer Price Inflation (CPI) assumption of 2.5% per annum. The assumption is 1.5% per annum for Auto COLA and 2.5 % per annum for escalation.
- (7) The valuation assumes a closed group of members.
- (8) Beginning with the June 30, 2010 (Lag) actuarial valuation, the Entry Age Normal (EAN) cost method of funding is used by the Actuary to calculate the contribution required of the employer under the 2016 A&M.

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

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

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

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

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
IN EFFECT FOR THE JUNE 30, 2015 (LAG) ACTUARIAL VALUATION  
(Cont'd)

Chapter 105 of the Laws of 2010 established, as of June 30, 2011, an Early Retirement Incentive (ERI) for certain TRS members. The UAAL attributable to the ERI is amortized on a level basis over a period of five years (4 payments under the One-Year Lag Methodology).

- (9) One-Year Lag Methodology (Lag or OYLM) uses a June 30, XX-2 valuation date to determine Fiscal Year XX Employer Contributions.

The June 30, 2015 (Lag) actuarial valuation uses a June 30, 2015 valuation date to determine the Fiscal Year 2017 Employer Contributions.

This methodology requires adjustments to determine the Fiscal Year 2017 Employer Contributions:

- a. Present Value of Future Salary (PVFS): The PVFS at June 30, 2015 is reduced by the value of salary projected to be paid during Fiscal Year 2016.
  - b. Salary for Determining Employer Contributions: Salary used to determine the employer normal contribution is the salary projected to be paid during Fiscal Year 2017 to members on payroll at June 30, 2015.
  - c. UAAL payments: For determining the UAAL payments for Fiscal Year 2017, and to be consistent with OYLM, the UAAL as of June 30, 2015 is adjusted by the discounted value of employer normal contributions paid during Fiscal Year 2016 and the discounted value of the administrative expenses reimbursed during Fiscal Years 2016 and 2017.
- (10) Beginning with the June 30, 2008 (Lag) actuarial valuation, the AVA was recomputed to re-characterize amounts credited as interest on TDA Fixed Fund account balances as payouts instead of investment losses.

The Actuary reset the AVA to the Market Value of Assets (MVA) as of June 30, 2011.

Beginning with the June 30, 2012 (Lag) actuarial valuation, the Actuarial Asset Valuation Method (AAVM) recognizes investment returns greater or less than expected over a period of six years.

In accordance with this AAVM, actual Unexpected Investment Returns (UIR) are phased into the AVA at rates of 15%, 15%, 15%, 15%, 20%, and 20% per year, respectively, (i.e. cumulative rates of 15%, 30%, 45%, 60%, 80%, and 100%).

Beginning with the June 30, 2014 (Lag) actuarial valuation, the AVA is constrained to be within a 20% corridor of the MVA.

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
IN EFFECT FOR THE JUNE 30, 2015 (LAG) ACTUARIAL VALUATION  
(Cont'd)

- (11) The APVB as of June 30, 2015, used to determine Fiscal Year 2017 Employer Contributions, includes estimates of liabilities for:
  - a. World Trade Center Disability Benefits
  - b. World Trade Center Death Benefits
  - c. Proposed Litigation Settlements
  
- (12) As discussed herein, the actuarial assumptions and methods are unchanged from those used in the June 30, 2014 (Lag) actuarial valuation.

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
IN EFFECT FOR THE JUNE 30, 2015 (LAG) ACTUARIAL VALUATION  
(Cont'd)

<b>Table 1a</b>				
<b>Deaths among Service and Disability Pensioners</b>				
<b>Percentage of Pensioners Dying within the Next Year</b>				
<b>Age</b>	<b>Service Pensioners</b>		<b>Disability Pensioners</b>	
	<b>Males</b>	<b>Females</b>	<b>Males</b>	<b>Females</b>
40	0.0792%	0.0648%	1.1592%	1.2694%
45	0.1322	0.0976	1.2540	1.3691
50	0.2180	0.1730	1.5673	1.6525
55	0.4043	0.2590	2.2364	1.8809
60	0.6253	0.3607	2.5024	1.7655
65	0.9846	0.5191	2.5353	1.6792
70	1.5822	0.8623	2.8783	1.7547
75	2.3625	1.4071	3.5410	2.6015
80	3.7729	2.4742	4.8931	3.8676
85	6.5976	4.9798	8.4347	6.2322
90	11.4902	8.5933	15.0405	10.5541
95	21.1224	15.3789	24.8925	16.9355
100	31.0742	21.4748	33.8579	21.4748
105	37.2467	27.4666	37.4446	27.4666
110	96.7583	96.7971	96.7583	96.7971
115	100.0000	100.0000	100.0000	100.0000

Society of Actuaries Mortality Improvement Scale MP-2015 has been applied to these rates.

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
IN EFFECT FOR THE JUNE 30, 2015 (LAG) ACTUARIAL VALUATION  
(Cont'd)

<b>Table 1b</b>		
<b>Deaths among Beneficiaries</b>		
<b>Percentage of Beneficiaries Dying within the Next Year</b>		
<b>Age</b>	<b>Males</b>	<b>Females</b>
40	0.0792%	0.0648%
45	0.1322	0.0976
50	0.2180	0.1730
55	0.4043	0.2590
60	0.6253	0.3607
65	0.9846	0.5191
70	1.5822	0.8623
75	2.3625	1.4071
80	3.7729	2.4742
85	6.5976	4.9798
90	11.4902	8.5933
95	21.1224	15.3789
100	31.0742	21.4748
105	37.2467	27.4666
110	96.7583	96.7971
115	100.0000	100.0000

Society of Actuaries Mortality Improvement Scale MP-2015 has been applied to these rates.

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
IN EFFECT FOR THE JUNE 30, 2015 (LAG) ACTUARIAL VALUATION  
(Cont'd)

<b>Table 2</b>						
<b>Withdrawals from Active Service (Due to Death or Disability)</b>						
<b>Percentage of Active Members Separating within Next Year</b>						
<b>Age</b>	<b>Accidental Disability</b>		<b>Ordinary Disability</b>		<b>Ordinary Death</b>	
	<b>Males</b>	<b>Females</b>	<b>Males</b>	<b>Females</b>	<b>Males</b>	<b>Females</b>
20	0.00%	0.00%	0.01%	0.01%	0.040%	0.020%
25	0.00	0.00	0.01	0.01	0.040	0.020
30	0.00	0.00	0.01	0.01	0.040	0.020
35	0.01	0.01	0.06	0.05	0.050	0.025
40	0.02	0.01	0.10	0.10	0.060	0.030
45	0.03	0.02	0.15	0.15	0.110	0.055
50	0.03	0.03	0.15	0.20	0.160	0.080
55	0.04	0.04	0.15	0.20	0.210	0.105
60	0.04	0.04	0.15	0.20	0.260	0.130
65	0.04	0.04	0.15	0.20	0.320	0.160
70 <sup>(1)</sup>	NA	NA	NA	NA	NA	NA

<sup>(1)</sup> Assumed to retire for service immediately at age 70.



SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
 IN EFFECT FOR THE JUNE 30, 2015 (LAG) ACTUARIAL VALUATION  
 (Cont'd)

<b>Table 3</b>	
<b>Withdrawals for Other Than Death, Disability, or Service Retirement Percentage of Active Members Withdrawing within Next Year</b>	
<b>Years of Service</b>	<b>Probability of Withdrawal</b>
0	9.00%
5	4.00
10	2.00
15	1.25
20	1.00

<b>Table 4a</b>									
<b>Withdrawals from Active Service (After Eligibility for Service Retirement) Members Not Electing an Optional Retirement Plan<sup>(1)</sup></b>									
<b>Percentage of Eligible Active Members Retiring within Next Year</b>									
<b>Males</b>					<b>Females</b>				
	<b>Reduced Benefits</b>	<b>Unreduced Benefits</b>				<b>Reduced Benefits</b>	<b>Unreduced Benefits</b>		
<b>Age</b>		<b>Years of Service Since First Elig.</b>			<b>Age</b>		<b>Years of Service Since First Elig.</b>		
		<b>(0-1)</b>	<b>(1-2)</b>	<b>(2+)</b>			<b>(0-1)</b>	<b>(1-2)</b>	<b>(2+)</b>
<b>50</b>	0.00%	0.00%	0.00%	0.00%	<b>50</b>	0.00%	0.00%	0.00%	0.00%
<b>55</b>	2.00	20.00	0.00	0.00	<b>55</b>	2.00	20.00	0.00	0.00
<b>60</b>	4.00	20.00	15.00	15.00	<b>60</b>	4.00	20.00	15.00	15.00
<b>65</b>	0.00	30.00	20.00	20.00	<b>65</b>	0.00	30.00	20.00	20.00
<b>70</b>	NA	100.00	100.00	100.00	<b>70</b>	NA	100.00	100.00	100.00

<sup>(1)</sup> Applies to members who did not voluntarily elect to participate in the 55/25 plan enacted under Chapter 19 of the Laws of 2008 and to members mandated into the 55/27 plan and into the Tier 6 plans.

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS  
 IN EFFECT FOR THE JUNE 30, 2015 (LAG) ACTUARIAL VALUATION  
 (Cont'd)

Table 4b									
Withdrawals from Active Service (After Eligibility for Service Retirement)									
Members Electing an Optional Retirement Plan <sup>(1)</sup>									
Percentage of Eligible Active Members Retiring within Next Year									
Males					Females				
	Reduced Benefits	Unreduced Benefits				Reduced Benefits	Unreduced Benefits		
Age		Years of Service Since First Elig.			Age		Years of Service Since First Elig.		
		(0-1)	(1-2)	(2+)			(0-1)	(1-2)	(2+)
50	0.00%	0.00%	0.00%	0.00%	50	0.00%	0.00%	0.00%	0.00%
55	2.00	30.00	0.00	0.00	55	2.00	30.00	0.00	0.00
60	4.00	30.00	20.00	20.00	60	4.00	30.00	20.00	20.00
65	0.00	40.00	30.00	30.00	65	0.00	40.00	30.00	30.00
70	NA	100.00	100.00	100.00	70	NA	100.00	100.00	100.00

<sup>(1)</sup> Applies to members who voluntarily elected to participate in the 55/25 plan enacted under Chapter 19 of the Laws of 2008.

Table 5	
Salary Scale	
Years of Service	Assumed Annual Percentage Increases Within Next Year <sup>(1)</sup>
0	13.00%
5	8.00
10	4.00
15	4.00
20	4.00
25	4.00
30	4.00
35	4.00
40	4.00

<sup>(1)</sup> Salary Scale includes a General Wage Increase assumption of 3.0% per annum.

**Table 6**  
**Active Member Valuation Data**

As of June 30	Number	Annual Payroll	Annual Average Salary	Percentage Increase (Decrease) in Average Salary
2006 (Lag)	109,992	\$6,978,725,642	\$63,448	6.0 %
2007 (Lag)	109,868	7,222,471,073	65,738	3.6
2008 (Lag)	112,472	7,926,647,584	70,477	7.2
2009(Lag)	113,132	8,016,635,700	70,861	0.5
2010 (Lag) <sup>(1)</sup>	111,647	7,979,671,378	71,472	0.9
2011 (Lag)	109,636	7,888,203,642	71,949	0.7
2012 (Lag)	112,460	8,013,395,184	71,256	(1.0)
2013 (Lag)	112,481	8,128,378,071	72,264	1.4
2014 (Lag)	111,726	8,274,685,657	74,062	2.5
2015 (Lag)	114,652	8,844,650,633	77,143	4.2

<sup>(1)</sup> Beginning with the June 30, 2010 (Lag) actuarial valuation, the annualized covered payroll is based on revised actuarial assumptions.

## SUMMARY OF PLAN MEMBERSHIP

As of the June 30, 2015 (Lag) and June 30, 2014 (Lag) actuarial valuations, the Plan's Membership consisted of:

<b>Table 7</b>		
<b>Summary of Plan Membership</b>		
<b>Group</b>	<b>June 30, 2015 (Lag)</b>	<b>June 30, 2014 (Lag)</b>
Retirees and beneficiaries currently receiving benefits	82,777	80,419
Terminated vested members not yet receiving benefits	13,482	12,349
Other Inactives <sup>(1)</sup>	7,347	8,702
Active members	<u>114,652</u>	<u>111,726</u>
Total	218,258	213,196

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

Year Ended June 30	Added to Rolls		Removed from Rolls		Rolls End of Year		% Increase In Annual Allowances	Average Annual Allowances
	Number	Annual Allowances <sup>(1)</sup>	Number	Annual Allowances	Number	Annual Allowances <sup>(2)</sup>		
2006	4,207	\$231,094,649	1,799	\$55,372,752	67,576	\$2,763,758,250	6.8 %	\$40,899
2007	3,078	234,183,351	2,162	66,646,428	68,492	2,931,295,173	6.1	42,798
2008	3,252	75,074,813	1,969	64,757,835	69,775	2,941,612,151	0.4	42,159
2009	3,115	6,288,013	2,065	73,586,895	70,825	2,874,313,269	(2.3)	40,583
2010	3,534	207,981,284	2,003	64,538,942	72,356	3,017,755,611	5.0	41,707
2011	3,849	278,652,149	2,141	67,488,320	74,064	3,228,919,440	7.0	43,596
2012	4,684	200,786,572	2,209	62,805,438	76,539	3,366,900,574	4.3	43,989
2013	4,078	248,087,233	2,440	77,107,240	78,177	3,537,880,567	5.1	45,255
2014	4,356	275,947,759	2,114	67,585,789	80,419	3,746,242,537	5.9	46,584
2015	4,728	219,769,491	2,370	81,986,287	82,777	3,884,025,741	3.7	46,922

(1) Balancing Item – Amounts shown include changes due to benefit finalization, changes in benefit type (e.g. Service to Accidental Disability), COLA increases, and other changes.

(2) Allowances shown in table are those used in the actuarial valuation as of the Year Ended date and are not adjusted for anticipated changes due to finalization of benefit calculation or contract settlements.

