

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

A Fiduciary Fund of the City of New York

AT BERS WE HELP OUR MEMBERS

## **Comprehensive Annual Financial Report**

REACH THEIR RETIREMENT GONS

of the Qualified Pension Plan and the Tax Deferred Annuity Program

For the Years Ended June 30, 2016 and June 30, 2015



## **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, 2016 and June 30, 2015

Prepared by Sanford R. Rich, Executive Director Patrick (Rick) Hederman, Director of Fiscal Operations

State of New York

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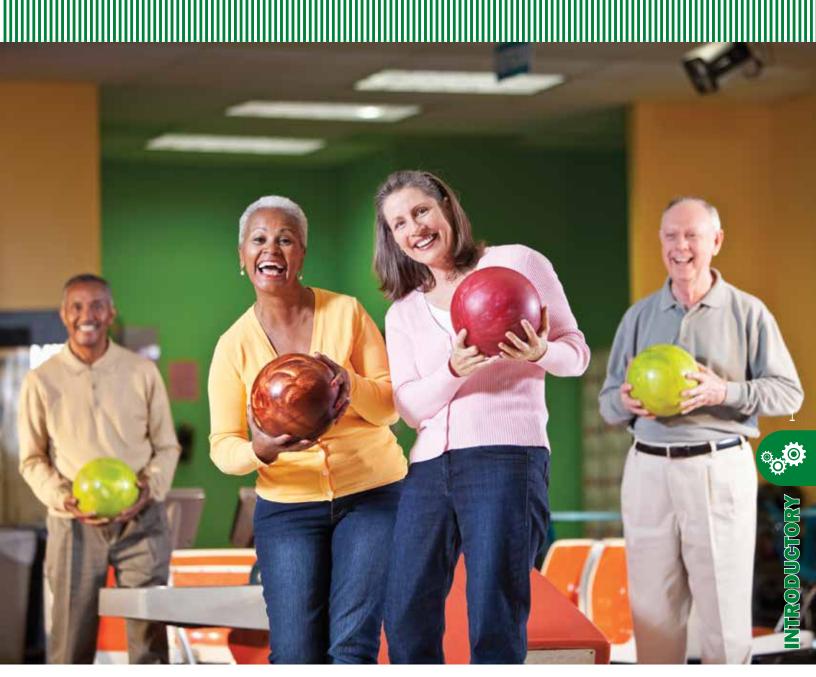
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# **INTRODUCTORY**

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SANFORD R. RICH

DANIEL D. MILLER

DEPUTY EXECUTIVE DIRECTOR

### **BOARD OF EDUCATION RETIREMENT SYSTEM**

OF THE CITY OF NEW YORK 65 COURT STREET - ROOM 1603 BROOKLYN, NEW YORK 11201- 4965

> 718-935-5400 OUTSIDE NEW YORK STATE 1-800-843-5575

December 15th, 2016

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, 2016 and June 30, 2015. BERS administers the BERS Qualified Pension Plan (the "QPP") and the BERS Tax Deferred Annuity Program (the "TDA Program"). In 2014, as a result of an analysis performed by the City's management, a decision was made to present the financial statements of the New York City Board of Education Retirement System on a combined basis for presentation purposes.

The QPP is a cost sharing, multiple employer Public Employee Retirement System (PERS) that was created on August 31<sup>st</sup>, 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<sup>st</sup>, 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, 2015 THROUGH JUNE 30, 2016

#### Chapter 510 of 2015 (S5692/A7834) – Plan Year for Tier 6 Members

This act amends the Retirement and Social Security law in relation to the definition of wages earned from multiple employers and of plan year for the New York City Retirement Systems. For members of a New York City or State Retirement System, after April 1, 2012, the definition of wages will not include, in cases where employees receive wages from three or more employers in a twelve month period, the wages paid by the third and each additional employer. For Tier 6 members of NYCERS, TRS, and BERS, the calendar year (January 1 to December 31) shall be used for the purpose of calculating member contributions.

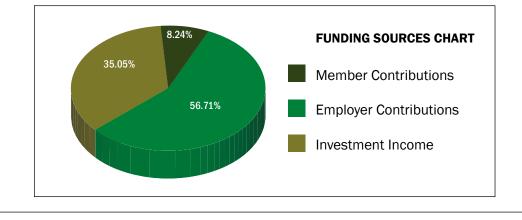
#### Chapter 41 of 2016 (S7160/A9531) - Military Service Credit

This act expands the rights of members of New York State and City public retirement systems, including BERS, to purchase credit for military service performed before they joined their retirement system.

#### 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 2016, 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 2016 for the QPP.

Funding Sources								
Funds	Percentage	Contribution (In thousands)						
Member Contributions	8.24%	\$38,581						
Employer Contributions	56.71%	\$265,532						
Investment Income	35.05%	\$164,144						
Total	100.00%	\$468,257						



Contributions to the TDA program are made on a voluntarily 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).

BERS investments within the fixed return fund (the "Fund") increased in value for the fiscal year ending June 2016 with a return of 0.17% compared to 0.75% for the Board of Education Policy Benchmark, against which it is measured. Performance for the fiscal year ranked in the third quartile of a peer group of public funds. The value of the fixed investments at the end of FY2016, excluding collateral security lendings reached \$4.5 billion compared to \$4.4 billion in FY2015. Over the 10-year time period the Fund remains ahead of the benchmark, with a 6.31% average annual return versus 6.10% for the benchmark. During the fiscal year, the allocation to US and non US stocks were a drag on performance.

As of June 2016, the variable investments excluding variable collateral security lendings, held at TRS decreased to \$452.27 million from \$465.77 million in FY2015, or a -2.90% decline. During FY2016, the variable return fund performance was -0.50% versus 4.82% during FY2015.

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

Asset allocation is expected to be a major contributor to the BERS' 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. During FY2016, a revised investment policy was approved that increased the allocation to Private Equity, Real Estate and Infrastructure while reducing US equities and developed market non US equities. These are long term commitments expected to improve the risk and return profile of the Fund. We expect that they will be phased in over several fiscal years as attractive investment opportunities are approved. The Fund's new target asset mix going forward will be 72% Equity (including the Private and Public equities, Real Estate and Infrastructure) and 28% Fixed Income. Over the long-term investment future, we expect our revised equity allocation to outperform fixed income by a significant margin.

For the fiscal year ending June 2016, the total Fixed Income return of 4.5% outperformed the U.S. and non-US. public equity returns. Total Equity returns were -1.6% in FY2016 and were particularly responsible for the Fund's underperformance versus expectations. The Fund is primarily invested in index funds for the U.S. equity allocation, which helped relative performance. The active US and non US equity managers did not add the expected levels of

1 Michael Wright, Segal Rogerscasey, Report on Investment Activity page 2

outperformance during FY2016. 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 FY2016 as the Private Equity, Real Estate and Infrastructure investments performed well for the Fund. However, the current allocation to those sectors is not large enough to offset the underperformance elsewhere in the portfolio.

The expectation is that global growth will be inconsistent across market sectors and certain geographic areas. We will be implementing the approved diversifications and rebalancing the fund to mitigate the volatility from these dislocations and improve the consistency of outcomes for the fund. Market conditions and fund performance will be closely monitored to accomplish the goal of providing the benefits as promised to participants.

#### Investment Policy

BERS' investment policy statement, ratified by the Board of Trustees in January 2009 and amended in October 2011, January 2013, 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>

BERS fiscal year was marked by slow growth and low interest rates. The Federal Reserve did not raise interest rates in FY2016 despite expectations at the beginning of the year. The Federal Funds Rate remained between 0.25% and 0.50%. The European Central Bank held its target refinancing rate at 0%, its marginal lending rate

2 Michael Wright, Segal Rogerscasey, Report on Investment Activity page 3

NTRODUCTORY

at 0.25% and its deposit rate at -0.40%. The Bank of Japan maintained its quantitative and qualitative easing policy of purchasing Japanese government bonds with the goal of increasing the monetary base and to lower their rates.

Real U.S. GDP grew at an annualized rate of 1.2% through June 30, 2016. Positive contributors to GDP included personal consumption expenditures (PCE) and exports. Inflation remained below the Federal Reserve's 2% objective due to decreased energy prices and lower-priced non-energy imports. The headline seasonally adjusted Consumer Price Index (CPI)\* was up 0.84% in Q2, and increased 1.05% on a year over year basis. Seasonally adjusted Core CPI, which excludes food and energy prices, rose 0.58% in Q2, bringing the year over year core CPI increase to 2.23%. On an unadjusted 12-month basis ending June 2016, the energy component fell the most at -9.4%. Commodities less food and energy commodities were also slightly negative. Food and services less energy services were both positive.

At its June meeting, in addition to an announcement on low inflation, the Federal Open Market Committee (FOMC) stated the following:

- a) Economic activity has been expanding at an accelerated pace;
- b) The labor market has slowed with diminishing employment gains;
- c) Household spending has increased; and
- d) To maintain an accommodative policy, the Fed will continue reinvesting principal payments from holdings of agency debt and agency-mortgage-backed securities, and will keep rolling over maturing Treasury securities at auction.

In addition to various uncertainties about the US elections, Brexit and Europe fiscal concerns, the economic environment was not favorable for strong portfolio performance. The US and non US stock markets were not as strong as in prior years. The US stock market, as measured by the Russell 3000 stock index, returned 2.14%, well below the strong returns in the prior two fiscal years. International equity performance continued in the negative territory for FY2016, as the MSCI EAFE posted a loss of -9.7%. This is not surprising given their more direct vulnerability to fiscal concerns in Europe and the potential for economic instability in Asia. Fixed income returns were positive as interest rates have generally declined with the Barclays Aggregate Index, which represents a proxy of investment-grade bonds, returning 6.0% for the fiscal year.

## 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.

In fiscal year 2015, BERS adopted Governmental 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 either a market approach, a cost approach or an income approach. There was no material impact on the System's financial statements as a result of the implementation of GASB 72.

#### 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 year ended 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 fiscal year 2015, BERS went through an audit covering fiscal year 2009 thru fiscal year 2014.

#### **Professional Services**

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

BERS is going through the process of installing Enterprise Resource Planning software, known as the Comprehensive Pension Management System (CPMS). It is a multiyear project and the services of Vitech Systems Group Incorporated, GTJZ Consulting, and KPMG LLP have been retained to guide BERS.

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.

#### 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, 2015. 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.

In order 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 twenty nine 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 Board 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,

Boy I Sil

Sanford R. Rich Executive Director



## New York City Board of Education Retirement System

For the Fiscal Year Ended June 30, 2016

## **BOARD OF TRUSTEES**

HON. FRED BAPTISTE HON, ISAAC CARMIGNANI HON. GENEAL CHACON HON. T. ELZORA CLEVELAND HON, JOSEPH D'AMICO HON. DEBORAH DILLINGHAM HON. CARMEN FARIÑA HON. VANESSA LEUNG HON. GARY LINNEN HON. KAMILLAH PAYNE-HANKS HON. LORI PODVESKER HON, MILAGROS RODRIGUEZ HON. BENJAMIN SHULDINER HON. STEPHANIE SOTO HON. LAURA ZINGMOND HON. MIGUELINA ZORRILLA-ARISTY

CO-CHAIRS HON. JOSEPH D'AMICO HON. RAYMOND ORLANDO

## **Prepared By:**

Sanford R. Rich, Executive Director Patrick (Rick) Hederman, 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:**

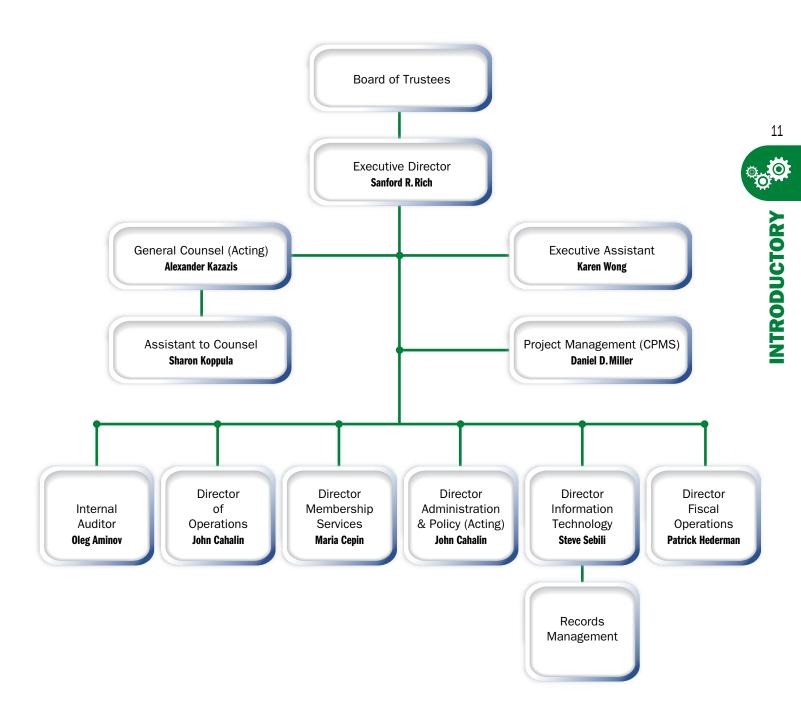
Board of Education Retirement System City of New York 65 Court Street, 16th Floor Brooklyn, New York 11201



## New York City Board of Education Retirement System

For the Fiscal Year Ended June 30, 2016

## **ORGANIZATION CHART**





# New York City Board of Education Retirement System

For the Fiscal Year Ended June 30, 2016

## **CONSULTING AND PROFESSIONAL SERVICES**

## Actuary

Office of the Actuary 75 Park Place, 9<sup>th</sup> Floor New York, NY 10013-6301

## Auditors

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

### **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 P.O. Box 4595 New York, NY 10163

#### **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**

Buck Consultants, LLC 485 Lexington Avenue New York, NY 10017 Segal Rogerscasey 333 West 34th Street New York, NY 10001



Government Finance Officers Association

# Certificate of Achievement for Excellence in Financial Reporting

Presented to

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, 2015

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Executive Director/CEO



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New York City Board of Education Retirement System



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markspaneth.com

New York New Jersey Pennsylvania Washington, DC

MARKS PANETH

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, 2016, and the related combining statements of changes in fiduciary net position for the year 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 audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the 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, 2016, and the changes in combining fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.



#### **Prior Period Combining Financial Statements**

The combining financial statements of the System as of June 30, 2015, were audited by other auditors whose report dated October 29, 2015, expressed unmodified opinions on those combining financial statements. As discussed in Note 9 to the combining financial statements, the System has adjusted its 2015 combining financial statements to retrospectively apply the change in accounting for the allocation of investments between the QPP and TDA.

As part of our audit of the 2015 combining financial statements, we also audited the adjustments to the 2015 combining financial statements to retrospectively apply the change in accounting as described in Note 9. In our opinion, such adjustments are appropriate and have been properly applied. We were not engaged to audit, review, or apply any procedures to the System's 2015 combining financial statements other than with respect to the adjustments and, accordingly, we do not express an opinion or any other form of assurance on the 2015 combining financial statements as a whole.

#### **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 audit of the basic combining financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

#### Other Supplementary Information

Our audit was conducted for the purpose of forming an opinion on the basic combining financial statements. The Introductory Section, Additional Supplementary Information, Investment Section, Actuarial Section, and Statistical Section, as listed in the foregoing table of contents, are present 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 audit 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 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 2016 basic combining financial statements taken as a whole.

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

Marks Pareth LLP

October 31, 2016 (except for the Other Supplementary Information, as to which the date is December 22, 2016)



ACCOUNTANTS & ADVISORS

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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, 2016 and 2015. 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 of 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**

During Fiscal Year 2016, the System adopted certain changes to the accounting practices to enhance the utility of the combining financial statements. These changes were adopted as a result of a comprehensive analysis of the TDA Program of the System based on a reallocation of investments between the QPP and the TDA Program. As a result of these changes, Fiscal Year 2015 financial statements were restated. The impact of the changes prior to Fiscal Year 2015 has been reported as a prior period adjustment to the beginning net assets of Fiscal Year 2015.

### **QPP Fiduciary Net Position**

During Fiscal Year 2016, QPP's net position held in trust 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 investment returns 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.

Opening net assets for Fiscal Year 2015 have been restated to reflect the impact of prior year changes as discussed above and disclosed in the Note 9 to the combining financial statements. During Fiscal Year 2015, the QPP's net position held in trust for benefits increased to \$3.45 billion, a net increase of \$174.74 million or 5.33% from Fiscal Year 2014. The increase in net position during Fiscal Year 2015 was due to increases in member contributions, employer contributions and the fair value of investments. The member contributions and fair value of investments including the collateral security lending, increased by 6.37%, 20.28%, and 0.87%, respectively. The QPP's fair value of investments including collateral security lending was \$4.78 billion, a net increase of \$41.38 million.

