



**Board of Education Retirement System  
of the City of New York**

*A Fiduciary Fund of the City of New York*

**Comprehensive Annual Financial Report**  
of the Qualified Pension Plan and the  
Tax Deferred Annuity Program

For the Years Ended June 30, 2017  
and June 30, 2016



**BERS**  
**BRIDGING THE GAP  
BETWEEN WORK  
AND RETIREMENT**







# **Board of Education Retirement System of the City of New York**

*A Fiduciary Fund of the City of New York*

## **Comprehensive Annual Financial Report of the Qualified Pension Plan and the Tax Deferred Annuity Program**

For the Fiscal Years Ended  
June 30, 2017 and June 30, 2016

*Prepared by  
Sanford R. Rich, Executive Director  
Jean-Daniel Desmornes, Director of Fiscal Operations*

**State of New York**





**Verrazano-Narrows Bridge**

Upper deck opened on November 21, 1964

Lower deck opened on June 28, 1969

# Comprehensive Annual Financial Report

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**Brooklyn Bridge**  
Opened on May 24, 1883

# INTRODUCTORY

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**SANFORD R. RICH**  
EXECUTIVE DIRECTOR  
**DANIEL D. MILLER**  
DEPUTY EXECUTIVE DIRECTOR

**BOARD OF EDUCATION RETIREMENT SYSTEM  
OF THE CITY OF NEW YORK**  
65 COURT STREET – 16<sup>th</sup> FLOOR  
BROOKLYN, NEW YORK 11201- 4965

929-305-3800  
OUTSIDE NEW YORK STATE  
1-800-843-5575

December 15<sup>th</sup>, 2017

Board of Trustees  
Board of Education Retirement System  
City of New York  
65 Court Street, 16th Floor  
Brooklyn, NY 11201

Ladies and Gentlemen:

I am pleased to present the Comprehensive Annual Financial Report (CAFR) of the New York City Board of Education Retirement System (BERS) for the fiscal years ended June 30, 2017 and June 30, 2016. BERS administers the BERS Qualified Pension Plan (the “QPP”) and the BERS Tax Deferred Annuity Program (the “TDA Program”).

The QPP is a cost sharing, multiple employer Public Employee Retirement System (PERS) that was created on August 31, 1921. The QPP provides pension benefits to non-pedagogical employees of the Department of Education and certain other specific schools and certain employees of the New York City School Construction Authority. The QPP combines features of a defined benefit pension plan with those of a defined contribution plan and functions in accordance with existing State statutes and City laws.

The TDA Program became operational on February 1, 1970 and is administered pursuant to the Internal Revenue Code Section 403(b) and existing State statutes and City laws. Certain members of the QPP have the option to participate in the TDA Program, which provides a means of deferring income tax payments on their voluntary tax-deferred contributions until the period after retirement or upon withdrawal of contributions. Contributions to the TDA Program are made by the members only. The TDA Program is maintained as a separate plan.

The responsibility for the accuracy of the data, and the completeness and fairness of the presentation, including all disclosures, rests with BERS. All disclosures necessary to enable the reader to gain an understanding of the system’s financial activities have been included. Analysis of the changes that affected BERS fiduciary net position is presented in the Management’s Discussion and Analysis section of this report.

**MAJOR LEGAL INITIATIVES - July 1, 2016 through June 30, 2017**

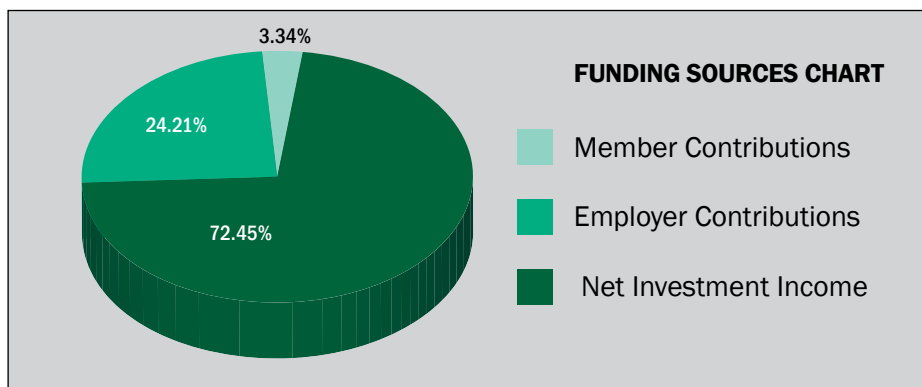
Chapter 71 of 2017

This act continues for Fiscal Year 2018, the Actuarial Interest Rate assumption of 7.00% per annum used to determine employer contributions to the New York City Pension Funds and Retirement Systems. This act also extends through Fiscal Year 2018, the interest rate of 8.25% per annum to credit interest on Tier 1 and Tier 2 member contributions and Increased-Take-Home-Pay (ITHP) Reserves.

**FUNDING**

The financial objective of the QPP is to fund members’ retirement benefits during their active service. The Employer contributes amounts that, together with member contributions and investment income, would ultimately be sufficient to accumulate assets to pay benefits when due. The Office of the Actuary establishes employer contribution rates which, expressed as a percentage of annualized covered payroll, remain approximately level from year to year. An adequate funding level provides assurance and security for payment of future benefits. In fiscal year 2017, BERS sought to maintain a level of funding within the established guidelines of the Government Accounting Standards Board (GASB). The chart below summarizes the contribution funding sources for fiscal year 2017 for the QPP.

Funding Sources		
Funds	Percentage	Contribution (In thousands)
Member Contributions	3.34%	\$39,821
Employer Contributions	24.21%	\$288,233
Net Investment Income	72.45%	\$862,510
<b>Total</b>	<b>100.00%</b>	<b>\$1,190,564</b>



Contributions to the TDA program are made on a voluntary basis by certain members of the QPP. TDA Members who elect to participate in a fixed return fund investment program accounts are credited with the statutory annual rate of interest, currently 7% for members represented by the United Federation of Teachers and 8.25% for all other members. Members can also elect to participate in a variable return fund program.



## INVESTMENTS

### Investment Summary

The System's assets are invested in two investment programs. These are the fixed return fund, which is managed by BERS, and the variable return fund consisting primarily of equity securities, which is managed by the Teachers' Retirement System (TRS).

The Board of Education Retirement System Total Fund returned 15.3%, for the fiscal year ending June 2017, compared to 13.4% for the Board of Education Policy Benchmark, against which it is measured. Performance for the fiscal year ranked in the first quartile of a peer group of public funds. The Fund increased in value and ended the fiscal year at \$5.3 billion (compared to \$4.5 billion last year). Over the 10-year time, the Fund remains ahead of benchmark, with a +6.0% average annual return versus +5.7% for the benchmark. The 10-year performance ranks in the top quartile of the peer group. The Fund's average annual return since 1987 is 8.8%.

As of June 2017, the variable investments excluding variable collateral security lending, held at TRS increased to \$504.89 million from \$452.27 million in FY2016, an increase of 11.63%. During FY 2017, the variable return fund performance was +15.87 % versus -.50% during FY2016.

### Investment Description<sup>1</sup>

Asset allocation is expected to be a major contributor to the Board of Education Retirement System's Fund total return. The Trustees establish a target asset mix after considering the long-term growth prospects of a diversified portfolio of investments and the expected costs of the Plan participants' benefits. In order to participate in the broad market performance while keeping Fund expenses low, the Fund uses passive, index strategies for the majority of its public equity allocation. During the 2017 FY, the implementation plan for the asset allocation approved during the prior FY has progressed with additions to Private Equity, Real Estate and Infrastructure investments, while reducing U.S. equities and developed market non-U.S. equities. These are long-term commitments expected to improve the risk and return profile of the fund. The Fund's target asset mix is 72% Equity (including the Private and Public equities, Real Estate and Infrastructure) and 28% Fixed Income. Over the long-term, which is the framework for considering the term structure of the Plans' liabilities, we expect our revised equity allocation will outperform fixed income by a significant margin.

For the FY ending June 2017, the asset allocation as well as the manager selection added value. The manager selection benefitted, as most active managers returns were ahead their benchmarks. Domestic Equity returned 19.0% for the FY ending June 30, 2017 versus an 18.5% return for the benchmark; all the value added was derived from the active mid cap manager. International Equity also performed strongly with a 27.7% return versus a 20.5% return for the benchmark; most of this performance coming from the active developed market Small Cap and the Emerging Markets managers. The Total Fixed Income return of +0.5% outperformed the custom benchmark return of -0.2%, most of the outperformance coming from the High Yield managers. As part of our ongoing monitoring, we review the manager contributions and the structure of the fund to achieve the expected levels of returns. The Fund's current level of diversification into alternative assets did help performance in FY 2017 as the Private Equity, Real Estate and Infrastructure investments out performed fixed income for the Fund. Market conditions and fund performance will continue to be closely monitored to accomplish the goal of providing the benefits as promised to participants.

1 Michael Wright, Segal Marco Advisors, Report on Investment Activity

### **Investment Policy**

BERS' investment policy statement, ratified by the Board of Trustees in January 2009 and amended in October 2011, in January 2013, in February 2015 and in June 2016, addresses investment objectives, investment philosophy and strategy, monitoring and evaluating performance, risk management, security lending protocol and rebalancing investment mix. The investment policy is available upon request.

### **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 International Investment Funds (the "IIF") and Alternative Investment Funds (the "ALTINVF"). The IIF are private funds of publicly traded securities which are managed by various investment managers on behalf of BERS. Fair value is determined by BERS 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 plan management based on information provided by the various GP's after review by an independent consultant and the custodian bank for the fund.

No investment in any one security represents 5% or more of BERS net position held in trust for benefits.

### **ECONOMIC AND MARKET COMMENT<sup>2</sup>**

Real US economic growth as measured by the GDP at June 30, 2017, grew at a rate of 2.6% year over year, well ahead of the FY 2016 rate. The slow steady growth in the U.S. economy, with low unemployment (albeit with a virtually unchanged labor force participation rate); consumer confidence at a healthy level, and low inflation gave the US Federal Reserve Bank the confidence to raise rates in December of 2016 and again in March and June. These increases were widely anticipated and positioned the Fed to continue its wind down of the quantitative easing started after the 2008 financial crisis. There is similar optimism in the Eurozone. Growth is slow, as in the U.S, but unemployment is trending lower, along with other positive factors such as increased business and consumer confidence, manufacturing, and industrial production. The European Central Bank has also intimated a downshift in its monetary stimulus may be around the corner as well.

Emerging markets experienced over 4.5% economic growth as measured by GDP, recovering from the very low levels of the last year. Trade and stability in commodity prices helped power strong stock market performance. While there were concerns about potential slowing in the Chinese economy, the other large emerging market economies – Brazil, Russia, and India – have recovered and are growing steadily. Manufacturing and mining company earnings are up, currencies have stabilized, and a weaker USD has helped recent returns.

The US stock market, as measured by the benchmark Russell 3000 index returned 18.5% for the FY, a dramatic recovery from last year's 2.1% return. International Developed Market stocks returned 20.3% and Emerging Market stocks returned 23.8%. Fixed income returns reflected a similar appetite for risk

2 Michael Wright, Segal Marco Advisors, Report on Investment Activity



as the High Yield, below investment grade bond index, returned 12.7% while the Barclays, US Aggregate investment grade index returned -.3%, reflecting its higher quality and sensitivity to the interest rate increases.

## **OTHER INFORMATION**

### **Internal Control**

The Executive Director is responsible for establishing and maintaining an internal control structure designed to provide reasonable assurance that the assets of the system are safeguarded and to ensure that adequate accounting data are compiled to allow for the preparation of financial statements in conformity with generally accepted accounting principles. The system's internal control practices are designed to provide reasonable assurance that these objectives are met.

The concept of reasonable assurance recognizes that the cost of a control should not exceed the benefits likely to be derived and that the valuation of costs and benefits requires estimates and judgments by management.

### **Accounting and Reporting**

This CAFR has been prepared in conformity with principles of governmental accounting and reporting, promulgated by the Governmental Accounting Standards Board (GASB), and according to guidelines adopted and published by the Government Finance Officers Association of the United States and Canada (GFOA).

The QPP as well as the TDA Program use the accrual basis of accounting where the measurement focus is on a 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 respective employers make payroll deductions from the QPP members and the TDA Program participants. Employer contributions to the QPP are recognized when due, and the employer has made a formal commitment to provide the contributions. Benefits and refunds are recognized when due and payable in accordance with the terms of governing the QPP and the TDA Program.

### **Independent Audit**

The five major retirement systems of the City of New York are required to undergo an annual audit by a firm of certified public accountants, in accordance with generally accepted auditing standards. Marks Paneth LLP, whose opinion is presented in the Financial Section of this report, conducted the audit of the financial statements of BERS for the fiscal years ended June 30, 2017 and June 30, 2016. The five New York City retirement systems also undergo a five-year audit conducted by the New York State Department of Financial Services. During the fiscal year 2015, BERS went through an audit covering fiscal year 2009 thru Fiscal Year 2014.

### **Professional Services**

The Chief Actuary provides actuarial services for the five major pension systems maintained by the City. The Chief Actuary's actuarial report and certification are included in this annual report. The New York City Comptroller and the Teachers' Retirement System retain investment managers to assist in the execution of investment policy in accordance with statutory authority, Retirement Board decisions and standard governing fiduciary practices.

Segal Marco Advisors is the consultant retained by the Retirement Board to perform professional services that are essential to the effective and efficient operations of the BERS.

Additional details about the consulting and professional services are mentioned in the introductory section page 10. Details of the brokerage firms are found in the investments section, page 85.

BERS went live with the new Enterprise Resource Planning software, known as the Comprehensive Pension Management System (CPMS) on May 31st, 2017. It was a multiyear project. The services of Vitech Systems Group Incorporated; GTJZ Consulting, and KPMG LLP have been retained to guide BERS through the transition phase.

#### **Awards**

The GFOA awarded a Certificate of Achievement for Excellence in Financial Reporting to the BERS for its CAFR for the fiscal year ended June 30, 2016. The Certificate of Achievement is a prestigious national award, recognizing conformance with the highest standards for preparation of a state and local government finance reports. To be awarded a Certificate of Achievement, a government unit must publish an easily readable and efficiently organized comprehensive annual financial report, whose contents conform to program standards. The CAFR must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. BERS has received a Certificate of Achievement over the last thirty consecutive years. We believe our current report continues to conform to the Certificate of Achievement program requirements and it will be submitted to the GFOA.

#### **Acknowledgments**

The dedicated service of the managers and staff of BERS made the preparation of this CAFR, on a timely basis, possible. In addition, our appreciation is extended to those members of the staffs of the Bureaus of Accountancy and Asset Management of the New York City Comptroller's Office and the Office of the Actuary who worked closely with the BERS personnel in the compilation of this report. We hope that the members of the Retirement Board, officials of the Department of Education of the City of New York, our members and the citizens of the City will find this report informative and helpful.

Respectfully submitted,



Sanford R. Rich  
Executive Director





# New York City Board of Education Retirement System

For the Fiscal Year Ended June 30, 2017

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## **BOARD OF TRUSTEES**

HON. PETER J. CALANDRELLA

HON. ISAAC CARMIGNANI

HON. GENEAL CHACON

HON. APRIL CHAPMAN

HON. T. ELZORA CLEVELAND

HON. DEBORAH DILLINGHAM

HON. CARMEN FARIÑA, CHANCELLOR

HON. MICHAEL KRAFT

HON. VANESSA LEUNG

HON. GARY LINNEN

HON. JOHN MADERICH

HON. DONALD NESBIT

HON. RAYMOND ORLANDO, CHANCELLOR'S DESIGNEE

HON. LORI PODVESKER

HON. BENJAMIN SHULDINER

HON. STEPHANIE SOTO

HON. MIGUELINA ZORRILLA-ARISTY

CO-CHAIRS

HON. JOHN MADERICH

HON. RAYMOND ORLANDO

## **Prepared By:**

Sanford R. Rich, Executive Director

Jean-Daniel Desmornes, Director of Fiscal Operations

## **Actuary:**

Sherry S. Chan

Chief Actuary

## **Custodian of the Funds:**

Scott M. Stringer

Comptroller of the City of New York

## **Headquarters Address:**

Board of Education Retirement System

City of New York

65 Court Street, 16th Floor

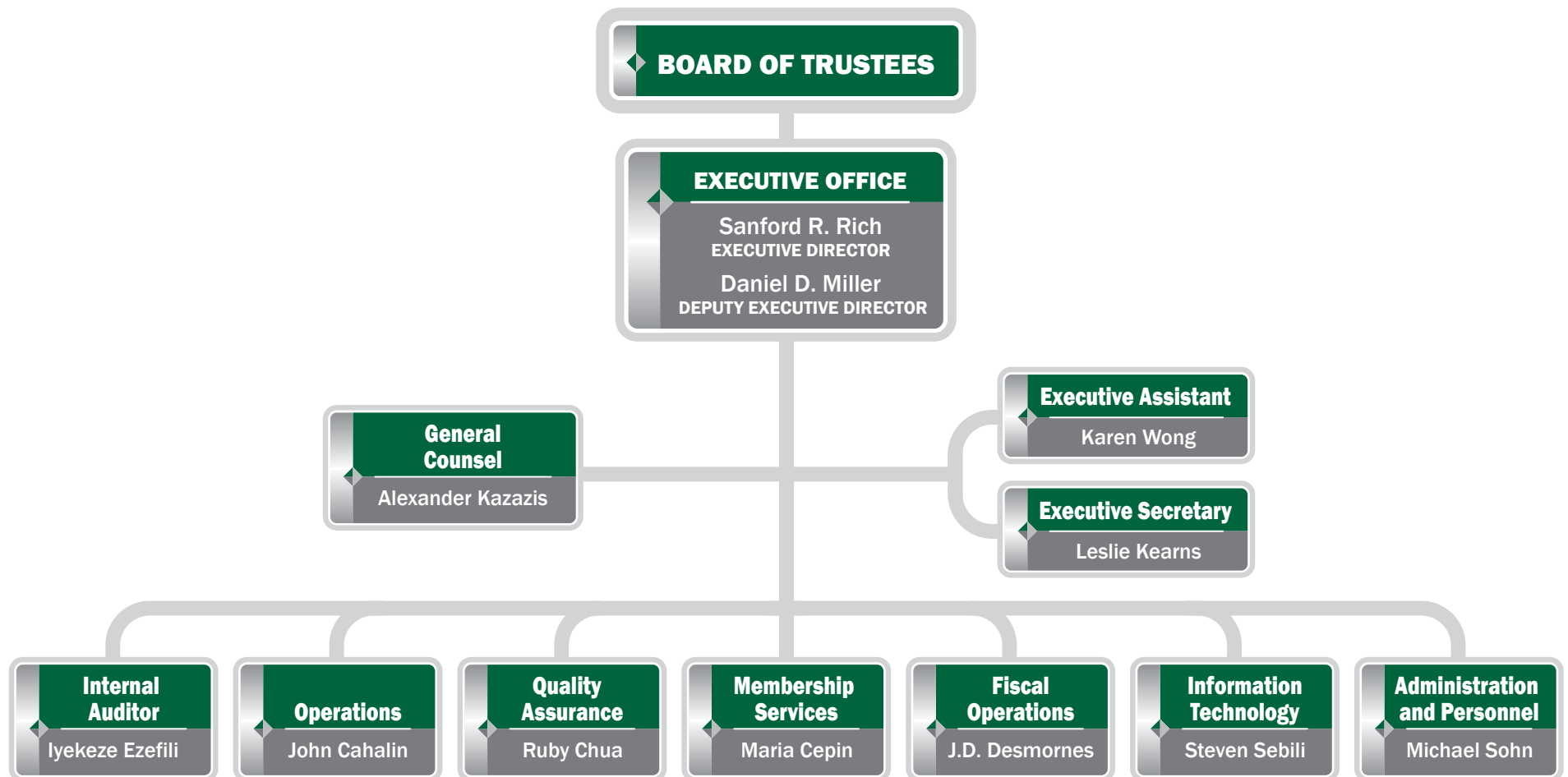
Brooklyn, New York 11201



# New York City Board of Education Retirement System

For the Fiscal Year Ended June 30, 2017

## ORGANIZATION CHART







# New York City Board of Education Retirement System

For the Fiscal Year Ended June 30, 2017

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## CONSULTING AND PROFESSIONAL SERVICES

### Actuary

Office of the Actuary  
255 Greenwich Street, 9<sup>th</sup> Floor  
New York, NY 10007

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### Auditors

Marks Paneth, LLP  
685 Third Avenue  
New York, NY 10017

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### Custodians of Funds

Office of the Comptroller  
1 Centre Street  
New York, NY 10007

Teachers Retirement System  
55 Water Street  
New York, NY 10041

---

### Investment Consultant

Segal Marco Advisors  
333 West 34th Street  
New York, NY 10001

---

### CPMS Consultants

Gary Tunnicliffe & Jack Ziegler, LLC  
321 Union Street, #4A  
Brooklyn, NY 11231

KPMG LLP  
345 Park Avenue  
New York, NY 10154

Vitech Systems Group, Inc.  
401 Park Avenue South, 12<sup>th</sup> Floor  
New York, NY 10016

WinMill Software, Inc.  
405 Park Avenue, 16<sup>th</sup> Floor  
New York, NY 10022

---



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**New York City**

**Board of Education Retirement System**

**Qualified Pension Plan, New York**

For its Comprehensive Annual  
Financial Report  
for the Fiscal Year Ended

**June 30, 2016**

Executive Director/CEO





**Queensboro Bridge**  
Opened on March 30, 1909

# FINANCIAL

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F 212.370.3759  
markspaneth.com

**M A R K S P A N E T H**  
ACCOUNTANTS & ADVISORS

## INDEPENDENT AUDITORS' REPORT

To the Board of Trustees of the  
New York City Board of Education Retirement System:

### ***Report on the Combining Financial Statements***

We have audited the accompanying combining statements of fiduciary net position of the New York City Board of Education Retirement System Qualified Pension Plan ("QPP") and the New York City Board of Education Retirement System Tax-Deferred Annuity ("TDA") Program, which collectively comprise the New York City Board of Education Retirement System, (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, Schedule 5 and Schedule 6, 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) For the Years Ended June 30, 2017 and 2016

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This narrative discussion and analysis of the New York City Board of Education Retirement Systems (“BERS” 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 the System’s combining financial statements by providing an overall review of the combining financial activities during the years, the effects of significant changes, and a comparison of the prior years’ activities and results. This discussion and analysis is intended to be read in conjunction with the System’s combining financial statements. The System administers the BERS Qualified Pension Plan (the “QPP”) and the BERS Tax-Deferred Annuity Program (the “TDA Program”).

### 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 Program, 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.
- **The Combining Statements of Changes in Fiduciary Net Position**—presents the results of activities during the fiscal year. All changes affecting the assets/deferred outflow and liabilities/deferred inflow of the System are reflected on an accrual basis when the activity occurred, regardless of the timing of the related cash flows. In that regard, changes in the fair values of investments are included in the year’s activity as net appreciation (depreciation) in fair value of investments.
- **The Notes to Combining Financial Statements**—provide additional information that is essential to a full understanding of the data provided in the combining financial statements. The notes present information about the System’s accounting policies, significant account balances and activities, material risks, obligations, contingencies, and subsequent events, if any.
- **Required Supplementary Information**—as required by GASB includes the management discussion and analysis and information presented after the notes to the combining financial statements.



**FINANCIAL HIGHLIGHTS**

**QPP Fiduciary Net Position**

During Fiscal Year 2017, QPP's net position restricted for benefits stood at \$4.09 billion, an increase of 20.00% from Fiscal year 2016. The increase in the net position during Fiscal Year 2017 was primarily due to an increase in the fair value of investments. Fair value of investments stood at \$5.71 billion, an increase of 14.05% from Fiscal year 2016. Return on investments increased from 3.28% in Fiscal Year 2016 to 15.11% in Fiscal year 2017. Member contributions stood at \$39.82 million, an increase of 3.21% from Fiscal Year 2016.

During Fiscal year 2016, QPP's net position restricted for benefits stood at \$3.42 billion, a decrease of 1.09% from Fiscal Year 2015. The decrease in the net position during Fiscal Year 2016 was primarily due to lower member contributions and investment returns, combined with the increases in the interests due to members of the fixed program of TDA Program of the System, benefit payments and administrative expenses. Member contributions and net investment income decreased by 2.48% and 7.35% respectively. Interest due to the members of the fixed program of the TDA Program increased by 11.38%. Benefit payments and administrative expenses increased by 7.83% and 17.00% respectively.

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

	<b>2017</b>	<b>2016</b>	<b>2015</b>
<b>Assets:</b>			
Cash	\$ 3,232	\$ 327	\$ 16,143
Receivables	155,750	166,060	95,756
Investments, at fair value	5,332,614	4,526,973	4,479,080
Collateral from securities lending	374,943	477,623	302,135
Other	<u>160,453</u>	<u>124,031</u>	<u>106,254</u>
<b>Total assets</b>	<u><b>6,026,992</b></u>	<u><b>5,295,014</b></u>	<u><b>4,999,368</b></u>
<b>Liabilities:</b>			
Accounts payable	13,884	6,907	6,199
Other liability	-	-	-
Payable for investment securities purchased	92,173	103,213	86,747
Accrued benefits payable	9,943	7,357	5,461
Due to the TDA Program's Fixed return fund from the System	1,436,478	1,283,481	1,144,817
Payables for securities lending	<u>374,943</u>	<u>477,623</u>	<u>302,135</u>
<b>Total liabilities</b>	<u><b>1,927,421</b></u>	<u><b>1,878,581</b></u>	<u><b>1,545,359</b></u>
<b>Net position restricted for benefits</b>	<u><b>\$ 4,099,571</b></u>	<u><b>\$ 3,416,433</b></u>	<u><b>\$ 3,454,009</b></u>

## Management's Discussion and Analysis (Unaudited) For the Years Ended June 30, 2017 and 2016 (Cont'd)

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Total receivables decreased from \$166.06 million in Fiscal year 2016 to \$ 155.75 million in Fiscal Year 2017, a decrease of 6.21%. Receivables for investments were at \$98.67 million in Fiscal Year 2017, a decrease of 17.12% from Fiscal Year 2016. Member loans increased by 2.54%. Other assets were at \$160.45 million in Fiscal Year 2017, an increase of 29.37% from Fiscal year 2016. Included in the other assets is a liability from the TDA program towards the QPP program, which stood at \$128.45 million in Fiscal Year 2017, an increase of 33.59% from Fiscal Year 2016. This liability from the TDA program towards the QPP program represents the adjustments made to the TDA Program as a result of accounting changes adopted within the comprehensive analysis of the TDA program of the system.

Total receivables increased from \$95.75 million in Fiscal Year 2015 to \$166.06 million at the close of Fiscal Year 2016. The increase in the receivables was primarily caused by the increase in the receivables for investment which went up by \$68.22 million. Also included in these receivables are QPP member's outstanding loans for Fiscal Year 2016 and Fiscal Year 2015 which were at \$46.75 million and \$44.68 million respectively. Other assets increased to \$124.03 million in Fiscal Year 2016, from \$106.25 million in Fiscal Year 2015, a 16.73% increase. Included in the other assets is a liability from the TDA program towards the QPP program, which stood at \$96.15 million and at \$83.90 million for fiscal years 2016 and 2015 respectively.

The QPP's receivables and payables for investments are primarily generated through the timing differences between the trade and settlement dates for investment securities purchased or sold.

"Due to the TDA Program's Fixed return fund from the System" represents a liability to the TDA program. The liability of \$1.43 billion in Fiscal Year 2017, is an obligation of the City of New York through the QPP. The liability in Fiscal Year 2017 increased by 11.92% from Fiscal Year 2016. The liability includes the TDA member's account balances for deposits invested in fixed investment program and the TDA Program's fixed and variable annuitants.

**Changes in QPP Fiduciary Net Position**

During Fiscal Year 2017, the QPP member contributions increased to \$39.82 million, an increase of 3.21% from Fiscal Year 2016.

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

	<b>2017</b>	<b>2016</b>	<b>2015</b>
Additions:			
Member contributions	\$ 39,821	\$ 38,581	\$ 39,564
Employer contributions	288,233	265,532	258,099
Net investment income before securities lending transaction	856,632	160,828	174,503
Net securities lending income	5,878	3,316	2,663
TDA Program's interest income in the fixed return fund	(106,554)	(94,789)	(85,104)
Other — payments to other retirement systems & other revenues /expenses	<u>(122,954)</u>	<u>(157,499)</u>	<u>(52,021)</u>
Total additions	<u>961,056</u>	<u>215,969</u>	<u>337,704</u>
Deductions:			
Benefit payments and withdrawals	262,432	240,727	223,244
Administrative expenses	<u>15,486</u>	<u>12,818</u>	<u>10,956</u>
Total deductions	<u>277,918</u>	<u>253,545</u>	<u>234,200</u>
Net increase (decrease) in net position	683,138	(37,576)	103,504
Net position restricted for benefits:			
Beginning of year	<u>3,416,433</u>	<u>3,454,009</u>	<u>3,350,505</u>
End of year	<u>\$ 4,099,571</u>	<u>\$ 3,416,433</u>	<u>\$ 3,454,009</u>

In Fiscal Year 2016, the QPP member contributions slightly decreased to \$38.58 million, a decrease of 2.48% from Fiscal Year 2015 contributions of \$39.56 million.

Employer contributions received through the QPP Program for the Fiscal Years 2017 and 2016 were at \$288.23 million and \$265.53 million, an increase of 8.55% and 2.88% respectively. The Fiscal Year 2017 increase is primarily due to a net actuarial loss. Employer contributions are made on a statutory basis based on the One-Year Lag methodology.

The net investment income, including the security lending income increased from \$164.14 million in Fiscal Year 2016, to \$862.51 million in Fiscal year 2017. Return on investments increased from 3.28% in Fiscal Year 2016 to 15.11% in Fiscal year 2017.



**Management's Discussion and Analysis (Unaudited)  
For the Years Ended June 30, 2017 and 2016  
(Cont'd)**

Interest (to) from the TDA Program's fixed return fund represents a guarantee 8.25% interest as revenue from the fixed fund program. During Fiscal Year 2017, the interest to the TDA Program's fixed return fund stood at \$106.55 million, an increase of 12.41% from Fiscal Year 2016.

**Net Investment Income (Loss) to QPP from TDA Member Holdings in Fixed Return Fund:  
Years Ended 2017, 2016 and 2015**

<b>(In thousands)</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>
Average proportion of investable assets from TDA	25.63%	25.03%	23.77%
Total NYC Pension Fund Net Investment Income	\$ 854,992	\$ 164,435	\$ 174,876
Calculated earnings on TDA Members' Fixed Return Fund holdings	219,121	41,165	41,568
Less: Statutory Interest Payments to TDA	<u>(106,554)</u>	<u>(94,789)</u>	<u>(85,104)</u>
Net investment income (loss) from TDA	<u>\$ 112,567</u>	<u>\$ (53,624)</u>	<u>\$ (43,536)</u>

The benefit payments and withdrawals increased from \$240.72 million in Fiscal Year 2016 to \$262.43 million in Fiscal Year 2017, an increase of 9.02%. During Fiscal Year 2016, plan benefits payments and withdrawals increased by 7.83%, from \$223.24 million to \$240.72 million. The increase in Fiscal Years 2017 and 2016 was primarily due to an increase in the pension benefits to retirees, which went up 9.46% and 6.12% respectively.

Administrative expenses showed an increase of 20.81% and 17.00% in Fiscal Years 2017 and 2016. The increase was primarily due to higher personnel expenses which increased by 18.20% and 28.75% respectively.

**TDA Program Fiduciary Net Position**

During Fiscal Year 2017, the TDA program's net position restricted for benefits stood at \$1.80 billion, a net increase of 10.41% from Fiscal Year 2016. The increase in Fiscal Year 2017 was primarily due to increase in the member contributions and investment returns. Member contributions increased from \$77.46 million to \$85.76 million, a net increase of 10.72% from Fiscal Year 2016. Fair value of TDA investments stood at \$463.16 million in Fiscal Year 2017, an increase of 8.87% from Fiscal Year 2016.

During Fiscal Year 2016, the TDA Program's net position restricted for benefits increased to \$1.63 billion, a net increase of \$118.72 million or 7.85% from Fiscal Year 2015. The increase in Fiscal Year 2016 was primarily due to an increase in member contributions, which went up by 3.43%.