<b>Table 9</b>			
<b>Statutory vs Actuarial Contributions</b>			
<b>Fiscal Year Ended June 30</b>	<b>Statutory Contribution<sup>(1)</sup></b>	<b>Actuarial Contribution</b>	<b>Employer Rate of Contribution<sup>(2)</sup></b>
2008	\$1,916,519,629	\$1,916,519,629	27.4%
2009	2,223,643,770	2,223,643,770	30.8
2010	2,484,073,500	2,484,073,500	31.6
2011	2,468,973,357	2,468,973,357	31.1
2012	2,673,078,096	2,673,078,096	33.7
2013	2,855,639,947	2,855,639,947	36.5
2014	2,998,693,727	2,998,693,727	37.7
2015	3,270,006,920	3,270,006,920	40.5
2016	3,702,569,102	3,702,569,102	44.8
2017	3,888,399,470	3,888,399,470	44.1

(1) Represents total employer contributions accrued for fiscal year.

Beginning Fiscal Year 2006, the Statutory Contributions were computed using a One-Year Lag Actuarial Valuation Methodology in accordance with Chapter 152/06 which also eliminated the use of ten-year phase-in of Chapter 278/02 for funding the additional actuarial liabilities attributed to Chapter 125/00.

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

## FUNDED STATUS BASED ON ENTRY AGE NORMAL COST METHOD

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

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

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability (AAL) - Entry Age	Unfunded AAL (UAAL) - Entry Age	Funded Ratio	Covered Payroll	UAAL as a Percentage of Covered Payroll
	(a)	(b)	(b-a)	(a/b)	(c)	((b-a)/c)
June 30, 2006 (Lag)	\$32,405,645	\$45,138,925	\$12,733,403	71.8%	\$6,978,726	182.5%
June 30, 2007 (Lag)	33,854,152	48,625,202	14,771,050	69.6	7,222,471	204.5
June 30, 2008 (Lag)	32,227,375	49,400,762	17,173,387	65.2	7,926,648	216.7
June 30, 2009 (Lag)	30,774,981	47,988,459	17,213,478	64.1	8,016,636	214.7
June 30, 2010 (Lag) <sup>(1)</sup>	32,477,527	55,138,366	22,660,839	58.9	7,979,671	284.0
June 30, 2011 (Lag) <sup>(1)</sup>	33,601,537	57,702,731	24,101,194	58.2	7,888,204	305.5
June 30, 2012 (Lag) <sup>(1)</sup>	33,871,180	58,783,399	24,912,219	57.6	8,013,395	310.9
June 30, 2013 (Lag) <sup>(1)</sup>	35,186,072	61,988,933	26,802,861	56.8	8,128,378	329.7
June 30, 2014 (Lag) <sup>(1)</sup>	37,521,424	67,309,977	29,788,553	55.7	8,274,686	360.0
June 30, 2015 (Lag) <sup>(1)</sup>	39,290,072	69,625,608	30,335,536	56.4	8,844,651	343.0

This schedule is based on actuarial assumptions used for determining Employer Contributions.

<sup>(1)</sup> Reflects revised actuarial assumptions and methods based on experience review, including an AIR assumption of 7.0% per annum, net of investment expenses.

**Table 11**  
**Comparative Summary of Accrued Liabilities Funded by Actuarial Value of Assets**  
**Solvency Test**  
**(Dollar Amounts in Thousands)**

As of June 30	Accrued Liabilities for			Actuarial Value of Assets (D)	Percentage of Accrued Liabilities Funded by Actuarial Value of Assets (B) (C)
	Accumulated Member Contributions (A)	Current Retirees and Beneficiaries (B)	Active Members' Employer Financed Portion (C)		
2006 (Lag)	\$2,724,814	\$27,934,371	\$11,960,437	\$32,405,645	100% 15%
2007 (Lag)	2,927,133	29,528,062	13,957,521	33,854,152	100 10
2008 (Lag)	2,898,027	29,182,084	14,743,596	32,227,375	100 1
2009 (Lag)	2,823,873	27,862,679	14,620,140	30,774,981	100 1
2010 (Lag)	2,962,696	32,264,333	17,529,345	32,477,527	100 91
2011 (Lag)	3,167,737	34,317,270	17,770,140	33,601,537	100 89
2012 (Lag)	3,122,720	35,575,735	17,558,791	33,871,180	100 86
2013 (Lag)	3,330,541	37,451,527	18,565,932	35,186,072	100 85
2014 (Lag)	3,547,779	40,753,340	20,193,955	37,521,424	100 83
2015 (Lag)	3,646,765	42,095,109	20,888,473	39,290,072	100 85

See following "SOLVENCY TEST - NOTES."



COMPARATIVE SUMMARY OF ACCRUED LIABILITIES  
FUNDED BY ACTUARIAL VALUE OF ASSETS

SOLVENCY TEST - NOTES

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

- (A) Accumulated Member Contributions;
- (B) Current Retirees and Beneficiaries; and
- (C) Active Members' Employer Financed Portion.

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

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

The values in the Table are dependent upon census data, benefit levels (which have changed on occasion over the past years), and the actuarial assumptions and methods employed at each valuation date. The two most recent changes in assumptions and methods occurred in the June 30, 2014 (Lag) valuation used to compute the Employer Contributions for Fiscal Year 2016 and in the June 30, 2010 (Lag) valuation used to compute the Employer Contributions for Fiscal Year 2012. These underlying bases can be found within the Comprehensive Annual Financial Report for each respective year.

Beginning with the June 30, 2008 (Lag) actuarial valuation the AVA was recomputed retroactive to June 30, 1999, by re-characterizing amounts credited as interest on TDA Fixed Fund account balances as payouts instead of investment losses.

To fully evaluate trends in financial soundness, changes in assumptions need to be evaluated. Beginning with the June 30, 2010 (Lag) actuarial valuation, the Actuarial Interest Rate (AIR) assumption equals 7.0% per annum, net of investment expenses, and the General Wage Increase (GWI) assumption equals 3.0% per annum. Prior to the June 30, 2010 (Lag) actuarial valuation, the Actuarial Interest Rate assumption was 8% per annum, gross of expenses.

## CHRONOLOGY OF PLAN

TRS was established as of August 1, 1917 and, at the outset, the Teachers' Retirement Board adopted the mortality tables, service tables, and other tables necessary for calculating contribution rates and for preparing valuation figures. Periodic comparisons of the actual experience with the expected experience, as obtained by calculations from the latest adopted tables, have been made since August 1, 1917.

## SUMMARY OF KEY PLAN BENEFIT AND FUNDING CHANGES

- 2016** 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.
- 2015** 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.
- 2014** 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.
- 2013** Chapter 3 of the Laws of 2013 (Chapter 3/13) implemented changes in the actuarial procedures for determining Employer Contributions beginning Fiscal Year 2012. In particular, Chapter 3/13 continued the OYLM, employed the Entry Age Normal cost method (EAACM), an Actuarial Interest Rate (AIR) assumption of 7.0% per annum, net of investment expenses and defined the amortization of Unfunded Actuarial Accrued Liabilities (UAAL).
- Chapter 489 of the Laws of 2013 extends the World Trade Center (WTC) Disability Law benefits to vested members.
- 2012** 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.
- 2010** Chapter 105 of the Laws of 2010 (Chapter 105/10) provided and Early Retirement Incentive (ERI) program for certain members.
- Chapter 286 of the Laws of 2010 (Chapter 286/10) refined the method used to compute the Final 3-year Average Salary for members who have extended breaks in service and who would be impacted by Kingston Limits on the older salaries.
- 2009** Chapter 504 of the Laws of 2009 (Chapter 504/09) provides that individuals joining TRS 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 United Federation of Teachers (UFT) will become vested after ten years of credited service. In addition, all members represented by the UFT who participate in the Tax-Deferred Annuity Program (TDA), will receive an interest rate of 7.0% per annum credited to their TDA Fixed Funds accounts beginning December 10, 2009.

- 2008** Chapter 19 of the Laws of 2008 (Chapter 19/08) established retirement programs to permit Tier II and Tier IV current members of TRS to elect to retire between ages 55 and 62 without reduction provided they have 25 years of service, by paying an additional contribution of 1.85% of future pay. New members after February 27, 2008 are mandated into this plan and are required to have 27 years of service.

Chapter 489 of the Laws of 2008 expanded and redefined the eligibility provisions of the accidental disability and accidental death benefits that arise in connection with the World Trade Center attacks on September 11, 2001.

- 2007** Chapter 5 of the Laws of 2007 amended Chapter 445/06 to clarify the World Trade Center accidental disability benefits payable to retirees who die in the first 25 years of retirement. It also amended Chapter 445/06 to include World Trade Center deaths as presumptive accidental death benefits in the Line-of-Duty.

- 2006** Chapter 152 of the Laws of 2006 provided for the changes in actuarial assumptions and methods that require legislation, including the continuation of the AIR assumption of 8.0% per annum and continuation of the current Frozen Initial Liability (FIL) Actuarial Cost Method and the existing Unfunded Actuarial Accrued Liability (UAAL). In addition, Chapter 152/06 provided for elimination of the use of the ten-year phase-in of Chapter 278/02 for funding the additional actuarial liabilities created by the benefits provided by Chapter 125/00.

Chapter 445 of the Laws of 2006 (Chapter 445/06) created a presumptive eligibility for accidental death benefits in connection with the World Trade Center attack on September 11, 2001.

- 2005** Chapter 104 of the Laws of 2005 as amended by Chapter 93 of the Laws of 2005 creates a presumptive eligibility for accidental disability in connection with the World Trade Center attack on September 11, 2001.

Chapter 105 of the Laws of 2005 states that a member killed in the U.S. Armed Forces on and after June 14, 2005 is deemed a Line-of-Duty death while on active payroll.

Chapter 133 of the Laws of 2005 provided a similar extension of the interest rates as did Chapter 133 of the Laws of 2004, for Fiscal Year 2006. The investment rate of return assumption for determining Employer contributions for Fiscal Year 2006 remains at 8.0% per annum until and unless changed following the proposals of the Actuary and the actions by the Retirement Board, the State Legislature and the Governor.

- 2004** Chapter 133 of the Laws of 2004 extended certain provision of Chapter 85/00 through Fiscal Year 2005. Thus, for Fiscal Year 2005, the interest rate used for Tier I and Tier II member contributions and Increased-Take-Home-Pay (ITHP) Reserves remained at 8.25% per annum. The investment rate of return assumption for determining Employer Contributions for Fiscal Year 2005 remains at 8.0% per annum until and unless changed following the proposal of the Actuary and the actions by the Retirement Board, the State Legislature and the Governor.

Chapter 623 of the Laws of 2004 provided for an Excess Benefit Plan to be established which would provide benefits to those pensioners whose annual retirement benefits are limited because those benefits exceed the limitations set by IRC Section 415(b). The law is retroactive to July 1, 2000.

- 2003** Chapter 136 of the Laws of 2003 permitted certain Tier II members who are reemployed after retirement for other than disability and who received at least two years of service credit to be eligible for a recalculation of their retirement allowance.

Chapter 661 of the Laws of 2003 permitted members to change their option up to thirty days after the initial date of payability of their retirement allowance (for disability, up to the later of thirty days after approval of the disability retirement or the date of such retirement).

- 2002** Chapter 69 of the Laws of 2002 authorized an Early Retirement Incentive (ERI) for certain members in eligible titles.

Chapter 106 of the Laws of 2002 expanded and reopened provisions for certain substitute teacher tier reinstatements.

Chapter 215 of the Laws of 2002 increased Tier IV Accidental Disability Retirement to 2/3 of Final Average Salary.

Chapter 278 of the Laws of 2002 revised the phase-in schedule of Chapter 125 of the Laws of 2000 for Fiscal Years 2003 and later.

Chapter 381 of the Laws of 2002 extended Chapter 558 of the Laws of 2001 provisions to age 55 increased service fraction members.

- 2001** Chapter 470 of the Laws of 2001 allowed members who received service credit for seniority and length of service purposes while on layoff due to the New York City fiscal crisis of the 1970's to also receive credit for such service for all pension purposes.

Chapter 532 of the Laws of 2001 allowed Tier I members to purchase up to 15 years of service that would have been creditable in another New York State Public Retirement System.

Chapter 558 of the Laws of 2001 allowed certain members on deferred retirement under the Career Pension Plan of the New York City Employees' Retirement System (NYCERS) or the New York City Board of Education Retirement System (BERS) to transfer membership into TRS. If such member has started receiving a pension, such pension must be returned without interest to NYCERS or BERS.

- 2000** Chapter 85 of the Laws of 2000 amended the Administrative Code of the City of New York to implement changes in actuarial assumptions and methods that require legislation.

Chapter 86 of the Laws of 2000 authorized an ERI for certain members in eligible titles.

Chapter 110 of the Laws of 2000 amended the language of legislation that later became Chapter 126 of the Laws of 2000, which provided for benefit enhancements for certain members of the City of New York retirement systems.

Chapter 125 of the Laws of 2000 provided eligible retirees with automatic annual Cost-of-Living Adjustments.

Chapter 126 of the Laws of 2000 provided for benefit enhancements (i.e. elimination of member contributions for Tier III/IV members with more than 10 years of membership, additional pension credit for Tier I/II members of up to a maximum of 24 months of additional service retirement credit, and allowed Tier III/IV members to retire at age 55 with reduced benefits under the same formula as used for Tier II members) for certain members of the City of New York retirement systems.

Chapter 548 of the Laws of 2000 permitted certain members to purchase up to 3 years of credit for certain U.S. Military Service by paying 3% of imputed salary.

Chapter 552 of the Laws of 2000 permitted Tiers II/III/IV members with at least 2 years of credited service to receive credit for certain previous service in a New York State Public Retirement System (NYSPRS).

Chapter 553 of the Laws of 2000 lowered the reduction factors for Tier IV members who retire before age 62 with less than 30 years of service.

Chapter 554 of the Laws of 2000 provided that Tiers II/III/IV members who joined prior to January 1, 2001 and who elected Death Benefit 1 will receive the greater of Death Benefit 1 or Death Benefit 2 coverage. New members on and after January 1, 2001 will only receive coverage under Death Benefit 2.

**1999** Chapter 70 of the Laws of 1999 authorized an Early Retirement Incentive for certain members in eligible titles.

Chapter 409 of the Laws of 1999 amended Chapter 616 of the Laws of 1998 to include the death gamble benefit of Tier I.

Chapter 575 of the Laws of 1999 re-opened Chapter 666 of the Laws of 1990, which allows a retroactive transfer of pension credit under certain circumstances.

Chapter 581 of the Laws of 1999 allowed Tier II members to receive service credit while under a leave of absence for union activities.