QPP Fiduciary Net Position as of June 30, 2016, 2015, and 2014 (In thousands)	2016	2015 (Restated) <sup>1</sup>	2014
Assets:			
Cash	\$ 327	\$ 16,143	\$ 8,903
Receivables	166,060	95,756	223,667
Investments, at fair value	4,526,973	4,479,080	4,327,245
Collateral from securities lending	477,623	302,135	412,592
Other	124,031	106,254	14,150
Total assets	5,295,014	4,999,368	4,986,557
Liabilities:			
Accounts payable	6,907	6,199	14,783
Other Liability	-	-	-
Payable for investments purchased	103,213	86,747	273,978
Accrued benefits payable	7,357	5,461	6,816
TDA Program's interest in the fixed return fund	1,283,481	1,144,817	999,123
Payables for securities lending	477,623	302,135	412,592
Total liabilities	1,878,581	1,545,359	1,707,292
Net position held in trust for benefits	<u>\$ 3,416,433</u>	\$ 3,454,009	<u>\$ 3,279,265</u>
<sup>1</sup> Restated from prior year			

**ODD Eiduciary Not Desition** 

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 is 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, which stood at \$96.15 million and at \$83.90 million for Fiscal Years 2016 and 2015 respectively. The liabilities 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. 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.

"The TDA Program's interest in the fixed return fund" represents a liability to the TDA program. The liability of \$1.28 billion is an obligation of the City of New York through the QPP. The liability includes the TDA member's account balances invested in the fixed return fund and the TDA Program's fixed and variable annuitants.

#### **Changes in QPP Fiduciary Net Position**

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

In Fiscal Year 2015, the member contributions increased to \$39.56 million, a 6.37% increase from the 2014 contribution amount of \$37.19 million.

Changes in QPP Fiduciary Net Position	
Years Ended June 30, 2016, 2015, and 2014	
(In thousands)	

(					
		2016	2015 (Restated)	1	2014
Additions:					
Member contributions	\$	38,581	\$ 39,564	\$	37,193
Employer contributions		265,532	258,099		214,590
Net investment income		160,828	174,503		874,539
Net securities lending income		3,316	2,663		914
TDA Program's interest income in the fixed return fund		(94,789)	(85,104)		(206,615)
Other – payments to other retirement systems &					
other revenues/expenses	_	(157,499)	(52,021)		(70,916)
Total additions	_	215,969	337,704		849,705
Deductions:					
Benefit payments and withdrawals		240,727	223,244		214,315
Administrative expenses		12,818	10,956		9,776
Total deductions		253,545	234,200		224,091
Net increase (decrease) in net position		(37,576)	103,504		625,614
Net position held in trust for benefits:					
Beginning of year (as previously reported)		-	3,279,265		2,653,651
Prior year adjustments (Note 9)		-	71,240		-
Beginning of year balance restated		3,454,009	3,350,505		2,653,651
End of year	\$	3,416,433	\$ 3,454,009	\$	3,279,265

<sup>1</sup>Restated from prior year

Employer contributions received for the QPP for the Fiscal Years 2016 and 2015 were at \$265.53 million and \$258.10 million, an increase of 2.88%. The employer contribution for Fiscal Year 2015 increased by 20.28% from Fiscal Year 2014. The Fiscal Year 2016 increase is primarily due to a change in the post-retirement mortality rates, an increase in the amortization payment of the 2010 initial unfunded liability and a net actuarial loss. The increase in the employer contributions are primarily due to the net result of actuarial gains and losses. Employer contributions are made on a statutory basis based on the One-Year Lag methodology.

The investment income which includes the security lending income, decreased by 7.35% in FY 2016. Interest to the TDA Program's fixed return fund represents a guarantee of 8.25% interest and 7% for UFT members, During Fiscal Year 2016, the interest to the TDA Program's fixed return fund stood at \$94.79 million.

The benefit payments and withdrawals slightly increased by 7.83% in Fiscal Year 2016, from \$223.24 million to \$240.73 million. During Fiscal Year 2015, plan benefits and withdrawals increased by 4.17%, from \$214.32 million to \$223.24 million. The increase in Fiscal Years 2016 and 2015 was primarily due to an increase in the pension benefits to retirees, which went up 6.12% and 4.68% respectively.

Administrative expenses account showed an increase of 17.00% and 12.07% in Fiscal Years 2016 and 2015. The increase was primarily due to higher personnel expenses which increased by 28.75% and 12.46% respectively.

## **TDA Program Fiduciary Net Position**

During Fiscal Year 2016, the TDA Program's net position held in trust 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 increased by 3.43%.

#### TDA Program Fiduciary Net Position June 30, 2016, 2015, and 2014 (In thousands)

	2016	2015 (Restated) <sup>1</sup>	2014
Assets:			
Cash	\$ 205	\$ 122 \$	2,902
Receivables	40,455	41,264	39,102
TDA Program's interest in the fixed return fund	1,283,481	1,144,817	999,123
Investments, at fair value	409,776	419,530	403,176
Collateral from securities lending	15,642	29,607	16,940
Other	-	-	3,619
Total assets	1,749,559	1,635,340	1,464,862
Liabilities:			
Accounts payable	-	-	42
Other liability	96,156	83,901	-
Payable for investments purchased	902	4,428	3,668
Accrued benefits payable	6,783	6,045	6,750
Securities lending transactions	15,642	29,607	16,940
Total liabilities	119,483	123,981	27,400
Net position held in trust for benefits	<u>\$ 1,630,076</u>	<u>\$ 1,511,359 </u>	1,437,462
<sup>1</sup> Restated from prior year			

## Management's Discussion and Analysis (Unaudited) For the Years Ended June 30, 2016 and 2015 (Cont'd)

During Fiscal Year 2015, the TDA Program's net position held in trust for benefits increased to \$1.51 billion, a net increase of \$73.89 million or 5.14% from Fiscal Year 2014. The increase in Fiscal Year 2015 was due to an increase in member contributions and the fair value of investment, which increased by 17.44% and 6.91% respectively.

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. Receivables from the 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. The TDA Program's member loans outstanding which are included in these receivables, went from \$36.51 million at the close of Fiscal Year 2015 to \$38.92 million at the close of Fiscal Year 2016, a 6.61% 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.

Other liability represents a liability from the TDA Program towards the QPP, which stood at \$96.15 million and at \$83.90 million for fiscal years 2016 and 2015 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 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. Member contributions to the TDA Program increased to \$74.89 million during Fiscal Year 2015, a 17.44% increase from the \$63.77 million contributed in Fiscal Year 2014.

## Changes in TDA Program Fiduciary Net Position Years Ended June 30, 2016, 2015, and 2014 (In thousands)

	2016	2015 (Restated)	1	2014
Additions:				
Member contributions	\$ 77,459	\$ 74,890	\$	63,767
Net investment income	855	22,769		82,136
Net securities lending income	194	181		87
TDA Program's interest income in the fixed return fund	94,789	85,104		206,615
Other – payments to other retirement systems &				
other revenues/expenses	 (3,541)	4,448	_	(110,273)
Total	 169,756	187,392	_	242,332
Deductions:				
Benefit payments and withdrawals	50,189	39,222		40,410
Administrative expenses	 850	3,033	_	2,530
Total deductions	 51,039	42,255	_	42,940
Net increase in net position	118,717	145,137		199,392
Net position held in trust for benefits:				
Beginning of year (as previously reported)	-	1,437,462		1,238,070
Prior year adjustments	 -	(71,240)		-
Beginning of year balance restated	1,511,359	1,366,222		1,238,070
End of year	\$ 1,630,076	<u>\$ 1,511,359</u>	\$	1,437,462
<sup>1</sup> Restated from prior year				

The benefit payments and withdrawals experienced a \$10.97 million or (27.96%) increase from June 30, 2015 to June 30, 2016. The change was primarily due to an increase in death benefits from \$4.13 million in Fiscal Year 2015 to \$13.29 million in Fiscal Year 2016.

The benefit payments and withdrawals experienced a \$1.19 million (2.94%) decrease from June 30, 2014 to June 30, 2015; the decrease in Fiscal Year 2015 was mostly due to a decrease in death benefits of 55.28% to \$4.13 million.

#### **Investment Summary**

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

Investment Summary as of June 30, 2016, 2015, and 2014 (In thousands)				
Fair Value	2016	2015		2014
Short Term Investments	\$ 113,900	\$ 215,612	\$	157,989
Debt Securities	890,152	861,891		791,282
U.S. Equity Securities	726,951	784,214		907,430
Alternative Investments	506,922	385,819		280,168
Collective Trust Funds	2,698,824	2,651,074	:	2,593,552
Promissory Notes	-	-		-
Security Lending Transactions	493,265	 331,742		429,532
Total	\$ 5,430,014	\$ 5,230,352	\$	5,159,953

Because the QPP's liabilities are of a long-term nature, the assets of the QPP and the TDA Program 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 3.82% in FY 2016, increased by 1.36% in Fiscal Year 2015 and increased by 18.29% in Fiscal Year 2014. In 2016 and 2015 greater volatility in the market slowed down the return on investment. In 2014, a strong market performance was the reason behind these increases.

#### **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, and Brooklyn, New York 11201

## Combining Statements Of Fiduciary Net Position June 30, 2016 (In thousands)

	QPP	TDA Program	Eliminations	Total
ASSETS:				
Cash	<u>\$ 327</u>	<u>\$ 205</u>	\$ -	<u>\$                                    </u>
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	166,060	40,455		206,515
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	5,004,596	425,418	-	5,430,014
TDA Program's interest in the fixed return fund	-	1,283,481	(1,283,481)	
Other assets	124,031	-	(96,156)	27,875
Total assets	5,295,014	1,749,559	(1,379,637)	5,664,936
LIABILITIES:	<u>,                                  </u>			
	6 007			6 007
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
TDA Program's interest in the fixed return fund	1,283,481	-	(1,283,481)	-
Securities lending	477,623	15,642		493,265
Total liabilities	1,878,581	119,483	(1,379,637)	618,427
NET POSITION HELD IN TRUST FOR BENEFITS:				
Benefits to be provided by QPP	3,416,433	-	-	3,416,433
Benefits to be provided by TDA Program		1,630,076		1,630,076
TOTAL NET POSITION HELD IN TRUST FOR BENEFITS:	\$ 3,416,433	\$ 1,630,076	\$	\$ 5,046,509

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

## **Combining Statements Of Fiduciary Net Position** June 30, 2015 (As Restated) (In thousands)

ACOFTO.	QPP	TDA Program	Eliminations	Total
ASSETS:	¢ 10110	¢ 400	<i>ф</i>	¢ 40.005
Cash	<u>\$ 16,143</u>	<u>\$ 122</u>	<u>\$</u>	<u>\$ 16,265</u>
Receivables:	E0 820	4.465		EE 004
Investment securities sold	50,839 239	4,165 590	-	55,004
Accrued interest and dividends			-	829
Member loans Other	44,675	36,509	-	81,184
	3			3
Total receivables	95,756	41,264		137,020
Investments – at fair value				
Fixed return funds:				
Short term investments:	4 4 9 4 4 9			1 1 0 1 1 0
Commercial paper	148,449	-	-	148,449
Short-term investment fund	35,597	-	-	35,597
Discount notes	25,996	-		- 25,996
Debt securities	851,577	-	-	851,577
Equity securities	334,325	-	-	334,325
Alternative Investments	385,819	-	-	385,819
Collective Trust Funds				
International equity	969,838	-	-	969,838
Domestic Equity	1,432,065	-	-	1,432,065
Mortgage debt security	23,862	-	-	23,862
Treasury Inflation protected securities	139,367	-	-	139,367
Fixed Income	85,942	-	-	85,942
Collateral from securities lending	298,872	-	-	298,872
Variable return funds:				
Short term investments	553	5,017	-	5,570
Debt securities	1,024	9,290	-	10,314
Equities	44,666	405,223	-	449,889
Collateral from securities lending	3,263	29,607		32,870
Total investments	4,781,215	449,137		5,230,352
TDA Program's interest in the fixed return fund	-	1,144,817	(1, 144, 817)	-
Other assets	106,254		(83,901)	22,353
Total assets	4,999,368	1,635,340	(1,228,718)	5,405,990
LIABILITIES:				
Accounts payable	6,199	-	-	6,199
Payable for investment securities purchased	86,747	4,428	-	91,175
Accrued benefits payable	5,461	6,045	-	11,506
TDA Program's interest in the fixed return fund	1,144,817	-	(1, 144, 817)	-
Other liability	-	83,901	(83,901)	-
Securities lending	302,135	29,607		331,742
Total liabilities	1,545,359	123,981	(1,228,718)	440,622
NET POSITION HELD IN TRUST FOR BENEFITS:				
Benefits to be provided by QPP	3,454,009	-	-	3,454,009
Benefits to be provided by TDA Program	-	1,511,359	-	1,511,359
TOTAL NET POSITION HELD IN TRUST FOR BENEFITS:	\$ 3,454,009	\$ 1,511,359	\$	\$ 4,965,368

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

## Combining Statement Of Changes In Fiduciary Net Position Year Ended June 30, 2016 (In thousands)

	QPP	TDA Program	Total
ADDITIONS:			
Contributions Member contributions	\$ 38,581	\$ 77,459	\$ 116,040
Employer contributions	\$ 38,581 265,532	\$ 11,459	265,532
Total contributions	304,113	77,459	381,572
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	79,014	(7,771)	71,243
Total investment income	175,124	1,557	176,681
Less — investment expenses	(14,296)	(702)	(14,998)
Not investment income hefere			
Net investment income before securities lending transactions	160,828	855	161,683
securities ienaing transactions	100,828	833_	101,085
Securities lending transactions			
Securities lending income	3,547	216	3,763
Securities lending fees	(231)	(22)	(253)
Net securities lending income	3,316	194	3,510
Net investment income	164,144	1,049	165,193
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	(94,789)	94,789	-
Total additions	215,969	169,756	385,725
DEDUCTIONS:			
Benefit payments and withdrawals	240,727	50,189	290,916
Administrative expenses	12,818	850	13,668
Total deductions	253,545	51,039	304,584
NET INCREASE IN NET POSITION	(37,576)	118,717	81,141
NET POSITION HELD IN TRUST FOR BENEFITS:			
Beginning of year	3,454,009	1,511,359	4,965,368
End of year	<u>\$ 3,416,433</u>	<u>\$ 1,630,076</u>	<u>\$ 5,046,509</u>

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## **Combining Statement Of Changes in Fiduciary Net Position** Year Ended June 30, 2015 (As Restated) (In thousands)

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

The accompanying notes are an integral part of these	accompanying notes are an integral part of these financial statements.			
	QPP	TDA Program	Total	
ADDITIONS:				
Contributions				
Member contributions	\$ 39,564	\$ 74,890		
Employer contributions	258,099		258,099	
Total contributions	297,663	74,890	372,553	
Investment income				
Interest income	36,898	3,111	40,009	
Dividend income	46,207	5,607	51,814	
Net appreciation in fair value of investments	101,496	14,804	116,300	
	, . <u></u>			
Total investment income	184,601	23,522	208,123	
Less – investment expenses	(10,098)	(753)	(10,851)	
Net investment income before				
securities lending transactions	174,503	22,769	197,272	
securites iending transactions	14,000	22,100	101,212	
Securities lending transactions				
Securities lending income	2,849	201	3,050	
Securities lending fees	(186)	(20)	(206)	
Net securities lending income	2,663	181	2,844	
Net investment income	177,166	22,950	200,116	
	<u>,</u>		,	
Other – payments to other retirement systems				
& other revenues/expenses	(52,021)	4,448	(47,573)	
TDA Program's interest income				
in the fixed return fund	(85,104)	85,104		
Total additions	337,704	187,392	525,096	
		107,352	323,030	
DEDUCTIONS:				
Benefit payments and withdrawals	223,244	39,222	262,466	
Administrative expenses	10,956	3,033	13,989	
Total deductions	234,200	42,255	276,455	
NET INCREASE IN NET POSITION	103,504	145,137	248,641	
NET POSITION HELD IN TRUST FOR BENEFITS:				
Beginning of year (as previously reported)	3,279,265	1,437,462	4,716,727	
Prior year adjustments (Note 9)	71,240	(71,240)	-	
Beginning of year balance restated	3,350,505	1,366,222	4,716,727	
End of year	\$ 3,454,009	\$ 1,511,359		
· · · ·			. ,,	

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

### **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 Fire department 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, 2014 and June 30, 2013, the dates of the QPP's most recent completed actuarial valuations, the QPP membership consisted of:

2014	2013
15,995	15,455
195	182
4,005	4,127
25,182	25,848
45,377	45,612
	195 4,005 25,182

\* 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 is 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, 2014 and June 30, 2013, the TDA Program participants consisted of:

	2014	2013
Contributing members	14,938	14,400
Retired members with TDA balances	5,369	4,197
% of QPP members contributing to TDA	27%	27%

### **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

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effect at the time of membership.