**Management's Discussion and Analysis (Unaudited)**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

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

	<b>2017</b>	<b>2016</b>	<b>2015</b>
<b>Assets:</b>			
Cash	\$ 105	\$ 205	\$ 122
Receivables	42,281	40,455	41,264
Due to the TDA Program's Fixed return fund from the System	1,436,478	1,283,481	1,144,817
Investments, at fair value	457,248	409,776	419,530
Collateral from securities lending	5,917	15,642	29,607
Other	<u>-</u>	<u>-</u>	<u>-</u>
<b>Total assets</b>	<u><b>1,942,029</b></u>	<u><b>1,749,559</b></u>	<u><b>1,635,340</b></u>
<b>Liabilities:</b>			
Accounts payable	-	-	-
Other liability	128,452	96,156	83,901
Payable for investment securities purchased	1,435	902	4,428
Accrued benefits payable	6,537	6,783	6,045
Payables for securities lending transactions	<u>5,917</u>	<u>15,642</u>	<u>29,607</u>
<b>Total liabilities</b>	<u><b>142,341</b></u>	<u><b>119,483</b></u>	<u><b>123,981</b></u>
<b>Net position restricted for benefits</b>	<u><b>\$ 1,799,688</b></u>	<u><b>\$ 1,630,076</b></u>	<u><b>\$ 1,511,359</b></u>

Receivables from QPP towards TDA program increased by 11.92% in Fiscal Year 2017, from \$ 1.28 billion in Fiscal year 2016 to \$1.43 billion in Fiscal Year 2017. Included in the receivables is the TDA program's member loan outstanding, which increased from \$38.92 million in Fiscal Year 2016 to \$40.75 million in Fiscal Year 2017, an increase of 4.72% from Fiscal Year 2016.

At the end of Fiscal Year 2016, the TDA Program's fair value of variable investment including collateral security lending stood at \$ 425.42 million, a decrease of 5.28% from Fiscal Year 2015. Receivable from QPP towards the TDA Program increased by 12.11% in Fiscal Year 2016, from \$1.14 billion for Fiscal Year 2015 to \$1.28 billion in Fiscal Year 2016.

Total receivables went from \$41.26 million in Fiscal Year 2015 to \$40.46 million at the end of Fiscal Year 2016. Included in these receivables, the TDA Program's member loans outstanding went from \$36.51 million at the close of Fiscal Year 2015 to \$38.92 million at the close of Fiscal Year 2016, a 6.60% increase.

The TDA Program's receivables and payables are primarily generated through the timing differences between the trade and settlement dates for investment securities purchased or sold within the variable return fund.

**Management's Discussion and Analysis (Unaudited)**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

Other liability represents a liability from the TDA Program towards the QPP program, which stood at \$128.45 million and \$96.15 million for fiscal years 2017 and 2016 respectively. It represents the adjustments made to the TDA Program as the result of the accounting changes adopted within the comprehensive analysis of the TDA Program of the System.

**Changes in TDA Program Fiduciary Net Position**

During Fiscal Year 2017, member contributions to the TDA Program increased to \$85.76 million, a 10.72% increase from \$77.45 million contribution in Fiscal Year 2016. Net investment income increased from \$1.05 million in Fiscal Year 2016 to \$75.74 million in Fiscal Year 2017, a net increase of \$74.69 million.

During Fiscal Year 2016, member contributions to the TDA Program increased to \$77.46 million, a 3.43% increase from the \$74.89 million contributed in Fiscal Year 2015.

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

	<b>2017</b>	<b>2016</b>	<b>2015</b>
Additions:			
Member contributions	\$ 85,765	\$ 77,459	\$ 74,890
Net investment income before securities lending transactions	75,633	855	22,769
Net securities lending income	106	194	181
TDA Program's interest income in the fixed return fund	106,554	94,789	85,104
Other — payments to other retirement systems & other revenues/expenses	<u>(48,113)</u>	<u>(3,541)</u>	<u>4,448</u>
Total additions	<u>219,945</u>	<u>169,756</u>	<u>187,392</u>
Deductions:			
Benefit payments and withdrawals	50,208	50,189	39,222
Administrative expenses	<u>125</u>	<u>850</u>	<u>3,033</u>
Total deductions	<u>50,333</u>	<u>51,039</u>	<u>42,255</u>
Net increase in net position	169,612	118,717	145,137
Net position restricted for benefits:			
Beginning of year	<u>1,630,076</u>	<u>1,511,359</u>	<u>1,366,222</u>
End of year	<u>\$ 1,799,688</u>	<u>\$ 1,630,076</u>	<u>\$ 1,511,359</u>

Benefit payments and withdrawals and administrative expenses stood at \$50.21 million and \$.125 million in Fiscal Year 2017.

The benefit payments and withdrawals experienced a \$10.97 million (27.96%) increase from Fiscal Year 2015 to Fiscal Year 2016; the increase in Fiscal Year 2016 was due to an increase in death benefits from \$ 4.13 million in Fiscal Year 2015 to \$13.29 million in Fiscal Year 2016.

**Management's Discussion and Analysis (Unaudited)**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

### Investment Summary

Investments held by BERS' QPP and TDA Programs (which includes the fixed fund and the variable fund programs), including collateral from securities lending transactions from both programs, are listed according to their investment classification in the following table:

**Investment Summary**  
**(In thousands)**  
**Fair Value**

	<b>June 30, 2017</b>	<b>June 30, 2016</b>	<b>June 30, 2015</b>
Short Term Investments	\$ 57,514	\$ 113,900	\$ 215,612
Debt Securities	1,111,952	890,152	861,891
U.S. Equity Securities	636,126	726,951	784,214
Alternative Investments	612,677	506,922	385,819
Collective Trust Funds	3,371,593	2,698,824	2,651,074
Promissory Notes	-	-	-
Collateral Securities Lending	<u>380,860</u>	<u>493,265</u>	<u>331,742</u>
Total	<u>\$ 6,170,722</u>	<u>\$ 5,430,014</u>	<u>\$ 5,230,352</u>

Because the QPP's liabilities are of a long-term nature, the assets of the QPP and the TDA Programs are invested with a long-term investment horizon. Assets are invested in a diversified portfolio of capital market securities. Investments in these assets are expected to produce higher returns, but are also subject to greater volatility and may produce negative returns. The system's investments increased by 15.11% in FY 2017, 3.82% in FY 2016, increased by 1.36% in Fiscal Year 2015.

### CONTACT INFORMATION

This financial report is designed to provide a general overview of The New York City Board of Education Retirement System's finances. Questions concerning any data provided in this report or requests for additional information should be directed to the Chief Accountant, New York City Board of Education Retirement System, 65 Court Street, 16th Floor, Brooklyn, New York 11201.



**Combining Statements Of Fiduciary Net Position  
For the Year Ended June 30, 2017  
(In thousands)**

	QPP	TDA Program	Eliminations	Total
<b>ASSETS:</b>				
Cash	\$ 3,232	\$ 105	\$ -	\$ 3,337
Receivables:				
Investment securities sold	98,675	906	-	99,581
Accrued interest and dividends	9,080	618	-	9,698
Member loans	47,935	40,757	-	88,692
Other	60	-	-	60
Total receivables	155,750	42,281	-	198,031
Investments – at fair value				
Fixed return funds:				
Short term investments				
Commercial paper	21,496	-	-	21,496
Short-term investment fund	30,587	-	-	30,587
Discount notes	-	-	-	-
Debt securities	1,103,180	-	-	1,103,180
Equity securities	145,431	-	-	145,431
Alternative Investments	612,677	-	-	612,677
Collective Trust Funds				
International Equity	1,251,628	-	-	1,251,628
Domestic Equity	1,738,135	-	-	1,738,135
Mortgage debt security	30,925	-	-	30,925
Treasury Inflation protected securities	236,943	-	-	236,943
Fixed Income	113,962	-	-	113,962
Collateral from securities lending	374,326	-	-	374,326
Variable return funds:				
Short term investments	513	4,918	-	5,431
Debt securities	828	7,944	-	8,772
Equities	46,309	444,386	-	490,695
Collateral from securities lending	617	5,917	-	6,534
Total investments	5,707,557	463,165	-	6,170,722
Due to the TDA Program's Fixed return fund from the System	-	1,436,478	(1,436,478)	-
Other assets	160,453	-	(128,452)	32,001
Total assets	6,026,992	1,942,029	(1,564,930)	6,404,091
<b>LIABILITIES:</b>				
Accounts payable	13,884	-	-	13,884
Other liability	-	128,452	(128,452)	-
Payable for investment securities purchased	92,173	1,435	-	93,608
Accrued benefits payable	9,943	6,537	-	16,480
Due to the TDA Program's Fixed return fund from the System	1,436,478	-	(1,436,478)	-
Payables for securities lending	374,943	5,917	-	380,860
Total liabilities	1,927,421	142,341	(1,564,930)	504,832
<b>NET POSITION RESTRICTED FOR BENEFITS:</b>				
Benefits to be provided by QPP (Qualified Pension Program)	4,099,571	-	-	4,099,571
Benefits to be provided by TDA Program	-	1,799,688	-	1,799,688
TOTAL NET POSITION RESTRICTED FOR BENEFITS:	\$ 4,099,571	\$ 1,799,688	\$ -	\$ 5,899,259

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

**Combining Statements Of Fiduciary Net Position  
For the Year Ended June 30, 2016  
(In thousands)**

	QPP	TDA Program	Eliminations	Total
<b>ASSETS</b>				
Cash	\$ 327	\$ 205	\$ -	\$ 532
Receivables:				
Investment securities sold	119,062	908	-	119,970
Accrued interest and dividends	247	626	-	873
Member loans	46,748	38,921	-	85,669
Other	3	-	-	3
Total receivables	<u>166,060</u>	<u>40,455</u>	<u>-</u>	<u>206,515</u>
Investments – at fair value				
Fixed return funds:				
Short term investments				
Commercial paper	71,888	-	-	71,888
Short-term investment fund	35,933	-	-	35,933
Discount notes	-	-	-	-
Debt securities	879,762	-	-	879,762
Equity securities	291,144	-	-	291,144
Alternative Investments	506,922	-	-	506,922
Collective Trust Funds				
International Equity	942,911	-	-	942,911
Domestic Equity	1,401,665	-	-	1,401,665
Mortgage debt security	28,956	-	-	28,956
Treasury Inflation protected securities	218,608	-	-	218,608
Fixed Income	106,684	-	-	106,684
Collateral from securities lending	476,001	-	-	476,001
Variable return funds:				
Short term investments	571	5,508	-	6,079
Debt securities	976	9,414	-	10,390
Equities	40,953	394,854	-	435,807
Collateral from securities lending	1,622	15,642	-	17,264
Total investments	<u>5,004,596</u>	<u>425,418</u>	<u>-</u>	<u>5,430,014</u>
Due to the TDA Program's Fixed return fund from the System	-	1,283,481	(1,283,481)	-
Other assets	124,031	-	(96,156)	27,875
Total assets	<u>5,295,014</u>	<u>1,749,559</u>	<u>(1,379,637)</u>	<u>5,664,936</u>
<b>LIABILITIES:</b>				
Accounts payable	6,907	-	-	6,907
Other liability	-	96,156	(96,156)	-
Payable for investment securities purchased	103,213	902	-	104,115
Accrued benefits payable	7,357	6,783	-	14,140
Due to the TDA Program's Fixed return fund from the System	1,283,481	-	(1,283,481)	-
Payables for securities lending	477,623	15,642	-	493,265
Total liabilities	<u>1,878,581</u>	<u>119,483</u>	<u>(1,379,637)</u>	<u>618,427</u>
<b>NET POSITION RESTRICTED FOR BENEFITS:</b>				
Benefits to be provided by QPP (Qualified Pension Program)	3,416,433	-	-	3,416,433
Benefits to be provided by TDA Program	-	1,630,076	-	1,630,076
TOTAL NET POSITION RESTRICTED FOR BENEFITS:	<u>\$ 3,416,433</u>	<u>\$ 1,630,076</u>	<u>\$ -</u>	<u>\$ 5,046,509</u>

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

**Combining Statements Of Changes In Fiduciary Net Position  
For the Year Ended June 30, 2017  
(In thousands)**

	QPP	TDA Program	Total
ADDITIONS:			
Contributions			
Member contributions	\$ 39,821	\$ 85,765	\$ 125,586
Employer contributions	<u>288,233</u>	<u>-</u>	<u>288,233</u>
Total contributions	<u>328,054</u>	<u>85,765</u>	<u>413,819</u>
Investment income			
Interest income	54,964	3,564	58,528
Dividend income	70,610	14,810	85,420
Net appreciation in fair value of investments	<u>760,262</u>	<u>58,720</u>	<u>818,982</u>
Total investment income	885,836	77,094	962,930
Less — investment expenses	<u>(29,204)</u>	<u>(1,461)</u>	<u>(30,665)</u>
Net investment income, before securities lending transactions	<u>856,632</u>	<u>75,633</u>	<u>932,265</u>
Securities lending transactions			
Securities lending income (loss)	6,118	117	6,235
Securities lending fees	<u>(240)</u>	<u>(11)</u>	<u>(251)</u>
Net securities lending income	<u>5,878</u>	<u>106</u>	<u>5,984</u>
Net investment income	<u>862,510</u>	<u>75,739</u>	<u>938,249</u>
Other — payments to other retirement systems & other revenues/expenses	(122,954)	(48,113)	(171,067)
TDA Program's interest income in the fixed return fund	<u>(106,554)</u>	<u>106,554</u>	<u>-</u>
Total additions	<u>961,056</u>	<u>219,945</u>	<u>1,181,001</u>
DEDUCTIONS:			
Benefit payments and withdrawals	262,432	50,208	312,640
Administrative expenses	<u>15,486</u>	<u>125</u>	<u>15,611</u>
Total deductions	<u>277,918</u>	<u>50,333</u>	<u>328,251</u>
NET INCREASE IN NET POSITION	683,138	169,612	852,750
NET POSITION RESTRICTED FOR BENEFITS:			
Beginning of year	<u>3,416,433</u>	<u>1,630,076</u>	<u>5,046,509</u>
End of year	<u>\$ 4,099,571</u>	<u>\$ 1,799,688</u>	<u>\$ 5,899,259</u>

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

**Combining Statements Of Changes In Fiduciary Net Position  
For the Year Ended June 30, 2016  
(In thousands)**

	QPP	TDA Program	Total
<b>ADDITIONS:</b>			
Contributions			
Member contributions	\$ 38,581	\$ 77,459	\$ 116,040
Employer contributions	<u>265,532</u>	<u>-</u>	<u>265,532</u>
Total contributions	<u>304,113</u>	<u>77,459</u>	<u>381,572</u>
Investment income			
Interest income	44,782	3,340	48,122
Dividend income	51,328	5,988	57,316
Net appreciation in fair value of investments	<u>79,014</u>	<u>(7,771)</u>	<u>71,243</u>
Total investment income	175,124	1,557	176,681
Less – investment expenses	<u>(14,296)</u>	<u>(702)</u>	<u>(14,998)</u>
Net investment income, before securities lending transactions	<u>160,828</u>	<u>855</u>	<u>161,683</u>
Securities lending transactions			
Securities lending income (loss)	3,547	216	3,763
Securities lending fees	<u>(231)</u>	<u>(22)</u>	<u>(253)</u>
Net securities lending income	<u>3,316</u>	<u>194</u>	<u>3,510</u>
Net investment income	<u>164,144</u>	<u>1,049</u>	<u>165,193</u>
Other – payments to other retirement systems & other revenues/expenses	(157,499)	(3,541)	(161,040)
TDA Program's interest income in the fixed return fund	<u>(94,789)</u>	<u>94,789</u>	<u>-</u>
Total additions	<u>215,969</u>	<u>169,756</u>	<u>385,725</u>
<b>DEDUCTIONS:</b>			
Benefit payments and withdrawals	240,727	50,189	290,916
Administrative expenses	<u>12,818</u>	<u>850</u>	<u>13,668</u>
Total deductions	<u>253,545</u>	<u>51,039</u>	<u>304,584</u>
<b>NET (DECREASE) INCREASE IN NET POSITION</b>	<b>(37,576)</b>	<b>118,717</b>	<b>81,141</b>
<b>NET POSITION RESTRICTED FOR BENEFITS:</b>			
Beginning of year	<u>3,454,009</u>	<u>1,511,359</u>	<u>4,965,368</u>
End of year	<u>\$ 3,416,433</u>	<u>\$ 1,630,076</u>	<u>\$ 5,046,509</u>

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



## Notes To Combining Financial Statements For the Years Ended June 30, 2017 and 2016

### 1. SYSTEM 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”) statutes and City laws). The City’s five major actuarially-funded pension systems are the New York City Board of Education Retirement System (“BERS” or the “System”), the New York City Employees’ Retirement System (“NYCERS”), the Teachers’ Retirement System of the City of New York (“TRS”), 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 other.

BERS administers the BERS Qualified Pension Plan (the “QPP”) and the BERS Tax-Deferred Annuity Program (the “TDA Program”). BERS is the fiduciary for the QPP and the TDA Program, which are included under BERS in the Pension and Other Employee Benefit Trust Funds section of the City’s Comprehensive Annual Financial Report (“CAFR”).

The QPP is a cost-sharing, multiple-employer PERS. The QPP provides pension benefits for non-pedagogical employees of the Department of Education and certain other specific schools and certain employees of the New York City School Construction Authority (collectively, the “Employer”). Substantially, all Department of Education non-pedagogical permanent employees, other than members of TRS, become members of the QPP on the first day of permanent employment. Employees classified as noncompetitive, exempt or provisional by Civil Service are eligible to enroll in the QPP voluntarily. Membership date is governed by the date of filing.

The QPP functions in accordance with existing State statutes and City laws, which establish and amend the benefit terms and the employer and member contribution requirements. It combines features of a defined benefit pension plan with those of a defined contribution pension plan but is considered a defined benefit pension plan for financial reporting purposes. Contributions are made by the employer and the members.

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

	<b>2015</b>	<b>2014</b>
Retirees and beneficiaries receiving benefits	16,438	15,995
Terminated vested members not yet receiving benefits	237	195
Other inactives*	3,972	4,005
Active members receiving salary	<u>24,903</u>	<u>25,182</u>
Total	<u>45,550</u>	<u>45,377</u>

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

BERS is a fiduciary component unit of the City, and is reported and included in the City's Comprehensive Annual Financial Report as a Pension and Other Employee Benefit Trust fund.

The TDA Program was created and is administered pursuant to the Internal Revenue Code Section 403(b) and existing State statutes and City laws. Certain members of the QPP have the option to participate in the TDA Program, which provides a means of deferring income tax payments on their voluntary tax-deferred contributions until the period after retirement or upon withdrawal of contributions. Contributions to the TDA Program are made by the members only. The TDA Program is maintained as a separate plan.

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

	<b>2015</b>	<b>2014</b>
Contributing members	15,736	14,825
Retired members with TDA balances	5,530	5,184
% of QPP members contributing to TDA	41.5 %	38.5 %

## **Summary of Benefits**

### **QPP Benefits**

The State Constitution provides that 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 for employees joining the QPP on or after the effective date of such amendments. As such, benefits under the QPP fall into various categories based on the year when an employee joined the QPP. A brief overview follows:

- Members who joined prior to July 1, 1973 ("Tier 1") are entitled to service retirement benefits of 55% of "final salary" (as defined within State statutes and City laws) after 25 years of qualifying service and attainment of age 55, a portion of which is provided from member contributions. Additional benefits equal to a specified percentage per year of service of "final salary" are payable for years in excess of the 25-year minimum. These additional benefits are increased, where applicable, by an annuity attributable to accumulated member contributions in excess of the minimum required balance and by any benefits attributable to the Increased-Take-Home Pay ("ITHP") contributions accumulated after the 25th year of member qualifying service. ITHP represents amounts contributed by the City 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. Tier 1 members contribute on the basis of a normal rate of contribution which is assigned by the QPP at membership, and which is dependent upon age and actuarial tables in effect at the time of membership.

## Notes To Combining Financial Statements For the Years Ended June 30, 2017 and 2016 (Cont'd)

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- In addition, these same members could elect a service retirement benefit with no minimum service requirement which 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 upon attainment of age 55. This benefit is increased, where applicable, by an annuity attributable to the member contributions and ITHP contributions.
- For all members who 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 either the fixed return fund or the variable return fund, or 50% of such contributions in each. These investment elections can be changed every two years. The QPP guaranteed a 7.5% return on member contributions or ITHP contributions to the fixed return fund until June 30, 1982, increased the guaranteed return to 8% as of July 1, 1982, and to 8.25% as of July 1, 1988, for members who enrolled in the QPP prior to July 27, 1976 (5% on member contributions for members enrolled on or after July 27, 1976). The variable return fund includes only member contributions and ITHP contributions made on their behalf as described above and is expressed in terms of units, which are valued monthly, based on investment experience.
- Certain members of Tier 1 and Tier 2 have the right to make voluntary member contributions (“Voluntary Contributions”) in excess of their required member contributions (“Required Contributions”). The investment of the Voluntary Contributions and the Required Contributions is directed by each member. A member may invest: (1) in the QPP’s fixed return fund, which is credited with interest at the Statutory Interest Rate (currently 8.25% (7.0% for UFT members)), and/or (2) in the QPP’s variable return fund. 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 \$5.25 million and \$5.58 million, for the years ended June 30, 2017 and 2016, respectively. Actuarial estimates of the impacts of Excesses and Deficiencies are incorporated into calculation of the QPP’s net pension liability (see Note 5).



- Members who joined after July 1, 1973 and before July 27, 1976 (“Tier 2”) have provisions similar to Tier 1, except that the eligibility requirements for retirement and the salary base for benefits are different and there was a limitation on their maximum benefit. This maximum benefit limitation was subsequently eliminated under Chapter 574 of the Laws of 2000 for all Tier 2 members who retired after December 8, 2000. Tier 2 members contribute on the basis of a normal rate of contribution which is assigned by the QPP at membership, and which is dependent upon age and actuarial tables in effect at the time of membership.
- Members who joined the QPP on or after July 27, 1976 and prior to September 1, 1983 (“Tier 3”) were originally entitled to a retirement benefit upon the completion of ten years of service at age 62. The formula for this benefit was 1.67% of “Final Average Salary” (“FAS”) per year of credited service for members with less than 20 years of service, or 2% of FAS per year of service for members with 20 to 30 years of service. Tier 3 benefits were reduced by one half of the primary Social Security benefit attributable to service with the employer, and provided an annual cost-of-living escalator in pension benefits of not more than 3%. Tier 3 required member contributions of 3% of salary for a period not to exceed 30 years. After September 1, 1983, all Tier 3 members were mandated into the Tier 4 plan. However, these members retain their Tier 3 rights. Effective October 1, 2000, Tier 4 members with Tier 3 rights, like other Tier 4 members, are not required to make contributions once the tenth anniversary of their membership date has passed, or upon completion of 10 years of credited service, whichever is earlier, and are eligible for a pension upon the completion of five years of credited service at age 62.
- Members who joined the QPP on or after September 1, 1983 and prior to April 1, 2012 (“Tier 4”) are eligible for a pension upon the completion of five years of credited service at age 62. The annual benefit is 1.67% of FAS per year of service for members with less than 20 years of service, or 2% of FAS per year of service for members with 20 to 30 years of service, plus an addition of 1.5% of FAS per year of service for service in excess of 30 years of service. Tier 4 members were originally required to make contributions of 3% 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 upon completion of ten years of credited service, whichever is earlier (Chapter 126 of Laws of 2000). Certain members retiring prior to the age of 62 experience an age-reduction factor in their retirement allowance.
- Effective June 28, 1995, active Tier 2 and Tier 4 members, excluding those who hold a position represented by the recognized teacher organization for collective bargaining purposes (currently, the United Federation of Teachers or “UFT”), were eligible to enroll in an early retirement program permitting them to retire at age 55 with 25 years of credited service (“55/25”), with no age reduction factor to their retirement allowance, or at age 50 with 25 years of credited service in a physically taxing position (Chapter 96 of the Laws of 1995). Additionally, Tier 4 members in non-UFT positions who joined BERS on or after June 28, 1995 and before April 1, 2012 were mandated into an early retirement program permitting them to retire at age 57 with 5 years of credited service

## Notes To Combining Financial Statements For the Years Ended June 30, 2017 and 2016 (Cont'd)

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("57/5"), with no age reduction factor to their retirement allowance, or at age 50 with 25 years of credited service in a physically taxing position. Participants in the 55/25 and 57/5 early retirement programs are required to remit additional contributions of 1.85%, or 3.83% for physically taxing positions.

- Effective February 27, 2008, active Tier 4 members who hold a position represented by the recognized teacher organization for collective bargaining purposes (currently, UFT) were eligible to enroll in an early retirement program permitting them to retire at age 55 with 25 years of credited service ("55/25 UFT"), with no age reduction factor to their retirement allowance (Chapter 19 of the Laws of 2008). 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. UFT members in covered titles who joined after February 27, 2008 but before December 10, 2009, were automatically enrolled in a 55 retirement age minimum and 27 credited years of service retirement program ("55/27 UFT"). These members are required to make additional plan contributions of 1.85% of salary until they have accumulated 27 years of credited service.
- UFT members in covered titles who joined the QPP after December 10, 2009 and prior to April 1, 2012 are covered by 55/27 UFT, but 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 (Chapter 504 of the Laws of 2009). Additionally, QPP benefits for this population vest in 10 years, rather than 5 years, as for other Tier 4 members.
- Members who join the QPP on or after April 1, 2012 are subject to the provisions of Chapter 18 of the Laws of 2012 ("Chapter 18/12"), also known as "Tier 6". BERS members in Tier 6 are eligible for a pension upon the completion of ten years of credited service at age 63. The annual benefit is 1.67% of FAS for the first 20 years of credited service, plus an addition of 2% of FAS per year of service for service in excess of 20 years of service. Additionally, the FAS period is 5 years, rather than 3, and a cap is imposed on the maximum permissible FAS. Tier 6 members are required to make Basic Member Contributions ("BMC") until they separate from service or until they retire. The BMC rate is dependent on annual wages earned during a plan year and ranges from 3% for salaries less than \$45,000 to 6% for salaries greater than \$100,000. Tier 6 members become vested after ten years of service.
- 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 as to QPP benefits upon the completion of five years of credited service, or ten years of credited service for Tier 4 55/27 UFT members who joined after December 10, 2009 and for Tier 6 members.

- The QPP provides death benefits and retirement benefits on the occurrence of accidental or ordinary disability.
- During the spring 2000 session, the State Legislature approved and the State Governor (“Governor”) signed laws that provide automatic Cost-of-Living Adjustments (“COLA”) for certain retirees and beneficiaries (Chapter 125 of the Laws of 2000). It also provides additional service credits for certain Tier 1 and Tier 2 members and reduced member contributions for certain Tier 3 and Tier 4 members (Chapter 126 of the Laws of 2000).

### **TDA Program Benefits**

Contributions to the TDA Program are made by the participants only, and are voluntary. In order to contribute to the TDA Program, certain active members of the QPP are required to submit a salary reduction agreement and TDA enrollment request. A participant may elect to exclude an amount of his or her compensation from current taxable income (within the maximum allowed by the Internal Revenue Service) by contributing it to the TDA Program. The basic contribution limit, as of 2017 is \$18,000 certain participants are permitted to make additional contributions, based on age or years of service. The additional contribution limit for 2017 is \$6,000. Additionally, participants can elect to invest their contributions in either the fixed return fund or the variable return fund.

Benefits provided under the TDA Program are derived from participants’ accumulated contributions and earnings on those contributions. No contributions are provided by the employer.

A participant may withdraw all or part of the balance of his or her account at the time of retirement, termination of employment, or under certain hardship conditions. Beginning January 1, 1989, the tax laws restricted withdrawals of TDA contributions and accumulated earnings thereon for reasons other than retirement or termination.

Contributions made after December 31, 1988, and investment earnings credited after that date, may only be withdrawn by active participants upon attainment of age 59½ or for reasons of hardship (as defined by Internal Revenue Service regulations). Hardship withdrawals are limited to contributions only.

Contributions made on or before December 31, 1989, and earnings credited on or before that date, may be withdrawn by active participants even before age 59½. A member who has received a withdrawal may not contribute to the TDA Program for the remainder of the current year.

If a member dies in active service or after retirement while his or her TDA account is in deferral, the full value of his or her account at the date of death is paid to the member’s beneficiary(ies) or estate.

When a member resigns before attaining vested rights under the QPP, he or she may withdraw the value of his or her TDA Program account, or leave the funds in the account for a period of up to five years after the date of resignation. If a member resigns after attaining vested rights under the QPP, he or she may leave his or her funds in the TDA Program account, accruing earnings until reaching the age at

## Notes To Combining Financial Statements For the Years Ended June 30, 2017 and 2016 (Cont'd)

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which minimum distributions are required by IRS regulations. Once a member withdraws from the QPP, participation in the TDA Program will cease, and the member will receive a refund of the value of his or her account in the TDA Program.

When a TDA Program participant applies to retire from the QPP and has a positive TDA Program account balance, the participant has three options:

- a. The participant may withdraw the total balance, either by receiving it as a taxable distribution or by rolling it over into an Individual Retirement Account (IRA);
- b. The participant may defer distribution of the account; or
- c. The participant may elect to receive the balance of the account as a life annuity. The available benefit options depend on the member's Tier.

## 2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND SYSTEM ASSET MATTERS

**Basis of Accounting**—The QPP as well as the TDA Program use the accrual basis of accounting where the measurement focus is on a 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 respective employers make payroll deductions from the QPP's members and the TDA Program participants. Employer contributions to the QPP are recognized when due, and the employer has made a formal commitment to provide the contributions. Benefits and refunds are recognized when due and payable in accordance with the terms of governing 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 ("IIF") and Alternative Investment funds ("ALTINVF"). The IIF are private funds of publicly traded securities which are managed by various investment managers on behalf of BERS. Fair value is determined by BERS 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 BERS management based on information provided by the various GP's after review by an independent consultant and the custodian bank for the fund.



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.

No investment in any one security represents 5% or more of QPP's net position held in trust for benefits.

**Investment Programs**—The System's assets are invested in two investment programs. These are the fixed return fund, which is managed by BERS, and the variable return fund (consisting primarily of equity securities), which is managed by TRS.

Under the fixed return program, members' TDA Program accounts are credited with the statutory rate of interest, currently 7% for UFT members and 8.25% for all other members. TDA Program members and certain Tier 1 and 2 QPP members may transfer their balances between the fixed return fund and the variable investment fund on a quarterly basis.

The QPP's assets within the variable return fund are co-invested with those assets of the TDA Program that are earmarked for the variable return fund. These financial statements reflect the QPP investment activity in the fixed return fund; as well as the variable return fund.

**Income Taxes**—Income earned by the QPP and the TDA Program is not subject to federal income tax until it is normally distributed. Other taxes apply in case of premature distributions.

**Accounts Payable**—Accounts payable is principally comprised of amounts owed by BERS for overdrawn bank balances. BERS's practice is to fully invest cash balances in most bank accounts on a daily basis. Overdrawn balances result primarily from outstanding benefit checks that are presented to the banks for payment on a daily basis and these balances are routinely settled each day.

**Interest (to) from TDA Program's Fixed Return Fund**— The statutory interest credited on TDA Program member account balances invested in the fixed return fund is reported as the "Interest (to) from TDA Program's Fixed Return Fund".

**Securities Lending Transactions**—State statutes and Board policies permit the System to lend its 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 Systems' 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 System receives collateral in the form of cash, U.S. Treasury and U.S. Government agency securities at 102% to 105% of the principal plus accrued interest for reinvestment. At June 30, 2017 and 2016, management believes that the System had no credit risk exposure to borrowers because the amounts the System owed the borrowers equaled or exceeded the amounts the borrowers owed the System. The contracts with the System's Custodian require the Securities Lending Agent to Indemnify the System. In the situation when a borrower goes into default, the Agent will liquidate the collateral to purchase

## Notes To Combining Financial Statements For the Years Ended June 30, 2017 and 2016 (Cont'd)

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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 System or the borrowers. Cash collateral is invested by the securities lending agent using approved Lender's Investment guidelines. The weighted average maturity is 45.35 days.

The securities lending program in which the System participates only allows pledging or selling securities in the case of borrower default.

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 plan net position. Cash received as collateral on securities lending transactions and investments made with that cash are reported as assets. Securities received as collateral are also reported as assets if the government entity has the ability to pledge or sell them without a borrower default. Accordingly, the System recorded the investments purchased with the cash collateral as collateral from securities lending with a corresponding liability for securities lending. Securities on loan are carried at market value, the values reported by the QPP as of June 30, 2017 and 2016 are \$366.54 million and \$302.14 million, respectively. As of net position date, the maturities of the investments made with cash collateral on average exceed the maturities of the securities loans by approximately 30 days.

Government Accounting Standards Board ("GASB") Statement No. 72, *Fair Value Measurement and Application*. GASB 72 requires the System to use valuation techniques which are appropriate under the circumstances and are 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 was used for the fair value measurements.