Chapter 628 of the Laws of 1999 provided Tier I and Tier II members the opportunity to switch their retirement plans.

Chapter 646 of the Laws of 1999 provided active and future members the right to reinstate earlier membership by repaying prior member contributions with 5% interest.

Chapter 659 of the Laws of 1999 reduced the amount of service credit needed for Tier III/IV vested members to receive benefits at age 55 to 5 years.

**1998** Chapter 7 (as amended by Chapter 47) of the Laws of 1998 authorized a retirement incentive for certain members in eligible titles.

Chapter 266 of the Laws of 1998 reduced the service required for Tier IV normal retirement benefits from 25 years to 20 years and permitted certain Tier III retirees to receive Tier IV benefits.

Chapter 366 of the Laws of 1998 increased the period of absence before loss of membership from 5 years to 7 years, provided member contributions are not withdrawn.

Chapter 388 of the Laws of 1998 provided a pre-retirement death benefit for certain vested members of the Plan.

Chapter 389 of the Laws of 1998 allowed members of the Plan to become vested after five years of service.

Chapter 390 of the Laws of 1998 (Chapter 390/98) provided additional benefits for cost-of-living increases for certain retirees of the Plan. An initial increase for members who retired on or before Calendar Year 1992 is effective as of September 1998 as enacted by the City Council on August 27, 1998. A subsequent increase for members who retired on or before Calendar Year 1993 is effective as of September 1999 as enacted by the City Council on August 27, 1998.

Chapter 616 of the Laws of 1998 allowed Plan members who are terminally ill and eligible for disability retirement to elect advance payment of ordinary death benefit.

**1997** Chapter 41 of the Laws of 1997 authorized a retirement incentive for certain persons in eligible titles who are public employees and who are members of the Plan.

Chapter 601 of the Laws of 1997 amended the Administrative Code of the City of New York and the Retirement and Social Security Law (RSSL) to bring the Plan into compliance with the requirement of the Federal Older Workers' Benefit Protection Act of 1990 (OWBPA).

**1996** Chapter 30 of the Laws of 1996 established an ERI for certain members and was enacted by a Board Resolution.

Chapter 249 of the Laws of 1996 amended the schedules of payments toward the Unfunded Actuarial Accrued Liability (UAAL) and Balance Sheet Liability (BSL) to provide that the UAAL and BSL as of June 30, 1995 be amortized over a period of 15 years beginning Fiscal Year 1996, where the amount of each annual payment after the first is to equal 103% of the preceding annual payment.

Chapter 592 of the Laws of 1996 permitted excess earnings of the annuity fund to reduce employer contribution to the Plan.

Chapter 593 of the Laws of 1996 permitted corpus funding of administrative expenses after July 1, 1996.

Chapter 712 of the Laws of 1996 permitted the increase in investment of Plan assets in equities to 70%.

**1995** Chapter 12 of the Laws of 1995 established an ERI for certain City University of New York (CUNY) employees and was enacted by a resolution of CUNY's Board.

Chapter 74 of the Laws of 1995 amended Chapter 12 to offer the ERI to certain Board of Education employees.

Chapter 119 of the Laws of 1995 amended the General Municipal Law and the Administrative Code of the City of New York and provides for Supplemental Retirement Allowances for certain retirees.

Chapter 642 of the Laws of 1995 amended the Administrative Code of the City of New York in relation to the rate of regular interest used in calculating contributions to TRS, as well as to the crediting of special and additional interest to members and the allowance of supplementary interest on TRS funds.

- 1994** Chapter 633 of the Laws of 1994 amended the schedules of payments toward the UAAL and BSL to provide that the UAAL and BSL of June 30, 1993 be amortized over a period of 17 years beginning Fiscal Year 1994, where the amount of each annual payment after the first is to equal 103% of the preceding annual payment.

Chapter 675 of the Laws of 1994 amended the RSSL in relation to the maximum amount of compensation that may be used in the determination of pension benefits. The annual compensation of each employee taken into account under the plan for any year may not exceed \$150,000 for plan years beginning after June 30, 1996. This figure is subject to cost-of-living adjustment. The State legislation grandfathers those who become members prior to July 1, 1996. This new law brings the New York City Retirement Systems into compliance with certain portions of the Tax Reform Act of 1986 and Internal Revenue Service regulations issued thereunder.

- 1992** Chapter 221 of the Laws of 1992 amended the Administrative Code of the City of New York, in relation to treatment of surplus, deficits and investment earnings of TRS' Tax-Deferred Annuity (TDA) Program.

Chapter 494 of the Laws of 1992 provided an ERI for certain City University professional staff members of TRS.

- 1991** Chapter 178 of the Laws of 1991 became law on June 17, 1991. This law provided for an ERI for eligible employees of the Board of Education; this incentive granted up to three years of retirement credit.

Chapter 607 of the Laws of 1991 amended the funding provisions effective June 30, 1990. This law provided that the Consolidated UAAL and BSL as of June 30, 1990 be amortized over 20 years with non-level payments for the first five years. The schedule of payments for the combined UAAL and BSL components for the first five years is to be comparable in pattern to the schedule of payments that was in effect under the amortization schedules immediately prior to the change in funding provisions. The balance of the combined UAAL and BSL components at the end of five years is to be amortized using level payments over the remaining 15 years. The BSL component is to be amortized using level payments over 20 years from June 30, 1990.

- 1990** Chapter 210 became a law on June 6, 1990. This law provided for a ERI for eligible employees of CUNY, effective September 1, 1991.

Chapter 357 became a law on July 12, 1990. This law amended Chapter 835 of the Laws of 1987 in relation to medical review as provided by §13-522.1 of the Administrative Code of the City of New York. These provisions, which had been scheduled to expire on June 30, 1989, were made permanent.

Chapter 483 became a law on July 18, 1990. This law amended Chapter 296 of the Laws of 1984 by extending the elimination of mandatory retirement to tenured employees of CUNY.

Chapter 666 became a law on July 22, 1990. This law amended §13-503 of the Administrative Code of the City of New York in relation to the availability of additional pension benefits to certain retirees of other New York City retirement systems as the result of their joining TRS for an extended second public employment.

Chapter 878 became a law on July 25, 1990. This law amended the Administrative Code of the City of New York in relation to the rate and method of payment of regular interest, special interest, additional interest and supplementary interest to be credited by TRS.

Chapter 919 became a law on July 30, 1990, with an effective date of July 1, 1991. This law amended §§517 and 613 of the RSSL by permitting Tier III/IV members to borrow up to 75% of their accumulated contributions.

Chapter 948 of the Laws of 1990 became law on December 26, 1990. This law amended the funding provisions of the Retirement System effective June 30, 1990. The funding provisions were amended in relation to the interest rates used in the actuarial valuation of liabilities and amortization payments, for the purpose of calculating employer contributions. This law provided that an actuarial interest rate assumption of 9% per annum for TRS (4% per annum for benefits payable under the variable annuity programs) would be in effect for that purpose with respect to employer contributions due for Fiscal Years 1991-1995. However, this law was superseded by Chapter 607 of the Laws of 1991 before it was scheduled to take effect on June 30, 1990.

**1989** Chapter 580 of the Laws of 1989 amended the funding provisions of the New York City Retirement Systems effective June 30, 1988 in relation to eliminating the deferred charge account.

Chapter 581 of the Laws of 1989 amended the funding provisions of the New York City Retirement Systems effective June 30, 1988 in relation to the interest rate used in the actuarial valuation of liabilities for the purpose of calculating employer contributions. The law provided that an 8.25% interest rate will be in effect for that purpose with respect to employer contributions due for Fiscal Years 1989 and 1990.

**1988** Chapter 8 became a law on February 29, 1988. This law superseded many provisions of §13-680 of the Administrative Code of the City of New York in relation to the payment of supplemental retirement allowances to certain retirees.

Chapter 182 became a law in June 1988. This law amended §13-582 of the Administrative Code of the City of New York in relation to permitting deferral of the distribution of a member's TDA account to the latest date allowable by the Internal Revenue Code.



Chapter 273 became a law on July 19, 1988. This law amended §§13-568, 571, 581, and 582 of the Administrative Code of the City of New York in relation to the extent and frequency of participation in elections made by members and beneficiaries with respect to the Variable Annuity and TDA Programs.

Chapter 454 became a law on August 1, 1988, effective immediately, providing for the payment of monthly supplemental retirement allowances to certain spouses of deceased members or retirees. Generally, spouses of deceased members or retirees who are designated annuitants (i.e. beneficiaries covered under Option I or Option IV-b, who, upon the death of the members or retirees, elect a monthly form of payment of the death benefit, rather than a lump sum) will be eligible to collect an extra \$50 per month as supplemental retirement allowance, provided the member or retiree died prior to January 1, 1980. However, any spouse who may become eligible to receive, or who is already receiving, a supplemental retirement allowance is not eligible for this benefit. Payments to an eligible spouse will be effective on the later of either [a] the month following the one in which the member's or retiree's death occurred, or [b] July 1, 1983.

Chapter 522 became a law on August 2, 1988. This law amended the RSSL in relation to TRS membership. Generally, any Tier III/IV member who was employed by the Board of Education as a regular substitute for at least one term during one of the three school years immediately prior to July 27, 1976 would have the same rights and privileges as a Tier II member, provided (s)he filed the appropriate application prior to July 1, 1989.

Chapter 523 became a law on August 2, 1988. This law amended the RSSL in relation to TRS membership. Generally, any Tier II member who was employed by the Board of Education as a regular substitute for at least one term during one of the three school years immediately prior to July 1, 1973 would have the same rights and privileges as a Tier I member, provided (s)he filed the appropriate application prior to July 1, 1989.

Chapter 548 became a law on August 11, 1988. This law provided that pension service credit be granted to Tier III/IV members on leave of absence without pay for the purpose of conducting labor relations activity.

Chapter 768 became a law on December 26, 1988 to become effective January 1, 1990. This law amended the RSSL to include a new Article 15-A (§620) which provides that all TRS members and those who join TRS after this date will receive benefits payable subject to certain limitations of §415 of the Internal Revenue Code. The benefits payable will be subject to the greater of either [a] the limitations of §415 of the Internal Revenue Code, or [b] the accrued benefit of the member without regard to any benefit increases in accordance with plan amendments adopted after October 14, 1987.

Chapter 773 became a law on December 29, 1988. This law amended §13-521 of the Administrative Code of the City of New York in relation to providing certain benefits involving supplemental annuity contributions on behalf of certain Tier III/IV members.

Chapter 782 became a law on December 29, 1988. This law amended §§517 and 613 of the RSSL in relation to the treatment of Tier III/IV member contributions for income tax purposes under the provisions of the Internal Revenue Code.

Chapter 783 became a law on December 29, 1988. This law made certain technical changes to Chapter 782 of the Laws of 1988.

- 1986** Chapter 617 of the Laws of 1986 amended the RSSL by repealing the Article 14 and the Article 15 Ordinary Death Benefits provisions and replacing them with provisions nearly identical to the Death Benefits applicable to Article 11 TRS members.

Chapter 630 of the Laws of 1986, which amended §B20-37.0 and §13-540 of the Administrative Code of the City of New York, increased the insurance for loans taken by TRS members from \$2,000 to \$10,000, effective July 1, 1986.

Chapter 683 of the Laws of 1986 amends §4402-§4406, §4408, §3030, §3202, §3602 and §3635 of the Education Law and §236 of the Family Court Act to provide additional educational opportunity in the months of July and August in and after Fiscal Year 1988 for severely handicapped children. In addition, this law established the "Additional Employer Specific Skills Training Grant Program" to conduct summer employer-specific skill training in coordination with participating employers. Also, the bill covers allocations of costs and educational services required of youths incarcerated in a correctional facility.

Chapter 793 of the Laws of 1986 amended §6214 of the Education Law and §13-630 of the Administrative Code of the City of New York in relation to the new members of the instructional staff at community colleges within the City University of New York, who will be eligible to become TRS members. In addition, present members of the New York City Employees' Retirement System who are employed on the instructional staff at community colleges within the City University of New York will have the right, until June 30, 1987, to transfer to TRS.

- 1985** Chapter 910 of the Laws of 1985 made it possible for TRS to use modernized actuarial tables in computing pension benefits. The Teachers' Retirement Board approved a resolution adopting new mortality tables for the purpose of determining certain benefits. The implementation of such a resolution was contingent upon the enactment of legislation increasing regular interest from 4% to 7%. Chapter 910 was signed into law on August 19, 1985.

Chapter 911 of the Laws of 1985 authorized TRS to continue to assume an 8.0% rate of return on investments. The Teachers' Retirement Board approved a resolution adopting new actuarial assumptions for the purpose of determining employer contributions to TRS for Fiscal Year 1986. The implementation of such a resolution was contingent upon the enactment of State legislation which would maintain the assumed rate of return on investments at 8.0%. Chapter 911 of the Laws of 1985 was signed into law on August 19, 1985. As a result, the new actuarial assumptions were utilized to determine pension expenses for Fiscal Year 1986 and thereafter.

- 1984** Chapter 371 of the Laws of 1984 amended the Administrative Code of the City of New York in relation to the payment of supplemental retirement allowances to spouses of certain deceased retirees.

Chapter 658 of the Laws of 1984 amended §D49-40.0 of the Administrative Code of the City of New York, increasing the amount of Supplemental Retirement Allowance (SRA) payable to every eligible retiree from 3% of the retiree's maximum fixed retirement allowance (i.e. the "base amount") for post-1971 retirees to 42% for pre-1959 retirees. In addition, the retirement allowance ceiling on which SRA is based was raised from \$8,000 to \$10,500. These benefit increases began in September 1986, and the increase in percentages occurred over a two-year period.