- 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 members' Excess of Contributions, net of all Deficiencies of Contributions, is \$8.98 million and \$9.27 million, for the years ended June 30, 2016 and 2015, 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 ("57/5"), with no age reduction factor to their retirement program permitting them to retire at age 57 with 5 years of credited service ("57/5"), with no age reduction factor to their retirement program permitting them to retire at age 57 with 5 years of credited service ("57/5"), with no age reduction factor to their retirement allowance, or at age 50 with 25 years of credited service ("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 2016, is \$18,000 certain participants are permitted to make additional contributions, based on age or years of service. The additional contribution limit for 2016 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  $59\frac{1}{2}$  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 591/2. 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 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 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.

**TDA Program's interest income in the fixed return fund** – The statutory interest credited on the TDA Program member account balances invested in the fixed return fund is reported as the "TDA program's interest income in the 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 System's 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 100% to 105% of the principal plus accrued interest for reinvestment. At June 30, 2016 and 2015, 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 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 46.37 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 fair value, the values reported by the QPP as of June 30, 2016 and 2015 are \$463.29 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.

**New Accounting Standards Adopted** — in Fiscal Year 2015, BERS adopted 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 either a market approach, a cost approach or income approach. GASB 72 establishes a hierarchy of inputs used to measure fair value consisting of three levels. Level 1 inputs are quoted prices in active markets for identical assets or liabilities. Level 2 inputs are inputs, other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. Level 3 inputs are unobservable inputs, and typically reflect management's estimates of assumptions that market participants would use in pricing the asset or liability. GASB 72 also contains note disclosure requirements regarding the hierarchy of valuation inputs and valuation techniques that was used for the fair value measurements. There was no material impact on the System's financial statements as a result of the implementation of GASB 72.

### 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 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.

**Credit Risk** – Portfolios other than U.S. Government and related portfolios have credit rating limitations. Investment grade portfolios are limited to mostly ratings of BBB and above except that they are also permitted a 10% maximum exposure to BB & B rated securities. While non-investment grade managers are primarily invested in BB & B rated securities, they can also invest up to 7% of their 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,

				S&P Q	uality Ratir	igs			
Investment Type* June 30, 2016	AAA	AA	A	BBB	BB	В	CCC & Below	Not Rated	Total
U.S. Government	- %	- %	- %	- %	- %	- %	- %	- %	- %
Corporate bonds Short term:	2.23	3.27	13.13	24.35	14.67	15.67	6.52	4.58	84.42
Commercial paper	-	-	-	-	-	-	-	11.47	11.47
Pooled fund	-	-	-	-	-	-	-	4.11	4.11
Discount notes									
and T-bills		-		-					
Portfolio	2.23%	3.27%	13.13%	24.35%	14.67%	15.67%	6.52%	20.16%	100.00%
				S&P Q	uality Ratir	igs			
Investment Type*							& 333	Not	
June 30, 2015	AAA	AA	Α	BBB	BB	В	Below	Rated	Total
U.S. Government	- %	- %	- %	- %	- %	- %	- %	- %	- %
Corporate bonds	1.82	2.23	11.64	20.17	11.76	14.41	4.61	3.53	70.17
Short term:								22.03	22.03
Commercial paper Pooled fund	-	-	-	-	-	-	-	22.03 3.94	22.03 3.94
Discount notes	-	-	-	-	-	-	-	3.94	3.94
and T-bills	-	-	-	-	-	-	-	3.86	3.86
Portfolio	1.82%	2.23%	11.64%	20.17%	11.76 %	14.41%	4.61%	33.36%	100.00%

\* U.S. Treasury bonds, notes and treasury-inflation protected securities are obligations of the U.S. government or explicitly guaranteed by the U.S. government and therefore not considered to have credit risk and are not included above.

### 2016 and 2015 are as follows:

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, 2016 and 2015, are as

_				S&P Q	uality Rating	gs			
Investment Type*							& 333	Not	
Variable Funds June 30, 2016	AAA	AA	A	BBB	BB	В	Below	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 =	2.35%	2.98%	6.82%	12.40%	5.94%	2.81%	0.00%	66.70%	100.00%

_				S&P Q	uality Rating	gs			
Investment Type*							& 333	Not	
Variable Funds	AAA	AA	Α	BBB	BB	В	Below	Rated	Total
June 30, 2015									
Government	- %	- %	- %	- %	- %	- %	- %	- %	- %
Corporate bonds	1.83	1.95	10.93	12.57	5.69	2.66	0.32	15.67	51.62
Yankee bonds	-	0.45	-	0.06	-	-	-	-	0.51
Municipal bonds	-	0.03	0.20	-	-	-	-	-	0.23
U.S. Agencies	-	0.50	-	-	-	-	-	-	0.50
Short-term:									
Money Market Funds	-	-	-	-	-	-	-	47.14	47.14
Percent of rated									
Portfolio	1.83%	2.93%	11.13%	12.63%	5.69%	2.66%	0.32%	62.81%	100.00%

\* U.S. Treasury bonds, notes and treasury-inflation protected securities are obligations of the U.S. government or explicitly guaranteed by the U.S. government and therefore not considered to have credit risk and are not included above.

### follows:

**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.

**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

Years to Maturity		I	nvestment Maturities		
Investment Type June 30, 2016	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 and T-bills			-		-
Percent of rated portfolio	100.00 %	11.68 %	17.81%	27.55 %	42.96 %

Years to Maturity			<b>Investment Maturities</b>		
Investment Type	Fair	Less Than	One to Five	Six to Ten	More Than
June 30, 2015	Value	One Year	Years	Years	Ten Years
U.S. Government	35.99 %	1.21 %	4.44 %	5.25 %	25.09 %
Corporate bonds	44.91	1.62	11.25	18.72	13.32
Short term:					
Commercial paper	14.10	14.10	-	-	-
Pooled fund	2.52	2.52	-	-	-
Discount notes and T-bills	2.48	2.48	-		-
Percent of rated portfolio	100.00 %	21.93 %	15.69%	23.97 %	38.41 %

percent of the rated portfolio, at June 30, 2016 and 2015 are as follows:

The lengths of investment maturities (in years) of the variable return fund, as shown by the percent of

Years to Maturity			Investment Maturities		
Investment Type	Fair	Less Than	One to Five	Six to Ten	More Than
June 30, 2016	Value	One Year	Years	Years	Ten Years
U.S. Government	24.27 %	0.14 %	23.53 %	0.60 %	- %
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	100.00 %	38.28 %	51.24%	5.74 %	4.74 %

Years to Maturity			<b>Investment Maturities</b>		
Investment Type	Fair	Less Than	One to Five	Six to Ten	More Than
June 30, 2015	Value	One Year	Years	Years	Ten Years
U.S. Government	20.22 %	0.22%	19.93 %	0.07 %	- %
Corporate bonds	41.12	2.49	25.56	7.07	6.00
Yankee Bonds	0.41	-	0.26	0.15	-
Municipal Bonds	0.18	-	0.18	-	-
U.S. Agencies	0.51	0.13	0.38	-	-
Short term:					
Money Market	37.56	37.56			-
Percent of rated portfolio	100.00 %	40.40 %	46.31%	7.29 %	6.00 %

**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, 2016 and 2015 in the fixed return fund are as follows (amounts in thousands of U.S. dollars):

	,		
Trade Currency	2016	2015	
Australian Dollar	\$ 13,121	\$ 16,352	
Brazilian Real	23,754	25,734	
British Pnd Sterling	112,906	119,481	
Canadian Dollar	16,420	14,451	
Colombian Peso	275	-	
Danish Krone	19,128	14,668	
Egyptian Pound	438	646	
Euro Currency	165,129	181,382	
Hong Kong Dollar	85,205	92,496	
Hungarian Forint	94	803	
Indian Rupee	32,811	30,616	
Indonesian Rupiah	8,079	5,742	
Israeli Shekel	596	573	
Japanese Yen	123,143	119,093	
Malaysian Ringgit	7,958	6,683	
Mexican Nuevo Peso	7,085	10,081	
Moroccan Dirham	1	1	
New Taiwan Dollar	21,844	31,208	
New Zealand Dollar	1,868	1,673	
Norwegian Krone	11,699	12,341	
Pakistan Rupee	7	6	
Philippines Peso	1,848	1,557	
Polish Zloty	5,483	6,354	
Renminbi Yuan	553	(2)	
Qatari Rial	2,416	2,858	
Singapore Dollar	18,414	16,994	
South African Rand	19,462	21,136	
South Korean Won	50,175	40,982	
Swedish Krona	29,410	31,624	
Swiss Franc	49,253	51,270	
Thai Baht	14,555	12,165	
Turkish Lira	9,535	8,022	
UAE Dirham	927	50	
Total	\$ 853,592	\$ 877,040	

The foreign currency exposures of the variable return funds as of June 30, 2016 and 2015 are as follows (amounts in thousands of U.S. dollars):

Trade Currency	2016	2015
Australian Dollar	\$ 946	\$ 1,031
Brazilian Real	973	-
British Pnd Sterling	4,859	7,399
Canadian Dollar	1,039	1,191
Chilean Peso	1	-
Danish Krone	178	245
Egyptian Pound	6	-
Euro Currency	8,081	10,573
Hong Kong Dollar	959	1,412
Hungarian Forint	-	23
Indian Rupee	2,415	-
Israeli Shekel	164	241
Japanese Yen	4,767	6,625
Malaysian Ringgit	496	-
Mexican Nuevo Peso	427	-
New Zealand Dollar	15	-
Norwegian Krone	255	494
Phillipines Peso	76	-
Polish Zloty	158	-
Singapore Dollar	776	923
South African Rand	1,227	260
South Korean Won	3,683	-
Swedish Krona	360	643
Swiss Franc	2,803	3,583
Taiwan Dollar	2,351	-
Thai Baht	305	-
Turkish Lira	456	-
Uae Dirham	120	
Total	\$ 37,896	\$ 34,643

**Notes to Combining Financial Statements** Years Ended June 30, 2016 and 2015 (Cont'd)

## Securities Lending Transactions:

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

Securities Lending Transactions							S&P Quality Ratings	ty Ratings							
(In thousands)											ccc &	Short	ŗ	Not	
June 30, 2016	AAA		AA		A	BBB	88		8		Below	Ter	E	Rated	Total
U.S. Government	م	\$		\$		' \$	' ه	φ		÷		' ډ			' \$
Corporate bonds							'		•			'			
Yankee bonds							'		•			'			
Short term:															
Commercial paper							'		,			'			
Mutual funds	·						1		•			'		ı	
Money market	35,129						'					'			35,129
Bank notes	·						1		•			'		2,181	2,181
U.S. Agency						,	ı					'			
Reverse repurchase agreements						,	ı					'		391,721	391,721
Repurchase agreements							'					'			
Certificates of deposit			,		,		,				,	'			
Certificates of deposit – floaters	,					,	'					'			,
Time denosit			ı		1	,	ı				,	'		,	,
Cash						,	ı							46.408	46.408
0++0-														561	56.4
Outer						,	'     					'		Top	TOC
Total	\$ 35,129	φ	,	\$	,	۰ ج	، م	\ م	1	φ	,	' ج	φ	440,871	\$ 476,000
Percent of securities lending portfolio	7.38 %		- %		% -	% -	% -		%-		- %		%	92.62 %	100.00 %
Investment Tyne and Fair Value - Fixed Return Fund	Return Fund														
Securities Lending Transactions							S&P Qualit	S&P Quality Ratings							
(In thousands)											ccc &	Sho	ŗ	Not	
June 30, 2015	AAA		AA		A	BBB	88		8		Below	Term	E	Rated	Total
U.S. Government	, \$	\$		\$		' \$	' ئ	φ		÷		' ډ	↔		· 4
Corporate bonds						,	'								,
Yankee bonds						,	ı		,			'		,	ı
Short term:															
Commercial paper	,		,				ı		,		,	'		ı	,
Mutual funds			ı		ı	,	ı		•		,	'		,	,
Money market	37,068						'		•			'			37,068
Bank notes							'							24,465	24,465
U.S. Agency							ı					'		,	'
Reverse repurchase agreements						,	ı		,			'		208,353	208,353
Repurchase agreements	,		,				ı		,		,	'		,	,
Certificates of deposit									•			'			
Certificates of deposit – floaters							ı							ı	·
Time deposit							'					'			
Cash			ŀ		ı		1		'		,	'		28,986	28,986
Other	,		,				1		,		,	'		,	,
Total	¢ 37.068	e e		e e		te I	Here and the second sec	+ 		+ 		   <del>v</del>	+ 	261 BUA	t 708 877



100.00 %

87.60 %

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% -

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%-

12.40 % 37,068

Percent of securities lending portfolio

Total

28,986 298,872

28,986 261,804



### **Notes to Combining Financial Statements** Years Ended June 30, 2016 and 2015 (Cont'd)

Investment Type and Fair Value Variable Return Fund															
Securities Lending Transactions							S&P	S&P Quality Ratings	tings						
(In thousands) Irine 30, 2016	000		44		٩	RRR		RR		æ	S a	CCC & Relow	Short Term	Not Rated	Total
	÷	÷		÷	ſ	÷	÷	}	÷	1	÷		÷		÷
Corporate honds	• •	9	+,0,+	9	• •	• •	9		9		9		• •		÷ +,0++
Yankee honds	,		,		,	ı							,		
Short term:															
Commercial paper			,										'		
Mutual funds	ı		ı			ı							ı		,
Money market			,		,	'		,		,			,		
Bank notes			,		,								•		
U.S. Treasury													'		
U.S. Agency	ı		·		,	I		,					ı	ı	
Reverse repurchase agreements													'		
Repurchase agreements	9,496		2,922			I							ı	ı	12,418
Certificates of deposit					,			,		,			'		
Certificates of deposit – floaters					,										
Time deposit	•					•									
Cash			,										,		
Adjustment to custodial reports															
Other	'					'								2	2
Total	\$ 9,496	φ	7,766	φ		\$	φ		φ		φ		' \$	\$	\$ 17,264
Percent of securities lending portfolio	55.01 %	%	44.98 %		% -	% -		- %		- %		- %	% -	0.01 %	100.00 %
tan and the second fraction of the second															
Investment Type and Fair value Variable Return Fund															
Securities Lending Transactions							S&P	S&P Quality Ratings	tings						
(In thousands)											ខ	ccc &	Short	Not	
June 30, 2015	ААА		AA		A	BBB		88		8	Be	Below	Term	Rated	Total
U.S. Government	' ډ	φ	15,106	φ		' \$	↔		φ		¢		' \$		\$ 15,106
Corporate bonds	ı		ı		,	,				,			'		
Yankee bonds			,												
Short term:															
Money market															
Bank notes			,		,			,		,			,		
U.S. Treasury			1.316							,					1.316
U.S. Agency	ı		, '			I							,	ı	. '
Reverse repurchase agreements													'		
Repurchase agreements	8,752		7,738												16,490
Certificates of deposit	·		·			ı									
Certificates of deposit – noaters Time denosit										. ,				• •	
Cash					• •										. '
Adjustment to custodial reports	(41)	~	(1)												(42)
Other	' 0	.	- L	•		•	•				ł			'   	- 00

100.00 % (42) 32,870 --1,316 -16,490 -. % -% -. . . . %-%-73.50 % Ð --1,316 -. 7,738 24,159 ÷ 26.50 % -8,752 (41) 8,711 . Percent of securities lending portfolio

Total

**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			Investment M	aturities	
(In thousands) June 30, 2016	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	-	-	-
Adjustment to custodial reports	-	-	-	-	-
Other	562	562			
Total	\$ 476,001	\$ 476,001	<u>\$ -</u>	\$	
Percent of securities lending portfoli	o 100.00	% 100.00 %	<u> </u>	% - %	6 -

Years to Maturity Fixed Return Fund			Investment Ma	aturities	
(In thousands) June 30, 2015	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	37,068	37,068	-	-	-
Bank notes	24,465	24,465	-	-	-
U.S. Treasury	-	-	-	-	-
U.S. Agency	-	-	-	-	-
Reverse repurchase agreements	208,353	208,353	-	-	-
Repurchase agreements	-	-	-	-	-
Certificates of deposit	-	-	-	-	-
Certificates of deposit – floaters	-	-	-	-	-
Time deposit	-	-	-	-	-
Cash	28,986	28,986	-	-	-
Adjustment to custodial reports	-	-	-	-	-
Other	-	-	-	-	-
Total	\$ 298,872	\$ 298,872	\$-	\$ -	\$-
Percent of securities lending portfoli	o 100.00 9	% 100.00 %	- %	6 - %	6 - %

QPP & TDA Program - Variable Return Fund				Inv	estment Ma	turiti	es			
(In thousands)	 Fair	_	ess Than	0	ne to Five	;	Six to Ten		lore Tha	
June 30, 2016	Value		One Year		Years		Years	1	Ten Years	5
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		2		-		-		-	
Total	\$ 17,264	\$	13,686	\$	1,573	\$	1,101	\$	904	

### Years to Maturity

QPP & TDA Program - Variable Return Fund				Inv	estment Ma	turit	ies		
(In thousands) June 30, 2015		Fair Value	Less Than One Year		ne to Five Years		Six to Ten Years	More Tha Ten Years	
U.S. Government	\$	15,106	\$ -	\$	6,341	\$	5,211	\$ 3,554	
Corporate bonds		-	-		-		-	-	
Yankee bonds		-	-		-		-	-	
Short term:									
Commercial paper		-	-		-		-	-	
Mutual fund		-	-		-		-	-	
Money market		-	-		-		-	-	
Bank notes		-	-		-		-	-	
U.S. Treasury		1,316	1,316		-		-	-	
U.S. Agency		-	-		-		-	-	
Reverse repurchase agreements		-	-		-		-	-	
Repurchase agreements		16,490	16,490		-		-	-	
Certificates of deposit		-	-		-		-	-	
Certificates of deposit – floaters		-	-		-		-	-	
Time deposit		-	-		-		-	-	
Cash		-	-		-		-	-	
Adjustment to custodial reports		-	-		-		-	-	
Other		(42)	 (42)		-		-	 -	
Total	\$	32,870	\$ 17,764	\$	6,341	\$	5,211	\$ 3,554	
Percent of securities lending portfoli	io	100.00 %	 54.04 %		19.29 %		15.86 %	 10.81	%

For the years ended June 30, 2016 and 2015, 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 0.20% and 3.15%. The money-weighted rate of return expresses investment performance, net of investment expense adjusted for the changing amounts actually invested.