### 3. INVESTMENTS AND DEPOSITS

The Comptroller of the City of New York (the “Comptroller”) acts as an investment advisor to BERS. In addition, BERS employs an independent investment consultant as an investment advisor. BERS 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 BERS investment policy statement was ratified by the Board of Trustees in January 2009 and amended in October 2011 and January 2013, February 2015, and June 2016. It addresses investment objectives, investment philosophy and strategy, monitoring and evaluating performance, risk management, security lending protocol, and rebalancing investment mix. Assets may be invested in fixed income, equity and other vehicles as permitted by New York State RSSL § 176-178(a) and Banking Law § 235, the New York City Administrative Code, and the Legal Investments for New York Savings Banks list as published by the New York State Banking Department. However, investments up to 25% of total System assets may be made in instruments not expressly permitted by the RSSL.

The System does not possess an investment risk policy statement, nor does it actively manage its assets to specified risk targets. Rather, investment risk management is an inherent function of the System’s asset allocation process. QPP and TDA Program assets are diversified over a broad range of asset classes and encompass multiple investment strategies aimed at limiting concentration risk.

State Street Bank and Trust Company is the primary custodian for the fixed return fund. The variable return fund assets are held in custody at Chase Bank.

Cash deposits are insured by the Federal Deposit Insurance Corporation for up to \$250,000 per member of the System and are, therefore, fully insured.

**Concentration of Credit Risk**—The System does not have any investments in any one entity that represent 5% or more of the System’s net position held in trust for benefits.

The legal requirements for the System’s investments are as follows:

- a. Fixed income, equity and other investments may be made as permitted by New York State RSSL §§ 176-178(a) and Banking Law § 235, the New York City Administrative Code, and the Legal Investments for New York Savings Banks list as published by The New York State Banking Department, subject to Note 3(b).
- b. Investments up to 25% of total pension fund assets may be made in instruments not expressly permitted by the State RSSL.

The information reflected in the credit ratings and in the Years to Maturity is derived from the Custodian’s Risk and Performance Analytics Reporting System. Such information is prepared as a result of the Custodian’s Risk Management Analysis

**Notes To Combining Financial Statements**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

**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 an exposure to BB & B rated securities. While non-investment grade managers are primarily invested in BB & B rated securities, they can also invest a percentage of their portfolio in securities rated CCC. Non rated securities, excluding short-term securities, are considered to be non-investment grade. The quality ratings of investments of the fixed return 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 June 30, 2017	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	1.00 %	3.00 %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	48.00 %	52.00 %
Corporate bonds	-	-	1.00	1.00	1.00	3.00	3.00	5.00	4.00	4.00	3.00	3.00	3.00	4.00	2.00	3.00	2.00	2.00	44.00
Short term:																			
Commercial paper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.00	2.00
Pooled fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.00	2.00
Discount notes and T-bills	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Portfolio	<u>1.00 %</u>	<u>3.00 %</u>	<u>1.00 %</u>	<u>1.00 %</u>	<u>1.00 %</u>	<u>3.00 %</u>	<u>3.00 %</u>	<u>5.00 %</u>	<u>4.00 %</u>	<u>4.00 %</u>	<u>3.00 %</u>	<u>3.00 %</u>	<u>3.00 %</u>	<u>4.00 %</u>	<u>2.00 %</u>	<u>3.00 %</u>	<u>2.00 %</u>	<u>54.00 %</u>	<u>100.00 %</u>

Investment Type June 30, 2016	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	1.00 %	2.00 %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	33.00 %	36.00 %
Corporate bonds	1.00	1.00	1.00	1.00	1.00	3.00	4.00	7.00	5.00	5.00	3.00	4.00	3.00	4.00	3.00	2.00	3.00	3.00	54.00
Short term:																			
Commercial paper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.00	7.00
Pooled fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.00	3.00
Discount notes and T-bills	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Portfolio	<u>2.00 %</u>	<u>3.00 %</u>	<u>1.00 %</u>	<u>1.00 %</u>	<u>1.00 %</u>	<u>3.00 %</u>	<u>4.00 %</u>	<u>7.00 %</u>	<u>5.00 %</u>	<u>5.00 %</u>	<u>3.00 %</u>	<u>4.00 %</u>	<u>3.00 %</u>	<u>4.00 %</u>	<u>3.00 %</u>	<u>2.00 %</u>	<u>3.00 %</u>	<u>46.00 %</u>	<u>100.00 %</u>



**Notes To Combining Financial Statements**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

The quality ratings of investments of the variable return 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 Variable Funds June 30, 2017	S&P Quality Ratings								
	AAA	AA	A	BBB	BB	B	CCC & Below	Not Rated	Total
Government*	- %	- %	- %	- %	- %	- %	- %	- %	- %
Corporate bonds	2.05	2.15	7.60	13.84	5.17	3.08	0.32	18.81	53.02
Yankee bonds	0.71	0.69	-	0.25	-	-	-	-	1.64
Municipal bonds	0.22	0.02	-	-	-	-	-	-	0.24
U.S. Agencies	-	0.78	-	-	-	-	-	-	0.78
Short-term:									
Money Market Funds	-	-	-	-	-	-	-	44.31	44.31
Percent of rated portfolio	<u>2.98%</u>	<u>3.64%</u>	<u>7.60%</u>	<u>14.09%</u>	<u>5.17%</u>	<u>3.08%</u>	<u>0.32%</u>	<u>63.12%</u>	<u>100.00%</u>

Investment Type Variable Funds June 30, 2016	S&P Quality Ratings								
	AAA	AA	A	BBB	BB	B	CCC & Below	Not Rated	Total
Government*	- %	- %	- %	- %	- %	- %	- %	- %	- %
Corporate bonds	2.35	1.37	6.82	12.40	5.94	2.81	-	19.43	51.12
Yankee bonds	-	-	-	-	-	-	-	0.06	0.06
Municipal bonds	-	0.24	-	-	-	-	-	-	0.24
U.S. Agencies	-	1.37	-	-	-	-	-	-	1.37
Short-term:									
Money Market Funds	-	-	-	-	-	-	-	47.21	47.21
Percent of rated portfolio	<u>2.35%</u>	<u>2.98%</u>	<u>6.82%</u>	<u>12.40%</u>	<u>5.94%</u>	<u>2.81%</u>	<u>0.00%</u>	<u>66.70%</u>	<u>100.00%</u>

\*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 A Custodian, to have credit risk and are not included above.

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

Consistent with the System's investment policy, the investments are held by the System's custodian and registered in the System's name.

All of the System's deposits are insured and are collateralized by securities held by a financial institution separate from the System's depository financial institution.

All of the System's securities are held by the System's custodial bank in the System's name.

**Notes To Combining Financial Statements**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

**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. The System has no formal risk policy. The lengths of investment maturities for fixed return fund (in years), as shown by the percent of the rated portfolio, at June 30, 2017 and 2016 are as follows:

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
U.S. Government	51.83%	0.02%	14.24%	14.56%	23.01%
Corporate bonds	44.13	1.38	14.87	16.60	11.28
Short term:					
Commercial paper	1.52	1.52	-	-	-
Pooled fund	2.17	2.17	-	-	-
Discount notes, US Gov. & T-bills	0.35	0.35	-	-	-
Percent of rated portfolio	<u>100.00%</u>	<u>5.44%</u>	<u>29.11%</u>	<u>31.16%</u>	<u>34.29%</u>

Years to Maturity 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
U.S. Government	35.90%	0.09%	2.11%	6.62%	27.08%
Corporate bonds	54.11	1.60	15.70	20.93	15.88
Short term:					
Commercial paper	7.36	7.36	-	-	-
Pooled fund	2.63	2.63	-	-	-
Discount notes, US Gov. & T-bills	-	-	-	-	-
Percent of rated portfolio	<u>100.00%</u>	<u>11.68%</u>	<u>17.81%</u>	<u>27.55%</u>	<u>42.96%</u>

**Notes To Combining Financial Statements**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

The lengths of investment maturities (in years) of the variable return fund, as shown by the percent of the rated portfolio, at June 30, 2017 and 2016 are as follows:

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
U.S. Government	21.19%	0.73%	19.34%	1.12%	0.00%
Corporate bonds	41.79	3.75	28.81	4.93	4.30
Yankee Bonds	1.29	-	1.29	-	-
Municipal Bonds	0.19	-	0.19	-	-
U.S. Agencies	0.62	-	0.62	-	-
Short term: Money Market	34.92	34.92	-	-	-
Percent of rated portfolio	<u>100.00%</u>	<u>39.40%</u>	<u>50.25%</u>	<u>6.05%</u>	<u>4.30%</u>

Years to Maturity 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
U.S. Government	24.27%	0.14%	23.53%	0.60%	0.00%
Corporate bonds	38.71	2.23	26.60	5.14	4.74
Yankee Bonds	0.05	-	0.05	-	-
Municipal Bonds	0.18	0.16	0.02	-	-
U.S. Agencies	1.04	-	1.04	-	-
Short term: Money Market	35.75	35.75	-	-	-
Percent of rated portfolio	<u>100.00%</u>	<u>38.28%</u>	<u>51.24%</u>	<u>5.74%</u>	<u>4.74%</u>

**Notes To Combining Financial Statements**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

**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 System 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. The System has no formal risk policy.

In addition, the System has investments in foreign stocks and/or bonds denominated in foreign currencies. The System's foreign currency exposures as of June 30, 2017 and 2016 in the fixed return fund are as follows (amounts in thousands of U.S. dollars):

<b>Trade Currency</b>	<b>June 30, 2017</b>	<b>June 30, 2016</b>
Australian Dollar	\$ 10,332	\$ 13,121
Brazilian Real	24,417	23,754
British Pnd Sterling	113,439	112,906
Canadian Dollar	15,059	16,420
Chilean Peso	1,524	-
Colombian Peso	1,461	275
Czech Koruna	391	-
Danish Krone	21,164	19,128
Egyptian Pound	519	438
Euro Currency	237,420	165,129
Hong Kong Dollar	138,877	85,205
Hungarian Forint	684	94
Indian Rupee	49,722	32,811
Indonesian Rupiah	13,619	8,079
Israeli Shekel	2,306	596
Japanese Yen	140,072	123,143
Malaysian Ringgit	12,789	7,958
Mexican Nuevo Peso	9,106	7,085
Moroccan Dirham	1	1
New Taiwan Dollar	46,490	21,844
New Zealand Dollar	2,250	1,868
Norwegian Krone	14,219	11,699
Pakistan Rupee	179	7
Peruvian Nouveau Sol	151	-
Philippines Peso	2,344	1,848
Polish Zloty	8,641	5,483
Renminbi Yuan	82	553
Qatari Rial	3,466	2,416
Singapore Dollar	20,315	18,414
South African Rand	27,466	19,462
South Korean Won	79,634	50,175
Swedish Krona	38,247	29,410
Swiss Franc	58,996	49,253
Thai Baht	22,460	14,555
Turkish Lira	18,072	9,535
UAE Dirham	1,304	927
<b>Total</b>	<b><u>\$ 1,137,217</u></b>	<b><u>\$ 853,593</u></b>



**Notes To Combining Financial Statements**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

The foreign currency exposures of the variable return funds as of June 30, 2017 and 2016 are as follows (amounts in thousands of U.S. dollars):

<b>Trade Currency</b>	<b>June 30, 2017</b>	<b>June 30, 2016</b>
Australian Dollar	\$ 699	\$ 946
Brazilian Real	540	973
British Pnd Sterling	3,762	4,859
Canadian Dollar	1,160	1,039
Chilean Peso	32	1
Czech Koruna	4	-
Danish Krone	399	178
Egyptian Pound	3	6
Euro Currency	7,211	8,081
Hong Kong Dollar	793	959
Indonesia Rupiah	113	-
Indian Rupee	1,894	2,415
Israeli Shekel	96	164
Japanese Yen	3,859	4,767
Malaysian Ringgit	450	496
Mexican Nuevo Peso	276	427
New Zealand Dollar	32	15
Norwegian Krone	265	255
Phillipines Peso	70	76
Polish Zloty	78	158
Singapore Dollar	587	776
South African Rand	849	1,227
South Korean Won	3,040	3,683
Swedish Krona	198	360
Swiss Franc	2,465	2,803
Taiwan Dollar	1,829	2,351
Thai Baht	515	305
Turkish Lira	429	456
Uae Dirham	75	120
<b>Total</b>	<b><u>\$ 31,724</u></b>	<b><u>\$ 37,896</u></b>

**Notes To Combining Financial Statements**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

**Securities Lending Transactions:**

**Credit Risk** — The quality ratings of investments held as collateral for Securities Lending are as follows:

**Investment Type and Fair Value - Fixed Return Fund**

**Securities Lending Transactions (In thousands)**

**June 30, 2017**

	S&P Quality Ratings											Total
	AAA	AA	AA-	A+	A	A-	BBB+ & Below	BB	B	CCC & Below	Not Rated	
U.S. Government	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Corporate bonds	-	-	-	-	-	-	-	-	-	-	-	-
Yankee bonds	-	-	-	-	-	-	-	-	-	-	-	-
Short term:												
Commercial paper	-	-	-	-	-	-	-	-	-	-	-	-
Mutual funds	-	-	-	-	-	-	-	-	-	-	-	-
Money Market	-	-	-	-	-	-	-	-	-	-	-	-
Bank Notes	-	-	-	-	-	-	-	-	-	-	-	-
U.S. Agency	-	-	-	-	-	-	-	-	-	-	-	-
Reverse repurchase agreements	-	-	24,754	51,165	100,566	55,000	5,000	-	-	-	105,542	342,027
Repurchase agreements	-	-	-	-	-	-	-	-	-	-	-	-
Certificates of deposits	-	-	-	-	-	-	-	-	-	-	-	-
Certificates of deposit — floaters	-	-	-	-	-	-	-	-	-	-	-	-
Time deposit	-	-	-	-	-	-	-	-	-	-	-	-
Cash	-	-	-	31,972	-	-	-	-	-	-	-	31,972
Uninvested	-	-	-	-	-	-	-	-	-	-	327	327
<b>Total</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 24,754</b>	<b>\$ 83,137</b>	<b>\$ 100,566</b>	<b>\$ 55,000</b>	<b>\$ 5,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 105,869</b>	<b>\$ 374,326</b>
Percent of securities lending portfolio	- %	- %	6.61 %	22.21 %	26.87 %	14.69 %	1.34 %	- %	- %	- %	28.28 %	100.00 %

**Investment Type and Fair Value - Fixed Return Fund**

**Securities Lending Transactions (In thousands)**

**June 30, 2016**

	S&P Quality Ratings											Total
	AAA	AA	AA-	A+	A	A-	BBB+ & Below	BB	B	CCC & Below	Not Rated	
U.S. Government	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Corporate bonds	-	-	-	-	-	-	-	-	-	-	-	-
Yankee bonds	-	-	-	-	-	-	-	-	-	-	-	-
Short term:												
Commercial paper	-	-	-	-	-	-	-	-	-	-	-	-
Mutual funds	-	-	-	-	-	-	-	-	-	-	-	-
Money Market	35,129	-	-	-	-	-	-	-	-	-	-	35,129
Bank Notes	-	-	-	-	-	-	-	-	-	-	2,182	2,182
U.S. Agency	-	-	-	-	-	-	-	-	-	-	-	-
Reverse repurchase agreements	-	-	38,161	44,262	174,765	-	29,362	-	-	-	105,171	391,721
Repurchase agreements	-	-	-	-	-	-	-	-	-	-	-	-
Certificates of deposits	-	-	-	-	-	-	-	-	-	-	-	-
Certificates of deposit — floaters	-	-	-	-	-	-	-	-	-	-	-	-
Time deposit	-	-	-	-	-	-	-	-	-	-	-	-
Cash	-	-	-	-	46,408	-	-	-	-	-	-	46,408
Uninvested	-	-	-	-	-	-	-	-	-	-	561	561
<b>Total</b>	<b>\$ 35,129</b>	<b>\$ -</b>	<b>\$ 38,161</b>	<b>\$ 44,262</b>	<b>\$ 221,173</b>	<b>\$ -</b>	<b>\$ 29,362</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 107,914</b>	<b>\$ 476,001</b>
Percent of securities lending portfolio	7.38 %	- %	8.02 %	9.30 %	46.46 %	- %	6.17 %	- %	- %	- %	22.67 %	100.00 %

**Notes To Combining Financial Statements**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

**Investment Type and Fair Value - Variable Return Fund**

**Securities Lending Transactions**

**(In thousands)**

**June 30, 2017**

	<b>S&amp;P Quality Ratings</b>								<b>Total</b>
	<b>AAA</b>	<b>AA</b>	<b>A</b>	<b>BBB</b>	<b>BB</b>	<b>B</b>	<b>CCC &amp; Below</b>	<b>Not Rated</b>	
U.S. Government	\$ -	\$ 1,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,500
Corporate bonds	-	-	-	-	-	-	-	-	-
Yankee bonds	-	-	-	-	-	-	-	-	-
Short term:									
Commercial paper	-	-	-	-	-	-	-	-	-
Mutual funds	-	-	-	-	-	-	-	-	-
Money market	-	-	-	-	-	-	-	-	-
Bank notes	-	-	-	-	-	-	-	-	-
U.S. Agency	-	-	-	-	-	-	-	-	-
Reverse repurchase agreements	-	-	-	-	-	-	-	-	-
Repurchase agreements	1,039	3,995	-	-	-	-	-	-	5,034
Certificates of deposit	-	-	-	-	-	-	-	-	-
Certificates of deposit – floaters	-	-	-	-	-	-	-	-	-
Time deposit	-	-	-	-	-	-	-	-	-
Cash	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>\$ 1,039</b>	<b>\$ 5,495</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 6,534</b>
Percent of securities lending portfolio	15.90 %	84.10 %	- %	- %	- %	- %	- %	- %	100.00 %

**Investment Type and Fair Value - Variable Return Fund**

**Securities Lending Transactions**

**(In thousands)**

**June 30, 2016**

	<b>S&amp;P Quality Ratings</b>								<b>Total</b>
	<b>AAA</b>	<b>AA</b>	<b>A</b>	<b>BBB</b>	<b>BB</b>	<b>B</b>	<b>CCC &amp; Below</b>	<b>Not Rated</b>	
U.S. Government	\$ -	\$ 4,844	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,844
Corporate bonds	-	-	-	-	-	-	-	-	-
Yankee bonds	-	-	-	-	-	-	-	-	-
Short term:									
Commercial paper	-	-	-	-	-	-	-	-	-
Mutual funds	-	-	-	-	-	-	-	-	-
Money market	-	-	-	-	-	-	-	-	-
Bank notes	-	-	-	-	-	-	-	-	-
U.S. Agency	-	-	-	-	-	-	-	-	-
Reverse repurchase agreements	-	-	-	-	-	-	-	-	-
Repurchase agreements	9,496	2,922	-	-	-	-	-	-	12,418
Certificates of deposit	-	-	-	-	-	-	-	-	-
Certificates of deposit – floaters	-	-	-	-	-	-	-	-	-
Time deposit	-	-	-	-	-	-	-	-	-
Cash	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	2	2
<b>Total</b>	<b>\$ 9,496</b>	<b>\$ 7,766</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 2</b>	<b>\$ 17,264</b>
Percent of securities lending portfolio	55.01 %	45.00 %	- %	- %	- %	- %	- %	1.00 %	100.00 %

**Notes To Combining Financial Statements**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

**Interest Rate Risk**—The lengths of investment maturities (in years) of the collateral for Securities Lending are as follows:

Years to Maturity Fixed Return Fund (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
U.S. Government	\$ -	\$ -	\$ -	\$ -	\$ -
Corporate bonds	-	-	-	-	-
Yankee bonds	-	-	-	-	-
Short term:					
Commercial paper	-	-	-	-	-
Mutual fund	-	-	-	-	-
Money market	-	-	-	-	-
Bank notes	-	-	-	-	-
U.S. Treasury	-	-	-	-	-
U.S. Agency	-	-	-	-	-
Reverse repurchase agreements	342,027	342,027	-	-	-
Repurchase agreements	-	-	-	-	-
Certificates of deposit	-	-	-	-	-
Certificates of deposit – floaters	-	-	-	-	-
Time deposit	-	-	-	-	-
Cash	31,972	31,972	-	-	-
Uninvested	327	327	-	-	-
Total	<u>\$ 374,326</u>	<u>\$ 374,326</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>

Years to Maturity Fixed Return Fund (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
U.S. Government	\$ -	\$ -	\$ -	\$ -	\$ -
Corporate bonds	-	-	-	-	-
Yankee bonds	-	-	-	-	-
Short term:					
Commercial paper	-	-	-	-	-
Mutual fund	-	-	-	-	-
Money market	35,129	35,129	-	-	-
Bank notes	2,181	2,181	-	-	-
U.S. Treasury	-	-	-	-	-
U.S. Agency	-	-	-	-	-
Reverse repurchase agreements	391,721	391,721	-	-	-
Repurchase agreements	-	-	-	-	-
Certificates of deposit	-	-	-	-	-
Certificates of deposit – floaters	-	-	-	-	-
Time deposit	-	-	-	-	-
Cash	46,408	46,408	-	-	-
Other	562	562	-	-	-
Total	<u>\$ 476,001</u>	<u>\$ 476,001</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**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

Years to Maturity Variable Return Fund (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
U.S. Government	\$ 1,500	\$ 208	\$ 598	\$ 376	\$ 317
Corporate bonds	-	-	-	-	-
Yankee bonds	-	-	-	-	-
Short term:					
Commercial paper	-	-	-	-	-
Mutual fund	-	-	-	-	-
Money market	-	-	-	-	-
Bank notes	-	-	-	-	-
U.S. Treasury	-	-	-	-	-
U.S. Agency	-	-	-	-	-
Reverse repurchase agreements	-	-	-	-	-
Repurchase agreements	5,034	5,034	-	-	-
Certificates of deposit	-	-	-	-	-
Certificates of deposit – floaters	-	-	-	-	-
Time deposit	-	-	-	-	-
Cash	-	-	-	-	-
Other	-	-	-	-	-
Total	<u>\$ 6,534</u>	<u>\$ 5,242</u>	<u>\$ 598</u>	<u>\$ 376</u>	<u>\$ 317</u>
Percent of securities lending portfolio	<u>100.00 %</u>	<u>80.22 %</u>	<u>9.15 %</u>	<u>5.76 %</u>	<u>4.86 %</u>

Years to Maturity Variable Return Fund (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
U.S. Government	\$ 4,844	\$ 1,266	\$ 1,573	\$ 1,101	\$ 904
Corporate bonds	-	-	-	-	-
Yankee bonds	-	-	-	-	-
Short term:					
Commercial paper	-	-	-	-	-
Mutual fund	-	-	-	-	-
Money market	-	-	-	-	-
Bank notes	-	-	-	-	-
U.S. Treasury	-	-	-	-	-
U.S. Agency	-	-	-	-	-
Reverse repurchase agreements	-	-	-	-	-
Repurchase agreements	12,418	12,418	-	-	-
Certificates of deposit	-	-	-	-	-
Certificates of deposit – floaters	-	-	-	-	-
Time deposit	-	-	-	-	-
Cash	-	-	-	-	-
Adjustment to custodial reports	-	-	-	-	-
Other	2	-	-	-	-
Total	<u>\$ 17,264</u>	<u>\$ 13,684</u>	<u>\$ 1,573</u>	<u>\$ 1,101</u>	<u>\$ 904</u>
Percent of securities lending portfolio	<u>100.00 %</u>	<u>79.27 %</u>	<u>9.11 %</u>	<u>6.38 %</u>	<u>5.24 %</u>

For the years ended June 30, 2017 and 2016, the annual money-weighted rate of return on the System's fixed return fund investments, net of investment expense on the System's fixed return fund, was 15.33% and 0.20%. The money-weighted rate of return expresses investment performance, net of investment expense adjusted for the changing amounts actually invested.

**Notes To Combining Financial Statements**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

In Fiscal Year 2015, the System adopted GASB Statement No. 72 ("GASB 72"), *Fair Value Measurement and Application*. GASB 72 was issued to address accounting and financial reporting issues related to fair value measurements.

The System categorizes its fair value measurements within the fair value hierarchy established by GAAP. 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:

Fixed Return Funds GASB 72 Disclosure (In thousands)	As of June 30, 2017			
	Level 1	Level 2	Level 3	Total
INVESTMENTS—At fair value				
Short-term investments:				
Commercial paper	\$ -	\$ 21,496	\$ -	\$ 21,496
Short-term investment fund	-	30,587	-	30,587
Discount notes	-	-	-	-
Debt securities				
US Government and agency	-	595,874	-	595,874
Corporate and other	-	501,718	5,588	507,306
Equity securities	145,421	10	-	145,431
Alternative investments	-	-	612,677	612,677
Collective trust funds:				
International equity	1,251,481	-	147	1,251,628
Fixed income	-	5,254	108,708	113,962
Domestic equity	1,738,135	-	-	1,738,135
Mortgage debt security	-	6,135	24,790	30,925
Treasury inflation protected securities	-	236,943	-	236,943
Collateral from Securities lending	-	374,326	-	374,326
	<u>\$ 3,135,037</u>	<u>\$ 1,772,343</u>	<u>\$ 751,910</u>	<u>\$ 5,659,290</u>

Fixed Return Funds GASB 72 Disclosure (In thousands)	As of June 30, 2016			
	Level 1	Level 2	Level 3	Total
INVESTMENTS—At fair value				
Short-term investments:				
Commercial paper	\$ -	\$ 71,888	\$ -	\$ 71,888
Short-term investment fund	-	35,933	-	35,933
Discount notes	-	-	-	-
Debt securities	-	873,890	5,872	879,762
Equity securities	291,144	-	-	291,144
Alternative investments	-	-	506,922	506,922
Collective trust funds:				
International equity	926,562	16,349	-	942,911
Fixed income	1,682	8,047	96,955	106,684
Domestic equity	1,401,395	270	-	1,401,665
Mortgage debt security	-	6,213	22,743	28,956
Treasury inflation protected securities	-	218,608	-	218,608
Collateral from securities lending	-	476,001	-	476,001
	<u>\$ 2,620,783</u>	<u>\$ 1,707,199</u>	<u>\$ 632,492</u>	<u>\$ 4,960,474</u>

Note: Collective Trust Funds are reported using NAV

**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 are securities whose stated market price is unobservable by the market place; 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. Collective Trust funds are reported using NAV. The Debt and equity securities held in Collective Trust Funds are held in those funds on behalf of the pension system and there is no restriction on the use and or liquidation of those assets for the exclusive benefit of the fund's participants.

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

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

**Notes To Combining Financial Statements**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

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 redemptions restrictions have a material effect on the fair value of the portfolio of investments.

Variable-Return Funds GASB 72 Disclosure (In thousands)	As of June 30, 2017			
	Level 1	Level 2	Level 3	Total
Variable return funds:				
Short term investments	\$ -	\$ 5,431	\$ -	\$ 5,431
Debt securities	-	8,703	69	8,772
Equities	411,141	79,551	3	490,695
Collateral from securities lending	-	6,534	-	6,534
	<u>\$ 411,141</u>	<u>\$ 100,219</u>	<u>\$ 72</u>	<u>\$ 511,432</u>

Variable-Return Funds GASB 72 Disclosure (In thousands)	As of June 30, 2016			
	Level 1	Level 2	Level 3	Total
Variable return funds:				
Short-term investments	\$ -	\$ 6,079	\$ -	\$ 6,079
Debt securities	-	10,390	-	10,390
Equities	391,311	44,475	21	435,807
Collateral from securities lending	-	17,264	-	17,264
	<u>\$ 391,311</u>	<u>\$ 78,208</u>	<u>\$ 21</u>	<u>\$ 469,540</u>

Debt and equity securities classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets for those securities.

Equity Debt securities classified in Level 2 of the fair value hierarchy are valued using a matrix pricing technique. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices.

Equity securities classified in Level 3 of the fair value hierarchy are valued using discounted cash flow techniques.

#### **4. CONTRIBUTIONS AND ACTUARIAL ASSUMPTIONS**

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

Contributions to the TDA program are made on a voluntary basis by certain members of the QPP.

##### **Member Contributions—**

- Members who joined the QPP prior to July 1, 1973 ("Tier 1") contribute on the basis of a normal rate of contribution which is assigned by the QPP at membership, and which is dependent upon age and actuarial tables in effect at the time of membership. Tier 1 members can also make Increased Take Home Pay ("ITHP") contributions, for which they can receive an additional annuity after retirement.
- Members who joined after July 1, 1973 and before July 27, 1976 ("Tier 2") also contribute on the basis of a normal rate of contribution which is assigned by the QPP at membership, and which is dependent upon age and actuarial tables in effect at the time of membership. Note that the actuarial tables are different in Tier 2. Tier 2 members can also make ITHP contributions, for which they can receive an additional annuity after retirement.
- Members who joined after July 27, 1976 and before April 1, 2012 ("Tier 4") contribute 3% of salary until the earlier of the 10th anniversary of their membership date, or upon the completion of 10 years of credited service. Certain Tier 4 members are enrolled in special early retirement plans and must therefore also make Additional Member Contributions ("AMC"), depending on the specific plan.
- Members who joined on or after April 1, 2012 ("Tier 6") are required to make Basic Member Contributions ("BMC") until they separate from service or until they retire. The BMC rate is dependent on annual wages earned during a plan year and ranges from 3% for salaries less than \$45,000 to 6% for salaries greater than \$100,000. Certain Tier 6 members are enrolled in special early retirement plans and must therefore also make Additional Member Contributions ("AMC"), depending on the specific plan.

**Employer Contributions—**Statutorily-required contributions ("Statutory Contributions") to the QPP, determined by the System's Chief Actuary of the Office of the Actuary (the "Actuary") in accordance with State statutes and City laws, are generally funded by the employer within the appropriate fiscal year.



**Notes To Combining Financial Statements**  
**For the Years Ended June 30, 2017 and 2016**  
**(Cont'd)**

**5. QPP NET PENSION LIABILITY**

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

	(in thousands)	
	2017	2016
Total pension liability	\$ 5,073,339	\$ 4,800,698
Fiduciary net position*	<u>4,099,571</u>	<u>3,416,433</u>
Employers' net pension liability	<u>\$ 973,768</u>	<u>\$ 1,384,265</u>
Fiduciary net position as a percentage of the total pension liability	<u>80.80%</u>	<u>71.20%</u>

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

**Actuarial Methods and Assumptions**—The total pension liability as of June 30, 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. The mortality tables for beneficiaries were also developed from an experience review.

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.

**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 allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Asset Allocation	Long-Term Expected Real Rate of Return
U.S. public markets equities	30.00%	5.70%
International public market equities	13.00	6.10%
Emerging public market equities	7.00	7.60%
Private market equities	9.00	8.10%
Fixed Income (Core, TIPS, Opportunistic)	28.00	3.00%
Alternatives (Real Assets, Hedge Funds)	<u>13.00</u>	4.70%
Total	<u>100.00%</u>	

**Discount Rate**—The discount rate used to measure the total pension liability was 7%. The projection 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 1-percentage-point lower (6.0 percent) or 1-percentage-point higher (8.0 percent) than the current rate:

	(in thousands)		
	1% Decrease (6%)	Discount Rate (7%)	1% Increase (8%)
Employers’ net pension liability June 30, 2017	\$1,569,616	\$973,768	\$474,279

**6. MEMBER LOANS**

Members of the QPP are permitted to borrow up to 75% of their employee contribution account balances, including accumulated interest, subject to the limitations of Section 72 of the Internal Revenue Code. The balance of QPP member loans receivable at June 30, 2017 and 2016 is \$47.93 million and \$46.75 million, respectively. When a member withdraws from the QPP with an outstanding QPP loan balance, this outstanding QPP loan balance will be deducted from the refund of the member’s contribution balance. When a member retires with an outstanding QPP loan balance, the member’s retirement benefit will be reduced by the actuarial value of the amount of the outstanding QPP loan balance, unless this balance is paid off.

## Notes To Combining Financial Statements For the Years Ended June 30, 2017 and 2016 (Cont'd)

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Members of the TDA Program are permitted to borrow up to 75% of their TDA Program account balances, including accumulated interest, subject to the limitations of Section 72 of the Internal Revenue Code. The balance of TDA Program member loans receivable at June 30, 2017 and 2016 is \$40.75 million and \$38.92 million, respectively.

### 7. RELATED PARTIES

The Comptroller has been appointed by law as custodian for the assets of the QPP and the TDA Program. QPP fixed return fund securities are held by certain banks under custodial agreements with the Comptroller. The Comptroller also provides cash receipt and cash disbursement services to the System. Actuarial services are provided to the System by the New York City Office of the Actuary. The City's Corporation Counsel provides legal services to the System. Other administrative services are also provided by the City. Costs of \$1.32 million and \$1.03 million were incurred on behalf of the System by other City agencies, primarily the Comptroller's Office for 2017 and 2016, respectively. The fixed return fund assets of the QPP are co-invested with those of the TDA Program. The variable return fund assets of the QPP are co-invested with those of the TDA Program and TRS (see Note 2). TRS holds the assets of the variable return fund.