- 1983** Chapter 414 of the Laws of 1983 amended the RSSL by adding a new article—Article 15. This Law established a new state-wide pension plan, the Coordinated Retirement Plan, effective September 1, 1983, covering most employees joining on or after July 27, 1976. This Plan, which sets a normal retirement age of 62 and mandates 3% contributions by members, superseded the Plan (CO-ESC) enacted as Chapter 890 of the Laws of 1976. However, members who joined from July 27, 1976 through August 31, 1983 may elect to receive a benefit from CO-ESC or the Coordinated Plan, whichever provides greater benefits.
- 1982** Chapter 914 of the Laws of 1982 amended the Administrative Code of the City of New York in relation to employer contributions, the actuarial valuation, the determination and appraisal of the liabilities, the disposition of TRS' investment earnings, the crediting of special interest and additional interest to members, and the allowance of supplementary interest on TRS' funds. It further provided for the determining of obligations of the State, the City University of New York, and TRS in relation to certain employer contributions payable to TRS on account of employees of the senior colleges of the City University of New York.
- 1981** Chapter 422 of the Laws of 1981 provided new or additional supplemental pensions for certain pensioners and made the funding of these benefits the obligation of TRS.
- 1977** Chapter 976 of the Laws of 1977 amended TRS' funding provisions, effective July 1, 1977.
- 1973** Chapter 1046 of the Laws of 1973 established Article 11 of the RSSL, which imposed certain limitations on the benefits available to members joining TRS after June 30, 1973 and created Plans C and D, which are modifications of Plans A and B.
- 1970** Legislation in 1970 substantially revised TRS provisions. Chapter 274 established two new retirement plans effective July 1, 1970. Members who joined TRS on or after the effective date were required to choose either [1] The Twenty-Year Pension Plan (Plan A), or [2] The Age-55-Increased-Benefits Pension Plan (Plan B).

A member who joined TRS prior to the effective date could continue under his/her existing plan, or could elect one of these new plans, providing such election was made before the member had rendered two years of service after June 30, 1970.

Chapter 581 of the Laws of 1970 made it possible for the Teachers' Retirement Board to adopt Rules and Regulations establishing a Group Term Life Insurance Plan. In accordance with these Rules and Regulations, the first \$50,000 of benefits on account of each death in active service will be payable from the funds of the Group Term Life Insurance Plan rather than from those of TRS. With respect to the Group Term Life Insurance Plan, the Teachers' Retirement Board adopted premium rates computed to be necessary to fund the benefits payable.

## **SUMMARY OF PLAN PROVISIONS**

This section summarizes TRS' principal benefit provisions. The benefits available under the Coordinated Retirement Plan are provided by Article 15 of the RSSL. The benefits available under the Twenty-Year Pension Plan and Age-55-Increased-Benefits Pension Plan are provided by Chapter 274 of the Laws of 1970 as well as the restrictions prescribed by Article 11 of the Retirement and Social Security Law.

This Summary of Plan Provisions is applicable to Plan members included in the June 30, 2014 (Lag) actuarial valuation and include the provisions of Chapter 18 of the Laws of 2012 (i.e. Tier 6).

## **COORDINATED RETIREMENT PLAN**

A member whose date of membership is July 27, 1976 or later belongs to the Coordinated Retirement Plan.

## **SERVICE RETIREMENTS**

### **Normal Service Retirement**

**Eligibility:** A member is eligible to retire at age 62 (age 63 for Tier 6) with immediate payability after 5 or more years of service (10 or more years of service for Tier 6), subsequent to the date of membership.

Current members as of February 27, 2008 were provided a one hundred eighty day period during which they were allowed to join a plan that permitted them to retire at age 55 and later with immediate payability and without reduction after 25 years of service, provided they pay an additional 1.85% of future pay.

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

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

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

Note: In the Coordinated Retirement Plan, Final Average Salary (FAS) is the average salary earned during any three consecutive years (any five consecutive years for Tier 6) providing the highest average salary. However, if salary earned during any year included in the three-year period exceeds that of the average of the previous two years by more than 10%, the amount in excess of 10% will be excluded from the computation of FAS. Salary is defined as the regular compensation earned by, and paid to, a member.

- Benefits:**
- {1} For a member with fewer than 20 years of service, the benefit is  $1/60$  times FAS (see note above) multiplied by years of service.
  - {2} For a member with at least 20 (Tier 6) but fewer than 30 years of service (Tier 4), the benefit is  $1/50$  times FAS multiplied by years of service (Tier 4) or 35% plus 2% times FAS multiplied by each additional year exceeding 20 years of service (Tier 6).
  - {3} For a member with 30 or more years of service, the benefit is  $1/50$  times FAS for each of the first 30 years of service plus  $3/200$  times FAS for each additional year (Tier 4).

### Early Service Retirement

**Eligibility:** A member is eligible to retire at age 55 or later with immediate payability, after 5 or more years of service (10 or more years for Tier 6), subsequent to the date of membership.

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

- {1} For a Tier 4 member who retires prior to age 62 with less than 30 years of service, his/her pension for service is reduced by 0.5% for each of the first 24 months that the payability date precedes age 62, and by 0.25% for each additional month.

After February 27, 2008, new Tier 4 members are eligible to retire at age 55 and later without reduction after 27 years of service and are required to pay an additional 1.85% of future pay.

Current Tier 4 members as of February 27, 2008 were provided a one hundred eighty day period during which they were allowed to join a plan that permitted them to retire at age 55 and later without reduction after 25 years of service, provided they pay an additional 1.85% of future pay.

- {2} A Tier 4 member with 30 or more years of service receives no reduction in benefits because of early retirement.
- {3} For a Tier 6 member who retires prior to age 63 the retirement allowance is reduced by 6.5% per year.

### Deferred Vested Benefit

**Eligibility:** A member who has 5 or more years of credited service upon termination of employment (ten years if hired after December 10, 2009), is entitled to a deferred vested benefit payable at age 55 or later. A member who elects payability before age 62 (age 63 for Tier 6) will receive a reduced benefit.

**Benefits:** The benefit formulas are the same as those set forth under a Normal Service Retirement and an Early Service Retirement. Should a member who elected to receive a vested deferred retirement allowance die before the attainment of payability age and had at least 10 years of service, the death benefit is 1/2 of the Ordinary Death Benefit in force on the last day of active service.

## DISABILITY RETIREMENTS

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

**Benefits:** The benefit is the greater of: (a)  $\frac{1}{3}$  of FAS ( $\frac{2}{3}$  of FAS for a member if the disability is judged to be the result of an accident in the performance of duty); or (b)  $\frac{1}{60}$  times FAS multiplied by the credited service.

## ORDINARY DEATH BENEFITS

**Benefits:** Upon joining TRS, a member must elect one of the following death benefits:

### Death Benefit 1:

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

### Death Benefit 2:

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

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

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

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

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

Members who joined TRS on or after July 27, 1976 and before September 1, 1983 are entitled to the following RSSL Article 14 Death Benefits, if greater (by ruling of the Court of Appeals in Public Employees' Federation v. Cuomo, dated June 29, 1984).

**The Death Benefits under RSSL Article 14 are as Follows:**

<b>If Death Occurs Before Age 60 and Service is:</b>		<b>Maximum Benefits Effective</b>		
<b><u>At Least</u></b>	<b><u>But Not More Than</u></b>	<b><u>Lump Sum Benefit</u></b>	<b><u>4/01/14 – 3/31/15</u></b>	<b><u>4/01/15 – 3/31/16</u></b>
1 Year	2 Years	One x Final Rate of Pay, But Not in Excess of:	\$ 50,500	\$ 50,900
2 Years	3 Years	Two x Final Rate of Pay, But Not in Excess of:	\$101,000	\$101,700
3 Years	Or More	Three x Final Rate of Pay, But Not in Excess of:	\$126,200	\$127,200

If death occurs at age 60, the benefits determined shall be reduced by 5%. If death occurs after age 60, there is an additional 5% reduction for each year that death occurs thereafter to a maximum of a 50% reduction.

The maximum lump-sum death benefit is subject to increase each April 1st at a maximum rate of 3% per annum based on the Consumer Price Index as of the previous December 31st.

**Beneficiaries:** The latest named beneficiary, duly designated on a TRS Form filed with TRS, will receive the death benefits. If none is designated, the benefits will be paid to the member's estate.

## ACCIDENTAL DEATH BENEFITS

- Eligibility:** A beneficiary is entitled to the benefit if the member died before the effective date of retirement as a natural and proximate result of an accident sustained in the performance of duty, and if the accident was not caused by the member's willful negligence.
- Benefits:** The beneficiary receives a pension equal to 50% of the wages the member earned during the last year of actual service, but the application must be filed within 60 days of the member's death.
- Other:**
- {1} If the eligible beneficiary becomes ineligible to continue to receive the benefits, the pension shall be continued for all other members of the next eligible class of beneficiaries, and if none, to each successive class.
  - {2} If the benefits paid do not exceed the amount of the ordinary lump-sum death benefit because of the absence of eligible beneficiaries, the difference is to be paid to the last eligible beneficiary, or if none, to the member's estate.
- Beneficiaries:** Beneficiaries are prescribed in the following order:
- {1} A surviving spouse who has not renounced survivorship rights in a separation agreement, or has not remarried;
  - {2} Surviving children until age 25;
  - {3} Dependent parents whose eligibility shall be determined in accordance with regulations promulgated by the Teachers' Retirement Board;
  - {4} Any other person who qualifies as a dependent on the final income tax return the member filed in the year preceding his/her year of death, until such person reaches 21 years of age.



**THE TWENTY-YEAR PENSION PLAN AND AGE-55-INCREASED-BENEFITS PENSION PLAN**

A member who elects the Twenty-Year Pension Plan may cancel such election at any time, in which case (s)he will become eligible for the benefits provided by the Age-55-Increased-Benefits Pension Plan and vice versa.

See the end of this section for Definitions of terms used in these plan descriptions.

**SERVICE RETIREMENT**

**Twenty-Year Pension Plan**

**Eligibility:** {1} A member who joined TRS prior to July 1, 1973 and who elects the Twenty-Year Pension Plan is eligible to retire after having completed 20 years of service, with benefits to begin on the payability date. Regardless of the number of years of service, such a member who has elected the Twenty-Year Pension Plan and who is at least 55 years of age may retire with benefits payable immediately by canceling his/her election of the Twenty-Year Pension Plan, thereby becoming eligible for the benefits under the Age-55-Increased-Benefits Pension Plan.

{2} A member who joined TRS after June 30, 1973 must also have rendered five years of continuous service immediately prior to retiring and must have attained age 55.

**Benefits:** The service retirement allowance for a member who joined prior to July 1, 1973, is the sum of the following:

{1} 50% of the average salary, reduced by an annuity which is the actuarial equivalent of the minimum accumulation;

{2} an annuity which is the actuarial equivalent of the accumulated deductions; and

{3} for service in excess of 20 years, (a) a pension for Increased-Take-Home-Pay which is the actuarial equivalent of the Reserve for Increased-Take-Home-Pay credited in such years, and (b) 1.2% of the average salary for each such year prior to July 1, 1970 and 1.7% of the average salary for each such year beginning on that date.

If a member who joined TRS after June 30, 1973 retires prior to age 62 with less than 30 years of service, his/her pension for service is reduced by 0.5% for each of the first 24 months that the payability date precedes age 62, and by 0.25% for each additional month.

Current members as of February 27, 2008 were provided a one hundred and eighty day period during which they were allowed to join a plan that permitted them to retire at age 55 and later with immediate payability and without reduction after 25 years of service, provided they pay an additional 1.85% of future pay.

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

- Eligibility:**
- {1} A member who joined TRS prior to July 1, 1973 and who either elects the Age – 55 – Increased – Benefits Pension Plan or who cancels his/her election of the Twenty – Year Pension Plan may retire after having attained age 55 with benefits payable immediately upon retirement.
  - {2} A member who joined TRS after June 30, 1973 must also have rendered five years of continuous service immediately prior to retiring and must have attained age 55.

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

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

If a member who joined TRS after June 30, 1973 retires prior to age 62 with less than 30 years of service, his/her pension for service is reduced by 0.5% for each of the first 24 months that the payability date precedes age 62, and by 0.25% for each additional month.

Current members as of February 27, 2008 were provided a one hundred eighty day period during which they were allowed to join a plan that permitted them to retire at age 55 and later with immediate payability and without reduction after 25 years of service, provided they pay an additional 1.85% of future pay.

**ORDINARY DISABILITY RETIREMENT**

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

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

**ACCIDENT DISABILITY RETIREMENT**

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

**Benefits:** The retirement allowance will consist of a pension equal to three-fourths of the average salary in the last five years, plus a pension which is the actuarial equivalent of the Reserve for Increased-Take-Home-Pay, and an annuity purchased with the member's accumulated deductions. The pensions are subject to reduction for Workers' Compensation benefits granted on account of the accident.

**VESTED DEFERRED RETIREMENT ALLOWANCE**

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

**Benefits:** This allowance is computed in the same manner as the retirement allowance for service retirement under the Age-55-Increased-Benefits Pension Plan, except that the allowance is deferred to age 55. Should a member who elected to receive a vested deferred retirement allowance and who had 10 years of service die before the attainment of age 55, the death benefit is 1/2 of the Ordinary Death Benefit in force on the last day of service.

## ORDINARY DEATH BENEFITS

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

### **Members who joined TRS before July 1, 1973**

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

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

**Members who joined TRS between July 1, 1973 and July 27, 1976** must choose between the two following death benefits so that, upon the member's death, benefits are paid pursuant to the member's election:

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

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

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

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

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

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

## ACCIDENTAL DEATH BENEFITS

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

**Benefits:** The accidental death benefits are (a) a lump-sum equal to the Reserve for Increased-Take-Home-Pay and (b) a pension equal to one-half of the average salary in the last five years payable annually to the widow until remarriage or death, or if there is no widow, to a child or children until the attainment of age 18 of the youngest child, or if there is no widow, or child, to the dependent parents, and (c) a lump-sum equal to the member's accumulated deductions and Reserve for Increased-Take-Home-Pay payable to the member's estate or to the designated beneficiary. Alternatively, if the member joined TRS prior to July 1, 1973, the beneficiary may elect to receive a lump sum that is actuarially equivalent to the retirement allowance which would have been payable if the member had retired on the day before the member's death, provided that the death occurred after the member became eligible to retire for service. The pension is subject to reduction because of Workers' Compensation benefits granted on account of the accidental death.

## **AUTOMATIC ANNUAL COST-OF-LIVING ADJUSTMENTS (COLA)**

**Eligibility:** COLA are payable to members who are either (1) at least age 62 and have been retired for at least 5 years or (2) at least age 55 and have been retired for at least 10 years. Additionally, COLA are payable to members who retired for disability after being retired for 5 or more years and beneficiaries receiving accidental death benefits who have been receiving them for at least 5 years.