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

The System categorizes its fair value measurements within the fair value hierarchy established by Generally Accepted Accounting Principles ("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, 2016 and June 30, 2015:

Fixed Return Funds		2016		
GASB 72 Disclosure	Level	Level	Level	
(In thousands)	One	Two	Three	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
Total investments	\$ 2,620,783	\$1,707,199	\$ 632,492	\$ 4,960,474
Fixed Return Funds		2015		
GASB 72 Disclosure	Level	Level	Level	
(In thousands)	One	Two	Three	Total
INVESTMENTS-At fair value				
Short-term investments:				
Commercial paper	\$-	\$ 148,449	\$-	\$ 148,449
Short-term investment fund	-	35,597	-	35,597
Discount notes	-	25,996	-	25,996
Debt securities	-	847,566	4,011	851,577
Equity securities	334,078	247	-	334,325
Alternative investments	-	-	385,819	385,819
Collective trust funds:			,	,
International equity	969,838	-	-	969,838
Fixed income	-	-	85,942	85,942
Domestic equity	1,432,065	-	,	1,432,065
Mortgage debt security	-	23,862	-	23,862
Treasury inflation protected securities	-	139,367	-	139,367
Collateral from securities lending	-	298,872	-	298,872
6				

**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 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. 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 funds 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.

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.

Variable-Return Funds GASB 72 Disclosure As of June 30, 2016 (In thousands)	Level 1	L	Leve	el 2	Level	3	То	otal
Variable return funds:								
Short-term investments	\$	-	\$	6,079	\$	-	\$	6,079
Debt securities		-		10,390		-		10,390
Equities	3	91,311		44,475		21		435,807
Collateral from securities lending		-		17,264		-		17,264
	<u>\$</u> 3	91,311	\$	78,208	\$	21	\$	469,540
Variable-Return Funds GASB 72 Disclosure As of June 30, 2015 (In thousands)	Level 1	L	Leve	el 2	Level	3	Тс	otal
Variable return funds:								
Short-term investments	\$	-	\$	5,570	\$	-	\$	5,570
Debt securities		-		10,314		-		10,314
Equities	38	38,390		61,499		-		449,889
Collateral from securities lending		-		32,870		-		32,870
	\$ 38	38,390	\$	110,253	\$	-	\$	498,643

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 voluntarily 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.

### 5. QPP NET PENSION LIABILITY

The components of the net pension liability of the Employers at June 30, 2016 and 2015 were as follows:

	(in tho	usands)
	2016	2015
Total pension liability	\$ 4,800,698	\$ 4,460,233
Fiduciary net position *	3,416,433	3,454,009
Employers' net pension liability	<u>\$ 1,384,265</u>	\$ 1,006,224
Fiduciary net position as a percentage of		
the total pension liability	<u> </u>	<u> </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, 2016 and 2015 were determined by actuarial valuations as of June 30, 2014 and June 30, 2013, 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.

In October 2015 the independent actuarial auditor, Gabriel, Roeder, Smith & Company (GRS), issued a report on their NYC Charter-mandated actuarial experience studies for the four-year and ten-year periods ended June 30, 2013 (the GRS Report).

Based, in part, on the GRS Report, on published studies of mortality improvement, and on input from the City's outside consultants and auditors, the Actuary proposed, and the Boards of Trustees of the BERS adopted, new post-retirement mortality tables for use in determining employer contributions beginning in Fiscal Year 2016. The new tables of post-retirement mortality are based primarily on the experience of the BERS (the Base Tables) and the application of Mortality Improvement Scale MP-2015, published by the Society of Actuaries in October 2015 (the Valuation Tables). Scale MP-2015 replaced Mortality Improvement Scale AA.

In addition, beginning in Fiscal Year 2016, the Actuary revised the Actuarial Asset Valuation Method to constrain the Actuarial Asset Value to be within a 20% corridor of the Market Value of Assets.

The two previously completed studies were published by The Hay Group ("Hay") dated December 2011 and by The Segal Company ("Segal"), dated November 2006. Hay analyzed experience for Fiscal Years 2006 through 2009 and made recommendations with respect to the actuarial assumptions and methods based on their analysis. Segal analyzed experience for Fiscal Years 2002 through 2005 and made recommendations with respect to the actuarial assumptions and methods based on their analysis.

### **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 Assset Allocation	Long-Term Expected Real Rate of Return
U.S. public markets equities	35.00%	6.60%
International public market equities	17.00	7.00%
Emerging public market equities	5.00	7.90%
Private market equities	6.00	9.90%
Fixed Income (Core, TIPS, Opportunistic)	30.00	2.70%
Alternatives (Real Assets, Hedge Funds)	7.00	4.00%
Total	100.00%	

**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 (-6.0%)	Current Discount Rate (7.0%)	1% Increase (-8.0%)
Employers' net pension liability June 30, 2016	\$1,948,548	\$1,384,265	\$911,336

### 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, 2016 and 2015 is \$46.75 million and \$44.68 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.

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, 2016 and 2015 is \$38.92 million and \$36.51 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 \$1.03 million and \$1.45 million were incurred on behalf of the

System by other City agencies, primarily the Comptroller's Office for 2016 and 2015, 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 2016 and 2015, 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 \$13.67 million and \$13.99 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.

### **Other Matters**

**Restatement of Fiscal Year 2015 combining financial statements** – The combining financial statements of the System as of June 30, 2015, have been adjusted to retrospectively apply the change in accounting for the allocation of investments between the QPP and TDA as follows:

Combining statement			As Issued	
of Fiduciary Net Position: (In thousands)	QPP	TDA Program	Eliminations	Total
Cash Other assets TDA Program's interest in the fixed return fund TDA Program's interest in the fixed return fund Other liability Accounts payable Net position	\$ 17,933 18,074 - 1,152,729 - 6,110 3,359,796	\$ 122 4,279 1,152,729 - - 1,879 1,605,572	\$ - (1,152,729) (1,152,729) - -	\$ 18,055 22,353 - - - 7,989 4,965,368
Combining statement		2015	As Restated	
of Fiduciary Net Position:		TDA		
(In thousands)	QPP	Program	Eliminations	Total
Cash Other assets TDA Program's interest in the fixed return fund TDA Program's interest in the fixed return fund Other liability Accounts payable Net position	\$ 16,143 106,254 - 1,144,817 - 6,199 3,454,009	\$ 122 - 1,144,817 - 83,901 - 1,511,359	\$ - (83,901) (1,144,817) (1,144,817) (83,901)	\$ 16,265 22,353 - - - 6,199 4,965,368

### New York City Board of Education Retirement System

### Notes to Combined Financial Statements Years Ended June 30, 2016 and 2015 (Cont'd)

Combining statement of Changes	2015 As Issued TDA		
in Fiduciary Net Position:			
(In thousands)	QPP	Program	Total
Other —payments to other retirement systems			
and other revenues/expenses	\$ (115,144)	67,571	(47,573
TDA Program's interest in the fixed return fund	- (44,954)	44,954	
Net position, beginning of the year	3,279,265	1,437,462	4,716,727
Combining statement of Changes	2015	As Restated	
in Eiduaiam Not Booition		TDA	

in Fiduciary Net Position:		TDA	
(In thousands)	QPP	Program	Total
Other —payments to other retirement systems and other revenues/expenses TDA Program's interest in the fixed return fund Net position, beginning of the year	\$ (52,021) - (85,104) 3,350,505	4,448 85,104 1,366,222	(47,573) - 4,716,727

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.

Based, in part, upon a review of the Segal and Hay studies, the Actuary issued a February 10, 2012 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" ("February 2012 Report").

The Board of Trustees of BERS adopted those changes to actuarial assumptions that require Board approval. The State Legislature and the Governor enacted Chapter 3/13 to provide for those changes to the actuarial assumptions and methods that require legislation, including the AIR assumption of 7.0% per annum, net of investment expenses.

In October 2015 the independent actuarial auditor, Gabriel, Roeder, Smith & Company (GRS), issued a report on their NYC Charter-mandated actuarial experience studies for the four-year and ten-year periods ended June 30, 2013 (the GRS Report).

Based, in part, on the GRS Report, on published studies of mortality improvement, and on input from the City's outside consultants and auditors, the Actuary proposed, and the Boards of Trustees of the BERS adopted, new post-retirement mortality tables for use in determining employer contributions

beginning in Fiscal Year 2016. The new tables of post-retirement mortality are based primarily on the experience of the BERS (the Base Tables) and the application of Mortality Improvement Scale MP-2015, published by the Society of Actuaries in October 2015 (the Valuation Tables). Scale MP-2015 replaced Mortality Improvement Scale AA.

In addition, beginning in Fiscal Year 2016, the Actuary revised the Actuarial Asset Valuation Method to constrain the Actuarial Asset Value to be within a 20% corridor of the Market Value of Assets.

New York State Legislation (only significant laws included) – Chapter 18 of the Laws of 2012 amended portions of the Retirement and Social Security Law and Administrative Code of the City of New York that affect the contributions and benefits of members who join a New York State public retirement system (including BERS) on or after April 1, 2012. 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 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, continued it and other interest rates until June 20, 2016, and defined the amortization of Unfunded Actuarial Accrued Liabilities ("UAAL").

Chapter 489 of the Laws of 2013 ("Chapter 489/13") extended the WTC Disability Laws to vested members.

### SCHEDULE OF CHANGES IN THE EMPLOYERS' NET PENSION LIABILITY AND RELATED RATIOS<sup>1</sup> (In thousands)

	2016	2015 (Restated) <sup>2</sup>	2014
Total pension liability:			
Service cost	\$ 153,107	\$ 147,898	\$ 142,687
Interest	320,315	299,592	288,162
Changes of benefit terms	-	-	-
Differences between expected and actual experience Changes of assumptions	(75,907) 183,677	50,148	-
Benefit payments and withdrawals	(240,727)	(223,244)	- (214,315)
Net change in total pension liability	340,465	274,394	216,534
Total pension liability – beginning	4,460,233	4,185,839	3,969,305
Total pension liability – ending (a)	4,800,698	4,460,233	4,185,839
Plan fiduciary net position:			
Employer contributions	265,532	258,099	214,590
Member contributions	38,581	39,564	37,193
Net investment income	164,144	177,166	875,453
Payment of interest on TDA program fixed return funds	(240,727)	(85,104)	(206,615)
Benefit payments and withdrawals	(12,818)	(223,244)	(214,315)
Administrative expenses	(94,789)	(10,956)	(9,776)
Other	(157,499)	(52,021)	(70,916)
Net change in plan fiduciary net position	(37,576)	103,504	625,614
Plan fiduciary net position – beginning	3,454,009	3,350,505	2,653,652
Plan fiduciary net position – ending (b)	3,416,433	3,454,009	3,279,266
Employer's net pension liability – ending (a)-(b)	<u>\$ 1,384,265</u>	<u>\$ 1,006,224</u>	<u>\$ 906,574</u>
Plan fiduciary net position as a percentage of			
the total pension liability	71.20%	77.40%	78.34%
Covered-employee payroll <sup>3</sup>	<u>\$ 1,008,056</u>	<u>\$ 1,016,822</u>	<u>\$ 989,168</u>
City's net pension liability as a percentage			
of covered-employee payroll	137.30%	99.00%	91.65%

1. Post-Publication Adjustments to Assets at June 30, 2014 and Restated Assets at June 30, 2015.

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

3. In accordance with GASB No. 67, paragraph 50, such information was not readily available for periods prior to 2013.



### Required Supplementary Information (Unaudited) Qualified Pension Plan (Cont<sup>1</sup>d) Schedule 2

# SCHEDULE OF EMPLOYERS' CONTRIBUTIONS

(In thousands)

	2016	2015	2014	2013	2012	2011	2010	2009	2008	08	2007
Actuarially determined contribution	\$ 265,532	\$ 265,532 \$ 258,099 \$	214,590	214,590 \$ 196,246	\$ 213,651	\$ 180,191	\$ 213,651 \$ 180,191 \$ 147,349 \$ 134,225 \$ 143,100 \$ 129,820	\$ 134,225	\$ 143,1	00 \$ 1	29,820
Contributions in relation to the actuarially determined contribution	265,532	258,099	214,590	196,246	213,651	180,191	147,349	134,225	143,100		129,820
Contribution deficiency (excess)	' ب	\$   	'	Υ	' ج	, Υ	'	, ф	÷	اھ ا	'
Covered-employee payroll	\$1,008,056	<u>\$1,008,056</u> <u>\$1,016,822</u> <u>\$</u>	989,168	989,168 \$ 886,186	\$ 879,476	\$ 880,656	\$ 826,782	\$ 755,516	\$ 729,098	θ	696,422
Contributions as a percentage of covered-employee payroll	26.34%	25.38%	21.69%	22.15%	24.29%	20.46%	17.82%	17.77%	19.63%		18.64%

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

# NOTES TO SCHEDULE OF EMPLOYERS' CONTRIBUTIONS

Note: Any factors that significantly affect trends in the amounts reported (e.g. changes in benefit terms, changes in size or composition of member population, or use of different assumptions) also should be disclosed with this schedule.

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 2016 contri-butions were determined using an actuarial valuation as of June 30, 2014). The methods and assumptions used to determine the actuarially determined contributions are as follows:

Valuation Dates	Valuation Dates June 30, 2014 June 30, 2013		June 30, 2012 June 30, 2014	June 30, 2011	June 30, 2010	June 30, 2009 - June 30, 2005
Actuarial cost method	Entry Age	Entry Age	Entry Age	Entry Age	Entry Age	Frozen Initial Liability <sup>1</sup>
Amortization method for Unfunded Actuarial Accrued Liabilities: Initial Unfunded Post-2010 Unfundeds	Increasing Level Dollar	Increasing Dollar Level Dollar	Increasing Dollar Level Dollar	Increasing Dollar Level Dollar	Increasing Dollar Level Dollar	NA <sup>2</sup> NA <sup>2</sup>
Remaining amortization period: Initial Unfunded 2010 ERI 2011 Actuarial gain/loss 2012 Actuarial gain/loss 2013 Actuarial gain/loss 2014 Actuarial gain/loss	18 years (closed) 2 years (closed) 12 years (closed) 13 years (closed) 14 years (closed) 15 years (closed)	19 years (closed) 3 years (closed) 13 years (closed) 14 years (closed) 15 years (closed) NA	20 years (closed) 4 years (closed) 14 years (closed) 15 years (closed) NA NA	21 years (closed) 5 years (closed) 15 years (closed) NA NA	22 years (closed) NA NA NA	NA <sup>2</sup> NA <sup>2</sup> NA <sup>2</sup>
Actuarial Asset Valuation (AAV) Method	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AAV is defined to recognize Fiscal Year 2011 investment performance. <sup>5</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, 2011. The June 30, 2010 AW 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 AW 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 <sup>3</sup>	7.0% per annum, net of investment expenses <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	8.0% per annum, net of investment expenses
Post-retirement mortality	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
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 2006 <sup>4</sup>
Salary increases <sup>3</sup>	In general, merit and promotion increases plus assumed General Wage Increases of 3.0% per year. <sup>3</sup>	In general, merit and promotion In general, merit and promotion increases plus assumed General increases plus assumed General Wage Increases of 3.0% per year. <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.
Cost-of-Living Adjustments <sup>3</sup>	1.5% per annum for Auto COLA. 2.5% per annum for Elcalation.	<ol> <li>S% per annum for Auto COLA.</li> <li>S% per annum for Elcalation.</li> </ol>	<ol> <li>1.5% per annum for Auto COLA.</li> <li>2.5% per annum for Elcalation.</li> </ol>	<ol> <li>1.5% per annum for Auto COLA.</li> <li>2.5% per annum for Elcalation.</li> </ol>	<ol> <li>1.5% per annum for Auto COLA.</li> <li>2.5% per annum for Elcalation.</li> </ol>	1.3% per annum
<ol> <li>Under this actuarial cost method, Method are the same as those th:</li> </ol>	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.	f June 30, 1999, by the Entry Age Actuaria Actuarial Cost Method.	I Cost Method but with the unfunded act	uarial accrued liability (UAAL) not less th	an \$0. The financial results using this Fro	zen Initial Liability Actuarial Cost



4 In the June 30, 2009 actuarial valuation, the tables adopted by the Board of Trustees during Fiscal Year 2006 were supplemented by additional assumptions adopted by the Board of Trustees during Fiscal Year 2011 for valuing benefits payable to Tier 3 active members.