### 8. ADMINISTRATIVE EXPENSES

In Fiscal Years 2017 and 2016, as per Chapter 307 of the New York State Laws of 2002, The Plan provided BERS with Corpus funding for administrative expenses in the amount of \$15.61 million and \$13.67 million, respectively.

### 9. CONTINGENT LIABILITIES AND OTHER MATTERS

**Contingent Liabilities**—The System has claims pending against it and has been named as a defendant in lawsuits and also has certain other contingent liabilities. Management of the System, on the advice of legal counsel, believes that such proceedings and contingencies will not have a material effect on the net position of the System or changes in the net position of the System. Under the existing State statutes and City laws that govern the functioning of the System, increases in the obligations of the System to members and beneficiaries ordinarily result in increases in the obligations of the New York City Board of Education to the System.

**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 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.

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

Chapter 18 of the Laws of 2012 (“Chapter 18/12”) placed certain limitations on the Tier 3 and Tier 4 benefits available to participants hired on and after April 1, 2012 in most New York State PERS, including BERS. These changes are sometimes referred to as Tier 6.

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 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 investment expenses, and defined the amortization of Unfunded Actuarial Accrued Liabilities (“UAAL”).

Chapter 489 of the Laws of 2013 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 is otherwise eligible to receive retirement service credit for such service. Such member would not be required to make member contributions to receive such credit.

Chapter 510 of the Laws of 2015 (“Chapter 510/15”) clarifies for Tier 6 the definition of multiple employers for the purpose of exclusion of wages and changes the plan year for contributions from plan year April 1 to March 31 to plan year January 1 to December 31.

Chapter 41 of the Laws of 2016 was enacted on May 31, 2016. This amendment removes the specified periods of time, medal requirements, and theaters of operation in which military service would have had to be rendered for a service purchase pursuant to New York State Retirement and Social Security Law (“RSSL”) § 1000. Accordingly, for a member to be eligible to purchase service credit pursuant to RSSL § 1000 for pre-membership military service, the member need only have been honorably discharged from the military; all other requirements of RSSL § 1000 remain the same. This law is not retroactive and does not permit retired members to purchase service credit.

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

Chapter 438 of the Laws of 2016, enacted on November 14, 2016, amends Retirement and Social Security Law Section 43 to eliminate restrictions upon transferring between public retirement systems.

**Required Supplementary Information (Unaudited)**  
**Qualified Pension Plan**  
**Schedule 1**

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

	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>
Total pension liability:				
Service cost	\$ 168,625	\$ 153,107	\$ 147,898	\$ 142,687
Interest	346,509	320,315	299,592	288,162
Changes of benefit terms	-	-	-	-
Differences between expected and actual experience	19,938	(75,907)	50,148	-
Changes of assumptions	-	183,677	-	-
Benefit payments and withdrawals	<u>(262,432)</u>	<u>(240,727)</u>	<u>(223,244)</u>	<u>(214,315)</u>
Net change in total pension liability	272,640	340,465	274,394	216,534
Total pension liability—beginning	<u>4,800,698</u>	<u>4,460,233</u>	<u>4,185,839</u>	<u>3,969,305</u>
Total pension liability—ending (a)	<u>5,073,338</u>	<u>4,800,698</u>	<u>4,460,233</u>	<u>4,185,839</u>
Plan fiduciary net position:				
Employer contributions	288,233	265,532	258,099	214,590
Member contributions	39,821	38,581	39,564	37,193
Net investment income	862,510	164,144	177,166	875,453
Payment of interest on TDA program fixed return funds	(106,554)	(94,789)	(85,104)	(206,615)
Benefit payments and withdrawals	(262,432)	(240,727)	(223,244)	(214,315)
Administrative expenses	(15,486)	(12,818)	(10,956)	(9,776)
Other	<u>(122,954)</u>	<u>(157,499)</u>	<u>(52,021)</u>	<u>(70,916)</u>
Net change in plan fiduciary net position	683,138	(37,576)	103,504	625,614
Plan fiduciary net position—beginning	<u>3,416,433</u>	<u>3,454,009</u>	<u>3,350,505</u>	<u>2,653,652</u>
Plan fiduciary net position—ending (b)	<u>4,099,571</u>	<u>3,416,433</u>	<u>3,454,009</u>	<u>3,279,266</u>
BERS' net pension liability—ending (a)-(b)	<u>\$ 973,767</u>	<u>\$ 1,384,265</u>	<u>\$ 1,006,224</u>	<u>\$ 906,573</u>
Plan fiduciary net position as a percentage of the total pension liability	<u>80.80 %</u>	<u>71.20 %</u>	<u>77.40 %</u>	<u>78.34 %</u>
Covered-employee payroll <sup>1</sup>	<u>\$ 1,052,171</u>	<u>\$ 1,008,056</u>	<u>\$ 1,016,822</u>	<u>\$ 989,168</u>
City's net pension liability as percentage of covered-employee payroll	<u>92.50 %</u>	<u>137.30 %</u>	<u>99.00 %</u>	<u>91.65 %</u>

The schedule is intended to show information for ten years. Additional information will be displayed as it becomes available. Additionally, in accordance with GASB No. 67, Paragraph 50, such information was not readily available for periods prior to 2014.

1. Projected Employee Payroll at Time 1.0 under One-Year Lag Methodology.

See Independent Auditors' Report.



**Required Supplementary Information (Unaudited)**  
**Qualified Pension Plan**  
**Schedule 2**

**SCHEDULE OF EMPLOYERS' CONTRIBUTIONS**  
**(In thousands)**

	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>	<b>2008</b>
Actuarially determined contribution	\$ 288,233	\$ 265,532	\$ 258,099	\$ 214,590	\$ 196,246	\$ 213,651	\$ 180,191	\$ 147,349	\$ 134,225	\$ 143,100
Contributions in relation to the actuarially determined contribution	<u>288,233</u>	<u>265,532</u>	<u>258,099</u>	<u>214,590</u>	<u>196,246</u>	<u>213,651</u>	<u>180,191</u>	<u>147,349</u>	<u>134,225</u>	<u>143,100</u>
Contribution deficiency (excess)	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
Covered-employee payroll	<u>\$ 1,052,171</u>	<u>\$ 1,008,056</u>	<u>\$ 1,016,822</u>	<u>\$ 989,168</u>	<u>\$ 886,186</u>	<u>\$ 879,476</u>	<u>\$ 880,656</u>	<u>\$ 826,782</u>	<u>\$ 755,516</u>	<u>\$ 729,098</u>
Contributions as a percentage of covered-employee payroll	<u>27.39%</u>	<u>26.34%</u>	<u>25.38%</u>	<u>21.69%</u>	<u>22.15%</u>	<u>24.29%</u>	<u>20.46%</u>	<u>17.82%</u>	<u>17.77%</u>	<u>19.63%</u>

The schedule is intended to show information for ten years

See Independent Auditors' Report.

**Required Supplementary Information (Unaudited)  
Qualified Pension Plan (Cont'd)  
Schedule 2 (Cont'd)**

**Required Supplementary Information (Unaudited)  
Qualified Pension Plan (Cont'd)  
Schedule 2 (Cont'd)**

**NOTES TO SCHEDULE OF EMPLOYERS' CONTRIBUTIONS**

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:

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 unfundeds	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)		
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 2010 investment performance. <sup>4</sup>	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 2010 investment performance. <sup>4</sup>	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. <sup>4</sup>	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. <sup>4</sup>	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.
Actuarial assumptions:							
Assumed rate of return <sup>3</sup>	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	8.0% per annum, gross of investment expenses
Post-retirement mortality	Tables adopted by Board of Trustees during Fiscal Year 2016	Tables adopted by Board of Trustees during Fiscal Year 2016	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2006
Active service: withdrawal, death, disability, service retirement	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2006 <sup>4</sup>
Salary increases <sup>3</sup>	In general, merit and promotion increases plus assumed general increases of 3.0% per year.	In general, merit and promotion increases plus assumed general increases of 3.0% per year.	In general, merit and promotion increases plus assumed general increases of 3.0% per year.	In general, merit and promotion increases plus assumed general increases of 3.0% per year.	In general, merit and promotion increases plus assumed general increases of 3.0% per year.	In general, merit and promotion increases plus assumed general increases of 3.0% per year.	In general, merit and promotion increases plus assumed general increases of 3.0% per year.
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

1. Under this actuarial cost method, the Initial Liability was reestablished as of June 30, 1999, by the Entry Age Actuarial Cost Method but with the unfunded actuarial accrued liability (UAAL) not less than \$0.

The financial results using this Frozen Initial Liability Actuarial Cost Method are the same as those that would be produced using the Aggregate Actuarial Cost Method.

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

3. Developed using a long-term Consumer Price Inflation assumption of 2.5% per year.

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

See Independent Auditors' Report.

**Required Supplementary Information (Unaudited)**  
**Qualified Pension Plan (Cont'd)**  
**Schedule 3**

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**SCHEDULE OF INVESTMENT RETURNS**

The following table displays annual money-weighted rate of return, net of investment expense, for each of the past four fiscal years:

<b>Fiscal Year Ended</b>	<b>Money-Weighted Rate of Return</b>
June 30, 2017	15.33%
June 30, 2016	0.20%
June 30, 2015	3.15%
June 30, 2014	19.51%

**Note:** In accordance with GASB No. 67, paragraph 50, such information was not readily available for periods prior to 2014.



**Additional Supplementary Information**  
**Qualified Pension Plan and Tax Deferred Annuity Program | Fiscal Year Ended June 30, 2017**  
**Schedule 4**

**SCHEDULE OF INVESTMENT EXPENSES**

FUND MANAGER	CATEGORY	AMOUNT (IN \$)
<b>1</b>		
<b>Fixed Investment Expenses: (net)</b>		
Mesirow Partnership Fund III	Alternative Invst Equity	63,550.00
Mesirow Partnership Fund IV	Alternative Invst Equity	124,384.91
Mesirow Financial Pre Eq V	Alternative Invst Equity	303,544.48
Warburg Pincus	Alternative Invst Equity	22,394.00
Carlye PtnrsVI	Alternative Invst Equity	54,690.00
Platinum Eq Cap Ptnrs	Alternative Invst Equity	9.08
Landmark Eq Ptnrs XV	Alternative Invst Equity	23.62
CVC Capital Ptnrs VI	Alternative Invst Equity	230,749.55
Apollo Investment Fund VIII	Alternative Invst Equity	(12,623.46)
Lexington Cap III	Alternative Invst Equity	159,571.00
Vista Equity Partners	Alternative Invst Equity	349,389.00
Crestview	Alternative Invst Equity	169,105.00
New Mainstream Capital	Alternative Invst Equity	26,190.79
Mill City Capital	Alternative Invst Equity	20,023.15
Webster Capital Mgmt LLC	Alternative Invst Equity	18,118.00
Centerbridge Capital LP	Alternative Invst Equity	38,852.00
American Securities	Alternative Invst Equity	210,390.00
Siris Capital Group, LLC	Alternative Invst Equity	20,350.00
The Raine Group	Alternative Invst Equity	41,781.00
Valor Equity Partners	Alternative Invst Equity	157,540.00
Bridge Point Advisors LTD	Alternative Invst Equity	22,461.45
Bridgepoint Advisors Limited	Alternative Invst Equity	96,249.93
EQT Partners AB	Alternative Invst Equity	164,715.16
Warburg Pincus XII	Alternative Invst Equity	309,592.00
Stellex Partners	Alternative Invst Equity	231,079.00
Ares Management LLC	Alternative Invst Equity	63,937.00
Ardian - ASF VII	Alternative Invst Equity	(25,000.00)
Crestview III SC	Alternative Invst Equity	16,661.00
Vista Equity Partners	Alternative Invst Equity	227,050.00
Apax Partners LLP	Alternative Invst Equity	209,050.80
BC Partners - SC	Alternative Invst Equity	2,093.97
FTV Capital V	Alternative Invst Equity	55,125.00
Platinum IV	Alternative Invst Equity	53,065.00
UBS Trumbell Property	Alternative Invst Real Estate	620,516.69
Lasalle Us Property Fund	Alternative Invst Real Estate	168,042.58
Franklin Temp Pr Re FD	Alternative Invst Real Estate	206,198.29
Brookfield Stra Re Ptnrs	Alternative Invst Real Estate	90,367.00
Blackstone	Alternative Invst Real Estate	408,902.00
Brookfield Infrastructure Fund	Alternative Invst Real Estate	114,753.58
Caryle Realty Partners	Alternative Invst Real Estate	326,966.00
Metlife	Alternative Invst Real Estate	15.06
First Reserve Energy	Alternative Invst Real Estate	187,633.00
Jamestown Premier Funds	Alternative Invst Real Estate	44,660.66
Blackstone Real Estate	Alternative Invst Real Estate	221,917.00
KKR	Alternative Invst Real Estate	104,775.00
Emmes Am Co	Alternative Invst Real Estate	107,891.00
Hudson Sep Ac	Alternative Invst Real Estate	51,431.62
RFM - NYCSRS Sandy LLC	Alternative Invst Real Estate	490,257.16
Global Infrastructure Mgmt LLC	Alternative Invst Real Estate	232,209.00
Brookfield Asset Management	Alternative Invst Real Estate	109,393.01
Westbrook Re Fund X Co- Invest	Alternative Invst Real Estate	144,292.00
Tristian European Property Inv	Alternative Invst Real Estate	345.13
PW Real Estate Fund III LP	Alternative Invst Real Estate	174,805.08
Divco Fund V Advisor, LLC	Alternative Invst Real Estate	135,741.00

## Additional Supplementary Information

Qualified Pension Plan and Tax Deferred Annuity Program | Fiscal Year Ended June 30, 2017  
Schedule 4 ( Cont'd)

## SCHEDULE OF INVESTMENT EXPENSES (CONT'D)

FUND MANAGER	CATEGORY	AMOUNT (IN \$)
Brookfield Property Group	Alternative Invt Real Estate	64,147.00
Dra Advisors LLC- G & I Fund IX	Alternative Invt Real Estate	31,043.29
Pramerica Fund Mgmt	Alternative Invt Real Estate	119,499.31
ASF VII Infrastructure Ardian	Alternative Invt Real Estate	40.00
Actis GP LLP	Alternative Invt Real Estate	100,018.00
Prudential Privest	Alternative Invt FI	(27,498.70)
Pim Transition	Equity	1.47
Pim Lombardia Capital Partners	Equity	8,547.81
FIS Eudaimonia	Equity	15,581.91
Wellington Mgmt MCC	Equity	456,655.85
FIS Channing SCV	Equity	93,448.78
FIS Huber Capital Management	Equity	13,479.52
PIM Redwood Investments	Equity	48,793.67
FIS- Nicholas Inv Par	Equity	78,422.40
PIM Affinity Invt Advisors	Equity	58,257.41
FIS Piermont SCV	Equity	97,286.61
PIM Martin Invt Mgmt	Equity	48,942.95
FIS- Rice Hall SCG	Equity	55,263.13
FIS Clarkston SMID	Equity	88,251.99
Bowling Portfolio Mgmt LLC	Equity	62,026.29
Hahn Capital Management LLC	Equity	47,347.47
PIM Eastern Shore SC	Equity	14,714.71
Essex Investment Mgmt	Equity	1,631.56
Bridge City Capital	Equity	1,801.00
Pacific View Asset Mgmt	Equity	1,415.70
Altravue Capital	Equity	1,483.15
Bowling Portfolio Mgmt	Equity	1,563.09
Dean Capital Mgmt	Equity	2,030.34
State Street	Fixed Income	51,415.51
Blackrock	Fixed Income	95,898.96
Taplin Canida	Fixed Income	94,203.77
Security Lending	Fixed Income	376,948.05
Loomis Sayles & Company	Fixed Income	365,154.20
Prudential	Fixed Income	117,482.58
Shenkman	Fixed Income	49,828.24
State Street	Fixed Income	8,723.54
Ballie Group Trust	Intl Equity	7,589,420.49
Cony Group Trust	Intl Equity	2,597,772.48
Acadian	Intl Equity	8,009,396.49
Cony EAFE Rebal	Intl Equity	(14,136.58)
Sprucegrove	Intl Equity	3,894,821.38
Cony GT EM Blackrock	Intl Equity	295,990.29
FIS- Algert EAFE SC	Intl Equity	351.17
Ativo Capital Mgmt	Intl Equity	10,261.77
FIS - Aubrey EM	Intl Equity	14,821.04
FIS -Change Global EM	Intl Equity	34,278.89
Fis- Denali EAFE	Intl Equity	19,849.21
FIS- Dundas EAFE	Intl Equity	13,003.45
FIS -Metis EAFE	Intl Equity	8,781.26
FIS- Osmosis EAFE	Intl Equity	6,782.14
Blackrock R1000 Growth	Mutual Fund Equity	31,359.19
Blackrock R1000 Value	Mutual Fund Equity	31,900.21
Blackrock R2000 Growth	Mutual Fund Equity	2,481.51
Blackrock R2000 Value	Mutual Fund Equity	3,314.72
Babson BL MTA	Mutual Fund Fixed Income	(4,882,399.98)
Afl-Cio Hsg Inv Trust	Mutual Fund Mortgage	63,280.49



**Additional Supplementary Information**  
**Qualified Pension Plan and Tax Deferred Annuity Program | Fiscal Year Ended June 30, 2017**  
**Schedule 4 (Cont'd)**

**SCHEDULE OF INVESTMENT EXPENSES (CONT'D)**

<b>FUND MANAGER</b>	<b>CATEGORY</b>	<b>AMOUNT (IN \$)</b>
ETI - ACS MK	Mutual Fund Mortgage	18,141.66
Pimco TIPS MTA	TIPS	(46.43)
State Street TIPS MTA	TIPS	9,340.78
		<b><u>\$ 27,767,840.48</u></b>
<b><u>Legal Fees</u></b>		
Cox Castle Nicholson LLP		5,414.15
Day Pitney		3,804.73
Foster Pepper PLLC		18,935.04
Herrick Feinstein LLP and Rivera Colon LLP		209.20
Morgan Lewis Bockius		17,395.36
Nixon Peabody		1,789.62
Pillsbury Winthrop Shaw Pittman LLP		2,675.00
Reinhart Boerner Van Dueren		7,401.48
Seward Kissel LLP		8,521.26
	Sub total	<b><u>\$ 66,145.84</u></b>
<b><u>Consultant Fees</u></b>		
Courtland Partners		10,586.38
Ernst and Young LLP		1,221.98
Hamilton Lane Advisors		220,000.00
Pricewaterhouse Coopers		326.50
Prudential		753,210.00
Segal Marco Advisors		190,000.00
Stepstone Group LLC		7,500.00
Townsend Holdings		37,491.00
	Sub total	<b><u>\$ 1,220,335.86</u></b>
<b>2</b>	<b><u>Variable Investment Expenses</u></b>	
	Qualified Pension Plan	<b>\$ 149,602.83</b>
	Tax-Deferred Annuity	<b>\$ 1,461,242.56</b>
	<b>Investment Expenses FY 2017</b>	<b>\$ 30,665,167.57</b>

**Additional Supplementary Information****Qualified Pension Plan and Tax Deferred Annuity Program | Fiscal Year Ended June 30, 2017  
Schedule 5****SCHEDULE OF ADMINISTRATIVE EXPENSES**

<b>EXPENSE TYPE</b>	<b>AMOUNT</b>
<b>1 ADMINISTRATIVE EXPENSES (QPP):</b>	
Salaries paid to Plan Personnel	\$ 9,729,882
Consumable Supplies and Materials	67,256
Furniture and Equipment	491,459
General Services	125,972
Contractual Services	5,071,597
Sub-Total	<u>\$ 15,486,166</u>
<b>2 ADMINISTRATIVE EXPENSES (TDA):</b>	
Contractual Services	125,209
Sub-Total	<u>\$ 125,209</u>
<b>3 MISCELLANEOUS EXPENSES:</b>	
Related Parties Administrative Expenses	Sub-Total \$ 1,327,991
(Adm expenses made by the Comptroller on our behalf. Charged on investment)	
<b>Total Administrative Expenses for FY 2017:</b>	<u><u>\$ 16,939,366</u></u>

**Additional Supplementary Information**  
**Qualified Pension Plan and Tax Deferred Annuity Program | Fiscal Year Ended June 30, 2017**  
**Schedule 6**

**SCHEDULE OF DIRECT PAYMENTS TO CONSULTANTS**

<b>INDIVIDUAL OR FIRM NAME</b>	<b>NATURE OF SERVICES</b>	<b>AMOUNT (IN \$)</b>
<b>Segal Marco Advisors</b> 333 West 34th Street New York, NY 10001	Investment Consultation	\$ 190,000
<b>Prudential Insurance Co.</b> 200 Wood Ave South Iselin, NJ 08830	Investment Consultation	753,210
<b>Gary Tunnicliffe &amp; Jack Ziegler, LLC</b> 321 Union Street, #4A Brooklyn, NY 11231	CPMS Consultants*	846,495
<b>KPMG</b> 345 Park Avenue New York, NY 10154	CPMS Consultants*	367,816
<b>Vitech Systems Group, Inc.</b> 401 Park Avenue South, 12th Floor New York, NY 10016	CPMS Consultants*	2,745,437
<b>Winmill Software</b> 405 Park Avenue, 16th Floor New York, NY 10022	CPMS Consultants*	369,974
<b>Total Consulting Fees for FY 2017</b>		<b><u>\$ 5,272,932</u></b>

\* CPMS - Comprehensive Pension Management System



**Bronx–Whitestone Bridge**

Opened on April 29, 1939

**INVESTMENT**

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### INTRODUCTION

The investment section presents the following:

- 1 Investment report for FY 2017, prepared by Segel Marco Advisors, investment consultant for BERS.
- 2 The investment schedules following the investment report supplement the investment information presented in the financial section and the investment report as presented by the investment consultant.

Schedules are presented for the following categories

- a Asset Pie: focusing on the current fiscal year asset composition
- b Asset Allocation: Presents 10 year comparison of the invested assets
- c Investment Summary
- d Consolidated investment performance
- e Investment Holdings
- f Brokers Commission



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MICHEAL C. WRIGHT  
Senior Vice President  
mwright@segalmarco.com

Date: November 16, 2017

To: New York City Board of Education Retirement System (BERS)

Re: Report on Investment Activity

Dear Members of the New York City Board of Education Retirement System:

### **Fund Summary**

The Board of Education Retirement System Total Fund returned +15.3%, net of fees, for the Fiscal Year (FY) ending June 2017, compared to +13.4% for the Board of Education Policy Benchmark<sup>1</sup>, against which it is measured. Performance for the FY ranked in the first quartile of a peer group of public funds. The Fund increased in value and ended the fiscal year at \$5.3 billion (compared to \$4.5 billion last year). Over the 10-year time period, the Fund remains ahead of benchmark, with a +6.0% average annual return versus +5.7% for the benchmark. The 10-year performance ranks in the top quartile of the peer group. The Fund's average annual return since 1987 is 8.8%.

### **Economic and Market Comment**

Real US economic growth as measured by the GDP at June 30, 2017, grew at a rate of 2.6% year over year, well ahead of the FY 2016 rate. The slow steady growth in the U.S. economy, with low unemployment (albeit with a virtually unchanged labor force participation rate); consumer confidence at a healthy level, and low inflation gave the US Federal Reserve Bank the confidence to raise rates in December of 2016 and again in March and June. These increases were widely anticipated and positioned the Fed to

<sup>1</sup> The Board of Education Policy Benchmark is a custom index representing the weighted average return of the benchmarks for each major investment program in the Fund. The Policy Benchmark as of 6/30 consisted of: 42.26% Russell 3000, 17% MSCI EAFE, 5% MSCI Emerging Markets, 2.91% Russell 3000 + 300 bps, 2.83% NFI ODCE Net + 100 bps, 17% NYC Core + 5 fixed income, 5% Barclays Capital US TIPS, 5.5% Citigroup BB&B Index, and 2.5% Credit Suisse Leveraged Loan Index.

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New York City Board of Education Retirement System (BERS)  
Report on Investment Activity  
November 16, 2017  
Page 2

continue its wind down of the quantitative easing started after the 2008 financial crisis. There is similar optimism in the Eurozone. Growth is slow, as in the U.S., but unemployment is trending lower, along with other positive factors such as increased business and consumer confidence, manufacturing, and industrial production. The European Central Bank has also intimated a downshift in its monetary stimulus may be around the corner as well.

Emerging markets experienced over 4.5% economic growth as measured by GDP, recovering from the very low levels of the last year. Trade and stability in commodity prices helped power strong stock market performance. While there were concerns about potential slowing in the Chinese economy, the other large emerging market economies – Brazil, Russia, and India– have recovered and are growing steadily. Manufacturing and mining company earnings are up, currencies have stabilized and a weaker USD has helped recent returns.

The US stock market, as measured by the benchmark Russell 3000 index returned 18.5% for the FY, a dramatic recovery from last year's 2.1% return. International Developed Market stocks returned 20.3% and Emerging Market stocks returned 23.8%. Fixed income returns reflected a similar appetite for risk as the High Yield, below investment grade bond index, returned 12.7% while the Barclays, US Aggregate investment grade index returned -.3%, reflecting its higher quality and sensitivity to the interest rate increases.

### **Fund Description**

Asset allocation is expected to be a major contributor to the Board of Education Retirement System's Fund total return. The Trustees establish a target asset mix after considering the long-term growth prospects of a diversified portfolio of investments and the expected costs of the Plan participants' benefits. In order to participate in the broad market performance while keeping Fund expenses low, the Fund uses passive, index strategies for the majority of its public equity allocation. During the 2017 FY, the implementation plan for the asset allocation approved during the prior FY has progressed with additions to Private Equity, Real Estate and Infrastructure investments, while reducing U.S. equities and developed market non-U.S. equities. These are long-term commitments expected to improve the risk and return profile of the fund. The Fund's target asset mix is 72% Equity (including the Private and Public equities, Real Estate and Infrastructure) and 28% Fixed Income. Over the long-term, which is the framework for considering the term structure of the Plans' liabilities, we expect our revised equity allocation will outperform fixed income by a significant margin.

For the FY ending June 2017, the asset allocation as well as the manager selection added value. The manager selection benefitted, as most active managers returns were ahead their benchmarks. Domestic Equity returned 19.0% for the FY ending June 30, 2017 versus an 18.5% return for the benchmark; all of the value added was derived from the

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New York City Board of Education Retirement System (BERS)  
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Page 3

active mid cap manager. International Equity also performed strongly with a 27.7% return versus a 20.5% return for the benchmark; most of this performance coming from the active developed market Small Cap and the Emerging Markets managers. The Total Fixed Income return of +0.5% outperformed the custom benchmark return of -0.2%, most of the outperformance coming from the High Yield managers. As part of our ongoing monitoring, we review the manager contributions and the structure of the fund in order to achieve the expected levels of returns. The Fund's current level of diversification into alternative assets did help performance in FY 2017 as the Private Equity, Real Estate and Infrastructure investments out performed fixed income for the Fund.

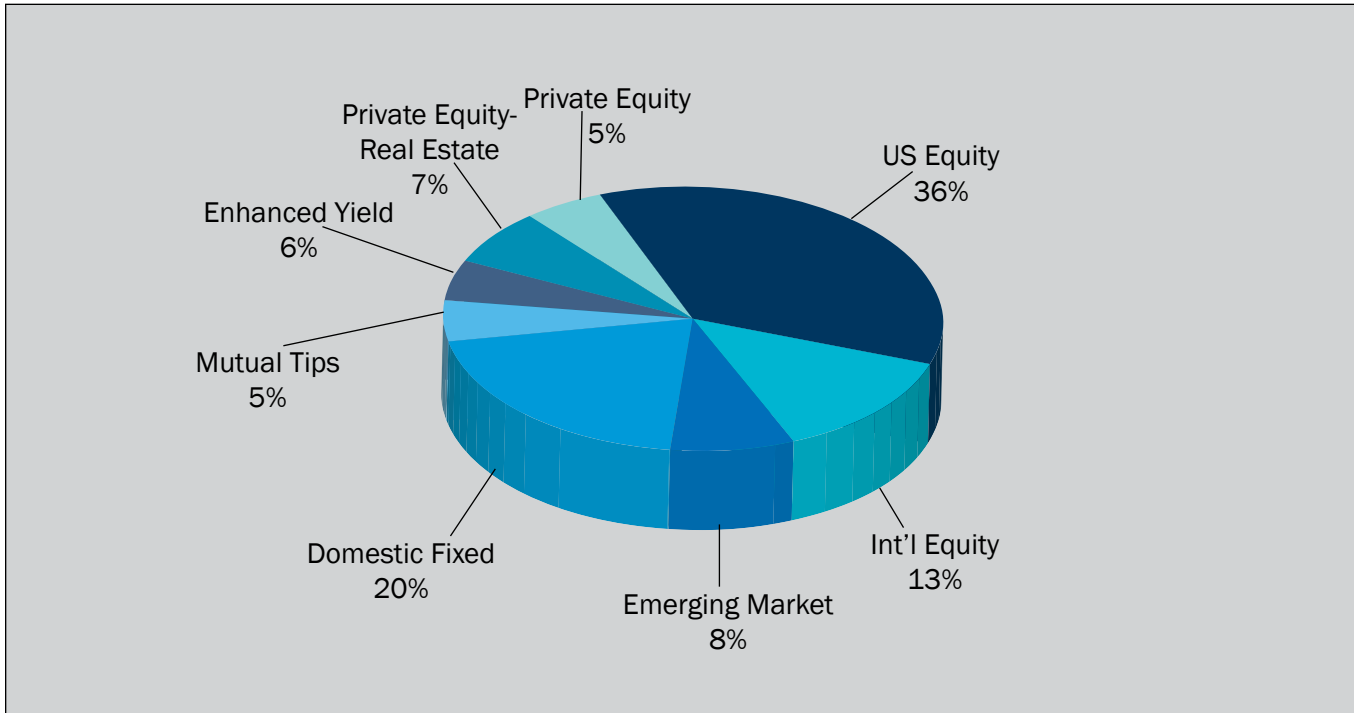
Market conditions and fund performance will continue to be closely monitored to accomplish the goal of providing the benefits as promised to participants.