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

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

## **DEFINITIONS**

**Accumulated Deductions**—The total contributions the member made to his/her Annuity Savings Account, with regular and special interest thereon.

**Average Salary**—{1} For a member who joined prior to July 1, 1973, salary earnable in the last year of the most recent three-year period during which (s)he held no more than one position, or the average annual salary earnable in any five consecutive years designated by the member. {2} For a member who joined after June 30, 1973, the average salary earned during any three consecutive years which provides the highest average salary. However, if the salary earned during any year included in this three-year period exceeds the average of the previous two years by more than 20%, the amount in excess of 20% is excluded from the computation.

**City Service**—All service as an employee of the City.

**Minimum Accumulation**—The difference between: {1} the amount of required contributions during the member's first 20 years of City Service accumulated with interest to the member's payability date, and {2} the amount of the Reserve for Increased-Take-Home-Pay on the date such period of 20 years is completed.

**New Entrant**—With minor exceptions, a teacher appointed to the public schools after August 1, 1917.

**Payability Date**—For members who elected the Twenty-Year Pension Plan, the date on which the Service Retirement allowance begins, which is the latest of {1} the date when the member retires, or {2} the date when (s)he attains age 55, or {3} the date when the member could have completed 25 years of City Service had (s)he remained active. For all other members, the retirement allowance begins on the date of retirement.

**Present Teacher**—A teacher in the public schools on August 1, 1917 and certain other specified school and college members.

**Prior Service**—All City Service and all teaching and supervisory service in schools maintained by the City prior to September 16, 1917, for the present teachers and, in the case of a New Entrant, prior to the date of appointment.

**Reserve For Increased-Take-Home-Pay**—A reserve of 2.5%, 5%, or 8% of the member's salary pursuant to the provisions of §13-546 of the Administrative Code of the City of New York, accumulated with regular and additional interest.

### **OPTIONS ON RETIREMENT OR DEATH**

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

#### **Members who joined prior to July 27, 1976:**

- {1} For members who joined prior to July 1, 1973, a cash refund allowance under which reduced payments will be made during life with a provision that, in case of death before such payments have equaled the present value of the retirement allowance at the date of retirement, the balance shall be paid to the designated beneficiary or estate in a lump sum. For members who joined after June 30, 1973, this option is only available with regard to the annuity.
- {2} A ten-year or five-year certain and life allowance under which reduced payments will be made during life with a provision that in case of death within ten or five years of retirement, the balance that would have been payable had the member survived for ten or five years shall continue to be paid to the designated beneficiary or estate.
- {3} A joint-and-survivor allowance under which reduced payments will be made during life with a provision that upon the member's death, the same payments or one-half of such payments shall be continued throughout the life of such other person(s) as the member shall have designated.
- {4} Such other actuarial equivalent optional forms as may be certified by the Actuary and approved by the Teachers' Retirement Board. By resolution, the Teachers' Retirement Board has approved an option under which reduced payments will be made during life with a provision that, upon the member's death, a sum specified by the member at the time of retirement shall be paid to the designated beneficiary or estate.

Upon a member's death, the beneficiary may elect to receive the actuarial equivalent of the lump-sum otherwise payable in one of the following forms: 1) An annual amount payable for life in monthly installments, all payments ending at death; or 2) A cash refund allowance under which reduced payments will be made during life, with a provision that, in case of death before such payments have equaled the lump-sum payable upon the member's death, the balance shall be paid to the designated beneficiary or estate. This is only available to the beneficiary of a member who joined prior to July 1, 1973.

**Members who joined on or after July 27, 1976:**

- {1} The same five-year or ten-year certain guaranteed period and life thereafter allowance as described in #2 above.
- {2} A joint-and-survivor allowance under which reduced payments will be made during the life of the member with a provision that upon the member's death, 100%, 75%, 50%, or 25% of such payments shall be continued throughout the life of such other person(s) as the member shall have designated.

**CONTRIBUTIONS**

TRS benefits are financed by employee and employer contributions and from earnings on TRS' invested funds.

**MEMBER CONTRIBUTIONS**

**Coordinated Retirement Plan (Article 15):**

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

Beginning October 1, 2000, Tier III and IV members will not be required to make basic required contributions after the 10<sup>th</sup> anniversary of their membership date or completion of ten years of City Service, whichever is earlier. New members after February 27, 2008 and members who elected to join the 55/25 plan pay an additional 1.85% of pay for all years of service. New members after December 10, 2009 who are represented by the UFT are required to contribute 4.85% of salary for the first 27 years of service and 1.85% of salary thereafter.

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

**Twenty-Year Pension Plan:**

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



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

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

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

**Loans:** Subject to certain limitations, a member not covered under Article 15 may borrow an amount not exceeding 75% of the member's Accumulated Deductions. Effective July 1, 1991, subject to certain limitations, a member covered under Article 15 may borrow an amount not exceeding 75% of the member's Accumulated Deductions, provided it can be repaid with interest within five years by payroll deductions. Beginning 30 days after the inception of the loan, the amount of the unpaid portion of the loan is insured in full. Should the borrower subject to Article 15 retire before the loan is repaid, the actuarial equivalent of the outstanding loan is deducted from his/her retirement allowance.

**ITHP:** In general, the retirement and death benefits payable to or on account of members are supplemented by the Reserve For Increased-Take-Home-Pay, accumulated from City contributions at a rate equal to the Increased-Take-Home-Pay factor times salary. In general, the total benefit is equal to the benefit that would have been paid if the members' rates of contributions had not been reduced by the Increased-Take-Home-Pay rate. However, the Reserve For Increased-Take-Home-Pay is not payable upon the death of a member who joined after June 30, 1973.

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

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

**EMPLOYER CONTRIBUTIONS**

The Entry Age Normal cost method is utilized by the Plan’s Actuary to calculate the contributions due from the participating employers.

The Employer Contributions are accrued by the Plan and are funded by the participating employers on a current basis. The Employer Contributions amounted to \$3,888,399,470 for the Fiscal Year ended June 30, 2017.

In addition to the Employer Contributions, the employers make payments for the benefit of certain members of the Plan who have attained the maximum grade of their salary schedule, in accordance with amendments to the Administrative Code of the City of New York. Teachers at maximum grade have \$400 per annum paid on a monthly basis to their accounts, while \$550 per annum is paid on a monthly basis to the accounts of supervisory personnel at maximum grade.

## VARIABLE ANNUITY PROGRAMS

**Diversified Equity:** Beginning January 1, 1968, members were given the option to participate in a variable annuity program now known as the Diversified Equity (Variable A) Fund, thereby providing a means which can reasonably be expected to protect a portion of their retirement income against the effect of increases in the cost of living. The monthly Variable Annuity payment is a fixed number of units, the value of which varies each month to reflect the financial experience of the investments which are almost entirely in common stocks.

On January 1, 1968, the effective date of the Diversified Equity Fund, a unit was assigned an arbitrary value of \$10. Each month thereafter, the unit value changed, reflecting the investment experience of the common stock fund during the preceding month. Since January 1, 1968, the value of a unit of the Diversified Equity Fund varied between a high of \$88.681 during July 2017 and a low of \$5.453 during October 1974. The monthly unit value of the Diversified Equity Fund was \$88.681 during July 2017.

**Bond Fund:** Beginning July 1, 1983, members were given the option to participate in a second variable annuity program, now designated the Bond (Variable B) Fund (Formerly the Stable-Value Fund). The Bond Fund is income-oriented and is intended to be less volatile than the Diversified Equity Fund. The monthly Variable Annuity payment is a fixed number of units, the value of which varies each month to reflect the financial experience of the investments, which may include Treasuries, Agencies, Corporates, Mortgages and other types of fixed-income instruments.

On July 1, 1983, the effective date of the Bond Fund, a unit was assigned an arbitrary value of \$10. Each month thereafter, the unit value changed, reflecting the investment experience of the changes in market value and income received from the investments in the fund during the preceding month. Since July 1, 1983, the value of a unit of the Bond Fund varied between a high of \$19.750 during September 2002 and a low of \$10 at inception on July 1, 1983. The monthly unit value of the Bond Fund was \$16.758 during July 2017.

**International Equity:** Beginning July 1, 2008, members were given the option to participate in a third variable annuity program, designated the International Equity (Variable C) Fund. The International Equity Fund is capital growth oriented. The monthly Variable Annuity payment is a fixed number of units, the value of which varies each month to reflect the financial experience of the investments, which invests in non – U.S. equities as compared with the Diversified Equity Fund which invests primarily in U.S. equities.

On July 1, 2008, the effective date of the International Equity Fund, a unit was assigned an arbitrary value of \$10. Each month thereafter, the unit value changed, reflecting the investment experience of the changes in market value and income received from the investments in the fund during the preceding month. Since July 1, 2008, the value of a unit of the International Equity Fund varied between a high of \$ 11.011 during July 2014 and a low of \$6.048 during March 2009. The monthly unit value of the International Equity Fund was \$10.611 during July 2017.

**Inflation  
Protection:**

Beginning July 1, 2008, members were given the option to participate in a fourth variable annuity program, designated the Inflation Protection (Variable D) Fund. The Inflation Protection Fund seeks to provide a rate of return that exceeds inflation. The monthly Variable Annuity payment is a fixed number of units, the value of which varies each month to reflect the financial experience of the investments, which may include fixed income investments, bonds, real estate commodities, etc.

On July 1, 2008, the effective date of the Inflation Protection Fund, a unit was assigned an arbitrary value of \$10. Each month thereafter, the unit value changed, reflecting the investment experience of the changes in market value and income received from the investments in the fund during the preceding month. Since July 1, 2008, the value of a unit of the Inflation Protection Fund varied between a high of \$11.819 during May 2013 and a low of \$8.012 during March 2009. The monthly unit value of the Inflation Protection Fund was \$10.185 during July 2017.

**Socially  
Responsive  
Equity:**

Beginning July 1, 2008, members were given the option to participate in a fifth variable annuity program, designated the Socially Responsive Equity (Variable E) Fund. The Socially Responsive Equity Fund is capital growth oriented while investing in equities from socially responsible companies. The monthly Variable Annuity payment is a fixed number of units, the value of which varies each month to reflect the financial experience of the investments, which is a mutual fund that attempts to avoid investing in companies that do not reflect social priorities.

On July 1, 2008, the effective date of the Socially Responsive Equity Fund, a unit was assigned an arbitrary value of \$10. Each month thereafter, the unit value changed, reflecting the investment experience of the changes in market value and income received from the investments in the fund during the preceding month. Since July 1, 2008, the value of a unit of the Socially Responsive Equity Fund varied between a high of \$16.308 during July 2017 and a low of \$6.844 during March 2009. The monthly unit value of the Socially Responsive Equity Fund was \$16.308 during July 2017.

A member may elect to place part or all of his/her contributions and the City's contributions for Increased-Take-Home-Pay in either variable annuity program. The normal pension for service which is provided by the City will be paid in fixed dollars. Subject to certain prescribed limitations, a member may periodically elect either to participate in the variable annuity programs or to revoke a previous election.

Individual accounts of the members' own contributions are maintained in each variable annuity savings fund. Individual accounts, based on the City's contribution for Increased-Take-Home-Pay, are maintained in the Variable Pension Accumulation Funds. Deposits in these accounts are credited in terms of units, the value of which is determined at the beginning of each month and remains unchanged during that month.

*Statistical*

trsnyc



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

**QPP Financial Trend Information**

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

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

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

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

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

**QPP and TDA Operating Expense Information**

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

**TDA Financial Trend Information**

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

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

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

### SCHEDULE 1: NET POSITION AND CHANGES IN NET POSITION—QPP

*In Thousands*

Year Ended	Pension Fund	Diversified Equity	Bond Fund*	International Equity	Inflation Protection	Socially Responsive Equity	Net Position	Changes in Net Position
2008	\$27,054,108	\$5,072,017	\$171,739	N/A	N/A	N/A	\$32,297,864	(\$4,844,927)
2009	19,795,757	3,113,828	148,256	\$14,667	\$2,715	\$2,266	23,077,489	(9,220,375)
2010	23,140,827	3,107,689	129,595	13,803	3,754	2,742	26,398,410	3,320,921
2011	29,942,258	3,523,126	112,117	15,626	4,527	3,883	33,601,537	7,203,127
2012	29,611,995	3,053,466	80,952	16,802	5,937	5,609	32,774,761	(826,776)
2013	33,654,166	3,110,127	63,719	16,320	5,882	6,242	36,856,456	4,081,695
2014	41,199,953	3,210,248	48,507	17,082	5,662	8,487	44,489,939	7,633,483
2015	41,452,046	2,740,658	34,034	15,071	4,747	8,108	44,254,664	(235,275)
2016	41,440,456	2,142,217	22,786	12,262	3,930	7,894	43,629,545	(625,119)
2017	43,920,339	6,058,218	83,594	16,685	4,760	12,127	50,095,723	6,466,178

\* Stable-Value Fund prior to January 1, 2012.

### SCHEDULE 2: 2017 CHANGES IN NET POSITION—QPP

*In Thousands*

	Pension Fund	Diversified Equity	Bond Fund	International Equity	Inflation Protection	Socially Responsive Equity	Net Position
2016 Net Position	\$41,440,456	\$2,142,217	\$22,786	\$12,262	\$3,930	\$7,894	\$43,629,545
Member Contributions	179,753	267	43	13	-	-	180,076
Employer Contributions	3,945,739	28	1	-	-	-	3,945,768
Interest & Misc Income	945,413	2,692	1,486	9	13	2	949,615
Dividend Income	912,665	67,915	-	223	122	162	981,087
Realized Profit/Loss	2,752,042	132,190	(165)	434	6	210	2,884,717
Unrealized Profit/Loss	3,027,966	600,945	(279)	1,662	(56)	1,424	3,631,662
Benefit Payments	(3,640,168)	(551,544)	(11,205)	(1,454)	(457)	(990)	(4,205,818)
Refunds & Withdrawals	(12,445)	(1,032)	(17)	-	-	-	(13,494)
Interest Paid to TDA Funds	(1,466,615)	-	-	-	-	-	(1,466,615)
Transfer to other Systems	(2,291)	-	-	-	-	-	(2,291)
Interfund Transfer	(3,757,118)	3,677,667	71,176	3,574	1,210	3,491	-
TDA Rebalance	(43,938)	-	-	-	-	-	(43,938)
Provision for Expenses**	(361,120)	(13,127)	(232)	(38)	(8)	(66)	(374,591)
<b>2017 Net changes</b>	<b>\$2,479,883</b>	<b>\$3,916,001</b>	<b>\$60,808</b>	<b>\$4,423</b>	<b>\$830</b>	<b>\$4,233</b>	<b>\$6,466,178</b>
<b>2017 Net Position</b>	<b>\$43,920,339</b>	<b>\$6,058,218</b>	<b>\$83,594</b>	<b>\$16,685</b>	<b>\$4,760</b>	<b>\$12,127</b>	<b>\$50,095,723</b>

\*\* Includes Administrative and Investment Expenses.