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.

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

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

### SCHEDULE OF INVESTMENT RETURNS

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

Fiscal Year Ended	Weighted Rate of Return
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 2013.

### SCHEDULE OF INVESTMENT EXPENSES

	FUND MANAGER	CATEGORY	AMOUNT (IN \$)
1	Fixed Investment Expenses:		
-	Apollo Investment Ed VIII	Alternative Invt Equity	206,541.42
	Ardian - ASF VII	Alternative Invt Equity	13,942.00
			73,816.00
	Ardian Capital Bridgepoint Advisors LTD	Alternative Invt Equity Alternative Invt Equity	101,925.10
	Carlyle Ptnrs VI		361,502.13
	Centerbridge	Alternative Invt Equity Alternative Invt Equity	38,655.00
	Crestview Ptnrs II	Alternative Invt Equity	112,004.00
	CVC Capital	Alternative Invt Equity	357,247.15
	Equity VII	Alternative Invt Equity	255,221.82
	Landmark	Alternative Invt Equity	6.95
	Mesirow Partners Fund III	Alternative Invt Equity	2.15
	Mesirow Partners Fund IV	Alternative Invt Equity	47,563.18
	Mesirow Partners Fund V	Alternative Invt Equity	251,423.73
	Mill City Capital II	Alternative Invt Equity	18,318.76
	New Main Stream Capital II	Alternative Invt Equity	25,355.86
	New York Fairview	Alternative Invt Equity	268,191.58
	Patriot Partners II	Alternative Invt Equity	92,615.02
	Platinum Eq Cap Ptnrs III	Alternative Invt Equity	170,220.39
	Raine Group LLC	Alternative Invt Equity	160,440.00
	Siris Capital	Alternative Invt Equity	40,610.00
	Stellex Partners	Alternative Invt Equity	89.200.00
	Valor Equity Partners	Alternative Invt Equity	184,154.00
	Vista Equity Partners Fund V, L.P.	Alternative Invt Equity	550,900.00
	Vista Equity Partners Fund VI, L.P.	Alternative Invt Equity	20,198.00
	Warburg Pincus XI	Alternative Invt Equity	108,332.92
	Warburg Pincus XII	Alternative Invt Equity	238,256.98
	WCAS XII	Alternative Invt Equity	34,874.00
	Webster Capital III	Alternative Invt Equity	22,062.00
			\$ 3,843,580.14
	Prudential Privest	Alternative Invt FI	<u>\$ (4,448.13)</u>
	Blackstone	Alternative Invt Real Estate	454,386.00
	Blackstone Real Estate	Alternative Invt Real Estate	169,757.00
	Brookfield Asset Management	Alternative Invt Real Estate	25,759.87
	Brookfield Infr Fd II	Alternative Invt Real Estate	107,635.31
	Brookfield Stra Re Ptnrs	Alternative Invt Real Estate	99,804.00
	Caryle Realty Partners	Alternative Invt Real Estate	338,994.00
	Emmes Asset Mgmt Co	Alternative Invt Real Estate	112,912.00
	First Reserve Energy	Alternative Invt Real Estate	154,608.00
	Franklin Templeton Fd	Alternative Invt Real Estate	223,021.13
	Global Infrastructure Mgmt LLC	Alternative Invt Real Estate	93,843.00
	Hudson Separate Account	Alternative Invt Real Estate	32,961.93
	Industry Funds Management Pty	Alternative Invt Real Estate	841.61
	Jamestown Premier Funds	Alternative Invt Real Estate	210.03
	KKR Global Infra	Alternative Invt Real Estate	221,811.00
	Lasalle US Property Fd	Alternative Invt Real Estate	267,493.27
	RFM NYCRS Sandy LLC	Alternative Invt Real Estate	227,342.75
	Tristan European Property Inv	Alternative Invt Real Estate	37.32
	UBS Trumbull Property Fd	Alternative Invt Real Estate	452,245.93
			<u>\$ 2,983,664.15</u>

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

FUND MANAGER	CATEGORY	AMOUNT (IN \$)
Affinity Invt Advisors	Equity	86,719.78
Clarkston SMID	Equity	86,122.04
Herndon Capital/PIM ATLANTA LIFE	Equity	36,031.83
Nicholas Asset Mgmt	Equity	14,614.39
Redwood Investments	Equity	89,217.15
Blackrock	Equity	2,377.00
Bowling Portfolio Mgmt	Equity	37,335.32
Channing SVC	Equity	126,703.21
Daruma	Equity	4.02
Emon Transition	Equity	2.26
FIS - Eudaimonia	Equity	36,275.27
Hahn Capital Management LLC	Equity	28,359.73
High Pointe	Equity	29,834.52
Huber Capital Management	Equity	28,123.01
Martin Invt Mgmt	Equity	89,734.01
Nicholas Inv Par	Equity	69,062.33
Nichols SCG	Equity	77,063.94
Piermont SCV	Equity	128,151.29
PIM Lombardia Capital Partners	Equity	21,415.59
Rice Hall SCG	Equity	70,638.58
Seizart Capital Partners	Equity	35,429.08
Wellington Mgmt MCC	Equity	734,677.41
Zevenbergen	Equity	5.16
Zevenbergen	Equity	\$ 1,827,896.92
Blackrock	Fixed Income	112,858.52
Loomis Sayles	Fixed Income	360,088.34
Prudential Credit	Fixed Income	123,787.70
Security Lending	Fixed Income	346,747.87
Shenkman	Fixed Income	374,584.53
State Street	Fixed Income	55,584.98
Taplin Canada	Fixed Income	88,110.84
		\$ 1,461,762.78
Acadian EAFE Small Cap MTA	Intl Equity	1,455,429.07
Ballie Group Trust	Intl Equity	655,872.57
Cony Grp Acadian	Intl Equity	305,353.23
prucegrove	Intl Equity	782,300.33
		\$ 3,198,955.20
Blackrock R 1000 Growth	Mutual Fund Equity	25,285.02
Blackrock R 1000 Value	Mutual Fund Equity	27,983.71
Blackrock R 2000 Growth	Mutual Fund Equity	1,133.34
Blackrock R 2000 Value	Mutual Fund Equity	967.03
		<u>\$                                    </u>
Babson BL MTA	Mutual Fund Fixed Income	<u>\$ 105,865.65</u>
ETI II - ACS	Mutual Fund Mortgage	12,057.67
ETI CCD PPAR	Mutual Fund Mortgage	0.63
AFL-CIO Housing Inv Trust	Mutual Fund Mortgage	62,914.73
-		\$ 74,973.03
PIMCO TIPS MTA	TIPS	20.09
State Street TIPS MTA	TIPS	4,767.13
		\$ 4,787.22
	Sub total	<u>\$13,552,406.06</u>

# Additional Supplementary Information Fiscal Year Ended June 30, 2016 (In thousands) (Cont'd)

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

2	Legal Fees			
	Blackstone Real Estate Partners VII			1,375.00
	Bryan Cave			961.54
	Cox, Castle & Nicholson			5,242.57
	Daruma Asset Mgt Inc.			46,323.30
	Day Pitney			5,517.11
	Foster Pepper			12,560.58
	Morgan Lewis & Bockius			4,869.07
	Nixon Peabody			1,438.14
	Pillsbury Winthrop Shaw Pittman			989.50
	Reinhart Boerner Van Deuren			4,343.41
	Seward & Kissel			56.76
		Sub total	\$	83,676.98
3	Consultant Fees			
3	Buck Consultants LLC			85,000.00
	Segal Rogerscasey			94,999.98
	Courtland Partners			10.249.61
	Hamilton Lane			175,000.00
	Prudential			165,340.00
	Stepstone - Infrastructure			10,000.00
	Townsend Group			27,868.67
	Institional Shareholder Services			602.59
	Abel/Noser Corp			1,638.90
	Global Trading Analytics			329.70
		Sub total	\$	571,029.45
4	Variable Investment Expenses			~~ ~ ~ ~ ~ ~
	Qualified Pension Plan			89,013.88
	Tax - Deferred Annuity	0.6444		702,328.74
		Sub total		791,342.62
Inve	sment Expenses FY 16		\$1	4,998,455.11

EINANCIAL

#### SCHEDULE OF DIRECT PAYMENTS TO CONSULTANTS

INDIVIDUAL OR FIRM NAME	NATURE OF SERVICES	AMOUNT
<b>Buck Consultants, LLC</b> 485 Lexington Avenue New York, NY 10017	Investment Consultation	\$ 85,000.00
<b>Prudential Insurance Co.</b> 200 Wood Ave South Iselin, NJ 08830	Investment Consultation	165,340.00
Segal Rogerscasey 333 West 34th Street New York, NY 10001	Investment Consultation	94.999.98
<b>Gary Tunnicliffe &amp; Jack Ziegler, LLC</b> 321 Union Street, #4A Brooklyn, NY 11231	CPMS Consultants*	596,160.00
Vitech Systems Group, Inc. 401 Park Avenue South, 12th Floor New York, NY 10016	CPMS Consultants	4,119.250.00
Winmill Software P.O. Box 4595 New York, NY 10163	CPMS Consultants	228,750.00

**Total Consulting Fees for FY 2016** 

\$ 5,289,499.98

\* CPMS - Comprehensive Pension Management System

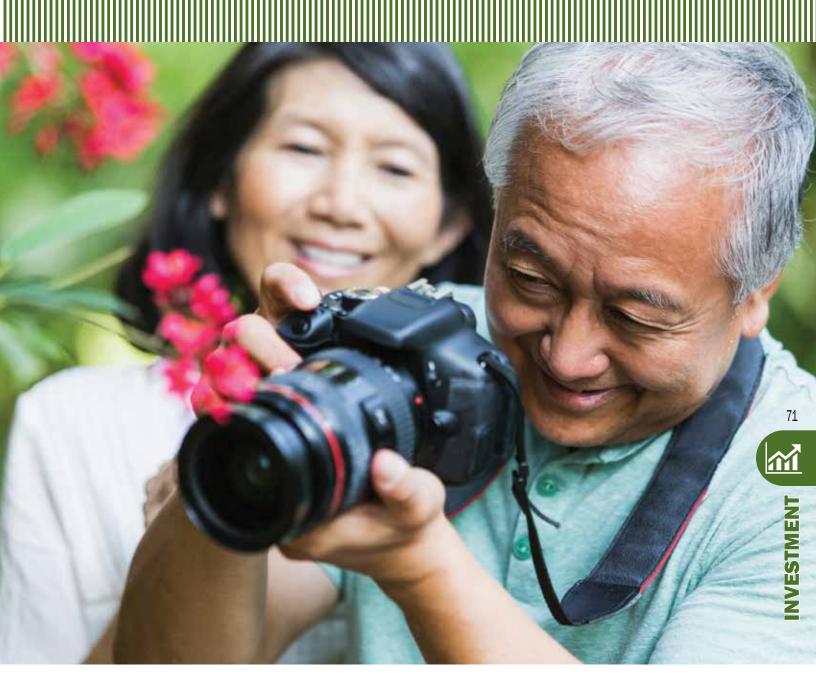
#### SCHEDULE OF ADMINISTRATIVE EXPENSES

(In thousands)

	EXPENSE TYPE		AMOUNT
1	Administrative Expenses (QPP):		
	Salaries paid to Plan Personnel		\$ 8,249,240
	Consumable Supplies and Materials		95,192
	Furniture and Equipment		326,570
	General Services		120,289
	Contractual services		 4,027,193
	Su	ub-Total	\$ 12,818,483
2	Administrative Expenses (TDA): Contractual services Su	ub-Total	\$ 850,108 <b>850,108</b>
3	Miscellaneous Expenses:		
		ub-Total	\$ 1,032,975
	(Adm expenses made by the Comptroller on our behalf.		
	Charged on investment)		
	Total Administrative Expenses for FY 2016		\$ 14,701,566



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# **INVESTMENT**

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333 West 34th Street New York, NY 10001-2402 T 212.251.5061 www.segalrc.com

October 25, 2016

New York City Board of Education Retirement System (BERS) 65 Court Street Brooklyn, NY 11201

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 +0.17%, net of fees, for the Fiscal Year (FY) ending June 2016, compared to +0.75% for the Board of Education Policy Benchmark<sup>1</sup>, against which it is measured. Performance for the FY ranked in the third quartile of a peer group of public funds. The Fund increased in value and ended the fiscal year at \$4.50 billion (compared to \$4.40 billion last year). Over the 10-year time period, the Fund remains ahead of benchmark, with a +6.31% average annual return versus +6.10% for the benchmark. Longer term, this 10-year performance ranks in the top quartile of a peer group.

#### **Economic and Market Comment**

Slow growth and low interest rates continued through this fiscal year. These conditions are not favorable for strong portfolio performance. In addition, uncertainty around the U.S. election and the vote in the UK to exit from the European Union were cited as reasons why the U.S. and non U.S. stock markets were not as strong as in prior years. On the economic front, the dramatic decline in energy prices, while a positive for consumers was a major headwind impacting both energy company capital spending and the economies of many emerging market countries.

Investment Solutions. Offices in the United States, Canada and Europe. Member of The Segal Group

GIRA Founding Member of the Global Investment Research Alliance

<sup>&</sup>lt;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 Plan. The Policy Benchmark as of 6/30 consisted of: 42.26% Russell 3000, 17% MSCI EAFE, 5% MSCI Emerging Markets, 2.91% Russell 3000 + 300bps, 2.83% NFI ODCE Net + 100bps, 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.

New York City Board of Education Retirement System (BERS) Report on Investment Activity October 25, 2016 Page 2

Real U.S. GDP grew at an annualized rate of 1.2% thru June 30, 2016. Positive contributors to GDP included personal consumption expenditures (PCE) and exports. At its June meeting, the Federal Open Market Committee (FOMC) stated the following:

- > Economic activity has been expanding at an accelerated pace;
- > The labor market has slowed with diminishing employment gains;
- > Household spending has increased;
- Inflation remained below the Federal Reserve (Fed)'s 2% objective due to decreased energy prices and lower-priced non-energy imports, but is expected to rise to 2% over the medium term;
- > The Federal Funds Rate will remain between 0.25% and 0.50%; and,
- > To maintain an accommodative policy, the Fed will continue reinvesting principal payments from holdings of agency debt and agency-mortgage-backed securities, and will keep rolling over maturing Treasury securities at auction.

Despite expectations at the beginning of the year, the Fed has not raised interest rates to date in 2016. In June 2016, the European Central Bank held its target refinancing rate at 0%, its marginal lending rate at 0.25% and its deposit rate at -0.40%. The Bank of Japan (BoJ) maintained its quantitative and qualitative easing policy of purchasing Japanese government bonds (JGBs), with the goal of increasing the monetary base and to lower their rates.

The headline seasonally adjusted Consumer Price Index (CPI)\* was up +0.84% in Q2, and increased +1.05% on a YoY basis. Seasonally adjusted Core CPI, which excludes food and energy prices, rose 0.575% in Q2, bringing the YoY core CPI increase to 2.23%. On an unadjusted 12-month basis ending June 2016, the energy component fell the most at -9.4%. Commodities less food and energy commodities were also slightly negative. Food and services less energy services were both positive.

The U.S. stock market, as measured by the Russell 3000 stock index, returned +2.14%, well below the strong returns in the prior two fiscal years. International equity performance continued in the negative territory for the FY, as the MSCI EAFE posted a loss of -9.7%. This is not surprising given their more direct vulnerability to fiscal concerns in Europe and the potential for economic instability in Asia. Fixed income returns were positive as interest rates have generally declined with the Barclays Aggregate Index, which represents a proxy of investment-grade bonds, returning +6.0% for the fiscal year.

New York City Board of Education Retirement System (BERS) Report on Investment Activity October 25, 2016 Page 3

#### 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. During the FY, a revised investment policy was approved that increased the allocation to Private Equity, Real Estate and Infrastructure while reducing U.S. equities and developed market non US equities. These are long term commitments expected to improve the risk and return profile of the fund. We expect that they will be phased in over several fiscal years as attractive investment opportunities are approved. The fund's new target asset mix going forward will be 72% Equity (including the Private and Public equities, Real Estate and Infrastructure) and 28% Fixed Income. Over the long-term investment future, we expect our revised equity allocation will outperform fixed income by a significant margin.