Sincerely,



Michael Wright  
Senior Vice President  
Segal Marco Advisors

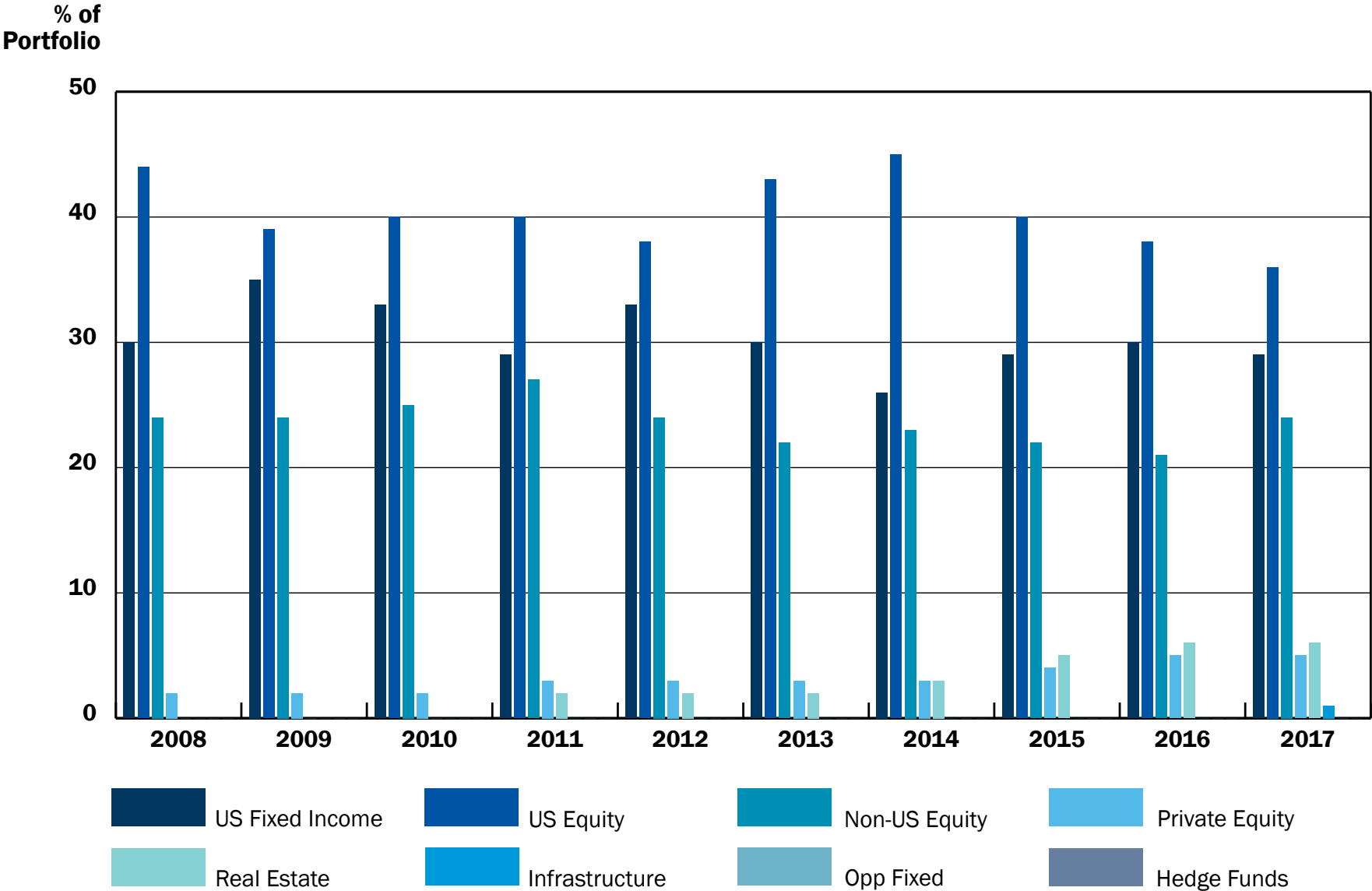
**Qualified Pension Plan and Tax Deferred Annuity Program  
Asset Allocation (Fixed)  
Fiscal Year Ended June 30, 2017**



Years	US Equity	Int'l Equity	Emerging Market	Domestic Fixed	Mutual TIPS	Enhanced Yield	Private Equity-Real Estate	Private Equity
6/30/2008	36.49	19.57	16.38	20.62	2.69	2.95	0.00	1.30
6/30/2009	34.28	20.48	11.00	26.06	2.73	3.94	0.00	1.51
6/30/2010	36.22	21.67	8.46	25.27	2.72	3.66	0.00	2.00
6/30/2011	39.97	21.51	5.37	22.63	2.62	3.43	1.66	2.81
6/30/2012	37.79	19.03	4.48	24.81	2.46	6.00	2.15	3.28
6/30/2013	42.90	17.59	4.56	20.01	3.91	5.60	2.39	3.04
6/30/2014	44.72	18.27	4.67	16.69	3.38	6.19	2.83	3.25
6/30/2015	40.15	17.06	4.94	20.67	3.16	5.48	4.47	4.07
6/30/2016	37.00	17.00	5.00	19.50	5.00	5.50	6.03	4.97
6/30/2017	36.49	12.76	7.98	20.37	4.81	6.00	6.58	5.01



Qualified Pension Plan and Tax Deferred Annuity Program  
Asset Allocation (Fixed) | Fiscal Years Ended June 30, 2008- June 30, 2017



**Qualified Pension Plan and Tax Deferred Annuity Program  
Investment Summary (Fixed and Variable) | Fiscal Year Ended June 30, 2017  
(In thousands)**

<u>Type of Investments</u>	<u>Fair Value</u>	<u>Percentages</u>
<b>Short Term Investments:</b>	\$ 57,514	0.93%
<b>Debt Securities:</b>	1,111,952	18.02
<b>Promissory Notes:</b>	-	-
<b>Equity Securities:</b>	636,126	10.31
<b>Alternative Investments:</b>	612,677	9.93
<b>Collective Trust Funds:</b>		
International Equity	1,251,628	20.28
Domestic Equity	1,738,135	28.17
Mortgage Debt Security	30,925	0.50
Treasury Inflation-Protected Securities	236,943	3.84
Fixed Income	113,962	1.85
<b>Total Collective Trust Funds:</b>	<b>3,371,594</b>	<b>54.64</b>
<b>Collateral From Securities Lending:</b>	<u>380,860</u>	<u>6.17</u>
<b>Total Investments</b>	<u><b>\$ 6,170,722</b></u>	<u><b>100.00%</b></u>

**Qualified Pension Plan and Tax Deferred Annuity Program**  
**Schedule of Investment Returns (Fixed) | Annualized Investment Results (Unaudited)**  
**Fiscal Year Ended June 30, 2017**

<b>Assets</b> <b>(\$ In thousands)</b>	<b>Assets</b> <b>%</b>		<b>3 Mos</b> <b>Apr-17</b> <b>Jun-17</b> <b>%</b>	<b>6 Mos</b> <b>Jan-17</b> <b>Jun-17</b> <b>%</b>	<b>1 Yr</b> <b>Jul-16</b> <b>Jun-17</b> <b>%</b>	<b>3 Yrs</b> <b>Jul-14</b> <b>Jun-17</b> <b>%</b>	<b>5 Yrs</b> <b>Jul-12</b> <b>Jun-17</b> <b>%</b>	<b>10 Yrs</b> <b>Jul-07</b> <b>Jun-17</b> <b>%</b>
<b>1,883,565</b>	<b>33.28</b>	<b>Domestic Equity</b>	3.27	9.20	19.12	8.86	14.89	7.25
		Russell 3000 Index	3.02	8.93	18.51	9.10	14.58	7.26
<b>1,251,628</b>	<b>22.12</b>	<b>International Equity</b>	6.46	18.52	28.03	3.13	9.02	3.47
<b>268,644</b>	<b>4.75</b>	<b>Private Equity</b>	5.71	9.00	15.95	14.26	14.80	9.14
<b>342,836</b>	<b>6.06</b>	<b>Private Equity Real Estate and Infrastructure</b>						
		Real Estate	4.22	6.70	11.60	13.22	11.91	0.00
		Infrastructure	8.48	11.46	16.62	12.46	0.00	0.00
<b>1,486,208</b>	<b>26.26</b>	<b>Fixed Income</b>	1.16	2.61	2.94	2.95	3.51	5.81
<b>374,326</b>	<b>6.61</b>	<b>Securities lending</b>	-	-	-	-	-	-
<b>52,084</b>	<b>0.92</b>	<b>Short-term Investments</b>	0.28	0.50	0.72	0.55	0.46	1.21
<b>5,659,291</b>	<b>100.00</b>	<b>Total Portfolio</b>	3.65	9.26	15.60	6.27	10.12	6.02

Yield data were obtained from the NYCBERS Performance Overview as of June 30, 2017.

These returns are calculated using a time weighted rate of return based on the market value of the portfolio, for time periods greater than one year the returns are annualized.

**Qualified Pension Plan and Tax Deferred Annuity Program**  
**List of 50 Largest Equity Holdings (Fixed)**  
**Fiscal Year Ended June 30, 2017**

<b>NAME OF EQUITY HOLDINGS</b>		<b>COST</b>		<b>FAIR VALUE</b>
1 TRANSUNION	\$	1,914,389	\$	2,960,498
2 GENPACT LTD		1,751,646		2,888,587
3 GLOBAL PAYMENTS INC		1,831,152		2,770,476
4 LENNOX INTERNATIONAL INC		622,236		2,753,131
5 TRIMBLE INC		1,994,272		2,660,197
6 VERISIGN INC		1,665,575		2,647,129
7 IDEX CORP		1,170,454		2,630,534
8 NVR INC		705,690		2,519,087
9 MARKEL CORP		1,261,278		2,450,384
10 NATIONAL INSTRUMENTS CORP		1,669,979		2,449,639
11 M & T BANK CORP		1,310,156		2,363,984
12 CDW CORP		1,443,558		2,309,045
13 PACKAGING CORP OF AMERICA		1,118,128		2,143,032
14 FIRST REPUBLIC BANK		667,371		2,039,337
15 METTLER TOLEDO INTERNATIONAL		1,018,825		2,001,036
16 UGI CORP		810,380		1,951,068
17 IONIS PHARMACEUTICALS INC		1,304,914		1,840,629
18 ALKERMES PLC		944,998		1,814,519
19 GUIDEWIRE SOFTWARE INC		1,428,327		1,802,882
20 WEX INC		1,353,550		1,798,136
21 TESARO INC		1,623,317		1,745,453
22 EQUIFAX INC		633,950		1,707,581
23 TOTAL SYSTEM SERVICES INC		1,490,014		1,687,561
24 CARMAX INC		923,204		1,668,441
25 HARLEY DAVIDSON INC		1,029,621		1,593,104
26 NORTHERN TRUST CORP		1,134,547		1,592,203
27 ADVANCE AUTO PARTS INC		886,776		1,589,238
28 WASTE CONNECTIONS INC		1,054,026		1,554,970
29 JETBLUE AIRWAYS CORP		1,195,274		1,531,756
30 CADENCE DESIGN SYS INC		1,074,808		1,530,694
31 ZILLOW GROUP INC		986,474		1,525,142
32 FACTSET RESEARCH SYSTEMS INC		890,007		1,522,375
33 STERIS PLC		1,297,814		1,518,916
34 ALLISON TRANSMISSION HOLDING		877,501		1,514,804
35 ALLEGHANY CORP		809,065		1,509,602
36 ALASKA AIR GROUP INC		1,336,400		1,508,237
37 BLACKBAUD INC		1,113,217		1,485,705
38 MSCI INC		664,191		1,481,511
39 GENESEE & WYOMING INC		1,898,470		1,476,814
40 AKAMAI TECHNOLOGIES INC		1,529,685		1,464,464
41 BALL CORP		1,213,213		1,445,102
42 VARIAN MEDICAL SYSTEMS INC		1,144,693		1,438,881
43 CHOICE HOTELS INTL INC		933,286		1,416,070
44 VANTIV INC		501,256		1,381,255
45 BLUEBIRD BIO INC		869,360		1,375,525
46 SERVICENOW INC		792,536		1,367,824
47 PUMA BIOTECHNOLOGY INC		783,380		1,340,192
48 WATERS CORP		661,306		1,328,060
49 ROBERT HALF INTL INC		760,528		1,310,742
50 MKS INSTRUMENTS INC		977,941		1,293,439

NOTE: Full listing of holdings can be obtained at  
 NYC Board of Education Retirement System  
 65 Court Street, 16th Floor, Brooklyn, NY 11201

**Qualified Pension Plan and Tax Deferred Annuity Program**  
**List of 50 Largest Bond Holdings (Fixed)**  
**Fiscal Year Ended June 30, 2017**

<b>NAME OF BOND HOLDINGS</b>	<b>PAR VALUE</b>	<b>FAIR VALUE</b>
1 US TREASURY N/B 05/24 2	\$ 22,716,563	\$ 22,566,863
2 US TREASURY N/B 02/27 2.25	22,295,141	22,111,700
3 US TREASURY N/B 08/22 1.625	21,471,118	21,273,317
4 US TREASURY N/B 05/24 2.5	16,318,346	16,250,500
5 US TREASURY N/B 08/44 3.125	16,222,024	15,847,800
6 US TREASURY N/B 08/23 2.5	15,364,109	15,394,350
7 GNMA II TBA 30 YR 3 JUMBOS	14,103,672	13,986,578
8 US TREASURY N/B 10/22 1.875	13,735,158	13,661,741
9 US TREASURY N/B 02/39 3.5	13,575,792	13,557,720
10 GNMA II POOL MA4382 G2 04/47 FIXED 3.5	13,266,176	13,231,336
11 FHLMC TBA 30 YR 3 GOLD SINGLE FAMILY	12,255,281	12,173,282
12 US TREASURY N/B 02/45 2.5	12,093,032	11,940,806
13 US TREASURY N/B 05/46 2.5	11,617,191	11,285,146
14 US TREASURY N/B 08/46 2.25	10,947,388	10,564,680
15 FNMA TBA 15 YR 2.5 SINGLE FAMILY MORTGAGE	9,705,145	9,669,019
16 GNMA II POOL MA4511 G2 06/47 FIXED 4	9,334,563	9,290,336
17 US TREASURY N/B 12/18 1.25	7,496,016	7,488,000
18 US TREASURY N/B 05/19 1.25	7,289,656	7,282,334
19 US TREASURY N/B 05/44 3.375	6,706,328	7,136,556
20 US TREASURY N/B 05/25 2.125	7,082,565	7,095,089
21 US TREASURY N/B 12/23 2.25	7,019,688	7,069,720
22 FANNIE MAE NOTES 04/26 2.125	6,973,355	6,822,830
23 US TREASURY N/B 02/19 1.125	5,972,273	5,962,317
24 US TREASURY N/B 08/18 0.75	5,858,516	5,861,296
25 US TREASURY N/B 01/19 1.125	5,484,102	5,480,255
26 FNMA TBA 30 YR 3.5 SINGLE FAMILY MORTGAGE	5,489,447	5,477,705
27 US TREASURY N/B 11/18 1	5,479,375	5,473,380
28 US TREASURY N/B 09/18 0.75	5,457,246	5,461,115
29 US TREASURY N/B 10/18 0.75	5,454,453	5,457,485
30 GNMA POOL 736570 GN 03/40 FIXED 4.5	5,397,400	5,381,109
31 US TREASURY N/B 08/40 3.875	4,185,928	5,295,322
32 FED HM LN PC POOL G08750 FG 03/47 FIXED 3	5,028,060	5,063,210
33 US TREASURY N/B 03/19 1.625	5,035,547	5,022,450
34 US TREASURY N/B 11/18 1.25	5,004,883	4,993,750
35 US TREASURY N/B 09/18 1	4,981,641	4,981,250
36 US TREASURY N/B 02/43 3.125	4,428,753	4,954,891
37 US TREASURY N/B 08/19 0.75	4,912,891	4,932,050
38 GNMA II POOL MA4321 G2 03/47 FIXED 3.5	4,758,045	4,788,951
39 FANNIE MAE NOTES 05/29 6.25	4,703,780	4,749,360
40 FANNIE MAE NOTES 09/26 1.875	4,812,819	4,740,700
41 US TREASURY N/B 08/19 1.625	4,520,566	4,520,565
42 US TREASURY N/B 05/19 1.5	4,513,359	4,510,035
43 US TREASURY N/B 02/19 1.5	4,518,281	4,509,315
44 FEDERAL HOME LOAN BANK BONDS 09/24 2.875	4,191,953	4,146,520
45 US TREASURY N/B 08/24 2.375	4,061,387	4,065,996
46 US TREASURY N/B 02/19 0.75	3,961,719	3,961,400
47 US TREASURY N/B 11/19 1	3,943,438	3,957,960
48 FANNIE MAE NOTES 09/24 2.625	3,819,804	3,955,114
49 US TREASURY N/B 02/20 3.625	3,825,281	3,795,876
50 US TREASURY N/B 06/19 1.625	3,517,910	3,515,575

NOTE: Full listing of holdings can be obtained at  
 NYC Board of Education Retirement System  
 65 Court Street, 16th Floor, Brooklyn, NY 11201



**Qualified Pension Plan and Tax Deferred Annuity Program**  
**List of 50 Largest International Equity Holdings (Fixed)**  
**Fiscal Year Ended June 30, 2017**

NAME OF INT'L EQUITY HOLDINGS	COST	FAIR VALUE
1 SAMSUNG ELECTRONICS CO LTD	\$ 12,225,173	\$ 24,972,899
2 ALIBABA GROUP HOLDING SP ADR	13,364,308	20,209,055
3 AIA GROUP LTD	13,032,472	19,041,862
4 SOFTBANK GROUP CORP	12,932,872	18,339,703
5 INDUSTRIA DE DISENO TEXTIL	9,346,782	17,069,200
6 TENCENT HOLDINGS LTD	3,573,579	16,289,339
7 ASML HOLDING NV	10,838,054	15,050,095
8 FERRARI NV	6,022,301	14,345,230
9 CIE FINANCIERE RICHEMONT REG	9,530,902	13,380,605
10 ATLAS COPCO AB A SHS	6,695,805	12,284,137
11 CHINA MOBILE LTD	12,631,790	12,137,757
12 ZALANDO SE	8,088,169	11,730,152
13 BAIDU INC SPON ADR	6,150,549	10,771,953
14 HON HAI PRECISION INDUSTRY	5,964,583	10,484,746
15 ROLLS ROYCE HOLDINGS PLC	10,421,835	10,074,399
16 CHINA CONSTRUCTION BANK H	10,068,871	9,956,147
17 SVENSKA HANDELSBANKEN A SHS	7,947,095	9,720,889
18 L' OREAL	6,262,245	9,553,383
19 M3 INC	6,723,185	9,503,139
20 GENMAB A/S	5,993,085	9,082,344
21 IND & COMM BANK OF CHINA (HK)	8,148,362	8,925,498
22 KERING	4,215,797	8,903,757
23 NOVARTIS AG REG	6,641,163	8,823,067
24 TOTAL SA	8,486,756	8,786,289
25 UNITED OVERSEAS BANK LTD	8,134,493	8,571,193
26 BANCO SANTANDER SA	9,479,707	8,177,519
27 SWATCH GROUP AG/THE BR	8,254,582	8,165,314
28 HSBC HOLDINGS PLC	9,104,318	8,133,571
29 RAKUTEN INC	5,358,161	8,065,045
30 ROYAL DUTCH SHELL PLC B SHS	8,840,394	7,716,287
31 BANK OF CHINA LTD (HK)	7,023,468	7,593,067
32 SK HYNIX INC	4,938,774	7,462,566
33 SAMSUNG ELECTR GDR	3,848,739	7,457,681
34 FIAT CHRYSLER AUTOMOBILES NV	3,114,263	7,455,304
35 CRH PLC	4,335,525	7,283,965
36 KINNEVIK AB B	8,579,356	7,071,320
37 BAYERISCHE MOTOREN WERKE AG	5,612,290	6,736,412
38 LLOYDS BANKING GROUP PLC	8,016,626	6,683,056
39 NETEASE INC ADR	2,308,170	6,491,086
40 JARDINE MATHESON HLDGS LTD	6,234,943	6,488,612
41 AIR LIQUIDE SA	5,230,474	6,366,718
42 SMC CORP	3,599,681	6,306,149
43 NESTLE SA REG	4,235,787	6,282,509
44 LAFARGEHOLCIM LTD REG	6,745,939	6,186,565
45 SBERBANK PJSC SPONSORED ADR	6,362,936	5,989,074
46 HONDA MOTOR CO LTD	7,367,795	5,950,161
47 DENSO CORP	5,279,144	5,846,740
48 NEW ORIENTAL EDUCATIO SP ADR	2,382,260	5,821,309
49 AGGREKO PLC	8,656,997	5,820,373
50 BOSKALIS WESTMINSTER	6,653,800	5,628,840

NOTE: Full listing of holdings can be obtained at  
 NYC Board of Education Retirement System  
 65 Court Street, 16th Floor, Brooklyn, NY 11201

**Qualified Pension Plan and Tax Deferred Annuity Program**  
**List of 50 Largest EAFE Investment Holdings (Fixed)**  
**Fiscal Year Ended June 30, 2017**

<b>NAME OF EAFE INVESTMENT HOLDINGS</b>	<b>COST</b>	<b>FAIR VALUE</b>
1 AIA GROUP LTD	\$ 13,032,472	\$ 19,041,862
2 SOFTBANK GROUP CORP	12,932,872	18,339,703
3 INDUSTRIA DE DISENO	9,346,782	17,069,200
4 TENCENT HOLDINGS LTD	3,573,579	16,289,339
5 ASML HOLDING NV	10,838,054	15,050,095
6 FERRARI NV	6,022,301	14,345,230
7 CIE FINANCIERE RICHEMONT REG	9,530,902	13,380,605
8 ATLAS COPCO AB A SHS	6,695,805	12,284,137
9 CHINA MOBILE LTD	12,631,790	12,137,757
10 ZALANDO SE	8,088,169	11,730,152
11 ROLLS ROYCE HOLDINGS PLC	10,421,835	10,074,399
12 CHINA CONSTRUCTION BANK (HK)	10,068,871	9,956,147
13 SVENSKA HANDELSBANKEN A SHS	7,947,095	9,720,889
14 L' OREAL	6,262,245	9,553,383
15 M3 INC	6,723,185	9,503,139
16 GENMAB A/S	5,993,085	9,082,344
17 IND & COMM BANK OF CHINA (HK)	8,148,362	8,925,498
18 KERING	4,215,797	8,903,757
19 NOVARTIS AG REG	6,641,163	8,823,067
20 TOTAL SA	8,486,756	8,786,289
21 UNITED OVERSEAS BANK LTD	8,134,493	8,571,193
22 BANCO SANTANDER SA	9,479,707	8,177,519
23 SWATCH GROUP AG	8,254,582	8,165,314
24 HSBC HOLDINGS PLC	9,104,318	8,133,571
25 RAKUTEN INC	5,358,161	8,065,045
26 ROYAL DUTCH SHELL PLC B SHS	8,840,394	7,716,287
27 BANK OF CHINA LTD HK	7,023,468	7,593,067
28 FIAT CHRYSLER AUTOMOBILES NV	3,114,263	7,455,304
29 CRH PLC	4,335,525	7,283,965
30 KINNEVIK AB	8,579,356	7,071,320
31 BAYERISCHE MOTOREN WERKE AG	5,612,290	6,736,412
32 LLOYDS BANKING GROUP PLC	8,016,626	6,683,056
33 JARDINE MATHESON HLDGS LTD	6,234,943	6,488,612
34 AIR LIQUIDE SA	5,230,474	6,366,718
35 SMC CORP	3,599,681	6,306,149
36 NESTLE SA REG	4,235,787	6,282,509
37 LAFARGEHOLCIM LTD REG	6,745,939	6,186,565
38 SBERBANK PJSC	6,362,936	5,989,074
39 HONDA MOTOR CO LTD	7,367,795	5,950,161
40 DENSO CORP	5,279,144	5,846,740
41 AGGREKO PLC	8,656,997	5,820,373
42 BOSKALIS WESTMINSTER	6,653,800	5,628,840
43 YARA INTERNATIONAL	5,988,606	5,589,592
44 SBM OFFSHORE	5,398,908	5,576,282
45 TRAVIS PERKINS PLC	6,128,884	5,489,479
46 CARNIVAL PLC	2,879,871	5,425,004
47 GEELY AUTOMOBILE HOLDINGS LTD	1,890,445	5,366,986
48 HONGKONG LAND HOLDINGS LTD	4,706,293	5,254,181
49 ANGLO AMERICAN PLC	6,625,448	5,223,610
50 BASF SE	4,828,379	4,903,739

NOTE: Full listing of holdings can be obtained at  
 NYC Board of Education Retirement System  
 65 Court Street, 16th Floor, Brooklyn, NY 11201

**Qualified Pension Plan and Tax Deferred Annuity Program**  
**List of 50 Largest Emerging Market Investment Holdings (Fixed)**  
**Fiscal Year Ended June 30, 2017**

<b>NAME OF EMERGING MARKET INVESTMENT HOLDINGS</b>	<b>COST</b>	<b>FAIR VALUE</b>
1 SAMSUNG ELECTRONICS CO LTD	\$ 12,225,173	\$ 24,972,899
2 HON HAI PRECISION INDUSTRY	5,964,583	10,484,746
3 SK HYNIX INC	4,938,774	7,462,566
4 TELEKOMUNIKASI INDONESIA	4,057,802	5,428,742
5 LG ELECTRONICS INC	4,067,199	5,119,224
6 HINDALCO INDUSTRIES LTD	3,418,932	5,071,893
7 GAIL INDIA LTD	3,879,415	4,778,421
8 STATE BANK OF INDIA	3,330,078	4,568,827
9 TENAGA NASIONAL BHD	3,359,642	4,564,143
10 POLSKI KONCERN NAFTOWY ORLEN	2,166,792	4,481,976
11 TAIWAN SEMICONDUCTOR MANUFACTURING CO.	2,377,865	4,311,926
12 PTT PCL	3,907,630	4,241,847
13 HINDUSTAN PETROLEUM CORP	2,090,123	4,211,990
14 FIRSTRAND LTD	3,675,117	4,197,140
15 INDIAN OIL CORP LTD	2,303,465	4,143,220
16 PEGATRON CORP	2,274,918	4,134,944
17 MRF LTD	974,291	3,959,465
18 TIGER BRANDS LTD	3,592,705	3,865,907
19 SASOL LTD	5,069,515	3,708,138
20 FUBON FINANCIAL HOLDING CO	2,087,963	3,442,646
21 BHARAT PETROLEUM CORP LTD	2,050,588	3,334,283
22 TATA MOTORS LTD	2,788,844	3,155,713
23 LG DISPLAY CO LTD	2,308,970	2,846,580
24 INNOLUX CORP	2,794,353	2,799,200
25 TURKIYE HALK BANKASI	2,428,142	2,759,160
26 KOREA ELECTRIC POWER CORP	3,046,957	2,749,125
27 KIA MOTORS CORP	3,359,636	2,676,331
28 TURKIYE GARANTI BANKASI	2,492,802	2,674,663
29 PUBLIC BANK BERHAD	2,605,348	2,630,700
30 TURKIYE VAKIFLAR BANKASI T D	2,127,402	2,526,548
31 KOC HOLDING AS	2,369,793	2,403,986
32 BRASKEM SA PREF	1,777,205	2,328,527
33 BANK NEGARA INDONESIA PERSER	2,072,635	2,316,995
34 HANWHA CORPORATION	1,936,167	2,284,918
35 AU OPTRONICS CORP	1,964,615	2,270,709
36 STANDARD BANK GROUP LTD	2,368,612	2,227,468
37 HCL TECHNOLOGIES LTD	1,323,469	2,205,521
38 PTT GLOBAL CHEMICAL PCL	2,320,712	2,175,674
39 TURKIYE IS BANKASI	2,786,670	2,163,261
40 POSCO	1,820,719	2,083,365
41 CJ CORP	1,050,105	2,055,704
42 NASPERS LTD N SHS	1,090,117	2,029,487
43 WOORI BANK	1,316,953	1,979,977
44 LG UPLUS CORP	1,695,198	1,953,127
45 GRUPO MEXICO SAB DE CV SER B	1,798,133	1,926,392
46 THANACHART CAPITAL	1,557,210	1,924,604
47 SK INNOVATION CO LTD	1,586,219	1,920,385
48 LOTTE CHEMICAL CORP	1,489,517	1,899,063
49 KRUNG THAI BANK	1,571,143	1,889,758
50 UNITED MICROELECTRONICS CORP	1,522,409	1,859,568

NOTE: Full listing of holdings can be obtained at  
 NYC Board of Education Retirement System  
 65 Court Street, 16th Floor, Brooklyn, NY 11201

**Qualified Pension Plan and Tax Deferred Annuity Program****List of Largest TIPS Holdings****Fiscal Year Ended June 30, 2017**

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<b>NAME OF LARGEST TIPS HOLDINGS</b>	<b>PAR VALUE</b>	<b>FAIR VALUE</b>
1 TIPS STATE STREET	\$ 241,331,154	\$ 236,943,451

NOTE: Full listing of holdings can be obtained at  
NYC Board of Education Retirement System  
65 Court Street, 16th Floor, Brooklyn, NY 11201

**Qualified Pension Plan and Tax Deferred Annuity Program**  
**List of 50 Largest Economically Targeted Investment Holdings (Fixed)**  
**Fiscal Year Ended June 30, 2017**

<b>NAME OF ECONOMICALLY TARGETED INVESTMENT HOLDINGS</b>	<b>PAR VALUE</b>	<b>FAIR VALUE</b>
1 AFL-CIO HOUSING INV TRUST	\$ 15,883,369	\$ 15,951,966
2 JPM CHASE- PPAR	571,200	643,162
3 JPM CHASE- PPAR	375,735	374,122
4 BANK OF AMERICA PPAR	336,000	369,797
5 LIIF LOW INCOME INVESTMENT FUND	283,800	313,266
6 JPM CHASE- PPAR	290,905	303,712
7 THE COMMUNITY PRESERVATION CORP	270,305	275,040
8 CCD CITIBANK NA PPAR	260,496	273,292
9 BANK OF AMERICA PPAR	273,340	271,048
10 BANK OF AMERICA PPAR	253,925	249,001
11 FNMA POOL AU1707	238,746	243,275
12 LIIF LOW INCOME INVESTMENT FUND	231,074	223,605
13 JPM CHASE- PPAR	195,293	221,298
14 FNMA POOL AW0982	214,944	217,390
15 JPM CHASE- PPAR	207,403	205,924
16 FNMA POOL AU7004	204,983	205,655
17 FNMA POOL 466026	205,460	201,228
18 THE COMMUNITY PRESERVATION CORP	188,857	196,980
19 GOVERNMENT NATIONAL MORTGAGE ASSOCIATION	188,824	186,385
20 JPM CHASE- PPAR	168,080	185,573
21 LIIF LOW INCOME INVESTMENT FUND	174,309	176,299
22 FNMA POOL AV0680	173,919	175,995
23 FNMA POOL BD7053	170,112	171,066
24 THE COMMUNITY PRESERVATION CORP	169,271	168,281
25 JPM CHASE- PPAR	164,193	167,456
26 FNMA POOL AU6719	156,923	158,773
27 FNMA POOL AW3604	158,570	158,207
28 FNMA POOL BD5029	158,430	157,593
29 FNMA POOL AV7745	150,961	153,513
30 FNMA POOL AB7800	157,154	152,140
31 FNMA POOL AW6468	146,897	147,623
32 FNMA POOL BC4728	143,324	137,509
33 JPM CHASE- PPAR	126,039	133,299
34 CCD CITIBANK NA PPAR	113,993	130,863
35 LIIF LOW INCOME INVESTMENT FUND	125,475	130,576
36 CCD CITIBANK NA PPAR	114,121	128,948
37 CCD CITIBANK NA PPAR	112,061	128,645
38 BOA BANK OF AMERICA PPAR	123,999	127,714
39 LIIF LOW INCOME INVESTMENT FUND	133,970	126,426
40 GOVERNMENT NATIONAL MORTGAGE ASSOCIATION	128,733	126,094
41 CCD CITIBANK NA PPAR	110,317	124,649
42 LIIF LOW INCOME INVESTMENT FUND	108,761	120,777
43 JPM CHASE- PPAR	116,873	117,494
44 FHLMC MULTIFAMILY STRUCTURED P	118,827	114,749
45 FNMA POOL AV3535	110,815	111,458
46 GNMA POOL AF9426	110,394	110,226
47 LIIF LOW INCOME INVESTMENT FUND	97,075	107,748
48 JPM CHASE- PPAR	97,022	102,330
49 FNMA POOL 469393	104,035	101,171
50 BOA BANK OF AMERICA PPAR	85,913	100,769

NOTE: Full listing of holdings can be obtained at  
 NYC Board of Education Retirement System  
 65 Court Street, 16th Floor, Brooklyn, NY 11201



**Qualified Pension Plan and Tax Deferred Annuity Program**  
**List of 50 Largest Domestic Equity Holdings (“Variable A” Program)**  
**Fiscal Year Ended June 30, 2017**

<b>NAME OF DOMESTIC EQUITY HOLDINGS “VARIABLE A” PROGRAM</b>	<b>COST</b>	<b>FAIR VALUE</b>
1 APPLE INC	\$ 3,345,177	\$ 8,959,646
2 MICROSOFT CORP	4,463,401	7,329,065
3 FPA CRESCENT FUND	4,366,059	4,935,242
4 GMO INTERNATIONAL EQUITY FUND OPEN-END	4,560,894	4,621,897
5 AMAZON.COM INC	1,612,169	4,436,893
6 FACEBOOK INC	2,155,604	4,431,290
7 JOHNSON & JOHNSON	2,819,003	4,424,233
8 BERKSHIRE HATHAWAY INC	2,851,751	4,177,809
9 JPMORGAN CHASE & CO	2,613,561	4,057,844
10 COMCAST CORP	2,411,599	3,975,470
11 ALPHABET INC	2,077,687	3,972,247
12 EXXON MOBIL CORP	3,836,298	3,941,993
13 UNITEDHEALTH GROUP INC	1,794,486	3,806,253
14 ALPHABET INC	1,801,336	3,434,761
15 GMO- ASSET ALLOCATION BOND FUND III	3,969,051	3,427,645
16 BANK OF AMERICA CORP	3,876,468	3,129,058
17 PROCTER & GAMBLE CO	2,516,790	3,010,181
18 AT&T INC	2,640,962	2,975,373
19 PFIZER INC	2,459,202	2,960,494
20 GENERAL ELECTRIC CO	3,462,687	2,927,701
21 GMO US EQUITY ALLOCATION FUND	2,853,523	2,921,818
22 GMO - QUALITY FUND-V	2,524,921	2,889,718
23 WELLS FARGO & CO	2,675,111	2,861,984
24 CITIGROUP INC	3,507,323	2,776,143
25 AMGEN INC	1,713,361	2,633,182
26 MERCK & CO INC	1,982,959	2,602,087
27 PHILIP MORRIS INTERNATIONAL INC	1,456,220	2,505,778
28 ALLERGAN PLC	1,919,789	2,448,480
29 PEPSICO INC	1,661,042	2,408,509
30 VERIZON COMMUNICATIONS INC	2,228,115	2,329,134
31 VISA INC	1,104,382	2,319,299
32 CHEVRON CORP	1,928,350	2,287,653
33 BIOGEN INC	2,082,784	2,275,141
34 WALT DISNEY CO	1,330,073	2,212,616
35 HOME DEPOT INC	1,016,653	2,119,789
36 INTEL CORP	1,589,988	2,033,166
37 ALTRIA GROUP INC	1,042,099	2,019,120
38 COCA-COLA CO	1,413,989	2,017,669
39 ORACLE CORP	1,125,900	1,945,866
40 CISCO SYSTEMS INC	1,669,805	1,894,690
41 BROADCOM LTD	912,047	1,884,824
42 MEDTRONIC PLC	1,148,515	1,862,239
43 WAL-MART STORES INC	1,405,398	1,763,524
44 GMO CURRENCY HEDGED INTERNATIONAL	1,721,954	1,698,719
45 CELGENE CORP	914,089	1,680,953
46 MCDONALD’S CORP	856,924	1,644,599
47 THERMO FISHER SCIENTIFIC INC	951,665	1,628,335
48 MASTERCARD INC	736,229	1,613,526
49 INTERNATIONAL BUSINESS MACHINES CORP	1,268,355	1,580,791
50 3M CO	845,382	1,517,554