**SCHEDULE 3: CHANGES IN NET POSITION—QPP**  
In Thousands

Year Ended June 30*	1	2	3	4	5	6	7	8	9	10	11
Net Member Contributions	Net Member Contributions	Employer Contributions	Net Investment Income	Transfer from/to Other Systems	TDA Fixed Interest Payments	Total Retirement Benefits	Loans Closed at Retirement	Withdrawals	Other Benefits**	Administrative Expenses	Change in Net Position
2008	\$142,308	\$1,944,097	(\$3,109,764)	\$799	(\$648,015)	(\$3,065,092)	(\$55,832)	(\$17,194)	\$4,155	(\$40,389)	(\$4,844,927)
2009	143,281	2,297,789	(7,838,259)	1,035	(767,007)	(2,874,313)	(33,042)	(12,592)	(99,628)	(37,639)	(9,220,375)
2010	138,075	2,566,288	4,778,159	(2,109)	(816,557)	(3,017,755)	(30,338)	(12,782)	(240,595)	(41,465)	3,320,921
2011	158,829	2,525,111	8,888,669	737	(854,073)	(3,228,940)	(39,998)	(10,593)	(197,066)	(39,549)	7,203,127
2012	164,361	2,732,263	803,007	853	(945,967)	(3,366,901)	(28,031)	(17,273)	(129,375)	(39,713)	(826,776)
2013	154,698	2,912,844	5,721,112	(44)	(1,047,979)	(3,537,881)	(24,006)	(12,690)	(44,677)	(39,682)	4,081,695
2014	154,962	3,054,424	9,435,906	404	(1,047,923)	(3,740,243)	(24,866)	(18,813)	(134,326)	(46,042)	7,633,483
2015	158,590	3,325,528	1,611,929	329	(1,248,988)	(3,884,026)	(28,775)	(14,312)	(97,159)	(58,391)	(235,275)
2016	173,696	3,760,714	960,267	1,233	(1,354,207)	(3,998,271)	(20,126)	(13,639)	(75,419)	(59,367)	(625,119)
2017	180,076	3,945,768	8,133,280	(2,291)	(1,466,615)	(4,114,147)	(16,958)	(13,493)	(118,652)***	(60,790)	6,466,178

**Total Retirement Benefits By Type**

Year Ended June 30*	6a Service Retirement Allowances		6b Ordinary Disability Retirement Allowances		6c Accident Disability Retirement Allowances		6d Death Benefits To Beneficiaries		Total Retirement Benefits
	2008	2009	2010	2011	2012	2013	2014	2015	
2008	(\$2,888,618)	(\$42,663)	(\$22,621)	(\$111,190)	(\$22,621)	(\$111,190)	(\$111,190)	(\$111,190)	(\$3,065,092)
2009	(2,714,932)	(38,990)	(21,200)	(99,191)	(21,200)	(99,191)	(99,191)	(99,191)	(2,874,313)
2010	(2,851,639)	(40,327)	(22,809)	(102,980)	(22,809)	(102,980)	(102,980)	(102,980)	(3,017,755)
2011	(3,046,583)	(43,348)	(25,596)	(113,413)	(25,596)	(113,413)	(113,413)	(113,413)	(3,228,940)
2012	(3,178,074)	(46,071)	(27,811)	(114,945)	(27,811)	(114,945)	(114,945)	(114,945)	(3,366,901)
2013	(3,337,405)	(48,492)	(28,487)	(123,497)	(28,487)	(123,497)	(123,497)	(123,497)	(3,537,881)
2014	(3,531,071)	(51,484)	(23,087)	(134,601)	(23,087)	(134,601)	(134,601)	(134,601)	(3,740,243)
2015	(3,660,115)	(54,633)	(30,276)	(139,002)	(30,276)	(139,002)	(139,002)	(139,002)	(3,884,026)
2016	(3,761,370)	(58,144)	(32,000)	(146,757)	(32,000)	(146,757)	(146,757)	(146,757)	(3,998,271)
2017	(3,867,882)	(60,094)	(32,282)	(153,889)	(32,282)	(153,889)	(153,889)	(153,889)	(4,114,147)

\* Benefit Payment categories for 2008-2016 take into account retirement valuation reports.

\*\* Other Benefits consist of Retiree Advances, delayed interest payments, Active Death Payments, and excluding Fiscal Year 2017, adjustment of retirement benefits is based on retirement valuation reports.

Also, Fiscal Year 2011 includes \$112,462 in Nager II benefit payments, Fiscal Year 2010 includes \$149,406 minimum accumulation settlement.

\*\*\* Includes \$43,938 negative adjustment for TDA rebalance transfers.

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



**SCHEDULE 4: PARTICIPATING EMPLOYERS—QPP***As of June 30, 2015 (Lag)*

<b>Employer</b>			<b>Number of In-Service Members*</b>	<b>Annual Payroll*</b>
NYC Department of Education and City University of New York			108,936	\$8,507,878,606
City University of New York Senior Colleges & Community Colleges			5,162	295,826,560
<b>Charter Schools**</b>	<u>Start Date</u>	<u>Type</u>		
Beginning with Children***	09/2001	DOE Conversion - UFT	35	2,401,488
Future Leaders Institute	09/2005	DOE Conversion - UFT	44	2,890,402
Harriet Tubman	09/2005	DOE Conversion - Non Union	55	3,193,146
Kipp Academy	09/2000	DOE Conversion - UFT	93	7,032,287
Kipp AMP	09/2005	Non Conversion - Non Union	12	913,011
Kipp Infinity	09/2005	Non Conversion - Non Union	52	4,537,311
Opportunity	09/2004	Non Conversion - UFT	66	4,678,078
Renaissance	09/2000	DOE Conversion - UFT	54	4,266,264
UFT Charter School	09/2005	Non Conversion - UFT	28	2,225,002
University Prep (formally UFT Green Dot)	09/2008	Non Conversion - UFT	37	3,382,048
Voice	09/2008	Non Conversion - Non Union	50	3,029,154
Wildcat	09/2000	DOE Conversion - UFT	28	2,397,276
<b>SUBTOTAL</b>			<b>554</b>	<b>\$40,945,467</b>
<b>TOTAL</b>			<b>114,652</b>	<b>\$8,844,650,633</b>

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

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

\*\*\* Beginning with Children Charter School closed following the 2016 school year. South Bronx Early College Academy Charter School ("SBECACS") opened for the 2016 school year. For SBECACS, while members contributions have begun, employer contributions begin Fiscal Year 2018.

### SCHEDULE 5: ACTIVE MEMBERSHIP SUMMARY—QPP

Year	As of July 1	Contributors Registered	Payroll Updates	Contributors Withdrawn	As of June 30th
2007	109,992	8,776	(3,928)	(4,972)	109,868
2008	109,868	11,234	(5,183)	(3,447)	112,472
2009	112,472	7,526	(4,015)*	(2,851)	113,132
2010	113,132	4,617	(3,378)	(2,724)	111,647
2011	111,647	4,779	(3,717)	(3,073)	109,636
2012	109,636	9,519	(3,135)	(3,560)	112,460
2013	112,460	7,101	(3,744)	(3,336)	112,481
2014	112,481	7,915	(4,032)	(4,638)	111,726
2015	111,726	8,727	(2,499)	(3,302)	114,652
2016	114,652	10,239	(2,519)	(4,171)	118,201

\*Revised for FY 2010.

Active membership summary based on latest valuation reports. Estimated active memberships of 122,000 for 2017.

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

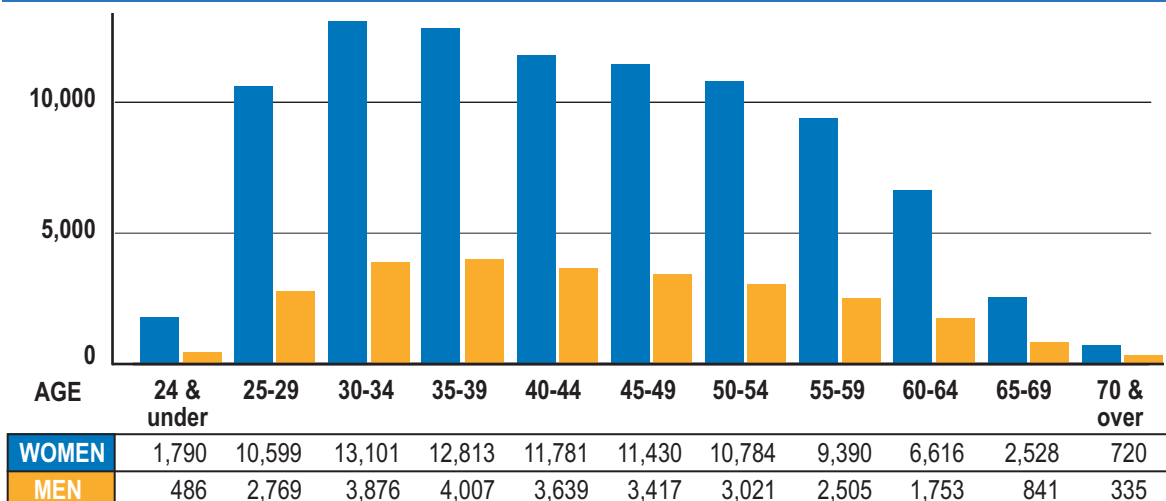
As of June 30, 2016

MEN			WOMEN		
Age	Number of In-Service Members*	Average Salaries*	Age	Number of In-Service Members*	Average Salaries*
24& under	486	\$49,321	24& under	1,790	\$50,023
25-29	2,769	60,106	25-29	10,599	61,542
30-34	3,876	73,936	30-34	13,101	73,576
35-39	4,007	83,966	35-39	12,813	79,934
40-44	3,639	89,560	40-44	11,781	81,731
45-49	3,417	91,446	45-49	11,430	81,093
50-54	3,021	93,611	50-54	10,784	80,739
55-59	2,505	92,257	55-59	9,390	79,442
60-64	1,753	90,102	60-64	6,616	79,296
65-69	841	82,010	65-69	2,528	76,781
70 & over	335	81,596	70 & over	720	68,388
<b>TOTAL</b>	<b>26,649</b>	<b>\$83,304</b>	<b>TOTAL</b>	<b>91,552</b>	<b>\$76,506</b>
TOTAL ANNUAL SALARIES		\$2,219,964,658	TOTAL ANNUAL SALARIES		\$7,004,302,989

\* The member count and the annual payroll include only those who were on the June 30<sup>th</sup> payroll.

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

As of June 30, 2016



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

**IN-SERVICE MEMBERSHIP BY TIER**

Year	Average Age	IN-SERVICE MEMBERSHIP BY TIER						IN-SERVICE MEMBERSHIP BY TITLE					
		Tier I	Tier II	Tier III	Tier IV	Tier VI	Teachers	Paraprofessionals	Principals and Administrators	Full-Time CUNY Faculty	Adjunct CUNY Instructors	Others	
2008	44.3	2.4%	1.2%	3.4%	93.0%	0.0%	73.4%	13.2%	3.7%	1.1%	1.1%	1.1%	7.5%
2009	44.8	2.1%	1.0%	3.0%	93.9%	0.0%	68.9%	14.6%	5.3%	1.6%	1.6%	1.1%	8.5%
2010	45.2	1.6%	0.8%	2.7%	94.9%	0.0%	67.9%	15.2%	5.4%	1.9%	1.9%	1.1%	8.5%
2011	45.5	1.2%	0.6%	2.3%	95.9%	0.0%	67.2%	15.6%	5.5%	2.1%	2.1%	1.3%	8.3%
2012	45.4	0.9%	0.5%	1.8%	96.6%	0.2%	65.1%	16.7%	5.4%	2.4%	2.4%	2.4%	8.0%
2013	45.3	0.7%	0.4%	1.4%	91.4%	6.1%	64.9%	16.9%	5.5%	2.7%	2.7%	2.4%	7.6%
2014	44.8	0.5%	0.2%	1.0%	86.3%	12.1%	64.7%	16.6%	5.7%	3.0%	3.0%	2.4%	7.6%
2015	44.8	0.4%	0.2%	0.7%	81.3%	17.4%	64.5%	16.8%	5.4%	3.3%	3.3%	2.3%	7.7%
2016	44.7	0.3%	0.2%	0.6%	81.0%	17.9%	63.6%	17.3%	5.6%	3.4%	3.4%	2.3%	7.8%
2017	44.6	0.2%	0.1%	0.5%	71.6%	27.6%	62.9%	17.7%	5.6%	3.7%	3.7%	2.3%	7.8%

### SCHEDULE 8: RETIREE SUMMARY—QPP

Year	As of July 1	Retirees Registered	Payroll Status Changes	Retirees Withdrawn	As of June 30th
2007	67,576	2,715	(616)	(1,183)	68,492
2008	68,492	2,838	(307)	(1,248)	69,775
2009	69,775	2,626	(140)	(1,436)	70,825
2010	70,825	3,065	(404)	(1,130)	72,356
2011	72,356	3,285	(39)	(1,537)	74,065
2012	74,064	4,180	(412)	(1,293)	76,539
2013	76,539	3,541	(451)	(1,452)	78,177
2014	78,177	3,791	(186)	(1,363)	80,419
2015	80,419	4,171	(308)	(1,505)	82,777
2016	82,777	3,267	(16)	(1,935)	84,093

Retiree membership summary based on latest valuation reports. Estimated retiree memberships of 85,000 for 2017.