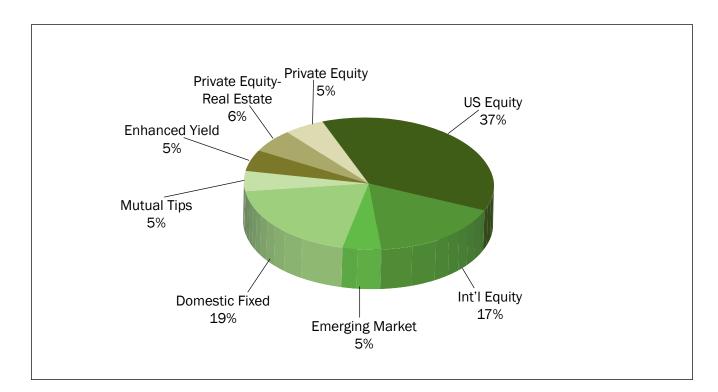
For the FY ending June 2016, the total Fixed Income return of 4.5% outperformed the U.S. and non-U.S. public equity returns. Total Equity returns were -1.6% in FY 2016 and were particularly responsible for the Fund's underperformance versus expectations. The fund is primarily invested in index funds for the U.S. equity allocation, which helped relative performance. The active US and non US equity managers did not add the expected levels of outperformance during the FY. 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 2016 as the Private Equity. Real Estate and Infrastructure investments did well for the Fund. However, the current allocation to those sectors is not large enough to offset the underperformance elsewhere in the portfolio.

The expectation is that global growth will be inconsistent across market sectors and certain geographic areas. We will be implementing the approved diversifications and rebalancing the fund to mitigate the volatility from these dislocations and improve the consistency of outcomes for the fund. Market conditions and fund performance will be closely monitored to accomplish the goal of providing he benefits as promised to participants.

Sincerely,

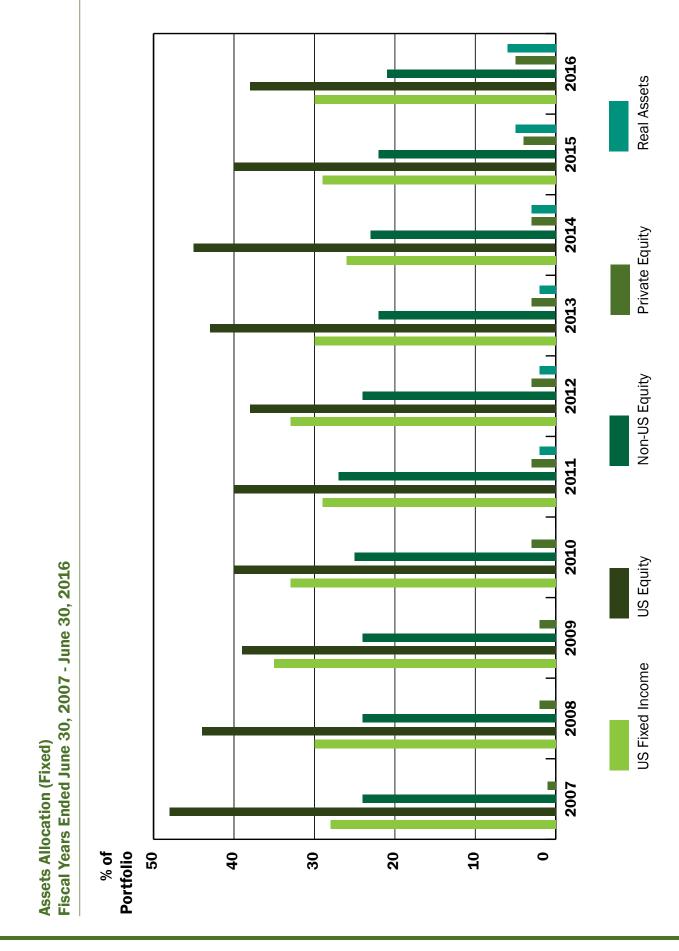
Michael C. Wright

20071755v1/14358.001



Years	US Equity	Int'l Equity	Emerging Market	Domestic Fixed	Mutual TIPS	Enhanced Yield	Private Equity- Real Estate	Private Equity
6/30/2007	47.90	19.30	4.50	20.40	2.80	4.40	0.00	0.70
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





# Investment Summary (Fixed and Variable) Fiscal Year Ended June 30, 2016 (In thousands)

Type of Investments	Fair Value	Percentage
Short Term Investments	\$ 113,900	2.10%
Debt Securities	890,152	16.39
Promissory Notes	-	-
Equity Securities	726,951	13.39
Alternative Investments	506,922	9.34
Collective Trust Funds		
International Equity	942,911	17.36
Domestic Equity	1,401,665	25.81
Mortgage Debt Security	28,956	0.53
Treasury Inflation-Protected Securities	218,608	4.03
Fixed Income	106,684	1.96
Total Collective Trust Funds	2,698,824	49.70
Collateral From Securities Lending	493,265	9.08
Total Investments	<u>\$ 5,430,014</u>	100.00%

> Schedule of Investment Returns (Fixed) Annualized Investments Results (Unaudited) Fiscal Year Ended June 30, 2016

	Apr-16 Jun-16 %	Jan-16 Jun-16 %	LTT Jul-15 %	3 YFS Jul-13 %	o yrs Jul-11 Jun-16 %	10 Yrs Jul-06 Jun-16 %
<b>U.S. Equities</b> Russell 3000 Index	<b>2.53</b> 2.63	<b>3.31</b> 3.62	<b>1.37</b> 2.14	<b>11.27</b> 12.56	<b>11.23</b> 11.60	<b>7.35</b> 7.40
Total International Equities Intil Equities Developed Markets	-0.14	-0.34	-11.25	-3.03	1.22	3.79
	-2.79	-6.65	-15.43	-5.39	0.05	0.21
MSCI Emerging Markets Free	0.66	6.41	-12.05	-2.19	-3.78	3.54
Total Equities - Public & Private						
U.S. Fixed Income	3.05	6.30	4.60	6.69	4.86	6.23
Securities lending			·	·		
Short-term Investments	0.13	0.33	0.47	0.28	0.42	1.67
	2.11	3.44	0.41	6.64	6:9	6.31

Yield data were obtained from the NYCBERS Performance Overview as of June 30, 2016

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.

## List of 50 Largest Equity Holdings (Fixed) Fiscal Year Ended June 30, 2016

NAME OF EQUITY HOLDINGS	COST	 FAIR VALUE
1 GENPACT LTD COMMON STOCK USD.01	\$ 2,089,763	\$ 3,418,262
2 MARKEL CORP COMMON STOCK	1,674,672	3,176,569
3 ADVANCE AUTO PARTS INC COMMON STOCK USD.0001	1,262,863	3,137,562
4 VANTIV INC CL A COMMON STOCK USD.00001	1,188,071	2,951,294
5 EQUIFAX INC COMMON STOCK USD1.25	1,034,156	2,891,825
6 LENNOX INTERNATIONAL INC COMMON STOCK USD.01	827,310	2,842,446
7 M & T BANK CORP COMMON STOCK USD.5	2,130,518	2,806,426
8 WASTE CONNECTIONS INC COMMON STOCK	2,518,410	2,770,250
9 IDEX CORP COMMON STOCK USD.01	1,519,724	2,481,308
10 GLOBAL PAYMENTS INC COMMON STOCK	1,981,959	2,465,322
11 NVR INC COMMON STOCK USD.01	929,890	2,451,528
12 METTLER TOLEDO INTERNATIONAL COMMON STOCK USD.01	1,967,231	2,395,700
13 UGI CORP COMMON STOCK	1,052,229	2,367,978
14 DENTSPLY SIRONA INC COMMON STOCK USD.01	1,554,389	2,344,678
15 AKAMAI TECHNOLOGIES INC COMMON STOCK USD.01	2,026,042	2,208,340
16 TRANSUNION COMMON STOCK USD.01	1,673,323	2,181,960
17 VERISIGN INC COMMON STOCK USD.001	1,085,350	2,060,515
18 TRIMBLE INC COMMON STOCK	2,196,595	2,033,134
19 NATIONAL INSTRUMENTS CORP COMMON STOCK USD.01	1,999,411	2,030,104
20 CARMAX INC COMMON STOCK USD.5	1,369,056	1,938,940
21 FACTSET RESEARCH SYSTEMS INC COMMON STOCK USD.01	1,154,745	1,918,638
22 ROBERT HALF INTL INC COMMON STOCK USD.001	1,360,764	1,903,917
23 WATERS CORP COMMON STOCK USD.001	1,180,700	1,885,976
24 FIRST REPUBLIC BANK/CA COMMON STOCK USD.01	866,111 1 505 756	1,850,536
25 GUIDEWIRE SOFTWARE INC COMMON STOCK USD.0001	1,595,756	1,833,284
26 HUNT (JB) TRANSPRT SVCS INC COMMON STOCK USD.01	1,536,801	1,824,486
27 AMPHENOL CORP CL A COMMON STOCK USD.001	1,028,567	1,816,788
28 ALLEGHENY CORP COMMON STOCK USD 1.0	1,050,700	1,811,416
29 PATTERSON COS INC COMMON STOCK USD.01	1,380,424	1,766,423
30 WEX INC COMMON STOCK USD.01	1,496,175	1,756,996
31 HARLEY DAVIDSON INC COMMON STOCK USD.01	1,336,123	1,733,631
32 TRIPADVISOR INC COMMON STOCK USD.001	1,523,168	1,677,651
33 ALKERMES PLC COMMON STOCK USD.01	1,124,092	1,674,775
34 GENESEE & WYOMING INC CL A COMMON STOCK USD.01	2,465,004	1,652,840
35 BALL CORP COMMON STOCK	1,575,093	1,606,573
36 UNIVERSAL HEALTH SERVICES B COMMON STOCK USD.01	921,192	1,566,422
37 CDW CORP/DE COMMON STOCK USD.01	1,339,229	1,554,062
38 QEP RESOURCES INC COMMON STOCK USD.01	1,538,370	1,547,985
39 ENERGEN CORP COMMON STOCK USD.01	1,963,837	1,543,732
40 MSCI INC COMMON STOCK USD.01	920,263	1,537,079
41 ALLISON TRANSMISSION HOLDING COMMON STOCK USD.01	1,158,695	1,505,365
42 WHITE MOUNTAINS INSURANCE GP COMMON STOCK USD1.0	1,051,934	1,495,392
43 NORTHERN TRUST CORP COMMON STOCK USD1.667	1,472,854	1,408,886
44 MSC INDUSTRIAL DIRECT CO A COMMON STOCK USD.001	1,322,386	1,360,820
45 NEWFIELD EXPLORATION CO COMMON STOCK USD.01	1,061,473	1,355,663
46 HARMAN INTERNATIONAL COMMON STOCK USD.01	2,120,773	1,328,095
47 SEI INVESTMENTS COMPANY COMMON STOCK USD.01	560,082	1,276,551
48 AMERCO COMMON STOCK USD.25	899,487	1,256,615
49 PATTERSON UTI ENERGY INC COMMON STOCK USD.01	1,119,492	1,235,281
50 FASTENAL CO COMMON STOCK USD.01	1,059,684	1,231,290
OTE: Full listing of holdings can be obtained at NYC Board of Education Retirement System		

65 Court Street, Room 1603, Brooklyn, NY 11201

## List of 50 Largest Bond Holdings (Fixed) Fiscal Year Ended June 30, 2016

NAME OF BOND HOLDINGS	PAR VAI	LUE FAIR VALUE
1 GNMA II TBA 30 YR 3.5 JUMBOS	\$ 26,903,6	\$56 \$ 26,989,761
2 FNMA TBA 30 YR 4 SINGLE FAMILY MORTGAGE	23,857,8	304 23,888,206
3 GNMA II TBA 30 YR 4 JUMBOS	22,575,4	188 22,606,021
4 GNMA II TBA 30 YR 3 JUMBOS	13,208,8	333 13,312,197
5 FNMA POOL A02974 FN 05/42 FIXED 3.5	10,321,9	905 10,377,622
6 FNMA POOL AS7245 FN 05/46 FIXED 3.5	10,259,8	
7 FNMA POOL 890720 FN 07/44 FIXED VAR	9,907,7	
8 FED HM LN PC POOL G08693 FG 03/46 FIXED 3.5	9,457,2	
9 GNMA POOL 736570 GN 03/40 FIXED 4.5	7,147,1	
10 US TREASURY N/B 08/23 2.5	6,478,0	
11 FNMA TBA 30 YR 4 SINGLE FAMILY MORTGAGE	7,137,7	
12 US TREASURY N/B 05/44 3.375	5,962,4	
13 FNMA POOL AT2720 FN 05/43 FIXED 3	6,912,5	
14 FNMA POOL AL7521 FN 06/39 FIXED VAR	6,785,8	
15 FNMA TBA 30 YR 3 SINGLE FAMILY MORTGAGE	6,701,0	
16 US TREASURY N/B 08/40 3.875	4,185,9	
17 US TREASURY N/B 08/22 1.625	5,554,7	
18 FNMA POOL AR9195 FN 03/43 FIXED 3	5,530,5	
19 FNMA TBA 30 YR 4.5 SINGLE FAMILY MORTGAGE	5,495,7	
20 FNMA POOL AS6880 FN 03/46 FIXED 3.5	5,280,5	
21 US TREASURY N/B 05/25 2.125	4,624,7	
22 US TREASURY N/B 02/43 3.125	3,813,6	
23 FED HM LN PC POOL Q38643 FG 02/46 FIXED 3.5	4,715,8	
23 FED HM EN FC FOOL Q38043 FG 02/40 FIXED 3.5 24 FHLMC TBA 30 YR 4 GOLD SINGLE FAMILY	4,695,6	
25 FNMA POOL AX2516 FN 10/29 FIXED 3.5	4,652,9	
26 US TREASURY N/B 08/24 2.375	4,052,5	
27 FANNIE MAE NOTES 09/24 2.625	3,819,8	
28 US TREASURY N/B 10/22 1.875	3,693,3	
29 FNMA POOL AS1091 FN 11/43 FIXED 4	3,611,8	
30 FNMA POOL AL5611 FN 08/44 FIXED VAR	3,290,8	
31 US TREASURY N/B 02/26 1.625	3,172,0	
32 FHLMC TBA 30 YR 4 GOLD SINGLE FAMILY	3,186,2	
33 US TREASURY N/B 02/22 2	3,056,0	
34 FNMA POOL BC4873 FN 03/46 FIXED 3.5	3,067,3	
35 US TREASURY N/B 12/21 2.125	2,928,9	
36 US TREASURY N/B 02/23 1.5	2,922,2	/
37 GNMA II POOL 004113 G2 04/38 FIXED 5	2,815,8	
38 FNMA POOL 725423 FN 05/34 FIXED VAR	2,909,9	
39 US TREASURY N/B 05/41 4.375	2,384,0	
40 ALCATEL LUCENT USA INC SR UNSECURED 03/29 6.45	1,908,2	
41 GNMA I TBA 30 YR 4.5 SINGLE FAMILY MORTGAGE	2,736,3	
42 US TREASURY N/B 11/43 3.75	2,162,0	
43 FNMA POOL AP9726 FN 10/42 FIXED 3	2,669,0	
44 FNMA TBA 30 YR 5 SINGLE FAMILY MORTGAGE	2,666,4	
45 FED HM LN PC POOL G60250 FG 10/45 FIXED 3.5	2,610,1	
46 US TREASURY N/B 02/40 4.625	1,933,8	
47 STRIP PRINC 11/21 0.00000	1,466,0	
48 FREDDIE MAC NOTES 05/20 1.375	2,585,1	
49 GNMA POOL 782386 GN 08/38 FIXED 5	2,556,2	
50 FNMA POOL AS2462 FN 05/29 FIXED 3	2,559,1	160 2,570,014
IOTE: Full listing of holdings can be obtained at		

NOTE: Full listing of holdings can be obtained at NYC Board of Education Retirement System 65 Court Street, Room 1603, Brooklyn, NY 11201