NOTE: Full listing of holdings can be obtained at  
 NYC Board of Education Retirement System  
 65 Court Street, 16th

**Qualified Pension Plan and Tax Deferred Annuity Program  
Schedule of Payments of Commissions to Brokers (Fixed)  
Fiscal Year Ended June 30, 2017**

INDIVIDUAL OR BROKERAGE FIRM	# OF SHARES	COMMISSION PAID (in \$)	COMMISSION PER SHARE (in \$)
ACADEMY SECURITIES INC	39,224	805.48	0.021
AMERICAN PORTFOLIOS FINANIAL	24	1.20	0.050
AUTONOMOUS	887	31.05	0.035
AVONDALE PARTNERS LLC	6,575	227.96	0.035
B.RILEY & CO., LLC	10,451	302.89	0.029
BANK J.VONTOBEL UND CO. AG	10,015	1,919.59	0.192
BANK OF NOVA SCOTIA - SCUSA	16,602	8.26	0.000
BARCLAYS CAPITAL	3,745	22.47	0.006
BARCLAYS CAPITAL INC./LE	276,317	1,056.13	0.004
BARCLAYS CAPITAL INC./LE	84,407	2,648.53	0.031
BARCLAYS CAPITAL LE	16,500	364.74	0.022
BARRINGTON RESEARCH ASSOCIATES	1,224	36.72	0.030
BB&T SECURITIES, LLC	2,884	70.93	0.025
BERENBERG	548	19.18	0.035
BLAYLOCK ROBERT VAN LLC	1,319	36.78	0.028
BLOOMBERG TRADEBOOK LLC	50,356	1,007.12	0.020
BMO CAPITAL MARKETS	41,687	1,542.16	0.037
BMO CAPITAL MARKETS	1,428	4.28	0.003
BNP PARIBAS SECURITIES SERVICE	1,427,058	3,985.65	0.003
BNP PARIBAS SECURITIES SERVICES	209,061	543.76	0.003
BNP PARIBAS SECURITIES SERVICES SA	122,803	3,202.77	0.026
BNY CONVERGEX EXECUTION SOLUTIONS LLC	340,111	1,124.03	0.003
BRADESCO S.A. CTVM	160,856	1,205.98	0.007
BREAN CAPITAL LLC	2,329	85.38	0.037
BROADCORT CAPITAL CORP	4,199	146.97	0.035
BTIG, LLC	96,035	3,821.39	0.040
BUCKINGHAM RESEARCH GROUP INC	11,018	440.72	0.040
BURKE ANDQUICK PARTNERS LLC	2,333	81.67	0.035
CABRERA CAPITAL MARKETS	83,498	1,348.23	0.016
CANACCORD GENUITY INC.	22,650	737.99	0.033
CANADIAN IMPERIAL BANK OF COMMERCE	992,811	2,145.65	0.002
CANTOR FITZGERALD & CO / CASTLEOAK SEC	163	4.89	0.030
CANTOR FITZGERALD & CO.	24,454	652.64	0.027
CANTOR FITZGERALD/CANTOR CLEARING SERV	97,061	291.19	0.003
CAPITAL INSTITUTIONAL SVCS INC EQUITIES	6,962	345.44	0.050
CHEEVERS & CO. INC.	725,251	9,907.10	0.014
CHINA INTERNATIONAL CAPITAL CO	508,763	2,673.87	0.005
CIBC WORLD MKTS INC	24,838	873.11	0.035
CITATION GROUP	60,124	3,006.20	0.050
CITIGROUP GLOBAL MARKETS INC.	1,748,715	5,664.65	0.003
CITIGROUP GLOBAL MARKETS INC.	52,727	1,156.39	0.022

**Qualified Pension Plan and Tax Deferred Annuity Program**  
**Schedule of Payments of Commissions to Brokers (Fixed) | Fiscal Year Ended June 30, 2017**  
**(Cont'd)**

<b>INDIVIDUAL OR BROKERAGE FIRM</b>	<b># OF SHARES</b>	<b>COMMISSION PAID (in \$)</b>	<b>COMMISSION PER SHARE (in \$)</b>
CITIGROUP GLOBAL MARKETS INC.	11,639,985	3,379.35	0.000
CITIGROUP GLOBAL MARKETS INC.	937,752	4,147.75	0.004
CITIGROUP GLOBAL MARKETS INDIA	360,167	691.62	0.002
CITIGROUP GLOBAL MARKETS LIMITED	1,189,796	4,449.96	0.004
CITIGROUP GLOBAL MARKETS LIMITED	2,693,021	1,582.05	0.001
CITIGROUP GLOBAL MARKETS TAIWAN	341,180	278.90	0.001
CJS SECURITIES INC	2,261	101.26	0.045
CLSA AMERICAS	5,036	188.94	0.038
CLSA AUSTRALIA PTY LTD	555,629	642.99	0.001
CLSA SECURITIES MALAYSIA SDN BHD	1,475,835	347.31	0.000
CLSA SINGAPORE PTE LTD.	3,218,249	10,112.33	0.003
COMPASS POINT RESEARCH & TRADING, LLC	25,735	1,029.40	0.040
CONVERGEX EXECUTION SOLUTIONS LLC	1,618,723	8,102.70	0.005
CONVERGEX EXECUTION SOLUTIONS LLC	1,366	40.98	0.030
CONVERGEX LLC	13,217	461.07	0.035
CORREVAL S.A.	20,208	116.07	0.006
COWEN AND COMPANY, LLC	12,939	97.89	0.008
COWEN AND COMPANY, LLC	121,358	4,511.90	0.037
CRAIG - HALLUM	24,185	657.44	0.027
CREDIT LYONNAIS SECURITIES (USA) INC	193,580	778.89	0.004
CREDIT LYONNAIS SECURITIES INDIA	1,580,877	10,556.92	0.007
CREDIT LYONNAIS SECURITIES(ASIA)	11,879,320	9,454.34	0.001
CREDIT SUISSE FIRST BOSTON	1,384,125	1,451.83	0.001
CREDIT SUISSE FIRST BOSTON (EUROPE)	3,345	2,178.10	0.651
CREDIT SUISSE LONDON BRANCH (GFX)	22,108	78.14	0.004
CREDIT SUISSE SECS INDIA PRIVATE LTD	218,915	588.69	0.003
CREDIT SUISSE SECURITIES (EUROPE) LTD	386,445	3,452.48	0.009
CREDIT SUISSE SECURITIES (USA) LLC	12,530,180	11,320.40	0.001
CREDIT SUISSE SECURITIES (USA) LLC	66,060	1,781.54	0.027
CUTTONE & CO.	3,659	73.18	0.020
DAIWA SECURITIES (HK) LTD.	920,865	458.49	0.000
DAIWA SECURITIES AMERICA INC	102,993	3,284.56	0.032
DANSKE BANK A.S.	57,173	2,187.94	0.038
DAVIDSON D.A. & COMPANY INC.	18,390	609.70	0.033
DAVY STOCKBROKERS	13,473	882.63	0.066
DBS VICKERS (HONG KONG) LIMITED	84,935	1,153.36	0.014
DBS VICKERS SECURITIES (SINGAPORE)	102,608	558.83	0.005
DEUTSCHE BANK AG LONDON	97,632	2,068.69	0.021
DEUTSCHE BANK SECURITIES INC	5,911,651	19,767.92	0.003
DEUTSCHE BANK SECURITIES INC	55,117	1,622.98	0.029
DEUTSCHE SECURITIES ASIA LIMITED	277,148	265.50	0.001
DOUGHERTY & COMPANY LLC	45,829	1,503.27	0.033

**Qualified Pension Plan and Tax Deferred Annuity Program**  
**Schedule of Payments of Commissions to Brokers (Fixed) | Fiscal Year Ended June 30, 2017**  
**(Cont'd)**

INDIVIDUAL OR BROKERAGE FIRM	# OF SHARES	COMMISSION PAID (in \$)	COMMISSION PER SHARE (in \$)
DREXEL HAMILTON LLC	43,916	901.29	0.021
DSP MERRILL LYNCH LTD	585,413	793.71	0.001
FBR CAPITAL MARKETS & CO.	11,951	417.21	0.035
FEDERATED MANAGED GROWTH & INCOME 17 A7	471,643	3,536.94	0.007
FIDELITY CAPITAL MARKETS	4,369	144.10	0.033
FIDELITY CLEARING CANADA ULC	88,995	1,779.90	0.020
FIRST ANALYSIS SECURITIES CORP	2,143	59.22	0.028
FLOW CORRETORA DE MERCADORIAS LTDA.	193,340	1,073.87	0.006
GOLDMAN SACHS & CO	308,070	6,619.77	0.021
GOLDMAN SACHS (ASIA) LLC	943,891	819.27	0.001
GOLDMAN SACHS (ASIA) LLC	9,699	241.31	0.025
GOLDMAN SACHS (INDIA)	418,180	981.46	0.002
GOLDMAN SACHS & CO	5,654,092	12,663.99	0.002
GOLDMAN SACHS & CO INTL.	2,763	32.31	0.012
GOLDMAN SACHS INTERNATIONAL	848,758	582.56	0.001
GUGGENHEIM CAPITAL MARKETS LLC	45,773	1,318.75	0.029
GUZMAN AND COMPANY	30,745	614.90	0.020
HEIGHT SECURITIES, LLC	6,591	230.70	0.035
HONGKONG AND SHANGHAI BANKING CORP	1,837,203	3,758.66	0.002
HSBC BANK PLC	442,850	2,536.11	0.006
HSBC BANK USA	19,591	119.42	0.006
HSBC BROKERAGE (USA) INC.	600	25.20	0.042
HSBC MEXICO S A INSTITUCION DE BANCA MLT	316,614	1,024.08	0.003
HSBC SECURITIES	444,095	500.31	0.001
HSBC SECURITIES (USA) INC.	1,881,976	3,621.98	0.002
ICAP DO BRASIL DTVM LTDA	511,635	3,984.22	0.008
ICBC FINCL SVCS, EQUITY CLEARANCE	400	3.20	0.008
ICBC FINCL SVCS, EQUITY CLEARANCE	440,349	1,321.19	0.003
ICICI BROKERAGE SERVICES	181,875	580.41	0.003
IM TRUST S.A. CORREDORES DE BOLSA	247,501	87.38	0.000
IMPERIAL CAPITAL LLC	8,108	284.77	0.035
INDUSTRIAL AND COMMERCIAL BANK	3,255	89.05	0.027
INSTINET	16,788	50.42	0.003
INSTINET	596,946	7,690.36	0.013
INSTINET AUSTRALIA CLEARING SRVC PTY LTD	184,691	224.68	0.001
INSTINET LLC	1,075,147	6,950.60	0.006
INSTINET PACIFIC LIMITED	33,052,293	12,183.21	0.000
INSTINET SINGAPORE SERVICES PT	911,818	1,274.62	0.001
INSTINET U.K. LTD	10,915,897	23,026.35	0.002
INSTINET U.K. LTD	1,818,888	9,918.37	0.005
INVESTMENT TECHNOLOGY GROUP INC.	261	0.65	0.002
INVESTMENT TECHNOLOGY GROUP INC.	106,264	1,250.20	0.012

**Qualified Pension Plan and Tax Deferred Annuity Program**  
**Schedule of Payments of Commissions to Brokers (Fixed) | Fiscal Year Ended June 30, 2017**  
**(Cont'd)**

<b>INDIVIDUAL OR BROKERAGE FIRM</b>	<b># OF SHARES</b>	<b>COMMISSION PAID (in \$)</b>	<b>COMMISSION PER SHARE (in \$)</b>
INVESTMENT TECHNOLOGY GROUP LTD	1,996,893	6,969.76	0.003
ISI GROUP INC	83,420	1,865.75	0.022
ITG AUSTRALIA LTD.	776,792	69.19	0.000
ITG CANADA	51,187	255.25	0.005
ITG CANADA	36,100	388.17	0.011
ITG INC.	67,297	2,579.01	0.038
ITG SECURITIES (HK) LTD	3,490,905	1,028.83	0.000
J P MORGAN INDIA PRIVATE LTD	94,938	288.68	0.003
J P MORGAN SECURITIES INC	472,013	4,485.60	0.010
J.P MORGAN SECURITIES	7,362	7.21	0.001
J.P. MORGAN CLEARING CORP.	76,848	374.62	0.005
J.P. MORGAN CLEARING CORP.	314,733	2,359.96	0.007
J.P. MORGAN SECURITIES (TAIWAN) LTD	2,588,255	1,771.53	0.001
J.P. MORGAN SECURITIES INC.	227,421	4,486.08	0.020
J.P. MORGAN SECURITIES LIMITED	77,655	194.67	0.003
J.P. MORGAN SECURITIES (FAR EAST) LTD SEOUL	103,051	1,489.54	0.014
JANNEY MONTGOMERY, SCOTT INC	35,235	1,200.75	0.034
JEFFERIES & COMPANY INC	70,926	437.19	0.006
JEFFERIES & COMPANY INC	226,326	4,977.11	0.022
JEFFERIES INTERNATIONAL LTD	27,583	262.28	0.010
JM FINANCIAL INSTITUTIONAL SECURITIES PR	238,098	1,778.42	0.007
JMP SECURITIES	2,635	104.35	0.040
JNK SECURITIES INC	7,246	289.84	0.040
JOHNSON RICE & COMPANY LLC	30,954	921.44	0.030
JONES TRADING INSTITUTIONAL SERVICES LLC	174,351	4,407.48	0.025
JP MORGAN SECURITIES AUSTRALIA LTD	7,290	3.72	0.001
JP MORGAN SECURITIES PLC	1,151,975	3,173.59	0.003
JP MORGAN SECURITIES SINGAPORE	1,699,152	286.96	0.000
JP MORGAN SECURITIES(ASIA PACIFIC)LTD	3,306,871	1,386.62	0.000
KCG AMERICAS LLC	43,039	304.53	0.007
KCG AMERICAS LLC	896	4.50	0.005
KEEFE BRUYETTE & WOODS INC	33,215	1,086.10	0.033
KEYBANC CAPITAL MARKETS INC	59,366	2,003.01	0.034
KING, CL,& ASSOCIATES, INC	121,507	2,453.86	0.020
KNIGHT EQUITY MARKETS L.P.	37,793	779.30	0.021
LADENBURG THALMAN & CO	2,379	71.37	0.030
LARRAIN VIAL	37,768	85.21	0.002
LEERINK PARTNERS LLC	38,177	1,317.01	0.034
LEK SECURITIES CORP	1,882	65.87	0.035
LIQUIDNET INC	14,721	462.46	0.031
LIQUIDNET INC	430,035	6,678.33	0.016
LOOP CAPITAL MARKETS	366,061	5,443.03	0.015



**Qualified Pension Plan and Tax Deferred Annuity Program**  
**Schedule of Payments of Commissions to Brokers (Fixed) | Fiscal Year Ended June 30, 2017**  
**(Cont'd)**

INDIVIDUAL OR BROKERAGE FIRM	# OF SHARES	COMMISSION PAID (in \$)	COMMISSION PER SHARE (in \$)
LOOP CAPITAL MARKETS	328,696	1,152.84	0.004
LOOP CAPITAL MARKETS LLC	28,369	272.97	0.010
LUMINEX TRADING AND ANALYTICS	2,754	6.88	0.002
LUMINEX TRADING AND ANALYTICS LLC	5,323	13.31	0.003
MACQUARIE BANK LIMITED	10,236,849	5,840.50	0.001
MACQUARIE BANK LIMITED	3,249,400	124.51	0.000
MACQUARIE CAPITAL (USA) INC	97,621	653.39	0.007
MACQUARIE SECURITIES (USA) INC	9,202	306.19	0.033
MACQUARIE SECURITIES KOREA LIMITED	19,072	1,168.73	0.061
MACQUARIE SECURITIES LIMITED	2,271,600	137.90	0.000
MACQUARIE SECURITIES LTD SEOUL	11,837	684.92	0.058
MAXIM GROUP	4,816	176.16	0.037
MERRILL LYNCH AND CO INC	439,319	1,627.22	0.004
MERRILL LYNCH INTERNATIONAL	21,255,731	17,261.35	0.001
MERRILL LYNCH PIERCE FENNER & SMITH INC	4,595,816	48,171.57	0.010
MERRILL LYNCH PIERCE FENNER & SMITH INC	4,683,862	14,758.51	0.003
MERRILL LYNCH PIERCE FENNER & SMITH INC	301,432	1,115.11	0.004
MERRILL LYNCH PROFESSIONAL CLEARING CORP	10,315	367.62	0.036
MIRAE ASSET DAEWOO CO., LTD.	21,403	1,858.07	0.087
MISCHLER FINANCIAL GROUP, INC-EQUITIES	31,868	652.20	0.020
MIZUHO SECURITIES USA INC.	7,814	296.63	0.038
MKM PARTNERS LLC	39,625	1,432.88	0.036
MORGAN STANLEY AND CO. INTERNATIONAL	341,231	3,449.64	0.010
MORGAN STANLEY CO INCORPORATED	3,156,825	12,150.28	0.004
MORGAN STANLEY CO INCORPORATED	373,578	7,399.47	0.020
MORGAN STANLEY H.K. SECURITIES LTD	205,475	5.69	0.000
MORGAN STANLEY INDIA COMPANY PVT LTD	48,876	201.99	0.004
NATIONAL FINANCIAL SERVICES CORP.	5,576	81.53	0.015
NATIONAL FINANCIAL SERVICES CORP.	2,924	87.72	0.030
NATIONAL FINANCIAL SERVICES LLC	4,623	31.23	0.007
NATIXIS SECURITIES	2,605	481.57	0.185
NEEDHAM AND COMPANY LLC	43,364	1,486.30	0.034
NH INVESTMENT AND SECURITIES CO.,LTD.	193,131	1,672.51	0.009
NOBLE INTERNATIONAL INVESTMENTS INC.	2,449	69.16	0.028
NOMURA FINANCIAL ADVISORY & SEC INDIA	1,840,640	8,633.98	0.005
NOMURA FINANCIAL INVESTMENT KOREA CO LTD	52,105	187.51	0.004
NOMURA SECURITIES CO LTD	797,309	727.86	0.001
NORTH SOUTH CAPITAL LLC	35,804	1,277.38	0.036
NORTHLAND SECURITIES INC.	14,929	413.41	0.028
O NEIL, WILLIAM AND CO. INC/BCC CLRG	5,615	224.60	0.040
OPPENHEIMER & CO. INC.	5,678	162.59	0.029
OTR GLOBAL TRADING LLC	5,929	207.53	0.035

**Qualified Pension Plan and Tax Deferred Annuity Program**  
**Schedule of Payments of Commissions to Brokers (Fixed) | Fiscal Year Ended June 30, 2017**  
**(Cont'd)**

<b>INDIVIDUAL OR BROKERAGE FIRM</b>	<b># OF SHARES</b>	<b>COMMISSION PAID (in \$)</b>	<b>COMMISSION PER SHARE (in \$)</b>
PAVILION GLOBAL MARKETS LTD	157,898	4,089.91	0.026
PENSERRA SECURITIES	5,790	144.76	0.025
PENSERRA SECURITIES LLC	188,289	875.68	0.005
PERSHING LLC	136,659	636.32	0.005
PERSHING LLC	311,574	2,796.46	0.009
PERSHING SECURITIES LIMITED	2,661,596	2,878.02	0.001
PICKERING ENERGY PARTNERS, INC	11,851	414.79	0.035
PIPER JAFFRAY	38,804	1,246.51	0.032
R.B.C. DOMINION SECURITIES CORPORATION	4,015	24.09	0.006
RAYMOND JAMES AND ASSOCIATES INC	86,305	3,108.53	0.036
RBC CAPITAL MARKETS	8,047	321.88	0.040
RBC CAPITAL MARKETS	136,968	3,726.47	0.027
RBC DOMINION SECURITIES INC.	62,999	1,664.69	0.026
REDBURN PARTNERS LLP	556,110	2,508.11	0.005
RENAISSANCE MACRO SECURITIES, LLC	1,931	67.59	0.035
ROBERT W. BAIRD CO. INCORPORATE	99,823	3,654.13	0.037
ROSENBLATT SECURITIES LLC	5,439	123.53	0.023
ROTH CAPITAL PARTNERS LLC	5,283	158.49	0.030
ROYAL BANK OF CANADA EUROPE LTD	271,142	3,964.73	0.015
SAMUEL A RAMIREZ & COMPANY INC	124,474	933.49	0.007
SANDLER ONEILL AND PARTNERS L.P.	6,153	246.12	0.040
SANFORD C BERNSTEIN CO LLC	45,058	1,005.97	0.022
SANFORD C. BERNSTEIN AND CO. LLC	875,879	1,289.90	0.001
SANFORD C. BERNSTEIN LTD	866,600	10,708.79	0.012
SCOTIA CAPITAL (USA) INC	15,796	552.87	0.035
SEAPORT GROUP SECURITIES, LLC	33,662	1,186.47	0.035
SG AMERICAS SECURITIES LLC	1,403,581	7,299.53	0.005
SG ASIA SECURITIES (INOIA) PVT LTD	204,393	777.11	0.004
SG SECURITIES (LONDON) LTD.	22,249	15.19	0.001
SG SECURITIES HK	33,511,084	11,526.52	0.000
SHENYIN AND WANGUO SECURITIES CO. LTD	6,368	6.83	0.001
SIDOTI & COMPANY LLC	11,572	454.55	0.039
SMBC NIKKO CAPITAL MARKETS LIMITED	7,314	319.41	0.044
SOCIETE GENERALE LONDON BRANCH	1,881,579	6,544.77	0.003
STATE STREET GLOBAL MARKETS, LLC	32,643	380.38	0.012
STEPHENS, INC.	62,786	2,370.90	0.038
STERNE AGEE & LEACH INC.	38,127	1,906.35	0.050
STIFEL NICOLAUS & CO INC	158,182	5,130.94	0.032
STRATEGAS SECURITIES LLC	35,585	889.68	0.025
SUNTRUST CAPITAL MARKETS, INC.	54,126	1,787.50	0.033
TELSEY ADVISORY GROUP LLC	257,275	9,155.64	0.036
TERA MENKUL DEGERLER A.S.	495,794	1,034.57	0.002

**Qualified Pension Plan and Tax Deferred Annuity Program**  
**Schedule of Payments of Commissions to Brokers (Fixed) | Fiscal Year Ended June 30, 2017**  
**(Cont'd)**

<b>INDIVIDUAL OR BROKERAGE FIRM</b>	<b># OF SHARES</b>	<b>COMMISSION PAID (in \$)</b>	<b>COMMISSION PER SHARE (in \$)</b>
THE HONGKONG AND SHANGHAI BANK	4,589	161.86	0.035
THE VERTICAL TRADING GROUP	5,081	203.24	0.040
TORONTO DOMINION BANK	30,900	424.51	0.014
UBS AG	766,881	6,382.76	0.008
UBS AG	239,291	92.71	0.000
UBS LIMITED	2,042,617	11,558.20	0.006
UBS SECURITIES ASIA LTD	2,979,572	1,726.77	0.001
UBS SECURITIES CANADA INC	79,914	427.96	0.005
UBS SECURITIES INDIA PRIVATE LTD	153,050	307.54	0.002
UBS SECURITIES LLC	2,528,265	7,872.75	0.003
UBS SECURITIES LLC	291,975	5,227.98	0.018
UBS SECURITIES PTE. LTD., SEOUL	11,761	208.54	0.018
VANDHAM SECURITIES CORP	4,147	124.41	0.030
WALL STREET ACCESS	62,842	502.76	0.008
WEDBUSH MORGAN SECURITIES	17,056	526.19	0.031
WEEDEN & CO.	24,075	734.95	0.031
WEEDEN & CO.	261,581	1,048.66	0.004
WELLS FARGO SECURITIES LLC	1,033	3.10	0.003
WELLS FARGO SECURITIES, LLC	67,567	2,423.38	0.036
WILLIAM BLAIR & COMPANY L.L.C	808	8.08	0.010
WILLIAM BLAIR & COMPANY L.L.C	116,526	4,041.06	0.035
WILLIAMS CAPITAL GROUP LP	3,617	10.85	0.003
WILLIAMS CAPITAL GROUP LP	131,499	3,752.27	0.029
WOORI INVESTMENT SECURITIES	12,072	901.68	0.075
WUNDERLICH SECURITIES INC	5,905	178.20	0.030
XP INVESTIMENTOS CCTVM SA	990,604	7,279.83	0.007
XP INVESTIMENTOS CCTVM SA	43,600	174.44	0.004



**Manhattan Bridge**  
Opened on December 31, 1909

## ACTUARIAL

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## OFFICE OF THE ACTUARY

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(212) 442-5775 • FAX: (212) 442-5777

SHERRY S. CHAN  
CHIEF ACTUARY

December 8, 2017

Board of Trustees  
New York City Board of Education Retirement System  
65 Court Street  
Brooklyn, NY 11201

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

Dear Members of the Board of Trustees:

The financial objective of the New York City Board of Education Retirement System - Qualified Pension Plan (BERS-QPP or the Plan) is to fund members' retirement benefits during their active service and to establish 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 BERS, 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 new accounting standards for public pension plans, Statement No. 67 (GASB67) and Statement No. 68 (GASB68), collectively "GASB67/68."

Board of Trustees  
New York City Board of Education Retirement System  
December 8, 2017  
Page 2

On September 29, 2017, the Actuary published the, "GASB 67/68 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 C of The Fiscal Year 2017 GASB67/68 Report contains information developed in accordance with GASB67 for BERS.

### **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 Board of Education 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 Board of Trustees of BERS 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 Board of Trustees 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 forth by the Actuarial Standards of Practice (ASOPs).

### **Benefits and Census Data**

A summary of the benefits applicable to Plan members included in the June 30, 2015 (Lag) actuarial valuation is shown earlier in the Financial Section of the CAFR. There were 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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New York City Board of Education Retirement System  
December 8, 2017  
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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.
- Contributions.

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

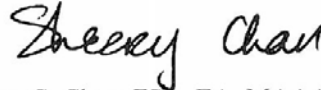
If you have any questions about any of the information in this Actuarial Section or any of the actuarial information presented elsewhere in this CAFR, please do not hesitate to contact Mr. Michael J. Samet, Mr. Edward Hue, or me.

Board of Trustees  
New York City Board of Education Retirement System  
December 8, 2017  
Page 5

### **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. Jean-Daniel Desmornes – New York City Board of Education Retirement System  
Mr. Edward Hue – New York City Office of the Actuary  
Ms. Marlene Markoe-Boyd – New York City Office of the Actuary  
Mr. Sanford Rich – New York City Board of Education 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

2465L&R:eh



## Qualified Pension Plan

### Summary of Actuarial Assumptions and Methods In Effect For The June 30, 2015 (Lag) Actuarial Valuation

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- (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 Board of Education 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 Board of Trustees 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 Board of Trustees 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.

- (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 Program).
- (3) The mortality tables for service and disability pensioners are based primarily on the experience of BERS (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 MP-2015. Sample probabilities are shown in Table 1b.

**Qualified Pension Plan  
Summary of Actuarial Assumptions and Methods  
In Effect For The June 30, 2015 (Lag) Actuarial Valuation (Cont'd)**

- (4) Active Service tables are used to estimate various withdrawals from Active Service. Sample probabilities are shown in Table 2a for members withdrawing from Active Service due to Death or Disability who did not elect an improved retirement program and Table 2b for members electing an improved retirement program, in Table 3 for members withdrawing for Other Than Death, Disability, or Service Retirement, and in Table 4 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.

Chapter 105 of the Laws of 2010 established, as of June 30, 2011, an Early Retirement Incentive (ERI) for certain BERS 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.

## Qualified Pension Plan

### Summary of Actuarial Assumptions and Methods

#### In Effect For The June 30, 2015 (Lag) Actuarial Valuation (Cont'd)

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The June 30, 2015 (Lag) actuarial valuation uses a June 30, 2015 valuation date to determine 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) 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.

- (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.
- (12) As discussed herein, the actuarial assumptions and methods are unchanged from those used in the June 30, 2014 (Lag) actuarial valuation.

**Qualified Pension Plan**  
**Summary of Actuarial Assumptions and Methods**  
**In Effect For The June 30, 2015 (Lag) Actuarial Valuation (Cont'd)**

**Table 1A**  
**DEATHS AMONG SERVICE AND DISABILITY PENSIONERS**  
**Percentage of Pensioners Dying within the Next Year**

Age	Service Pensioners		Disability Pensioners	
	Males	Females	Males	Females
40	0.0925%	0.0567%	1.2342%	1.3349%
45	0.2888	0.0979	1.3138	1.4401
50	0.5448	0.2060	1.5874	1.7308
55	0.8613	0.3328	2.0717	1.8368
60	1.0140	0.4890	2.4089	1.9038
65	1.2659	0.6434	2.5562	2.0875
70	1.8313	1.0427	2.9605	2.4305
75	2.5333	1.7311	3.7589	3.1827
80	4.3875	2.9262	5.1182	4.3572
85	7.1975	4.9335	7.2122	6.3954
90	11.2435	8.4598	11.2591	11.0229
95	20.2648	15.3015	20.2817	18.5728
100	31.0742	21.4488	31.0742	22.3547
105	37.2467	27.4666	37.2467	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 is applied to these rates.