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

#### Average Years of Service

Year Ended June 30	Men	Women	Men and Women	Total Number of Retirees*
2007	28.7	26.3	26.9	2,715
2008	28.3	25.8	26.4	2,838
2009	26.7	25.1	25.5	2,626
2010	26.6	25.8	26.0	3,065
2011	26.5	25.3	25.6	3,285
2012	25.8	25.2	25.3	4,180
2013	25.1	24.8	24.9	3,541
2014	24.2	24.7	24.6	3,791
2015	24.9	24.0	24.2	4,171
2016	24.5	24.3	24.4	3,267

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

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

Year	Average Age	OPTIONS CHOSEN BY TIER I/II MEMBERS					OPTIONS CHOSEN BY TIER III/IV/VI MEMBERS			
		Maximum Payout	Pop-Up Payments	Continuing Payments	Lump-Sum Payment	Guaranteed Number of Payments	Maximum Payout	Pop-Up Payments	Continuing Payments	Guaranteed Number of Payments
2008	60.4	68.1%	17.6%	12.3%	1.3%	0.7%	75.6%	11.8%	9.8%	2.8%
2009	60.4	62.8%	20.8%	14.5%	0.8%	1.1%	73.2%	14.3%	10.2%	2.3%
2010	60.5	65.2%	20.3%	12.5%	0.8%	1.2%	71.4%	17.1%	9.3%	2.2%
2011	60.5	59.2%	24.5%	12.1%	2.8%	1.4%	71.0%	16.4%	10.5%	2.1%
2012	60.6	61.1%	24.8%	11.3%	1.1%	1.7%	71.4%	17.2%	9.7%	1.7%
2013	60.7	64.1%	21.5%	11.5%	1.3%	1.6%	68.9%	19.1%	10.3%	1.7%
2014	60.8	62.1%	25.2%	10.7%	1.1%	0.9%	69.2%	19.5%	9.6%	1.7%
2015	60.8	50.8%	25.4%	20.0%	1.5%	2.3%	68.5%	18.1%	10.6%	2.8%
2016	60.9	59.4%	20.3%	17.6%	0.7%	2.0%	68.2%	19.6%	10.7%	1.5%
2017	60.9	62.4%	23.7%	11.9%	0.0%	2.0%	67.8%	19.4%	10.9%	1.9%

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

Year*	Survivor	Other**	Under 5 Yrs***	5 - 9 Yrs	10 - 14 Yrs	15 - 19 Yrs	20 - 24 Yrs	25 - 29 Yrs	30 - 34 Yrs	35 & up Yrs	Total
Retirees 2008	3,777	8,011	51	739	3,313	4,995	7,092	13,514	17,415	10,874	69,781
Retirees 2009	3,878	7,546	54	832	3,476	5,121	7,390	13,933	17,609	10,986	70,825
Retirees 2010	3,935	6,493	59	934	3,709	5,310	7,829	14,557	18,139	11,391	72,356
Retirees 2011	3,989	6,423	60	1,040	3,937	5,466	8,163	15,057	18,401	11,529	74,065
Retirees 2012	4,071	5,882	63	1,165	4,382	5,720	8,786	15,942	18,786	11,742	76,539
Retirees 2013	4,118	5,386	64	1,270	4,704	5,862	9,371	16,634	19,064	11,727	78,177
Retirees 2014	4,257	8,208	65	1,377	5,054	6,011	9,600	16,671	18,140	11,036	80,419
Retirees 2015	4,403	4,620	68	1,481	5,543	6,374	10,588	18,260	19,649	11,791	82,777
Retirees 2016	4,564	4,989	67	1,516	5,794	6,535	10,854	18,568	19,536	11,670	84,093
Retirees 2017****	4,635	4,109	69	1,566	5,975	6,713	11,266	19,106	19,912	11,649	85,000

Year*	Under 5 Yrs***	5 - 9 Yrs	10 - 14 Yrs	15 - 19 Yrs	20 - 24 Yrs	25 - 29 Yrs	30 - 34 Yrs	35 & up Yrs
Avg Monthly Benefit 2008	\$996	\$506	\$839	\$1,387	\$2,152	\$3,452	\$4,717	\$6,151
Avg Monthly Benefit 2009	\$998	\$519	\$855	\$1,379	\$2,095	\$3,348	\$4,451	\$5,774
Avg Monthly Benefit 2010	\$1,073	\$609	\$872	\$1,336	\$2,172	\$3,466	\$4,592	\$5,976
Avg Monthly Benefit 2011	\$1,194	\$568	\$951	\$1,459	\$2,394	\$4,004	\$5,451	\$7,556
Avg Monthly Benefit 2012	\$1,265	\$588	\$987	\$1,504	\$2,331	\$3,682	\$4,798	\$6,286
Avg Monthly Benefit 2013	\$1,292	\$597	\$993	\$1,478	\$2,417	\$3,822	\$4,969	\$6,532
Avg Monthly Benefit 2014	\$1,322	\$614	\$1,005	\$1,531	\$2,451	\$3,897	\$5,100	\$6,764
Avg Monthly Benefit 2015	\$1,324	\$606	\$1,046	\$1,541	\$2,609	\$4,054	\$5,279	\$7,350
Avg Monthly Benefit 2016	\$1,290	\$681	\$1,118	\$1,555	\$2,601	\$4,065	\$5,202	\$6,895
Avg Monthly Benefit 2017****	\$1,360	\$648	\$1,112	\$1,626	\$2,693	\$4,198	\$5,368	\$7,061

Year*	Under 5 Yrs***	5 - 9 Yrs	10 - 14 Yrs	15 - 19 Yrs	20 - 24 Yrs	25 - 29 Yrs	30 - 34 Yrs	35 & up Yrs
Final Average Salary 2008	\$27,614	\$36,927	\$39,399	\$41,535	\$50,662	\$66,679	\$68,899	\$78,148
Final Average Salary 2009	\$27,306	\$38,280	\$40,348	\$42,379	\$51,881	\$69,811	\$69,802	\$79,190
Final Average Salary 2010	\$28,056	\$39,632	\$41,401	\$43,566	\$53,567	\$61,429	\$71,226	\$80,400
Final Average Salary 2011	\$28,895	\$40,803	\$42,607	\$44,701	\$55,226	\$63,830	\$72,377	\$81,273
Final Average Salary 2012	\$30,270	\$42,741	\$44,943	\$46,367	\$57,724	\$66,782	\$73,787	\$82,267
Final Average Salary 2013	\$31,076	\$43,539	\$46,381	\$47,698	\$59,738	\$69,113	\$74,985	\$82,940
Final Average Salary 2014	\$30,646	\$43,911	\$47,700	\$48,561	\$60,661	\$70,338	\$75,376	\$83,206
Final Average Salary 2015	\$30,946	\$44,441	\$49,831	\$50,645	\$63,802	\$73,796	\$77,860	\$84,692
Final Average Salary 2016	\$30,465	\$44,767	\$51,350	\$52,142	\$65,096	\$75,755	\$78,660	\$85,340
Final Average Salary 2017****	\$30,945	\$45,569	\$52,882	\$54,286	\$67,606	\$78,798	\$80,914	\$86,726

\* Retiree figures for 2008-2016 take into account retirement valuation reports.  
 \*\* Refers to retirees with a payment setup processed by a previous database system. The current payment system was initiated in 1998.  
 \*\*\* Retirees include Service Retirement, Accidental Disability, and Ordinary Disability. The majority of retirees with under 5 Yrs. of service are Accidental Disability.  
 \*\*\*\* Retiree figures for 2017 include Service or FAS retirement revision cases previously categorized as "Other."  
**Note:** If elected, total monthly benefits for Tier I and Tier II members depend on current unit value.

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

Year Ended June 30	SERVICE RETIREMENT BENEFITS		ORDINARY (NON-DUTY) DISABILITY BENEFITS		ACCIDENTAL (DUTY) DISABILITY BENEFITS		SURVIVORS' BENEFITS	
	Number	Average Annual Allowance	Number	Average Annual Allowance	Number	Average Annual Allowance	Number	Average Annual Benefit
2007	62,235	44,613	1,993	19,664	545	36,590	3,719	25,732
2008	63,343	45,603	2,043	20,883	573	39,478	3,822	29,109
2009	64,281	42,235	2,037	19,141	589	35,993	3,918	25,317
2010	65,734	43,381	2,068	19,500	619	36,849	3,935	26,170
2011	67,253	45,300	2,153	20,134	670	38,202	3,989	28,432
2012	69,515	45,718	2,242	20,549	711	39,116	4,071	28,235
2013	71,017	46,994	2,299	21,093	713	39,954	4,148	29,773
2014	73,069	48,325	2,379	21,641	714	40,738	4,257	31,619
2015	75,251	48,639	2,481	22,020	732	41,360	4,313	32,229
2016	76,346	48,749	2,541	22,284	745	41,492	4,461	32,579

### SCHEDULE 13: SERVICE RETIREMENT ALLOWANCES—QPP

As of June 30, 2016

MEN			WOMEN		
Age	Number of Retirees	Average Annual Allowance	Age	Number of Retirees	Average Annual Allowance
under 30	0	0	under 30	0	0
30-34	0	0	30-34	0	0
35-39	0	0	35-39	0	0
40-44	0	0	40-44	0	0
45-49	0	0	45-49	0	0
50-54	0	0	50-54	0	0
55-59	767	\$51,965	55-59	2,281	\$50,492
60-64	1,969	51,081	60-64	6,677	48,560
65-69	5,792	61,031	65-69	14,065	52,426
70-74	5,654	60,599	70-74	11,377	47,297
75-79	3,248	54,114	75-79	7,572	41,378
80-84	2,293	53,150	80-84	5,353	37,275
85-89	1,556	50,978	85-89	3,966	36,601
90 & over	854	46,472	90 & over	2,922	32,755
<b>TOTAL</b>	<b>22,133</b>	<b>\$56,621</b>	<b>TOTAL</b>	<b>54,213</b>	<b>\$45,535</b>
TOTAL ANNUAL ALLOWANCES PAID \$1,253,196,820			TOTAL ANNUAL ALLOWANCES PAID \$2,468,586,627		

**SCHEDULE 14: ORDINARY DISABILITY RETIREMENT ALLOWANCES—QPP***As of June 30, 2016*

MEN			WOMEN		
Age	Number of Retirees	Average Annual Allowance	Age	Number of Retirees	Average Annual Allowance
under 30	0	-	under 30	0	-
30-34	0	-	30-34	0	-
35-39	2	\$17,399	35-39	9	\$24,612
40-44	10	27,738	40-44	28	21,692
45-49	21	25,978	45-49	84	24,495
50-54	47	26,372	50-54	177	26,020
55-59	74	27,179	55-59	287	23,626
60-64	95	23,070	60-64	399	21,769
65-69	143	25,466	65-69	418	21,873
70-74	98	24,822	70-74	268	19,749
75-79	41	21,977	75-79	145	16,070
80-84	19	19,620	80-84	72	15,890
85-89	13	23,952	85-89	42	17,635
90 & over	7	31,175	90 & over	42	19,942
<b>TOTAL</b>	<b>570</b>	<b>\$24,873</b>	<b>TOTAL</b>	<b>1,971</b>	<b>\$21,535</b>

**TOTAL ANNUAL ALLOWANCES PAID \$14,177,803**      **TOTAL ANNUAL ALLOWANCES PAID \$42,446,261**

**SCHEDULE 15: ACCIDENT DISABILITY RETIREMENT ALLOWANCES—QPP***As of June 30, 2016*

MEN			WOMEN		
Age	Number of Retirees	Average Annual Allowance	Age	Number of Retirees	Average Annual Allowance
under 30	0	-	under 30	0	-
30-34	1	\$34,828	30-34	1	\$38,810
35-39	1	23,307	35-39	6	37,709
40-44	6	47,359	40-44	8	45,736
45-49	4	51,867	45-49	13	47,661
50-54	5	46,164	50-54	34	42,108
55-59	13	48,918	55-59	61	37,604
60-64	29	52,887	60-64	87	40,786
65-69	61	44,234	65-69	128	40,896
70-74	43	46,917	70-74	94	39,490
75-79	23	47,347	75-79	38	35,552
80-84	12	40,823	80-84	32	32,730
85-89	8	40,246	85-89	17	38,458
90 & over	6	42,004	90 & over	14	40,664
<b>TOTAL</b>	<b>212</b>	<b>\$46,315</b>	<b>TOTAL</b>	<b>533</b>	<b>\$39,574</b>

**TOTAL ANNUAL ALLOWANCES PAID \$9,818,763**      **TOTAL ANNUAL ALLOWANCES PAID \$21,092,711**

## SCHEDULE 16: SURVIVORS' BENEFITS—QPP

As of June 30, 2016

MEN			WOMEN		
Age	Number of Beneficiaries	Average Annual Benefit	Age	Number of Beneficiaries	Average Annual Benefit
under 30	5	\$22,279	under 30	6	\$22,348
30-34	4	7,527	30-34	8	23,749
35-39	11	19,875	35-39	12	18,579
40-44	10	23,717	40-44	18	18,950
45-49	17	14,713	45-49	18	17,778
50-54	26	11,121	50-54	55	17,735
55-59	34	19,499	55-59	86	23,305
60-64	58	23,496	60-64	124	32,978
65-69	129	31,148	65-69	311	40,331
70-74	188	35,706	70-74	461	40,254
75-79	165	28,365	75-79	455	38,767
80-84	170	26,154	80-84	518	36,137
85-89	195	25,090	85-89	517	33,809
90 & over	255	25,332	90 & over	605	29,337
<b>TOTAL</b>	<b>1,267</b>	<b>\$27,128</b>	<b>TOTAL</b>	<b>3,194</b>	<b>\$34,741</b>
<b>TOTAL ANNUAL BENEFITS PAID</b>		<b>\$34,371,598</b>	<b>TOTAL ANNUAL BENEFITS PAID</b>		<b>\$110,963,139</b>

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

Year Ended	Investment Agent Count	Investment Expenses	TRS Employees Count*	Administrative Expenses
2008	170	\$110,210,842	375	\$52,524,702
2009	200	\$111,203,770	374	\$51,090,690
2010	206	\$139,101,694	365	\$51,929,857
2011	188	\$136,300,683	364	\$49,428,933
2012	221	\$122,647,913	368	\$50,064,502
2013	227	\$151,401,872	373	\$49,877,929
2014	230	\$169,736,553	376	\$63,230,181
2015	228	\$205,719,517	370	\$84,173,556
2016	230	\$209,422,244	365	\$91,998,934
2017	221**	\$308,283,033**	351	\$93,821,614

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

\*\* 2017 details are found in the schedule: Summary of Investment Managers and Fees of the Investment Section.