## List of 50 Largest International Equity Holdings (Fixed) Fiscal Year Ended June 30, 2016

NAME OF INT'L EQUITY HOLDINGS	COST	FAIR VAL
1 INDUSTRIA DE DISENO TEXTIL	\$ 11,013,319	\$ 17,498,20
2 SOFTBANK GROUP CORP	15,141,039	15,008,11
3 AIA GROUP LTD	9,895,923	13,906,57
4 M3 INC	7,307,441	13,678,08
5 SAMSUNG ELECTRONICS CO LTD	10,971,469	13,607,41
6 ARM HOLDINGS PLC	8,120,359	11,109,58
7 L'OREAL	7,153,103	10,149,11
8 ROLLS ROYCE HOLDINGS PLC	12,417,671	9,831,69
9 ATLAS COPCO AB A SHS	7,839,298	9,717,39
10 TENCENT HOLDINGS LTD	1,905,437	9,534,15
11 TOTAL SA	9,407,225	9,485,52
12 ROYAL DUTCH SHELL PLC B SHS	10,362,542	9,281,38
13 NOVARTIS AG REG	6,917,922	9,160,79
14 NESTLE SA REG	6,508,841	8,663,29
15 RAKUTEN INC	6,203,665	8,613,36
16 ZALANDO SE	9,158,027	7,707,29
17 UNITED OVERSEAS BANK LTD	8,766,248	7,505,24
18 ASML HOLDING NV	6,159,983	7,462,72
19 PRUDENTIAL PLC	5,256,658	7,254,73
20 CRH PLC	5,226,745	7,248,6
21 CHINA MOBILE LTD	6,346,202	7,139,8
22 JARDINE MATHESON HLDGS LTD	7,183,712	6,791,8
23 CHINA CONSTRUCTION BANK H	7,952,070	6,698,43
24 SVENSKA HANDELSBANKEN A SHS	5,984,681	6,497,08
25 KINNEVIK AB B	10,168,115	6,420,90
-		
26 NOVO NORDISK A/S B 27 HSBC HOLDINGS PLC	2,575,707	6,359,6
	10,804,070	6,330,1
28 FIAT CHRYSLER AUTOMOBILES NV	4,502,715	6,250,7
29 HONDA MOTOR CO LTD	8,406,568	6,230,2
30 CHINA MOBILE LTD	6,467,527	6,196,4
31 SWATCH GROUP AG/THE BR	7,977,693	5,928,22
32 SMC CORP	3,884,761	5,695,9
33 BOSKALIS WESTMINSTER	6,331,026	5,576,0
34 BANCO SANTANDER SA	11,100,533	5,483,94
35 TESCO PLC	10,865,670	5,468,43
36 DENSO CORP	5,776,468	5,290,84
37 KERING	4,946,502	5,002,80
38 BAYERISCHE MOTOREN WERKE AG	5,108,279	4,980,33
39 HON HAI PRECISION INDUSTRY	4,428,492	4,889,49
40 ANGLO AMERICAN PLC	8,377,899	4,816,79
41 LAFARGEHOLCIM LTD REG	7,224,934	4,782,1
42 GENMAB A/S	2,932,006	4,747,1
43 HONGKONG LAND HOLDINGS LTD	5,066,365	4,695,22
44 SHIN ETSU CHEMICAL CO LTD	4,645,589	4,678,24
45 CIE FINANCIERE RICHEMONT REG	4,326,461	4,641,3
46 TRAVIS PERKINS PLC	5,113,169	4,592,23
47 TENAGA NASIONAL BHD	3,124,242	4,554,5
48 SBM OFFSHORE NV	6,003,029	4,513,3
49 CARNIVAL PLC	3,508,185	4,431,4
50 BANK OF NOVA SCOTIA	4,729,678	4,342,2
E: Full listing of holdings can be obtained at		, - ·, -

NYC Board of Education Retirement System 65 Court Street, Room 1603, Brooklyn, NY 11201

## List of 50 Largest EAFE Investment Holdings (Fixed) Fiscal Year Ended June 30, 2016

NAME OF EAFE INVESTMENT HOLDINGS	COST	FAIR VALUE
	\$ 11,013,319	\$ 17,498,200
2 SOFTBANK GROUP CORP	15,141,039	15,008,118
3 AIA GROUP LTD	9,895,923	13,906,574
4 M3 INC	7,307,441	13,678,080
5 ARM HOLDINGS PLC	8,120,359	11,109,586
6 L'OREAL	7,153,103	10,149,116
7 ROLLS ROYCE HOLDINGS PLC	12,417,671	9,831,690
8 ATLAS COPCO AB A SHS	7,839,298	9,717,394
9 TENCENT HOLDINGS LTD	1,905,437	9,534,155
10 TOTAL SA	9,407,225	9,485,529
11 ROYAL DUTCH SHELL PLC B SHS	10,362,542	9,281,380
12 NOVARTIS AG REG	6,917,922	9,160,798
13 NESTLE SA REG	6,508,841	8,663,291
14 RAKUTEN INC	6,203,665	8,613,365
15 ZALANDO SE	9,158,027	7,707,294
16 UNITED OVERSEAS BANK LTD	8,766,248	7,505,244
17 ASML HOLDING NV	6,159,983	7,462,723
18 PRUDENTIAL PLC	5,256,658	7,254,736
19 CRH PLC	5,226,745	7,248,653
20 CHINA MOBILE LTD	6,346,202	7,139,852
21 JARDINE MATHESON HLDGS LTD	7,183,712	6,791,872
22 CHINA CONSTRUCTION BANK H	7,952,070	6,698,432
23 SVENSKA HANDELSBANKEN A SHS	5,984,681	6,497,083
24 KINNEVIK ABB	10,168,115	6,420,906
25 NOVO NORDISK A/S B	2,575,707	6,359,655
26 HSBC HOLDINGS PLC	10,804,070	6,330,124
27 FIAT CHRYSLER AUTOMOBILES NV	4,502,715	6,250,726
28 HONDA MOTOR CO LTD	8,406,568	6,230,272
29 CHINA MOBILE LTD	6,467,527	6,196,406
30 SWATCH GROUP AG/THE BR	7,977,693	5,928,226
31 SMC CORP	3,884,761	5,695,976
32 BOSKALIS WESTMINSTER	6,331,026	5,576,054
33 BANCO SANTANDER SA	11,100,533	5,483,948
34 TESCO PLC	10,865,670	5,468,432
35 DENSO CORP	5,776,468	5,290,844
36 KERING	4,946,502	5,002,862
37 BAYERISCHE MOTOREN WERKE AG	5,108,279	4,980,335
38 ANGLO AMERICAN PLC	8,377,899	4,816,790
39 LAFARGEHOLCIM LTD REG	7,224,934	4,782,164
40 GENMAB A/S	2,932,006	4,747,140
41 HONGKONG LAND HOLDINGS LTD	5,066,365	4,695,220
42 SHIN ETSU CHEMICAL CO LTD	4,645,589	4,678,249
43 CIE FINANCIERE RICHEMONT REG	4,326,461	4,641,337
44 TRAVIS PERKINS PLC	5,113,169	4,592,232
45 SBM OFFSHORE NV	6,003,029	4,513,360
46 CARNIVAL PLC	3,508,185	4,431,473
47 FERRARI NV	2,375,252	4,337,076
48 LLOYDS BANKING GROUP PLC	6,677,330	4,267,019
49 NOKIAN RENKAAT OYJ	3,959,925	4,233,656
50 BASF SE	5,069,675	4,115,127
IOTE: Full listing of holdings can be obtained at		

NOTE: Full listing of holdings can be obtained at NYC Board of Education Retirement System 65 Court Street, Room 1603, Brooklyn, NY 11201



## List of 50 Largest Emerging Market Investment Holdings (Fixed) Fiscal Year Ended June 30, 2016

<pre>\$ 10,971,469 4,428,492 3,124,242 3,204,555 4,183,714 4,181,146 3,174,844 4,320,157 3,450,603</pre>	\$ 13,607,41 4,889,493 4,554,524 4,206,076 3,971,05 3,948,914
3,124,242 3,204,555 4,183,714 4,181,146 3,174,844 4,320,157	4,554,520 4,206,070 3,971,053 3,948,914
3,204,555 4,183,714 4,181,146 3,174,844 4,320,157	4,206,070 3,971,05: 3,948,914
4,183,714 4,181,146 3,174,844 4,320,157	3,971,05 3,948,914
4,181,146 3,174,844 4,320,157	3,948,91
3,174,844 4,320,157	
4,320,157	2 0 4 0 0 0
	3,846,96
2 450 602	3,835,10
3,450,003	3,684,68
5,006,040	3,544,78
3,391,567	3,323,07
	3,256,66
	3,172,37
	3,097,71
	2,868,42
	2,761,51
	2,727,65
	2,721,24
	2,451,02
	2,430,63
	2,391,74
	2,362,74
	2,355,69
	2,227,78
	2,226,55
	2,167,59
	2,143,13
	2,129,60
	2,061,67
	2,052,72
	2,032,72
	2,011,16
	1,934,27
	1,928,77
	1,911,65
	1,883,67
	1,753,12
	1,724,31
	1,722,99
	1,600,25
	1,587,79
	1,560,28
	1,519,53
	1,497,53
1,398,235	1,463,93
1,347,022	1,439,93
1,326,714	1,437,15
2,091,794	1,412,40
1,425,954	1,327,81
2,268,404	1,320,76
	2,823,158 4,497,574 2,355,362 1,184,481 2,198,884 2,218,130 838,965 2,039,781 4,131,341 2,711,065 1,125,124 1,741,952 2,367,918 1,515,352 2,684,860 2,449,129 1,130,288 1,105,351 2,322,434 1,275,325 3,267,482 2,469,315 1,831,547 1,906,552 2,168,836 2,322,725 1,075,536 2,694,777 944,225 3,522,211 2,726,999 1,212,434 1,987,786 1,398,235 1,347,022 1,326,714 2,091,794 1,425,954

NOTE: Full listing of holdings can be obtained at NYC Board of Education Retirement System 65 Court Street, Room 1603, Brooklyn, NY 11201

NAME OF LARGEST TIPS HOLDINGS	PAR VALUE	FAIR VALUE
1 TIPS STATE STREET	\$ 213,313,964	\$ 218,588,417
2 TIPS PIMCO	3,979,234	19,812

NOTE: Full listing of holdings can be obtained at NYC Board of Education Retirement System 65 Court Street, Room 1603, Brooklyn, NY 11201

## List of 50 Largest Economically Targeted Investment Holdings (Fixed) Fiscal Year Ended June 30, 2016

NAME OF ECONOMICALLY TARGETED INVESTMENT HOLDINGS	PAR VALUE	FAIR VAL
1 AFL CIO HOUSING INV TRUST \$	15,462,258	\$ 16,013,24
2 BOA BANK OF AMERICA PPAR 1%	525,603	649,30
3 JPM CHASE- PPAR 1%	383,063	408,58
4 JPM CHASE- PPAR 1%	302,067	337,99
5 CCD CITIBANK NA PPAR 1%	264,918	297,25
6 BOA BANK OF AMERICA PPAR 1%	278,144	295,05
7 FNMA POOL AW0982	278,460	289,49
8 FNMA POOL AU1707	260,065	274,43
9 BOA BANK OF AMERICA PPAR 1%	258,681	271,67
10 LIIF LOW INCOME INVESTMENT FU 1%	234,833	261,77
11 FNMA POOL AU7004	241,473	248,76
12 FNMA POOL AV0680	213,168	221,49
13 GOVERNMENT NATIONAL MORTGAGE	211,719	212,59
14 FNMA POOL 466026	207,808	210,36
L5 FNMA POOL AU6719	192,956	200,46
L6 FNMA POOL AW3604	190,247	194,88
17 COMMUNITY PRESERVATION CORP.	173,434	184,13
18 JPM CHASE- PPAR 1%	167,357	182,90
19 FNMA POOL AV7745	171,021	178,78
20 FNMA POOL AB7800	168,840	169,30
21 FNMA POOL AW6468	161,940	167,28
22 GOVERNMENT NATIONAL MORTGAGE	162,620	162,2
23 LIIF LOW INCOME INVESTMENT FU 1%	137,500	147,08
24 JPM CHASE- PPAR 1%	128,500	145,5
25 CCD CITIBANK NA PPAR 1%	115,664	142,90
26 LIIF LOW INCOME INVESTMENT FU 1%	110,313	141,1
27 CCD CITIBANK NA PPAR 1%	115,958	140,90
28 CCD CITIBANK NA PPAR 1%	113,704	140,4
29 BOA BANK OF AMERICA PPAR 1%	126,224	138,94
30 FNMA POOL AV7090	134,162	137,5
31 CCD CITIBANK NA PPAR 1%	112,092	136,20
32 JPM CHASE- PPAR 1%	119,245	128,2
33 FNMA POOL AV3535	115,929	119,8
34 FHLMC MULTIFAMILY STRUCTURED P	117,589	119,1
35 FNMA POOL AW5048	112,804	115,8
36 GNMA POOL AF9426	110,808	113,3
37 JPM CHASE- PPAR 1%	98,912	111,8
38 BOA BANK OF AMERICA PPAR 1%	87,196	110,3
39 LIIF LOW INCOME INVESTMENT FU 1%	88,819	109,53
10 LIIF LOW INCOME INVESTMENT FU 1%	84,724	107,1
11 FNMA POOL 469393	105,332	105.7
12 FNMA POOL AU8082	98,002	103,8
I3 FNMA POOL AV1504	99,095	102,5
14 JPM CHASE- PPAR 1%	84,794	100,8
15 FNMA POOL AB7476	99,546	98,5
16 FNMA POOL AI3490	91,857	98,40
F FNMA POOL A03388	92,779	93,73
48 COMMUNITY PRESERVATION CORP.	84,848	91,82
49 FNMA POOL AK6714	88,956	91,12
50 LIIF LOW INCOME INVESTMENT FU 1%	85,385	90,18
E: Full listing of holdings can be obtained at	00,000	50,10

NYC Board of Education Retirement System 65 Court Street, Room 1603, Brooklyn, NY 11201 85