**Table 1B**  
**DEATHS AMONG BENEFICIARIES**  
**Percentage of Beneficiaries Dying within the Next Year**

Age	Males	Females
40	0.0925%	0.0680%
45	0.2600	0.1175
50	0.4086	0.2472
55	0.8133	0.4437
60	1.0773	0.7335
65	1.4468	1.0111
70	1.9534	1.3903
75	2.8711	2.1928
80	5.2649	3.7065
85	8.0972	6.1669
90	14.0544	10.5748
95	22.5336	17.8640
100	31.0742	21.4655
105	37.2467	27.4666
110	96.7583	96.7971
115	100.0000	100.0000

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

**Qualified Pension Plan**  
**Summary of Actuarial Assumptions and Methods**  
**In Effect For The June 30, 2015 (Lag) Actuarial Valuation (Cont'd)**

Table 2A

**WITHDRAWALS FROM ACTIVE SERVICE (DUE TO DEATH OR DISABILITY)**  
**MEMBERS WHO DO NOT ELECT AN IMPROVED RETIREMENT PROGRAM**

**Percentage of Active Members Separating within the Next Year**

Age	Accidental Disability		Ordinary Disability		Death	
	Males	Females	Males	Females	Males	Females
20	0.04%	0.02%	0.20%	0.20%	0.040%	0.030%
25	0.04	0.02	0.20	0.20	0.040	0.030
30	0.04	0.02	0.20	0.20	0.060	0.040
35	0.04	0.02	0.30	0.20	0.080	0.050
40	0.04	0.02	0.40	0.25	0.100	0.060
45	0.04	0.02	0.50	0.30	0.150	0.100
50	0.04	0.02	0.60	0.50	0.200	0.150
55	0.04	0.02	0.70	0.70	0.300	0.200
60	0.04	0.02	0.70	0.70	0.400	0.250
65	0.04	0.02	0.70	0.70	0.500	0.300
70 <sup>(1)</sup>	NA	NA	NA	NA	NA	NA

Table 2B

**WITHDRAWALS FROM ACTIVE SERVICE (DUE TO DEATH OR DISABILITY)**  
**MEMBERS WHO ELECTED AN IMPROVED RETIREMENT PROGRAM**

**Percentage of Active Members Separating within the Next Year**

Age	Accidental Disability		Ordinary Disability		Death	
	Males	Females	Males	Females	Males	Females
20	0.04%	0.02%	0.20%	0.20%	0.040%	0.030%
25	0.04	0.02	0.20	0.20	0.040	0.030
30	0.04	0.02	0.20	0.20	0.060	0.040
35	0.04	0.02	0.30	0.20	0.080	0.050
40	0.04	0.02	0.40	0.25	0.100	0.060
45	0.04	0.02	0.50	0.30	0.150	0.100
50	0.04	0.02	0.60	0.50	0.200	0.150
55	0.04	0.02	0.70	0.70	0.300	0.200
60	0.04	0.02	0.70	0.70	0.400	0.250
65	0.04	0.02	0.70	0.70	0.500	0.300
70 <sup>(1)</sup>	NA	NA	NA	NA	NA	NA

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



**Qualified Pension Plan  
Summary of Actuarial Assumptions and Methods  
In Effect For The June 30, 2015 (Lag) Actuarial Valuation (Cont'd)**

Table 3

**WITHDRAWALS FOR OTHER THAN DEATH, DISABILITY OR SERVICE RETIREMENT****Percentage of Active Members Withdrawing within the Next Year**

Years of Service	Probability of Withdrawal	
	Males	Females
0	6.00%	4.00%
5	4.00	3.00
10	2.50	2.00
15	1.50	1.50
20	1.00	1.00
25	1.00	1.00

Table 4

**WITHDRAWALS FROM ACTIVE SERVICE (AFTER ELIGIBILITY FOR SERVICE RETIREMENT)****Percentage of Eligible Active Members Retiring Within the Next Year**

Age	Reduced Benefits <sup>(2)</sup>	Unreduced Benefits					
		Members not Electing Optional Retirement Program <sup>(1)</sup>			Members Electing Optional Retirement Program <sup>(1)</sup>		
		Years of Service Since First Elig.			Years of Service Since First Elig.		
		0-1	1-2	2+	0-1	1-2	2+
50	0.00%	20.00%	15.00%	10.00%	40.00%	20.00%	15.00%
55	2.00	20.00	15.00	10.00	40.00	20.00	15.00
60	4.00	20.00	15.00	10.00	40.00	20.00	15.00
65	0.00	30.00	25.00	20.00	60.00	25.00	25.00
70	NA	100.00	100.00	100.00	100.00	100.00	100.00

<sup>(1)</sup> Optional Retirement Programs such as under Chapter 96 of the Laws of 1995 or Chapter 19 of the Laws of 2008.

<sup>(2)</sup> Applicable to members whose benefits will be reduced upon retiring prior to the date eligible for unreduced Service Retirement.

**Qualified Pension Plan**  
**Summary of Actuarial Assumptions and Methods**  
**In Effect For The June 30, 2015 (Lag) Actuarial Valuation (Cont'd)**

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**Table 5**  
**SALARY SCALE**

<b>Years of Service</b>	<b>Assumed Annual Percentage Increases Within the Next Year <sup>(1)</sup></b>
0	9.00%
5	5.00
10	4.50
15	4.50
20	4.25
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.

**Qualified Pension Plan  
Schedule of Active Member Valuation Data**

**Table 6  
ACTIVE MEMBER VALUATION DATA**

<b>Valuation Date</b>	<b>Number</b>	<b>Annual Payroll</b>	<b>Annual Average Salary</b>	<b>Percentage Increase (Decrease) in Average Salary</b>
6/30/06 (Lag)	23,095	\$ 749,962,525	\$32,473	4.5%
6/30/07 (Lag)	21,947	777,626,307	35,432	9.1
6/30/08 (Lag)	22,729	852,105,791	37,490	5.8
6/30/09 (Lag)	23,303	910,609,483	39,077	4.2
6/30/10 (Lag) <sup>(1)</sup>	23,324	912,290,136	39,114	0.1
6/30/11 (Lag)	23,131	920,369,154	39,789	1.7
6/30/12 (Lag)	27,840	1,018,895,365	36,598	(8.0)
6/30/13 (Lag)	25,848	1,051,571,168	40,683	11.2
6/30/14 (Lag)	25,182	1,045,187,738	41,505	2.0
6/30/15 (Lag)	24,903	1,093,962,316	43,929	5.8

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

## Qualified Pension Plan Summary of Plan Membership

### SUMMARY OF PLAN MEMBERSHIP

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

Table 7

### SUMMARY OF PLAN MEMBERSHIP

Group	2015 (Lag)	2014 (Lag)
Retirees and beneficiaries currently receiving benefits	16,438	15,995
Terminated vested members not yet receiving benefits	237	195
Other Inactives <sup>(4)</sup>	3,972	4,005
Active members	24,903	25,182
Total	45,550	45,377

<sup>(4)</sup> Represents members who are no longer on payroll but not otherwise classified.



**Qualified Pension Plan  
Schedule of Retirees and Beneficiaries**

**Table 8**

**RETIRES AND BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS**

Year Ended	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>		
6/30/06	1,066	\$12,053,392	466	\$3,414,306	12,573	\$142,286,151	6.5%	\$11,317
6/30/07	958	10,886,720	540	3,850,151	12,991	149,322,720	4.9	11,494
6/30/08	667	8,148,653	462	4,350,475	13,196	153,120,898	2.5	11,604
6/30/09	936	10,879,798	491	4,135,086	13,641	159,865,610	4.4	11,719
6/30/10	850	10,705,737	522	4,700,094	13,969	165,871,253	3.8	11,874
6/30/11	901	14,977,636	471	4,325,573	14,399	176,523,316	6.4	12,259
6/30/12	1,053	16,201,746	578	6,211,198	14,874	186,513,864	5.7	12,540
6/30/13	1,110	16,977,455	529	4,957,022	15,455	198,534,297	6.4	12,846
6/30/14	1,094	13,701,890	554	5,306,812	15,995	206,929,375	4.2	12,937
6/30/15	1,002	16,482,509	559	4,979,621	16,438	218,432,263	5.6	13,288

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

<sup>(2)</sup> 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.



## Qualified Pension Plan Schedule of Statutory vs Actuarial Contributions

Table 9

### STATUTORY VS. ACTUARIAL CONTRIBUTIONS

Fiscal Year Ended	Statutory Contribution <sup>(1)</sup>	Actuarial Contribution	Employer Rate of Contribution <sup>(2)</sup>
6/30/08	\$143,100,327	\$143,100,327	19.6%
6/30/09	134,224,615	134,224,615	17.8
6/30/10	147,348,563	147,348,563	17.8
6/30/11	180,191,397	180,191,397	20.5
6/30/12	213,650,880	213,650,880	24.3
6/30/13	196,245,777	196,245,777	22.1
6/30/14	214,589,565	214,589,565	21.7
6/30/15	258,099,327	258,099,327	25.4
6/30/16	265,532,032	265,532,032	26.3
6/30/17	288,233,217	288,233,217	27.4

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

Beginning Fiscal Year 2006, the Statutory Contributions were computed using a One-Year Lag 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.

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

**Qualified Pension Plan  
Funded Status Based on Entry Age Normal Cost Method**

**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.

**Table 10**

**FUNDED STATUS BASED ON ENTRY AGE NORMAL COST METHOD  
(Dollar Amounts in Thousands)**

Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) - Entry Age (b)	Unfunded AAL (UAAL) - Entry Age (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
June 30, 2006 (Lag)	\$ 1,830,338	\$ 2,502,127	\$ 671,789	73.2%	\$ 749,963	89.6%
June 30, 2007 (Lag)	1,983,714	2,591,773	608,059	76.5	777,626	78.2
June 30, 2008 (Lag)	2,084,116	2,721,629	637,513	76.6	852,106	74.8
June 30, 2009 (Lag)	1,963,719	2,858,115	894,396	68.7	910,609	98.2
June 30, 2010 (Lag) <sup>(1)</sup>	2,056,452	3,558,251	1,501,799	57.8	912,290	164.6
June 30, 2011 (Lag) <sup>(1)</sup>	2,323,629	3,681,694	1,358,065	63.1	920,369	147.6
June 30, 2012 (Lag) <sup>(1)</sup>	2,371,613	3,763,130	1,391,517	63.0	1,018,895	136.6
June 30, 2013 (Lag) <sup>(1)</sup>	2,277,791	4,015,080	1,737,289	56.7	1,051,571	165.2
June 30, 2014 (Lag) <sup>(1)</sup>	2,632,922	4,335,746	1,702,824	60.7	1,045,188	162.9
June 30, 2015 (Lag) <sup>(1)</sup>	2,772,466	4,585,781	1,813,315	60.5	1,093,962	165.8

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

- 1 Reflects revised actuarial assumptions and methods based on experience review, including an AIR assumptions of 7.0% per annum, net of investment expenses.

**Qualified Pension Plan  
Comparative Summary of Accrued Liabilities  
Funded by Actuarial Value of Assets (In thousands)**

**Table 11  
SOLVENCY TEST**

As of June 30	Accrued Liabilities For			Actuarial Value of Assets (D)	Percentage of Accrued Liabilities Funded by Actuarial Value of Assets		
	Accumulated Member Contributions	Current Retirees and Beneficiaries	Active Members' Employer Financed Portion		(A)	(B)	(C)
	(A)	(B)	(C)				
2006 (Lag)	\$317,544	\$1,181,666	\$ 809,206	\$1,830,338	100%	100%	41%
2007 (Lag)	319,153	1,233,708	839,993	1,983,714	100	100	51
2008 (Lag)	337,821	1,262,046	904,890	2,084,116	100	100	54
2009 (Lag)	359,122	1,303,453	965,681	1,963,719	100	100	31
2010 (Lag)	388,082	1,627,094	1,306,868	2,056,452	100	100	3
2011 (Lag)	409,625	1,714,099	1,319,938	2,323,629	100	100	15
2012 (Lag)	434,215	1,804,626	1,283,582	2,371,613	100	100	10
2013 (Lag)	469,312	1,918,824	1,372,542	2,277,791	100	94	0
2014 (Lag)	504,619	2,080,400	1,475,008	2,632,922	100	100	3
2015 (Lag)	527,781	2,200,281	1,569,097	2,772,466	100	100	3

Also, see following "SOLVENCY TEST NOTES."

**Qualified Pension Plan  
Comparative Summary of Accrued Liabilities  
Funded by Actuarial Value of Assets (Cont'd)**

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**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 Employer Contributions for Fiscal Year 2016 and in the June 30, 2010 (Lag) valuation used to compute Employer Contributions for Fiscal Year 2012. These underlying bases can be found within the Comprehensive Annual Financial Report for each respective year.

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

## Qualified Pension Plan Summary of Plan Provisions

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### CONTRIBUTIONS

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

#### A. MEMBER CONTRIBUTIONS

A member of Article 15 who joins BERS on or after April 1, 2012 (Tier 6) and is not a member of the Automotive or Special Officers Programs is required to contribute between 3.0% and 6.0% of salary, depending on salary level, for all years of service. Tier 6 members in the Automotive or Special Officers Programs contribute 3.0% of salary plus Additional Member Contributions (AMC).

A Tier 4 member of Article 15 (Coordinated Retirement Plan) who joined BERS on or before March 31, 2012 is mandated to contribute 3% of salary during all years of coverage. Effective October 1, 2000, these members are not required to make contributions after the 10<sup>th</sup> anniversary of their membership date or completion of ten years of credited service, whichever is earlier. For those who elected or were mandated into the Optional Retirement Plans, AMC are required.

A member who joined prior to July 27, 1976 contributes by salary deductions on the basis of a normal rate of contribution, which is assigned by the System at the time he/she elects his/her plan. The normal rate, which is dependent upon the member's age and plan, as well as the tables in effect for such purpose at the time he/she became a member, is determined to provide approximately one-third of the benefit on account of the first 25 years of service.

In the plans which permit retirement for service at age 55, the normal contribution rate is calculated to provide an annuity equal to 1% of final salary for each year of service at the earliest age for service retirement. For such plans, the contribution rate for members who enter at age 55 or over is the rate applicable to a member entering at age 54.

Member contributions are accumulated with interest on individually maintained ledger accounts. Except under Article 15, upon retirement, the amount to his/her credit (i.e. accumulated deductions) is used to



**Qualified Pension Plan  
Summary of Plan Provisions  
(Cont'd)**

purchase an annuity on the basis of the tables adopted by the Board of Trustees. Upon death in service, the accumulated deductions are paid to the beneficiary.

Beginning July 1, 1960, on a year to year basis, the normal rates of contribution for members who joined before July 27, 1976 were reduced by an increased-take-home-pay rate equal to two and one-half percentage points and equal to five percentage points beginning July 1, 1961. Between July 1, 1968 and December 31, 1975, an increased-take-home-pay rate of four percentage points was effective for all members. On January 1, 1976, an increased-take-home-pay rate of two percentage points became effective for all members. The following table shows the effective periods and increased-take-home-pay rate.

<b><u>Period</u></b>	<b><u>Increased-Take-Home-Pay Rate</u></b>
07-01-1960 to 06-30-1961	2.5%
07-01-1961 to 06-30-1968	5%
07-01-1968 to 12-31-1975	4%
01-01-1976 and after	2% for non-Article 14 & 15 Members 0% for Article 14 & 15 Members

At present, the reduction is two percentage points for members other than members in the Coordinated Retirement Plan. 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 equal to the increased-take-home-pay rate times salary so that in general, the total benefit is equal to the benefit which would have been paid if the members' rates of contribution had not been reduced. However, the reserve for increased-take-home-pay is not payable upon the death of a member who joins after June 30, 1973.

## **B. EMPLOYER CONTRIBUTIONS**

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

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





**Throgs Neck Bridge**  
Opened on January 11, 1961

# STATISTICAL

- Introduction 119
- Schedule of Revenue by Source - QPP 120
- Schedule of Expenses by Type - QPP 122
- Schedule of Refunds by Type - QPP 124
- Schedule of Changes in Net Position - QPP 126
- Schedule of Changes in Net Position - TDA 128
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- Schedule of Annual Average  
Benefit Payment Amounts - QPP 137
- Schedule of Participating Employers - QPP 138

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## Qualified Pension Plan and Tax Deferred Annuity Program Statistical Section

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### INTRODUCTION:

The Statistical section presents three sets of data. The first group of data is comprised of six (6) schedules and accompanying graphs that provide a comparative horizontal base of the financials over a ten year spread for the QPP and six year spread for the TDA. The second group of data offers an analysis of the BERS benefit payments based on demographic information. The third group gives a comparative analysis of the contributors based on their salary and their provenance.

The schedules and graphs of the first group are:

- (A) Revenue by source for the QPP
- (B) Expenses by type for the QPP
- (C) Refunds by type for the QPP
- (D) Schedule of changes in QPP net position
- (E) Schedule of changes in TDA net position
- (F) Benefit expenses by type for the QPP

The second group of data is comprised of the following: QPP

- (A) Age and service retirement
- (B) Ordinary disability retirement
- (C) Accidental disability retirement
- (D) Accidental death retirement
- (E) Other beneficiaries
- (G) All pensioners and beneficiaries

The third group of data is comprised of the following: QPP

- (A) Active members by age and service
- (B) Average annual benefit payments
- (C) Participating employers

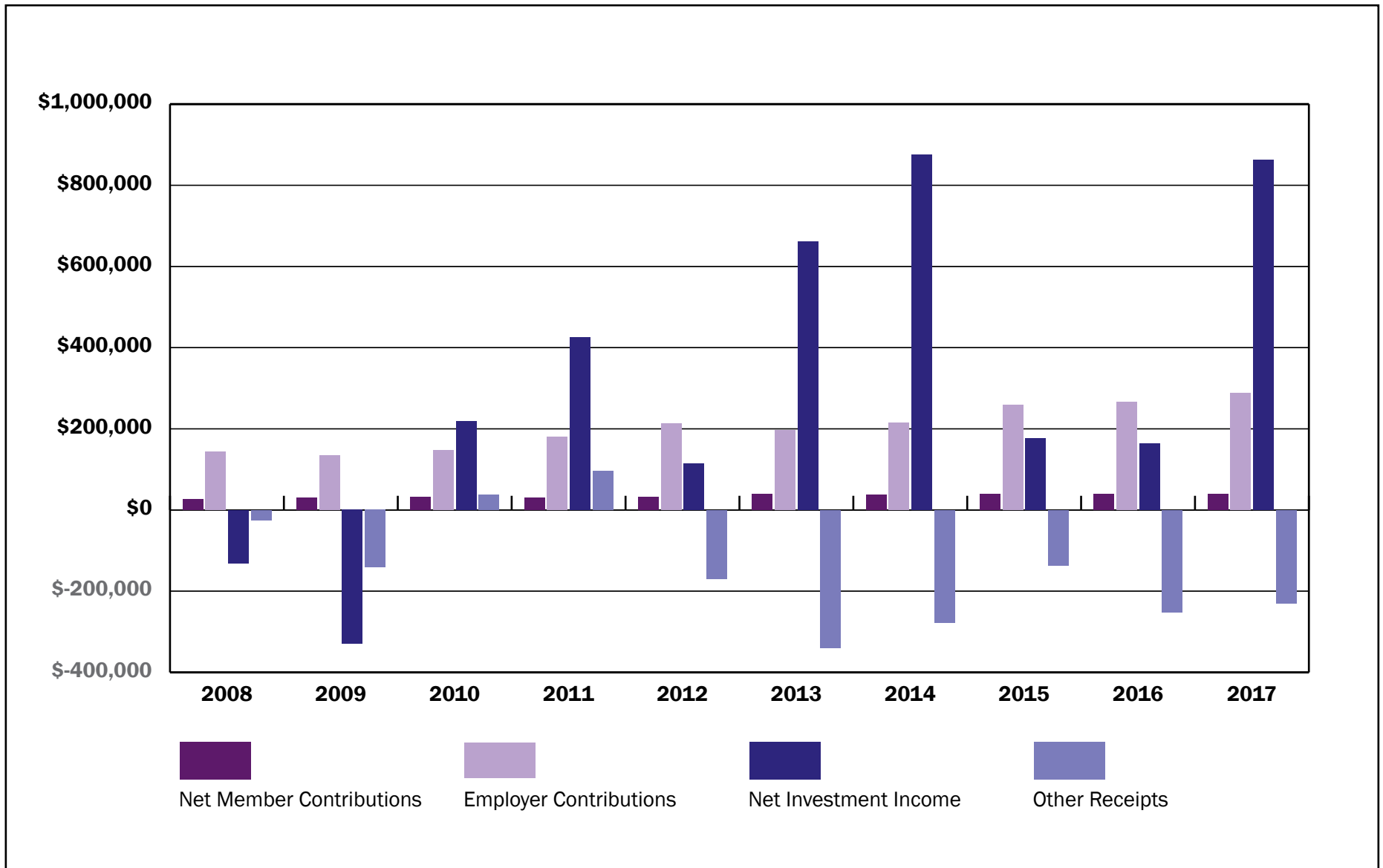
**Qualified Pension Plan  
Revenue by Source  
(In thousands)**

Fiscal Year Ended June 30	Net Member Contributions	Employer Contributions	Net Investment Income	Other Receipts	Total	Employer Contributions as % of Payroll
2008	\$27,109	\$143,100	(\$130,569)	(\$24,831)	<b>\$14,809</b>	19.1
2009	\$30,971	\$134,225	(\$329,365)	(\$141,090)	<b>(\$305,259)</b>	17.3
2010	\$31,361	\$147,349	\$218,872	\$38,232	<b>\$435,814</b>	17.3
2011	\$31,008	\$180,191	\$425,690	\$95,958	<b>\$732,847</b>	19.8
2012	\$32,866	\$213,651	\$113,738	(\$170,091)	<b>\$190,164</b>	23.4
2013	\$39,056	\$196,246	\$660,827	(\$340,057)	<b>\$556,072</b>	21.3
2014	\$37,193	\$214,590	\$875,453	(\$277,531)	<b>\$849,705</b>	21.1
2015	\$39,564	\$258,099	\$177,166	(\$137,125)	<b>\$337,704</b>	24.5
2016	\$38,581	\$265,532	\$164,144	(\$252,288)	<b>\$215,969</b>	25.4
2017	\$39,821	\$288,233	\$862,510	(\$229,508)	<b>\$961,056</b>	26.3

The table offers a horizontal comparison base for the revenue sources of the Plan for the past 10 years. It particularly highlights the impact of employer contributions that have steadily increased over these years.



**Qualified Pension Plan  
Revenue by Source  
(In thousands)**

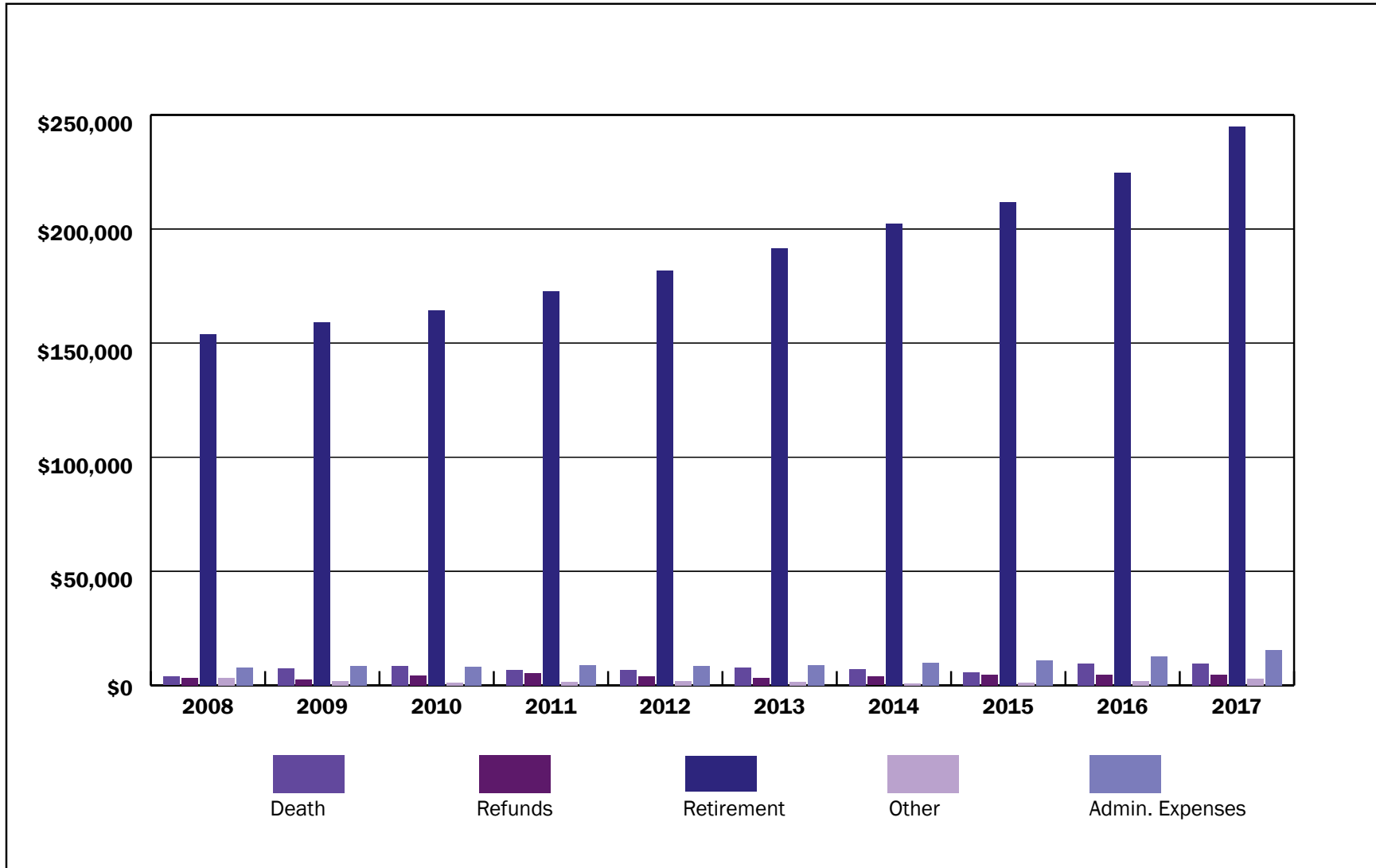


**Qualified Pension Plan  
Expenses by Type  
(In thousands)**

Fiscal Year Ended June 30	Benefit Payments				Administrative Expenses	Total
	Death	Refund	Retirement	Other		
2008	\$3,827	\$3,395	\$153,886	\$3,448	\$7,854	\$172,410
2009	\$7,544	\$2,768	\$159,262	\$2,018	\$8,413	\$180,006
2010	\$8,548	\$4,207	\$164,362	\$1,296	\$8,047	\$186,460
2011	\$6,686	\$5,237	\$172,680	\$1,662	\$8,892	\$195,158
2012	\$6,827	\$4,009	\$181,735	\$1,936	\$8,687	\$203,194
2013	\$7,858	\$3,360	\$191,463	\$1,412	\$8,927	\$213,020
2014	\$7,274	\$3,827	\$202,233	\$981	\$9,776	\$224,091
2015	\$5,765	\$4,614	\$211,693	\$1,172	\$10,956	\$234,200
2016	\$9,580	\$4,750	\$224,639	\$1,758	\$12,818	\$253,545
2017	\$9,570	\$4,687	\$245,066	\$3,109	\$15,486	\$277,918

The table offers a horizontal comparison base for the expense groups of the Plan for the past 10 years.

**Qualified Pension Plan  
Expenses by Type  
(In thousands)**



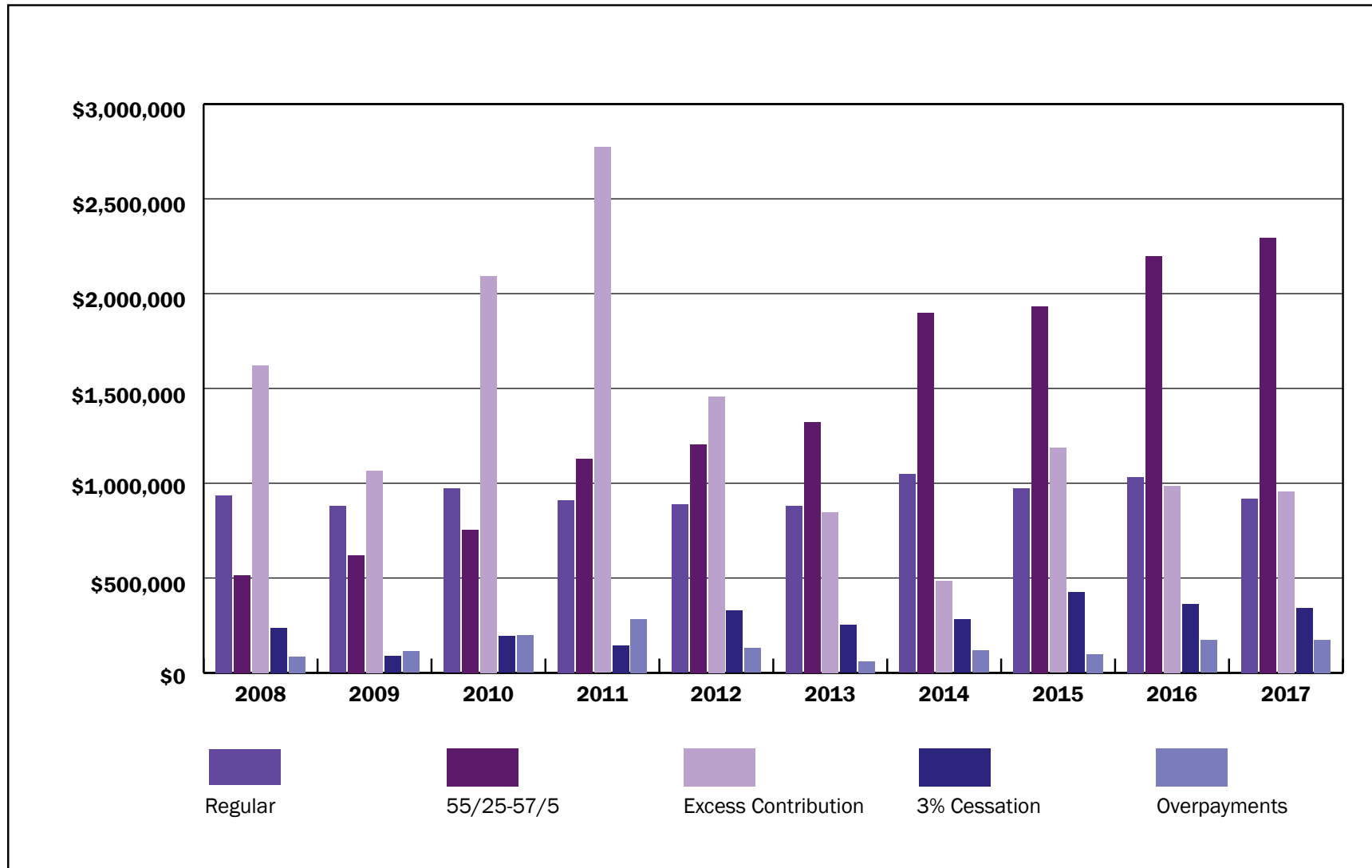
**Qualified Pension Plan  
Refunds by Type  
(In thousands)**

Fiscal Year Ended June 30	Refunds					
	Regular Resignation	Add. Pension 55/25-57/5	Excess Contribution	3% Cessation	Other Overpayments	Total
2008	\$937	\$514	\$1,622	\$236	\$85	<b>\$3,395</b>
2009	\$879	\$620	\$1,067	\$88	\$113	<b>\$2,768</b>
2010	\$971	\$754	\$2,092	\$193	\$197	<b>\$4,207</b>
2011	\$909	\$1,129	\$2,772	\$144	\$283	<b>\$5,237</b>
2012	\$888	\$1,206	\$1,456	\$328	\$130	<b>\$4,009</b>
2013	\$880	\$1,322	\$846	\$251	\$61	<b>\$3,360</b>
2014	\$1,047	\$1,899	\$484	\$281	\$116	<b>\$3,827</b>
2015	\$973	\$1,933	\$1,186	\$425	\$97	<b>\$4,614</b>
2016	\$1,033	\$2,198	\$986	\$361	\$171	<b>\$4,750</b>
2017	\$920	\$2,295	\$957	\$342	\$174	<b>\$4,688</b>

The table offers a horizontal comparison base for the refund segment of the expense groups of the Plan for the past 10 years.

The refund segment is broken down by type. It shows that excess contribution based refunds are more significant than resignation from the BERS.