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

Year Ended	Pension Fund	Diversified Equity	Bond Fund*	International Equity	Inflation Protection	Socially Responsive Equity	Net Position	Changes in Net Position
2008	\$8,896,613	\$7,096,600	\$274,660	NA	NA	NA	\$16,267,873	(\$112,124)
2009	10,605,577	4,499,663	278,335	39,046	7,644	7,457	15,437,722	(830,151)
2010	11,884,377	4,999,750	293,448	51,831	11,978	12,441	17,253,825	1,816,103
2011	13,118,153	6,293,322	308,666	71,674	19,833	22,145	19,833,793	2,579,968
2012	14,554,722	5,975,066	301,727	57,905	22,590	30,087	20,942,097	1,108,304
2013	16,021,066	6,762,476	304,675	71,621	28,001	41,837	23,229,676	2,287,579
2014	17,450,769	7,909,321	304,788	96,028	37,488	75,095	25,873,489	2,643,813
2015	18,922,602	7,869,896	302,816	97,942	39,437	100,889	27,333,582	1,460,093
2016	20,511,536	7,365,430	312,613	96,081	41,444	117,236	28,444,340	1,110,758
2017	22,223,301	8,194,607	310,195	120,211	50,138	153,641	31,052,093	2,607,753

\* Stable-Value Fund prior to January 1, 2012.

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

Year Ended	1 Net Member Contributions	2 Fixed Interest from TRSNYC Pension Fund	3 Net Investment Income	5 Withdrawals	6 Other Benefits*	7 Annuitized Payments	8 Administrative Expenses	9 Change in Net Position
2008	\$602,749	\$648,015	(\$921,703)	(\$331,142)	(\$58,985)	(\$38,923)	(\$12,135)	(\$112,124)
2009	639,170	767,007	(1,849,614)	(263,692)	(80,563)	(29,008)	(13,451)	(830,151)
2010	640,370	816,557	683,726	(212,307)	(72,051)	(29,727)	(10,465)	1,816,103
2011	631,840	854,073	1,585,111	(369,370)	(80,565)	(31,241)	(9,880)	2,579,968
2012	627,159	945,967	109,651	(431,412)	(98,606)	(34,103)	(10,352)	1,108,304
2013	633,900	1,047,979	1,216,793	(460,659)	(104,402)	(35,837)	(10,195)	2,287,579
2014	638,979	1,147,923	1,631,411	(577,102)	(139,759)	(40,451)	(17,188)	2,643,813
2015	662,601	1,248,988	435,632	(658,504)	(157,994)	(44,847)	(25,783)	1,460,093
2016	717,566	1,354,207	(11,194)	(708,466)	(164,389)	(44,334)	(32,632)	1,110,758
2017	743,663	1,466,615	1,398,500	(781,276)	(139,690)**	(47,027)	(33,032)	2,607,753

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

\*\* Includes \$43,938 positive adjustment for TDA rebalance transfers.

## SCHEDULE 20: 2017 CHANGES IN NET POSITION—TDA PROGRAM

*In Thousands*

	Pension Fund	Diversified Equity	Bond Fund	International Equity	Inflation Protection	Socially Responsive Equity	Net Position
2016 Net Position	\$20,511,536	\$7,365,430	\$312,613	\$96,081	\$41,444	\$117,236	\$28,444,340
Member Contributions	515,582	173,135	19,201	12,327	6,455	16,963	743,663
Payment of interest on TDA fixed return funds	1,466,615	-	-	-	-	-	1,466,615
Interest & Misc Income	26,192	5,268	4,499	88	105	17	36,169
Dividend Income	-	132,902	-	2,227	1,012	2,096	138,237
Realized Profit/Loss	-	258,682	(499)	4,335	46	2,718	265,282
Unrealized Profit/Loss	-	924,319	(2,911)	13,932	(464)	18,417	953,293
Benefit Payments	(165,263)	(74,267)	(2,654)	(613)	(210)	(716)	(243,723)
Refunds & Withdrawals	(595,479)	(156,272)	(8,745)	(2,686)	(1,611)	(3,414)	(768,207)
Interfund Transfer	515,049	(504,839)	(4,655)	(6,254)	2,131	(1,432)	-
TDA Rebalance	(50,931)	95,489	(5,700)	1,148	1,312	2,620	43,938
Provision for Expenses*	-	(25,240)	(954)	(374)	(82)	(864)	(27,514)
<b>2017 Net changes</b>	<b>\$1,711,765</b>	<b>\$829,177</b>	<b>(\$2,418)</b>	<b>\$24,130</b>	<b>\$8,694</b>	<b>\$36,405</b>	<b>\$2,607,753</b>
<b>2017 Net Position</b>	<b>\$22,223,301</b>	<b>\$8,194,607</b>	<b>\$310,195</b>	<b>\$120,211</b>	<b>\$50,138</b>	<b>\$153,641</b>	<b>\$31,052,093</b>

\* Includes Administrative and Investment Expenses.

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

Year	As of July 1	Contributors Registered	Payroll Status Changes	Contributors Withdrawn	As of June 30th
2007	69,257	1,642	3,362	(3,148)	71,113
2008	71,113	1,841	3,023	(3,079)	72,898
2009	72,898	1,121	3,768	(2,638)	75,149
2010	75,149	458	3,041	(2,731)	75,917
2011	75,917	845	2,617	(3,022)	76,357
2012	76,357	1,435	2,965	(3,513)	77,244
2013	77,244	1,834	2,095	(3,400)	77,773
2014	77,773	1,914	1,587	(3,569)	77,705
2015	77,705	2,751	3,168	(2,440)	81,184
2016	81,184	3,367	3,464	(3,108)	84,907

*Active membership summary based on latest valuation reports.*

### SCHEDULE 22: TDA PROGRAM ANNUITANTS SUMMARY

Year	As of July 1	Annuitants Registered	Payroll Status Changes	Annuitants Withdrawn	As of June 30th
2007	4,373	84	(76)	(241)	4,140
2008	4,140	69	(57)	(295)	3,857
2009	3,857	51	7	(311)	3,604
2010	3,604	63	(81)	(167)	3,419
2011	3,419	86	10	(264)	3,251
2012	3,251	140	(42)	(165)	3,184
2013	3,184	97	(50)	(176)	3,055
2014	3,055	120	(5)	(134)	3,036
2015	3,036	105	(18)	(132)	2,991
2016	2,991	86	16	(163)	2,930

*Annuitant membership summary based on latest valuation reports.*

### SCHEDULE 23: MEMBERSHIP BY AGE (ACTIVE, DEFERRAL & BENEFICIARY ACCOUNTS AS OF JUNE 30, 2017)—TDA PROGRAM

Age	Contributing		Non-Contributing		Deferred*		Beneficiary		Loans**	
	Count	Fund Balance	Count	Fund Balance	Count	Fund Balance	Count	Fund Balance	Count	Loan Balance
=<25	8,532	\$91,591,843	580	\$1,901,267	1	\$48,597	20	\$1,370,060	543	\$2,213,428
30	11,149	312,247,100	1,215	28,679,484	76	2,947,967	14	1,850,846	2,648	15,625,405
35	12,503	703,976,830	1,826	79,875,694	229	11,754,600	20	3,793,060	6,462	42,139,501
40	11,744	1,006,987,958	1,234	64,575,188	331	22,655,554	26	6,637,068	8,601	58,388,659
45	11,428	1,355,130,366	994	56,079,543	475	42,217,065	62	14,996,519	9,060	59,337,083
50	10,404	1,610,621,089	952	73,680,766	585	65,205,689	81	16,229,683	8,576	58,456,743
55	8,757	1,581,028,564	676	56,045,222	3,044	810,937,240	113	22,661,254	7,352	50,565,656
60	6,290	1,263,816,058	437	33,558,411	7,123	2,197,195,609	96	21,701,552	5,292	39,125,237
65	2,362	558,426,436	183	15,856,817	14,472	5,795,596,880	129	43,601,203	3,907	35,718,741
70	550	170,395,331	67	6,348,310	13,995	6,308,419,747	135	58,462,312	2,112	19,626,949
75	106	47,897,256	31	5,647,357	7,388	3,123,086,515	124	43,861,686	797	6,845,076
80	24	13,428,227	14	2,530,543	4,112	1,594,810,227	88	31,166,196	280	2,477,713
85	4	4,481,950	7	634,295	2,066	676,445,491	58	13,847,626	96	911,816
90	3	450,219	-	-	551	120,304,637	23	4,924,566	7	99,290

Source: TRS query reports

\* Includes inactive memberships.

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

**SCHEDULE 24: WITHDRAWALS BY AGE (FROM ACTIVE, DEFERRAL & BENEFICIARY ACCOUNTS, FISCAL YEAR 2017)—TDA PROGRAM**

Age	Partial Withdrawals*		401(a) Service Purchase		RMD Withdrawals**		Total Withdrawals***		Survivors' Payments ****	
	Count	Distribution	Count	Distribution	Count	Distribution	Count	Distribution	Count	Distribution
<25	14	\$89,310	9	\$18,053	18	\$26,618	163	\$1,981,604	2	\$34,088
30	52	640,715	17	60,861	12	30,983	305	6,645,973	1	46,176
35	173	2,454,135	49	192,564	13	63,498	240	6,667,468	2	110,699
40	215	3,185,610	52	174,598	23	137,796	180	5,840,024	6	470,338
45	280	4,629,375	79	347,133	56	368,652	130	3,755,081	18	1,432,544
50	364	6,872,028	103	563,030	73	426,820	108	4,368,827	41	3,177,281
55	1,992	34,807,190	138	725,372	85	538,477	110	7,218,517	55	4,386,204
60	4,614	63,436,855	96	448,904	78	654,898	182	7,679,391	105	8,995,977
65	4,391	65,429,539	41	161,792	78	1,371,472	132	11,559,049	188	36,632,221
70	3,052	49,300,639	8	26,006	10,534	171,987,081	126	12,072,490	251	44,057,386
75	1,074	16,551,820	-	-	6,604	127,175,033	39	2,130,721	298	45,635,763
80	427	7,183,669	1	1,590	3,694	81,377,134	19	2,491,736	344	46,290,351
85	152	3,193,954	-	-	1,777	43,167,819	16	3,843,518	225	27,299,811
90	27	717,593	-	-	422	9,232,912	3	192,549	102	6,873,286

Source: TRS query reports

\* Includes 125 Partial Withdrawals to Beneficiaries.

\*\* Includes 777 RMD Withdrawals to Beneficiaries.

\*\*\* Includes 24 Total Withdrawals to Beneficiaries.

\*\*\*\* Includes the establishment of 177 (\$41.1 million) new Beneficiary accounts.

### SCHEDULE 25: FUND CONVERSION OF INVESTMENT BALANCES BY AGE (FISCAL YEAR 2017)—TDA PROGRAM

From	To	=<25	30	35	40	45	50	55	60	65	70	75	80	85	90+
FX	VA	11.5%	7.4%	7.1%	5.0%	2.9%	1.8%	1.7%	1.1%	1.1%	0.8%	1.0%	2.4%	0.0%	0.0%
FX	VB	0.1%	0.8%	0.3%	0.2%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
FX	VC	0.9%	0.7%	0.3%	0.3%	0.3%	0.2%	0.1%	0.2%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%
FX	VD	0.3%	0.5%	0.2%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
FX	VE	1.6%	3.5%	0.6%	0.6%	1.1%	0.6%	0.3%	0.3%	0.0%	0.1%	0.5%	0.0%	0.0%	0.0%
VA	FX	37.0%	51.9%	69.4%	78.8%	84.2%	88.2%	88.7%	90.6%	93.5%	95.2%	94.8%	96.6%	94.2%	100.0%
VA	VB	0.0%	0.0%	0.4%	0.2%	0.1%	0.1%	0.0%	0.1%	0.2%	0.3%	0.0%	0.0%	0.0%	0.0%
VA	VC	0.0%	0.0%	0.3%	0.2%	0.3%	0.1%	0.0%	0.0%	0.2%	0.1%	0.2%	0.1%	0.0%	0.0%
VA	VD	0.0%	0.0%	0.1%	0.3%	0.1%	0.1%	0.1%	0.0%	0.1%	0.0%	0.2%	0.0%	0.0%	0.0%
VA	VE	0.3%	0.2%	0.8%	0.9%	0.5%	1.0%	1.0%	0.8%	1.1%	0.2%	1.0%	0.1%	2.3%	0.0%
VB	FX	4.8%	4.1%	3.7%	2.4%	2.7%	2.2%	3.0%	2.4%	1.1%	0.4%	1.0%	0.1%	0.6%	0.0%
VB	VA	1.2%	0.8%	0.7%	0.6%	0.5%	0.3%	0.3%	0.2%	0.1%	0.0%	0.0%	0.0%	0.4%	0.0%
VB	VC	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VB	VD	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
VB	VE	0.1%	0.0%	0.1%	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VC	FX	5.1%	9.1%	5.7%	3.6%	1.7%	1.6%	1.0%	1.6%	0.6%	0.5%	0.1%	0.5%	1.2%	0.0%
VC	VA	1.1%	1.8%	0.7%	0.4%	0.3%	0.1%	0.1%	0.0%	0.0%	1.2%	0.0%	0.0%	0.6%	0.0%
VC	VB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VC	VD	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VC	VE	0.2%	1.5%	0.7%	0.3%	0.1%	0.2%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
VD	FX	7.4%	3.0%	1.0%	0.6%	0.6%	0.5%	0.5%	0.4%	0.2%	0.1%	0.0%	0.0%	0.7%	0.0%
VD	VA	2.5%	0.9%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VD	VB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VD	VC	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VD	VE	0.4%	0.3%	0.3%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VE	FX	22.8%	12.9%	6.6%	5.1%	3.1%	2.5%	3.1%	2.2%	1.5%	1.0%	0.8%	0.1%	0.0%	0.0%
VE	VA	2.2%	0.6%	0.4%	0.1%	1.0%	0.3%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
VE	VB	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VE	VC	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
VE	VD	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: TRS query reports

FX refers to the Fixed Return Fund

VA refers to the Diversified Equity Fund

VB refers to the Bond Fund

VC refers to the International Equity Fund

VD refers to the Inflation Protection Fund

VE refers to the Socially Responsive Equity Fund



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