**Qualified Pension Plan  
Refunds by Type  
(In thousands)**



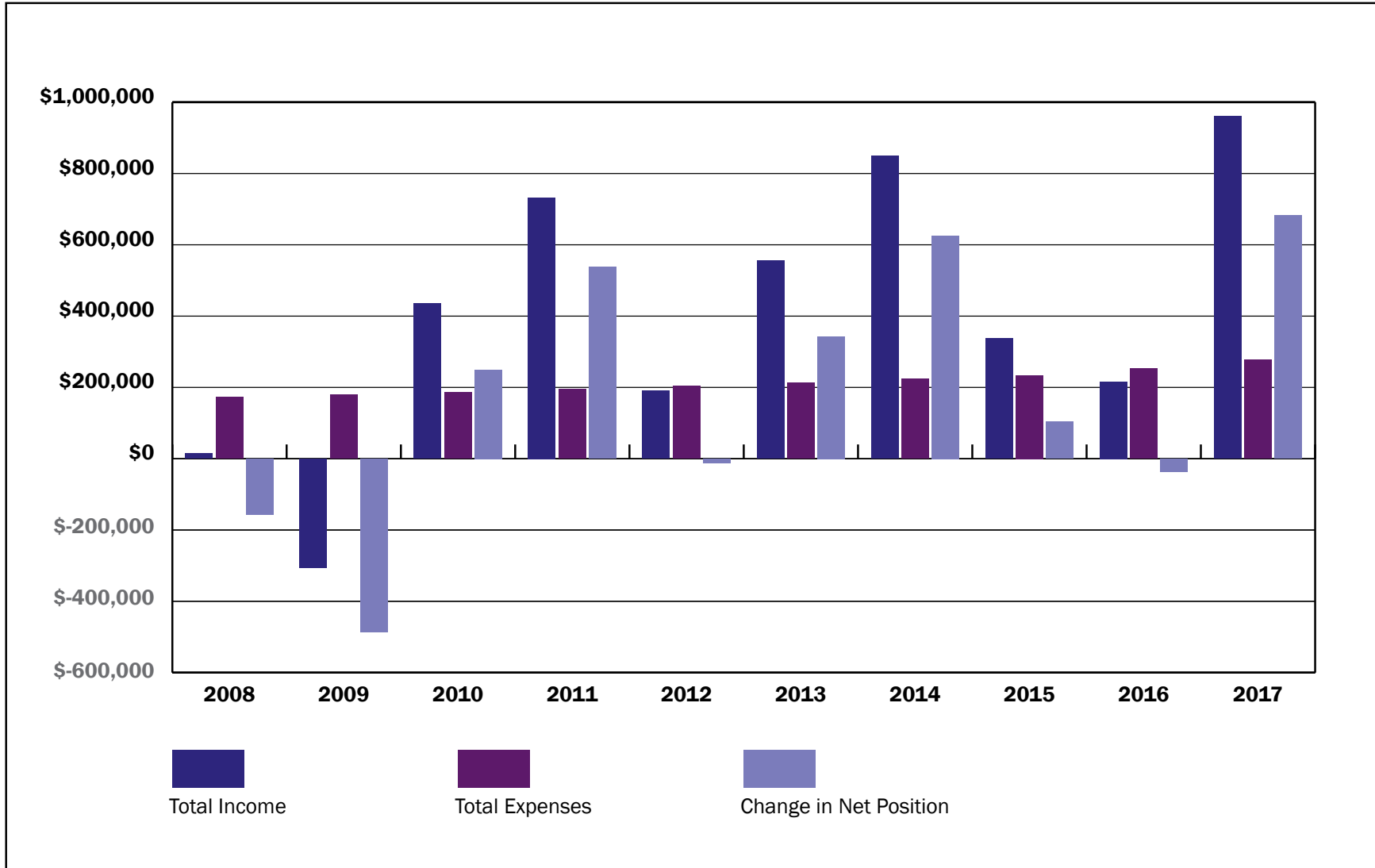


**Qualified Pension Plan  
Schedule of Changes in Net Position  
(In thousands)**

Year Ended	Member Contributions	Employer Contributions	Net Investment Income	Other Receipts	Total Income	Benefit Payments				Administrative Expenses	Total Expenses	Change in Net Position
						Death	Refund	Retirement	Other			
2008	\$27,109	\$143,100	(\$130,569)	(\$24,831)	<b>\$14,809</b>	\$3,827	\$3,395	\$153,886	\$3,448	\$7,854	<b>\$172,410</b>	(\$157,601)
2009	\$30,971	\$134,225	(\$329,365)	(\$141,090)	<b>(\$305,259)</b>	\$7,544	\$2,768	\$159,262	\$2,018	\$8,413	<b>\$180,006</b>	(\$485,265)
2010	\$31,361	\$147,349	\$218,872	\$38,232	<b>\$435,814</b>	\$8,548	\$4,207	\$164,362	\$1,296	\$8,047	<b>\$186,460</b>	\$249,354
2011	\$31,008	\$180,191	\$425,690	\$95,958	<b>\$732,847</b>	\$6,686	\$5,237	\$172,680	\$1,662	\$8,892	<b>\$195,158</b>	\$537,689
2012	\$32,866	\$213,651	\$113,738	(\$170,091)	<b>\$190,164</b>	\$6,827	\$4,009	\$181,735	\$1,936	\$8,687	<b>\$203,194</b>	(\$13,030)
2013	\$39,056	\$196,246	\$660,827	(\$340,057)	<b>\$556,072</b>	\$7,858	\$3,360	\$191,463	\$1,412	\$8,927	<b>\$213,020</b>	\$343,052
2014	\$37,193	\$214,590	\$875,453	(\$277,531)	<b>\$849,705</b>	\$7,274	\$3,827	\$202,233	\$981	\$9,776	<b>\$224,091</b>	\$625,614
2015	\$39,564	\$258,099	\$177,166	(\$137,125)	<b>\$337,704</b>	\$5,765	\$4,614	\$211,693	\$1,172	\$10,956	<b>\$234,200</b>	\$103,504
2016	\$38,581	\$265,532	\$164,144	(\$252,288)	<b>\$215,969</b>	\$9,580	\$4,750	\$224,639	\$1,758	\$12,818	<b>\$253,545</b>	(\$37,576)
2017	\$39,821	\$288,233	\$862,510	(\$229,508)	<b>\$961,056</b>	\$9,570	\$4,687	\$245,066	\$3,109	\$15,486	<b>\$277,918</b>	\$683,138

The table offers a 10 year horizontal comparison base for the operations of the BERS.

**Qualified Pension Plan  
Schedule of Changes in Net Position  
(In thousands)**

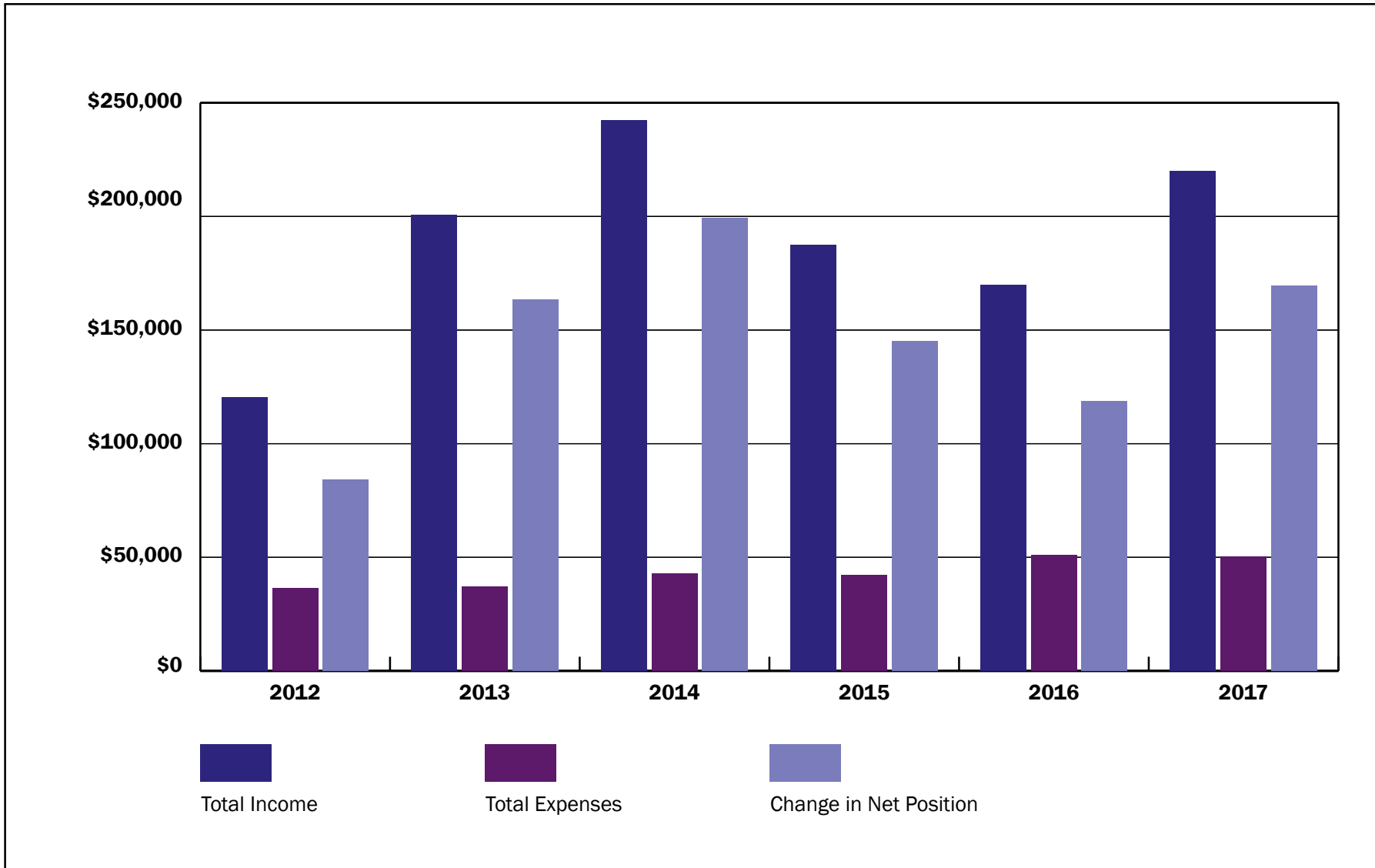


**Tax Deferred Annuity Program**  
**Schedule of Changes in Net Position**  
(In thousands)

Year Ended	Participant Contributions	Net Investment Income	Other Receipts	Transfer of Investment Income	Total Income	Benefit Payments				Administrative Expenses	Total Expenses	Change in Net Position
						Death	Refund	Retirement	Other			
2012	\$59,024	\$6,468	\$26,593	\$28,396	<b>\$120,481</b>	\$8,272	\$25,146	\$325	\$68	\$2,445	<b>\$36,256</b>	\$84,225
2013	\$61,550	\$62,134	(\$86,810)	\$163,756	<b>\$200,630</b>	\$6,523	\$27,802	\$301	\$31	\$2,455	<b>\$37,112</b>	\$163,518
2014	\$63,767	\$82,223	(\$110,273)	\$206,615	<b>\$242,332</b>	\$9,242	\$30,755	\$354	\$59	\$2,531	<b>\$42,941</b>	\$199,391
2015	\$74,890	\$22,950	\$4,448	\$85,104	<b>\$187,392</b>	\$4,133	\$34,707	\$370	\$12	\$3,033	<b>\$42,255</b>	\$145,137
2016	\$77,459	\$1,049	(\$3,541)	\$94,789	<b>\$169,756</b>	\$13,292	\$36,467	\$351	\$80	\$850	<b>\$51,039</b>	\$118,717
2017	\$85,765	\$75,739	(\$48,113)	\$106,554	<b>\$219,945</b>	\$9,415	\$40,371	\$323	\$99	\$125	<b>\$50,333</b>	\$169,612

The table offers a 6 year horizontal comparison base for the operations of the BERS TDA Program.

**Tax Deferred Annuity Program  
Schedule of Changes in Net Position  
(In thousands)**



**Qualified Pension Plan  
Benefit Expenses by Type  
(In thousands)**

Fiscal Year Ended June 30	Age and Service Retirement Benefits	Disability Retirement Benefits		Lump Sum Payments			Total
		Duty	Non-Duty	Survivors	Death In Service	Death After Retirement	
2008	\$148,179	\$1,841	\$3,866	\$1,226	\$2,318	\$284	<b>\$157,715</b>
2009	\$153,124	\$1,980	\$4,158	\$1,288	\$6,188	\$68	<b>\$166,806</b>
2010	\$157,760	\$2,130	\$4,472	\$1,624	\$6,887	\$37	<b>\$172,910</b>
2011	\$165,580	\$2,291	\$4,810	\$1,280	\$5,328	\$77	<b>\$179,366</b>
2012	\$174,099	\$2,464	\$5,173	\$1,782	\$5,035	\$10	<b>\$188,562</b>
2013	\$183,250	\$2,649	\$5,564	\$1,963	\$5,890	\$5	<b>\$199,321</b>
2014	\$193,400	\$2,849	\$5,984	\$2,469	\$4,768	\$37	<b>\$209,507</b>
2015	\$202,193	\$3,065	\$6,435	\$1,532	\$3,642	\$592	<b>\$217,459</b>
2016	\$214,422	\$3,296	\$6,921	\$2,453	\$7,094	\$34	<b>\$234,219</b>
2017	\$234,057	\$3,551	\$7,458	\$2,921	\$6,571	\$78	<b>\$254,636</b>

The table offers a horizontal comparison base for the benefit segment of the expense groups of the Plan across the past 10 years.

The benefit segment is broken down by type.



## Qualified Pension Plan Retired Members by Type of Benefits

### AGE AND SERVICE RETIREMENT

Age of Retirees	Men		Women	
	Number of Retirees	Average Annual Allowance	Number of Retirees	Average Annual Allowance
49 & UNDER	0	\$0	2	\$13,874
50 - 54	10	44,873	4	30,717
55 - 59	90	28,217	279	11,434
60 - 64	349	33,667	1,251	12,187
65 - 69	592	29,163	2,493	10,950
70 - 74	567	28,858	2,456	9,974
75 - 79	475	27,569	1,914	8,647
80 - 84	356	25,019	1,416	8,527
85 - 89	258	25,236	1,182	7,868
90 & OVER	122	23,044	756	7,742
<b>TOTALS</b>	<b>2,819</b>	<b>\$28,269</b>	<b>11,753</b>	<b>\$9,713</b>

### ORDINARY DISABILITY (NON-DUTY) RETIREMENT

Age of Retirees	Men		Women	
	Number of Retirees	Average Annual Allowance	Number of Retirees	Average Annual Allowance
49 & UNDER	4	\$13,319	18	\$16,747
50 - 54	24	18,164	40	14,621
55 - 59	48	23,558	94	10,611
60 - 64	55	17,605	145	10,696
65 - 69	36	16,226	162	9,808
70 - 74	30	14,572	120	9,144
75 - 79	12	12,495	61	8,516
80 - 84	9	18,200	16	7,784
85 - 89	6	16,040	6	7,514
90 & OVER	2	8,689	2	9,131
<b>TOTALS</b>	<b>226</b>	<b>\$17,862</b>	<b>664</b>	<b>\$10,283</b>

NOTE: This schedule is based on 2015 data (LAG)

**Qualified Pension Plan  
Retired Members by Type of Benefits  
(Cont'd)**

**ACCIDENTAL DISABILITY (DUTY) RETIREMENT**

Age of Retirees	Men		Women	
	Number of Retirees	Average Annual Allowance	Number of Retirees	Average Annual Allowance
49 & UNDER	0	\$0	3	\$7,524
50 - 54	5	19,907	7	8,626
55 - 59	8	15,610	14	9,835
60 - 64	10	15,291	20	9,907
65 - 69	9	18,096	18	9,091
70 - 74	6	19,426	13	6,638
75 - 79	9	26,344	16	7,458
80 - 84	1	26,450	7	6,167
85 - 89	5	27,128	5	7,654
90 & OVER	1	27,191	2	4,834
<b>TOTALS</b>	<b>54</b>	<b>\$20,058</b>	<b>105</b>	<b>\$8,373</b>

**ACCIDENTAL DEATH (DUTY) RETIREMENT**

Age of Retirees	Men		Women	
	Number of Retirees	Average Annual Allowance	Number of Retirees	Average Annual Allowance
49 & UNDER	0	\$0	0	\$0
50 - 54	0	0	0	0
55 - 59	1	5,995	0	0
60 - 64	0	0	0	0
65 - 69	0	0	0	0
70 - 74	0	0	0	0
75 - 79	0	0	0	0
80 - 84	1	9,205	0	0
85 - 89	0	0	0	0
90 & OVER	0	0	0	0
<b>TOTALS</b>	<b>2</b>	<b>\$7,600</b>	<b>0</b>	<b>\$0</b>

NOTE: This schedule is based on 2015 data (LAG)

**Qualified Pension Plan  
Retired Members by Type of Benefits  
(Cont'd)**

**OTHER BENEFICIARIES**

Age of Retirees	Men		Women	
	Number of Retirees	Average Annual Allowance	Number of Retirees	Average Annual Allowance
49 & UNDER	26	\$7,674	44	\$5,917
50 - 54	9	3,666	23	7,723
55 - 59	15	3,220	20	12,465
60 - 64	9	12,448	45	11,225
65 - 69	23	7,200	65	14,893
70 - 74	25	6,895	69	19,727
75 - 79	25	5,508	88	20,457
80 - 84	15	7,283	97	20,791
85 - 89	16	8,149	104	16,802
90 & OVER	11	9,051	86	16,847
<b>TOTALS</b>	<b>174</b>	<b>\$6,941</b>	<b>641</b>	<b>\$16,435</b>

**ALL PENSIONERS AND BENEFICIARIES**

Age of Retirees	Men		Women	
	Number of Retirees	Average Annual Allowance	Number of Retirees	Average Annual Allowance
49 & UNDER	30	\$8,427	67	\$9,136
50 - 54	48	21,191	74	12,780
55 - 59	162	23,762	407	11,240
60 - 64	423	30,693	1,461	11,978
65 - 69	660	27,541	2,738	10,963
70 - 74	628	27,211	2,658	10,174
75 - 79	521	26,142	2,079	9,134
80 - 84	382	24,124	1,536	9,283
85 - 89	285	24,116	1,297	8,582
90 & OVER	136	21,732	846	8,664
<b>TOTALS</b>	<b>3,275</b>	<b>\$26,269</b>	<b>13,163</b>	<b>\$10,059</b>

NOTE: This schedule is based on 2015 data (LAG)

## Qualified Pension Plan Active Members by Age and Service Male

### DATA USED IN THE JUNE 30, 2015 (LAG) ACTUARIAL VALUATION FOR DETERMINING FISCAL YEAR 2017 EMPLOYER CONTRIBUTIONS

Age \ Svc	Under 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up	All Years
<b>Number:</b>										
UNDER 20	3	0	0	0	0	0	0	0	0	3
20 TO 24	67	0	0	0	0	0	0	0	0	67
25 TO 29	265	28	0	0	0	0	0	0	0	293
30 TO 34	363	116	18	1	0	0	0	0	0	498
35 TO 39	328	185	99	23	2	0	0	0	0	637
40 TO 44	276	234	164	67	14	1	0	0	0	756
45 TO 49	252	207	179	131	49	26	0	0	0	844
50 TO 54	277	202	168	151	111	90	14	3	0	1,016
55 TO 59	223	165	153	147	118	137	52	10	1	1,006
60 TO 64	124	96	92	97	58	89	51	22	4	633
65 TO 69	45	50	53	35	20	18	11	11	5	248
70 & UP	21	32	27	20	11	14	8	1	1	135
<b>TOTAL</b>	<b>2,244</b>	<b>1,315</b>	<b>953</b>	<b>672</b>	<b>383</b>	<b>375</b>	<b>136</b>	<b>47</b>	<b>11</b>	<b>6,136</b>

#### Salaries (In thousands):

UNDER 20	62	0	0	0	0	0	0	0	0	62
20 TO 24	2,197	0	0	0	0	0	0	0	0	2,197
25 TO 29	10,528	1,279	0	0	0	0	0	0	0	11,806
30 TO 34	16,575	6,484	857	32	0	0	0	0	0	23,948
35 TO 39	16,752	12,107	6,174	1,398	113	0	0	0	0	36,544
40 TO 44	13,995	16,976	11,545	4,670	772	34	0	0	0	47,992
45 TO 49	11,868	14,390	12,515	9,613	3,578	1,829	0	0	0	53,792
50 TO 54	12,948	13,084	10,778	11,378	8,457	7,557	1,156	231	0	65,587
55 TO 59	9,728	10,115	9,815	10,410	8,889	11,720	4,300	1,074	82	66,133
60 TO 64	5,610	6,227	5,574	6,727	4,379	7,864	4,699	1,981	469	43,530
65 TO 69	1,718	2,569	2,532	2,267	1,664	1,559	1,049	1,219	462	15,039
70 & UP	813	1,248	1,295	1,048	755	1,005	674	43	120	7,000
<b>TOTAL *</b>	<b>102,794</b>	<b>84,476</b>	<b>61,084</b>	<b>47,543</b>	<b>28,607</b>	<b>31,567</b>	<b>11,879</b>	<b>4,546</b>	<b>1,133</b>	<b>373,630</b>

#### Average Salaries: \*\*

UNDER 20	20,784	0	0	0	0	0	0	0	0	20,784
20 TO 24	32,793	0	0	0	0	0	0	0	0	32,793
25 TO 29	39,727	45,664	0	0	0	0	0	0	0	40,294
30 TO 34	45,661	55,893	47,617	31,993	0	0	0	0	0	48,087
35 TO 39	51,074	65,441	62,364	60,796	56,262	0	0	0	0	57,368
40 TO 44	50,707	72,547	70,394	69,707	55,164	33,597	0	0	0	63,481
45 TO 49	47,094	69,515	69,916	73,378	73,027	70,334	0	0	0	63,734
50 TO 54	46,744	64,771	64,153	75,348	76,188	83,962	82,574	76,864	0	64,554
55 TO 59	43,622	61,303	64,148	70,817	75,332	85,550	82,696	107,404	82,363	65,739
60 TO 64	45,244	64,861	60,588	69,355	75,494	88,361	92,146	90,025	117,145	68,768
65 TO 69	38,187	51,373	47,780	64,779	83,192	86,597	95,366	110,778	92,481	60,642
70 & UP	38,699	39,004	47,954	52,375	68,670	71,759	84,301	42,512	119,779	51,850
<b>TOTAL</b>	<b>45,808</b>	<b>64,241</b>	<b>64,097</b>	<b>70,749</b>	<b>74,692</b>	<b>84,178</b>	<b>87,346</b>	<b>96,729</b>	<b>103,012</b>	<b>60,891</b>

NOTE: Age is last birthday. Service is completed years.

\* Total may not add up due to rounding.

\*\* Average based on unrounded salary.

**Qualified Pension Plan**  
**Active Members by Age and Service**  
**Female**

**DATA USED IN THE JUNE 30, 2015 (LAG) ACTUARIAL VALUATION**  
**FOR DETERMINING FISCAL YEAR 2017 EMPLOYER CONTRIBUTIONS**

Age \ Svc	Under 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up	All Years
<b>Number:</b>										
UNDER 20	2	0	0	0	0	0	0	0	0	2
20 TO 24	97	0	0	0	0	0	0	0	0	97
25 TO 29	545	29	2	0	0	0	0	0	0	576
30 TO 34	694	245	43	3	0	0	0	0	0	985
35 TO 39	732	375	227	32	0	0	0	0	0	1,366
40 TO 44	785	456	348	158	24	1	0	0	0	1,772
45 TO 49	981	615	494	291	102	30	1	0	0	2,514
50 TO 54	1,034	791	829	556	171	81	43	0	0	3,505
55 TO 59	755	722	869	825	289	167	77	12	2	3,718
60 TO 64	416	430	605	630	299	190	54	29	16	2,669
65 TO 69	132	143	250	246	164	116	31	8	10	1,100
70 & UP	59	49	80	96	84	74	13	6	2	463
<b>TOTAL</b>	<b>6,232</b>	<b>3,855</b>	<b>3,747</b>	<b>2,837</b>	<b>1,133</b>	<b>659</b>	<b>219</b>	<b>55</b>	<b>30</b>	<b>18,767</b>

**Salaries (In thousands):**

UNDER 20	32	0	0	0	0	0	0	0	0	32
20 TO 24	3,019	0	0	0	0	0	0	0	0	3,019
25 TO 29	24,842	1,534	56	0	0	0	0	0	0	26,432
30 TO 34	34,304	13,921	2,271	140	0	0	0	0	0	50,636
35 TO 39	32,008	21,959	13,310	1,580	0	0	0	0	0	68,858
40 TO 44	29,244	20,184	18,082	8,851	1,422	83	0	0	0	77,865
45 TO 49	32,108	23,245	19,376	12,493	5,786	1,853	65	0	0	94,928
50 TO 54	30,925	27,619	29,944	20,128	7,716	4,310	2,925	0	0	123,568
55 TO 59	22,560	25,140	29,775	28,411	11,398	8,201	5,400	1,080	109	132,073
60 TO 64	12,671	15,514	19,928	20,405	10,841	8,015	3,192	1,886	1,063	93,515
65 TO 69	3,760	4,706	7,901	7,415	5,335	4,146	1,703	433	697	36,097
70 & UP	1,460	1,660	2,144	2,633	2,222	2,291	558	257	84	13,309
<b>TOTAL *</b>	<b>226,934</b>	<b>155,482</b>	<b>142,788</b>	<b>102,057</b>	<b>44,720</b>	<b>28,900</b>	<b>13,844</b>	<b>3,655</b>	<b>1,953</b>	<b>720,332</b>

**Average Salaries: \*\***

UNDER 20	16,010	0	0	0	0	0	0	0	0	16,010
20 TO 24	31,124	0	0	0	0	0	0	0	0	31,124
25 TO 29	45,581	52,899	27,960	0	0	0	0	0	0	45,888
30 TO 34	49,430	56,820	52,820	46,512	0	0	0	0	0	51,407
35 TO 39	43,727	58,558	58,636	49,379	0	0	0	0	0	50,409
40 TO 44	37,253	44,262	51,960	56,021	59,236	82,927	0	0	0	43,942
45 TO 49	32,730	37,796	39,223	42,932	56,730	61,775	65,308	0	0	37,760
50 TO 54	29,908	34,917	36,121	36,202	45,121	53,204	68,029	0	0	35,255
55 TO 59	29,881	34,820	34,263	34,438	39,439	49,108	70,126	89,964	54,270	35,523
60 TO 64	30,460	36,079	32,938	32,389	36,257	42,184	59,113	65,039	66,446	35,038
65 TO 69	28,482	32,912	31,603	30,144	32,532	35,746	54,944	54,064	69,744	32,816
70 & UP	24,740	33,872	26,806	27,422	26,452	30,965	42,947	42,860	42,028	28,746
<b>TOTAL</b>	<b>36,414</b>	<b>40,333</b>	<b>38,107</b>	<b>35,973</b>	<b>39,470</b>	<b>43,854</b>	<b>63,214</b>	<b>66,461</b>	<b>65,106</b>	<b>38,383</b>

NOTE: Age is last birthday. Service is completed years.

\* Total may not add up due to rounding.

\*\* Average based on unrounded salary.

## Qualified Pension Plan Active Members by Age and Service Male and Female

### DATA USED IN THE JUNE 30, 2015 (LAG) ACTUARIAL VALUATION FOR DETERMINING FISCAL YEAR 2017 EMPLOYER CONTRIBUTIONS

Age \ Svc	Under 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up	All Years
<b>Number:</b>										
UNDER 20	5	0	0	0	0	0	0	0	0	5
20 TO 24	164	0	0	0	0	0	0	0	0	164
25 TO 29	810	57	2	0	0	0	0	0	0	869
30 TO 34	1,057	361	61	4	0	0	0	0	0	1,483
35 TO 39	1,060	560	326	55	2	0	0	0	0	2,003
40 TO 44	1,061	690	512	225	38	2	0	0	0	2,528
45 TO 49	1,233	822	673	422	151	56	1	0	0	3,358
50 TO 54	1,311	993	997	707	282	171	57	3	0	4,521
55 TO 59	978	887	1,022	972	407	304	129	22	3	4,724
60 TO 64	540	526	697	727	357	279	105	51	20	3,302
65 TO 69	177	193	303	281	184	134	42	19	15	1,348
70 & UP	80	81	107	116	95	88	21	7	3	598
<b>TOTAL</b>	<b>8,476</b>	<b>5,170</b>	<b>4,700</b>	<b>3,509</b>	<b>1,516</b>	<b>1,034</b>	<b>355</b>	<b>102</b>	<b>41</b>	<b>24,903</b>

#### Salaries (In thousands):

UNDER 20	94	0	0	0	0	0	0	0	0	94
20 TO 24	5,216	0	0	0	0	0	0	0	0	5,216
25 TO 29	35,369	2,813	56	0	0	0	0	0	0	38,238
30 TO 34	50,879	20,405	3,128	172	0	0	0	0	0	74,584
35 TO 39	48,761	34,066	19,484	2,978	113	0	0	0	0	105,402
40 TO 44	43,239	37,160	29,627	13,522	2,194	117	0	0	0	125,857
45 TO 49	43,976	37,634	31,891	22,106	9,365	3,682	65	0	0	148,719
50 TO 54	43,873	40,703	40,722	31,506	16,173	11,866	4,081	231	0	189,155
55 TO 59	32,288	35,255	39,589	38,821	20,287	19,921	9,700	2,154	191	198,206
60 TO 64	18,281	21,741	25,502	27,132	15,220	15,879	7,892	3,867	1,532	137,045
65 TO 69	5,478	7,275	10,433	9,683	6,999	5,705	2,752	1,651	1,160	51,136
70 & UP	2,272	2,908	3,439	3,680	2,977	3,296	1,233	300	204	20,309
<b>TOTAL *</b>	<b>329,728</b>	<b>239,958</b>	<b>203,872</b>	<b>149,600</b>	<b>73,327</b>	<b>60,466</b>	<b>25,723</b>	<b>8,202</b>	<b>3,086</b>	<b>1,093,962</b>

#### Average Salaries: \*\*

UNDER 20	18,874	0	0	0	0	0	0	0	0	18,874
20 TO 24	31,806	0	0	0	0	0	0	0	0	31,806
25 TO 29	43,666	49,345	27,960	0	0	0	0	0	0	44,002
30 TO 34	48,135	56,522	51,284	42,882	0	0	0	0	0	50,292
35 TO 39	46,001	60,832	59,768	54,154	56,262	0	0	0	0	52,622
40 TO 44	40,753	53,855	57,865	60,097	57,736	58,262	0	0	0	49,785
45 TO 49	35,666	45,784	47,387	52,383	62,019	65,749	65,308	0	0	44,288
50 TO 54	33,466	40,990	40,845	44,563	57,349	69,393	71,602	76,864	0	41,839
55 TO 59	33,014	39,746	38,737	39,940	49,846	65,531	75,193	97,891	63,634	41,957
60 TO 64	33,854	41,332	36,588	37,321	42,632	56,914	75,158	75,817	76,586	41,504
65 TO 69	30,950	37,695	34,433	34,458	38,039	42,576	65,530	86,898	77,323	37,935
70 & UP	28,404	35,899	32,142	31,725	31,340	37,455	58,701	42,810	67,945	33,962
<b>TOTAL</b>	<b>38,901</b>	<b>46,414</b>	<b>43,377</b>	<b>42,633</b>	<b>48,369</b>	<b>58,478</b>	<b>72,459</b>	<b>80,408</b>	<b>75,276</b>	<b>43,929</b>

NOTE: Age is last birthday. Service is completed years.

\* Total may not add up due to rounding.

\*\* Average based on unrounded salary.



**Qualified Pension Plan  
Annual Average Benefit Payment Amounts**

Fiscal Year Ended June 30	Service Retirement Benefits			Ordinary (Non-Duty) Disability Benefits			Accidental (Duty) Disability Benefits			Survivor Benefits		
	Number	Average Annual Allowance	Average Monthly Allowance	Number	Average Annual Allowance	Average Monthly Allowance	Number	Average Annual Allowance	Average Monthly Allowance	Number	Average Annual Allowance	Average Monthly Allowance
2006 (Lag)	11,246	\$11,260	\$938	543	\$9,967	\$831	127	\$12,501	\$1,042	657	\$13,168	\$1,097
2007 (Lag)	11,618	\$11,440	\$953	565	\$10,031	\$836	141	\$12,354	\$1,030	667	\$13,497	\$1,125
2008 (Lag)	11,820	\$11,556	\$963	575	\$10,278	\$857	133	\$12,614	\$1,051	668	\$13,382	\$1,115
2009 (Lag)	12,176	\$11,665	\$972	627	\$10,547	\$879	118	\$13,036	\$1,086	720	\$13,448	\$1,121
2010 (Lag)	12,435	\$11,844	\$987	671	\$10,655	\$888	133	\$12,700	\$1,058	730	\$13,356	\$1,113
2011 (Lag)	12,841	\$12,244	\$1,020	698	\$10,975	\$915	138	\$12,559	\$1,047	722	\$13,724	\$1,144
2012 (Lag)	13,218	\$12,520	\$1,043	731	\$11,393	\$949	148	\$12,490	\$1,041	777	\$13,969	\$1,164
2013 (Lag)	13,662	\$12,811	\$1,068	795	\$11,620	\$968	153	\$12,809	\$1,067	845	\$14,579	\$1,215
2014 (Lag)	14,150	\$12,932	\$1,078	853	\$11,680	\$973	156	\$12,268	\$1,022	836	\$14,435	\$1,203
2015 P(Lag)	14,572	\$13,303	\$1,109	890	\$12,208	\$1,017	159	\$12,341	\$1,028	817	\$14,391	\$1,199

**Qualified Pension Plan  
Schedule of Participating Employers  
As Of June 30, 2015 (Lag)**

Employer	As of June 30, 2015 (Lag)		As of June 30, 2006	
	Number of Employees	Annual Payroll	Number of Employees	Annual Payroll
NYC Department of Education*	24,328	\$ 1,038,257,932	22,696	\$ 717,163,906
NYC School Construction Authority	557	\$ 55,047,395	383	\$ 32,161,537
Charter Schools				
Beginning with Children	1	\$ 51,553	7	\$ 199,515
Renaissance	17	\$ 605,436	9	\$ 437,568
<b>Total</b>	<b>24,903</b>	<b>\$ 1,093,962,316</b>	<b>23,095</b>	<b>\$ 749,962,526</b>

\* A limited (de minimis) number of these employees have been reported as employed by employers other than those listed in the table. For actuarial valuation purposes, these employees are included with the NYC Department of Education pending confirmation of status.



**George Washington Bridge**

Upper deck opened on October 24, 1931

Lower deck opened on August 29, 1962



**Board of Education Retirement System**

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Brooklyn, NY 11201

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