New York City Board of Education Retirement System

## Largest 50 Domestic Equity Holdings "Variable A" Program Fiscal Year Ended June 30, 2016

1 GMO- U.S. EQUITY ALLOCATION FUND IV       \$         2 GMO INTERNATIONAL EQUITY FUND OPEN-END FUND       \$         3 GMO- ASSET ALLOCATION BOND FUND III       \$         4 FPA CRESCENT FUND OPEN-END FUND       \$         5 APPLE INC       \$         6 MICROSOFT CORP       \$         7 EXXON MOBIL CORP       \$         8 JOHNSON & JOHNSON       \$         9 COMCAST CORP       \$         10 FACEBOOK INC       \$         11 GENERAL ELECTRIC CO       \$         12 BERKSHIRE HATHAWAY INC       \$         3 AT&XT INC       \$         14 UNITEDHEALTH GROUP INC       \$         15 PFIZER INC       \$         16 ALPHABET INC       \$         17 PROCTER & GAMBLE CO       \$         18 AMAZON.COM INC       \$         19 ALLERGAN PLC       \$         20 VERIZON COMMUNICATIONS INC       \$         21 JPMORGAN CHASE & CO       \$         22 AMGEN INC       \$         23 GMO CURRENCY HEDGED INTERNATIONAL BOND FUND       \$         24 WELLS FARGO & CO       \$         25 ALPHABET INC       \$         26 BIOGEN INC       \$         27 PHILIP MORRIS INTERNATIONAL INC       \$         28 MERCK &	<ul> <li>8,235,250</li> <li>7,787,418</li> <li>7,785,226</li> <li>5,919,435</li> <li>1,574,782</li> <li>3,578,565</li> <li>3,364,394</li> <li>2,430,931</li> <li>2,531,442</li> <li>1,717,660</li> <li>3,564,220</li> <li>2,147,227</li> <li>2,373,580</li> <li>1,531,214</li> <li>2,290,209</li> <li>1,635,120</li> <li>2,453,622</li> <li>579,317</li> <li>2,504,048</li> <li>2,081,320</li> <li>2,196,557</li> <li>1,897,365</li> <li>2,626,795</li> <li>2,855,536</li> <li>1,247,756</li> </ul>	<ul> <li>\$ 7,525,981</li> <li>6,812,531</li> <li>6,721,836</li> <li>6,088,227</li> <li>6,026,166</li> <li>5,463,604</li> <li>4,243,036</li> <li>4,108,462</li> <li>3,961,766</li> <li>3,658,749</li> <li>3,446,335</li> <li>3,320,472</li> <li>3,306,779</li> <li>3,222,757</li> <li>3,114,501</li> <li>3,091,357</li> <li>3,083,648</li> <li>3,043,403</li> <li>3,005,775</li> <li>2,919,324</li> <li>2,809,789</li> <li>2,730,331</li> <li>2,687,589</li> <li>2,668,208</li> </ul>
<ul> <li>3 GMO- ASSET ALLOCATION BOND FUND III</li> <li>4 FPA CRESCENT FUND OPEN-END FUND</li> <li>5 APPLE INC</li> <li>6 MICROSOFT CORP</li> <li>7 EXXON MOBIL CORP</li> <li>8 JOHNSON &amp; JOHNSON</li> <li>9 COMCAST CORP</li> <li>10 FACEBOOK INC</li> <li>11 GENERAL ELECTRIC CO</li> <li>12 BERKSHIRE HATHAWAY INC</li> <li>13 AT&amp;T INC</li> <li>14 UNITEDHEALTH GROUP INC</li> <li>15 PFIZER INC</li> <li>16 ALPHABET INC</li> <li>17 PROCTER &amp; GAMBLE CO</li> <li>18 AMAZON.COM INC</li> <li>19 ALLERGAN PLC</li> <li>20 VERIZON COMMUNICATIONS INC</li> <li>21 JPMORGAN CHASE &amp; CO</li> <li>22 AMGEN INC</li> <li>23 GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>24 WELLS FARGO &amp; CO</li> <li>25 ALPHABET INC</li> <li>27 PHILIP MORRIS INTERNATIONAL INC</li> <li>28 MERCK &amp; CO INC</li> <li>29 PEPSICO INC</li> <li>30 CHEVRON CORP</li> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDTRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>	7,785,226 5,919,435 1,574,782 3,578,565 3,364,394 2,430,931 2,531,442 1,717,660 3,564,220 2,147,227 2,373,580 1,531,214 2,290,209 1,635,120 2,453,622 579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	6,721,836 6,088,227 6,026,166 5,463,604 4,243,036 4,108,462 3,961,766 3,658,749 3,446,335 3,320,472 3,306,779 3,222,757 3,114,501 3,091,357 3,083,648 3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ul> <li>FPA CRESCENT FUND OPEN-END FUND</li> <li>APPLE INC</li> <li>MICROSOFT CORP</li> <li>EXXON MOBIL CORP</li> <li>JOHNSON &amp; JOHNSON</li> <li>COMCAST CORP</li> <li>JOHNSON &amp; JOHNSON</li> <li>COMCAST CORP</li> <li>FACEBOOK INC</li> <li>FACEBOOK INC</li> <li>ERKSHIRE HATHAWAY INC</li> <li>AT&amp;T INC</li> <li>UNITEDHEALTH GROUP INC</li> <li>FFIZER INC</li> <li>ALPHABET INC</li> <li>AMAZON.COM INC</li> <li>ALLERGAN PLC</li> <li>VERIZON COMMUNICATIONS INC</li> <li>JPMORGAN CHASE &amp; CO</li> <li>AMGEN INC</li> <li>SGMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>WELLS FARGO &amp; CO</li> <li>ALPHABET INC</li> <li>FIJPH MORRIS INTERNATIONAL INC</li> <li>BIOGEN INC</li> <li>PHILIP MORRIS INTERNATIONAL INC</li> <li>MERCK &amp; CO INC</li> <li>PEPSICO INC</li> <li>COCA-COLA CO</li> <li>ALTRIA GROUP INC</li> <li>CITIGROUP INC</li> <li>TITIGROUP INC</li> </ul>	5,919,435 1,574,782 3,578,565 3,364,394 2,430,931 2,531,442 1,717,660 3,564,220 2,147,227 2,373,580 1,531,214 2,290,209 1,635,120 2,453,622 579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	6,088,227 6,026,166 5,463,604 4,243,036 4,108,462 3,961,766 3,658,749 3,446,335 3,320,472 3,306,779 3,222,757 3,114,501 3,091,357 3,083,648 3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ul> <li>APPLE INC</li> <li>MICROSOFT CORP</li> <li>EXXON MOBIL CORP</li> <li>JOHNSON &amp; JOHNSON</li> <li>COMCAST CORP</li> <li>JOHNSON &amp; JOHNSON</li> <li>COMCAST CORP</li> <li>FACEBOOK INC</li> <li>GENERAL ELECTRIC CO</li> <li>BERKSHIRE HATHAWAY INC</li> <li>AT&amp;T INC</li> <li>UNITEDHEALTH GROUP INC</li> <li>FFIZER INC</li> <li>ALPHABET INC</li> <li>TPROCTER &amp; GAMBLE CO</li> <li>AMAZON.COM INC</li> <li>ALLERGAN PLC</li> <li>VERIZON COMMUNICATIONS INC</li> <li>JPMORGAN CHASE &amp; CO</li> <li>AMGEN INC</li> <li>GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>WELLS FARGO &amp; CO</li> <li>ALPHABET INC</li> <li>TPRILIP MORRIS INTERNATIONAL INC</li> <li>MERCK &amp; CO INC</li> <li>PEPSICO INC</li> <li>CHEVRON CORP</li> <li>WALT DISNEY CO</li> <li>ALTRIA GROUP INC</li> <li>COCA-COLA CO</li> <li>MEDTRONIC PLC</li> <li>CITIGROUP INC</li> </ul>	1,574,782 3,578,565 3,364,394 2,430,931 2,531,442 1,717,660 3,564,220 2,147,227 2,373,580 1,531,214 2,290,209 1,635,120 2,453,622 579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	6,026,166 5,463,604 4,243,036 4,108,462 3,961,766 3,658,749 3,446,335 3,320,472 3,306,779 3,222,757 3,114,501 3,091,357 3,083,648 3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ul> <li>MICROSOFT CORP</li> <li>EXXON MOBIL CORP</li> <li>JOHNSON &amp; JOHNSON</li> <li>COMCAST CORP</li> <li>JORCAST CORP</li> <li>FACEBOOK INC</li> <li>GENERAL ELECTRIC CO</li> <li>BERKSHIRE HATHAWAY INC</li> <li>AT&amp;T INC</li> <li>UNITEDHEALTH GROUP INC</li> <li>FFIZER INC</li> <li>ALPHABET INC</li> <li>AMAZON.COM INC</li> <li>ALLERGAN PLC</li> <li>VERIZON COMMUNICATIONS INC</li> <li>JPMORGAN CHASE &amp; CO</li> <li>AMGEN INC</li> <li>GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>WELLS FARGO &amp; CO</li> <li>ALPHABET INC</li> <li>IPHABET INC</li> <li>GBOGEN INC</li> <li>GHO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>WELLS FARGO &amp; CO</li> <li>ALPHABET INC</li> <li>GHO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>WELLS FARGO &amp; CO</li> <li>ALPHABET INC</li> <li>GHOGEN INC</li> <li>HILP MORRIS INTERNATIONAL INC</li> <li>MERCK &amp; CO INC</li> <li>PEPSICO INC</li> <li>CHEVRON CORP</li> <li>WALT DISNEY CO</li> <li>ALTRIA GROUP INC</li> <li>COCA-COLA CO</li> <li>MEDTRONIC PLC</li> <li>CITIGROUP INC</li> </ul>	3,578,565 3,364,394 2,430,931 2,531,442 1,717,660 3,564,220 2,147,227 2,373,580 1,531,214 2,290,209 1,635,120 2,453,622 579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	5,463,604 4,243,036 4,108,462 3,961,766 3,658,749 3,446,335 3,320,472 3,306,779 3,222,757 3,114,501 3,091,357 3,083,648 3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
7EXXON MOBIL CORP8JOHNSON & JOHNSON9COMCAST CORP10FACEBOOK INC11GENERAL ELECTRIC CO12BERKSHIRE HATHAWAY INC13AT&T INC14UNITEDHEALTH GROUP INC15PFIZER INC16ALPHABET INC17PROCTER & GAMBLE CO18AMAZON.COM INC19ALLERGAN PLC20VERIZON COMMUNICATIONS INC21JPMORGAN CHASE & CO22AMGEN INC23GMO CURRENCY HEDGED INTERNATIONAL BOND FUND24WELLS FARGO & CO25ALPHABET INC26BIOGEN INC27PHILIP MORRIS INTERNATIONAL INC28MERCK & CO INC29PEPSICO INC30CHEVRON CORP31WALT DISNEY CO32ALTRIA GROUP INC33COCA-COLA CO34MEDTRONIC PLC35CITIGROUP INC	3,364,394 2,430,931 2,531,442 1,717,660 3,564,220 2,147,227 2,373,580 1,531,214 2,290,209 1,635,120 2,453,622 579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	4,243,036 4,108,462 3,961,766 3,658,749 3,446,335 3,320,472 3,306,779 3,222,757 3,114,501 3,091,357 3,083,648 3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ul> <li>8 JOHNSON &amp; JOHNSON</li> <li>9 COMCAST CORP</li> <li>10 FACEBOOK INC</li> <li>11 GENERAL ELECTRIC CO</li> <li>12 BERKSHIRE HATHAWAY INC</li> <li>13 AT&amp;T INC</li> <li>14 UNITEDHEALTH GROUP INC</li> <li>15 PFIZER INC</li> <li>16 ALPHABET INC</li> <li>17 PROCTER &amp; GAMBLE CO</li> <li>18 AMAZON.COM INC</li> <li>19 ALLERGAN PLC</li> <li>20 VERIZON COMMUNICATIONS INC</li> <li>21 JPMORGAN CHASE &amp; CO</li> <li>22 AMGEN INC</li> <li>23 GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>24 WELLS FARGO &amp; CO</li> <li>25 ALPHABET INC</li> <li>26 BIOGEN INC</li> <li>27 PHILIP MORRIS INTERNATIONAL INC</li> <li>28 MERCK &amp; CO INC</li> <li>29 PEPSICO INC</li> <li>30 CHEVRON CORP</li> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>	2,430,931 2,531,442 1,717,660 3,564,220 2,147,227 2,373,580 1,531,214 2,290,209 1,635,120 2,453,622 579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	4,108,462 3,961,766 3,658,749 3,446,335 3,320,472 3,306,779 3,222,757 3,114,501 3,091,357 3,083,648 3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ul> <li>9 COMCAST CORP</li> <li>10 FACEBOOK INC</li> <li>11 GENERAL ELECTRIC CO</li> <li>12 BERKSHIRE HATHAWAY INC</li> <li>13 AT&amp;T INC</li> <li>14 UNITEDHEALTH GROUP INC</li> <li>15 PFIZER INC</li> <li>16 ALPHABET INC</li> <li>17 PROCTER &amp; GAMBLE CO</li> <li>18 AMAZON.COM INC</li> <li>19 ALLERGAN PLC</li> <li>20 VERIZON COMMUNICATIONS INC</li> <li>21 JPMORGAN CHASE &amp; CO</li> <li>22 AMGEN INC</li> <li>23 GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>24 WELLS FARGO &amp; CO</li> <li>25 ALPHABET INC</li> <li>26 BIOGEN INC</li> <li>27 PHILIP MORRIS INTERNATIONAL INC</li> <li>28 MERCK &amp; CO INC</li> <li>29 PEPSICO INC</li> <li>30 CHEVRON CORP</li> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>	2,531,442 1,717,660 3,564,220 2,147,227 2,373,580 1,531,214 2,290,209 1,635,120 2,453,622 579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	3,961,766 3,658,749 3,446,335 3,320,472 3,306,779 3,222,757 3,114,501 3,091,357 3,083,648 3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ul> <li>14 FACEBOOK INC</li> <li>15 FACEBOOK INC</li> <li>16 ALERAL ELECTRIC CO</li> <li>17 AT INC</li> <li>18 ATAT INC</li> <li>19 ALPHABET INC</li> <li>10 ALPHABET INC</li> <li>11 PROCTER &amp; GAMBLE CO</li> <li>18 AMAZON.COM INC</li> <li>19 ALLERGAN PLC</li> <li>20 VERIZON COMMUNICATIONS INC</li> <li>21 JPMORGAN CHASE &amp; CO</li> <li>22 AMGEN INC</li> <li>23 GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>24 WELLS FARGO &amp; CO</li> <li>25 ALPHABET INC</li> <li>26 BIOGEN INC</li> <li>27 PHILIP MORRIS INTERNATIONAL INC</li> <li>28 MERCK &amp; CO INC</li> <li>29 PEPSICO INC</li> <li>30 CHEVRON CORP</li> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDTRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>	1,717,660 3,564,220 2,147,227 2,373,580 1,531,214 2,290,209 1,635,120 2,453,622 579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	3,658,749 3,446,335 3,320,472 3,306,779 3,222,757 3,114,501 3,091,357 3,083,648 3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ol> <li>GENERAL ELECTRIC CO</li> <li>BERKSHIRE HATHAWAY INC</li> <li>AT&amp;T INC</li> <li>VINITEDHEALTH GROUP INC</li> <li>PFIZER INC</li> <li>ALPHABET INC</li> <li>ALPHABET INC</li> <li>AMAZON.COM INC</li> <li>ALLERGAN PLC</li> <li>VERIZON COMMUNICATIONS INC</li> <li>JPMORGAN CHASE &amp; CO</li> <li>AMGEN INC</li> <li>GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>WELLS FARGO &amp; CO</li> <li>ALPHABET INC</li> <li>BIOGEN INC</li> <li>PHILIP MORRIS INTERNATIONAL INC</li> <li>MERCK &amp; CO INC</li> <li>PEPSICO INC</li> <li>CHEVRON CORP</li> <li>WALT DISNEY CO</li> <li>ALTRIA GROUP INC</li> <li>GOCA-COLA CO</li> <li>MEDTRONIC PLC</li> <li>GTIGROUP INC</li> </ol>	3,564,220 2,147,227 2,373,580 1,531,214 2,290,209 1,635,120 2,453,622 579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	3,446,335 3,320,472 3,306,779 3,222,757 3,114,501 3,091,357 3,083,648 3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ol> <li>BERKSHIRE HATHAWAY INC</li> <li>AT&amp;T INC</li> <li>UNITEDHEALTH GROUP INC</li> <li>PFIZER INC</li> <li>ALPHABET INC</li> <li>ALPHABET INC</li> <li>PROCTER &amp; GAMBLE CO</li> <li>AMAZON.COM INC</li> <li>ALLERGAN PLC</li> <li>VERIZON COMMUNICATIONS INC</li> <li>JPMORGAN CHASE &amp; CO</li> <li>AMGEN INC</li> <li>GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>WELLS FARGO &amp; CO</li> <li>ALPHABET INC</li> <li>BIOGEN INC</li> <li>PHILIP MORRIS INTERNATIONAL INC</li> <li>MERCK &amp; CO INC</li> <li>PEPSICO INC</li> <li>CHEVRON CORP</li> <li>MALT DISNEY CO</li> <li>ALTRIA GROUP INC</li> <li>GOCA-COLA CO</li> <li>HEDTRONIC PLC</li> <li>CITIGROUP INC</li> </ol>	2,147,227 2,373,580 1,531,214 2,290,209 1,635,120 2,453,622 579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	3,320,472 3,306,779 3,222,757 3,114,501 3,091,357 3,083,648 3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ul> <li>AT&amp;T INC</li> <li>UNITEDHEALTH GROUP INC</li> <li>PFIZER INC</li> <li>ALPHABET INC</li> <li>PROCTER &amp; GAMBLE CO</li> <li>AMAZON.COM INC</li> <li>ALLERGAN PLC</li> <li>VERIZON COMMUNICATIONS INC</li> <li>JPMORGAN CHASE &amp; CO</li> <li>AMGEN INC</li> <li>GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>WELLS FARGO &amp; CO</li> <li>ALPHABET INC</li> <li>BIOGEN INC</li> <li>PHILIP MORRIS INTERNATIONAL INC</li> <li>MERCK &amp; CO INC</li> <li>PEPSICO INC</li> <li>CHEVRON CORP</li> <li>WALT DISNEY CO</li> <li>ALTRIA GROUP INC</li> <li>COCA-COLA CO</li> <li>MEDTRONIC PLC</li> <li>CITIGROUP INC</li> </ul>	2,373,580 1,531,214 2,290,209 1,635,120 2,453,622 579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	3,306,779 3,222,757 3,114,501 3,091,357 3,083,648 3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ul> <li>14 UNITEDHEALTH GROUP INC</li> <li>15 PFIZER INC</li> <li>16 ALPHABET INC</li> <li>17 PROCTER &amp; GAMBLE CO</li> <li>18 AMAZON.COM INC</li> <li>19 ALLERGAN PLC</li> <li>20 VERIZON COMMUNICATIONS INC</li> <li>21 JPMORGAN CHASE &amp; CO</li> <li>22 AMGEN INC</li> <li>23 GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>24 WELLS FARGO &amp; CO</li> <li>25 ALPHABET INC</li> <li>26 BIOGEN INC</li> <li>27 PHILIP MORRIS INTERNATIONAL INC</li> <li>28 MERCK &amp; CO INC</li> <li>29 PEPSICO INC</li> <li>30 CHEVRON CORP</li> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDTRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>	1,531,214 2,290,209 1,635,120 2,453,622 579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	3,222,757 3,114,501 3,091,357 3,083,648 3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ul> <li>15 PFIZER INC</li> <li>16 ALPHABET INC</li> <li>17 PROCTER &amp; GAMBLE CO</li> <li>18 AMAZON.COM INC</li> <li>19 ALLERGAN PLC</li> <li>20 VERIZON COMMUNICATIONS INC</li> <li>21 JPMORGAN CHASE &amp; CO</li> <li>22 AMGEN INC</li> <li>23 GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>24 WELLS FARGO &amp; CO</li> <li>25 ALPHABET INC</li> <li>26 BIOGEN INC</li> <li>27 PHILIP MORRIS INTERNATIONAL INC</li> <li>28 MERCK &amp; CO INC</li> <li>29 PEPSICO INC</li> <li>30 CHEVRON CORP</li> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDTRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>	2,290,209 1,635,120 2,453,622 579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	3,114,501 3,091,357 3,083,648 3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ul> <li>ALPHABET INC</li> <li>PROCTER &amp; GAMBLE CO</li> <li>AMAZON.COM INC</li> <li>ALLERGAN PLC</li> <li>VERIZON COMMUNICATIONS INC</li> <li>JPMORGAN CHASE &amp; CO</li> <li>AMGEN INC</li> <li>GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>WELLS FARGO &amp; CO</li> <li>ALPHABET INC</li> <li>BIOGEN INC</li> <li>BIOGEN INC</li> <li>PHILIP MORRIS INTERNATIONAL INC</li> <li>MERCK &amp; CO INC</li> <li>PEPSICO INC</li> <li>CHEVRON CORP</li> <li>WALT DISNEY CO</li> <li>ALTRIA GROUP INC</li> <li>GOCA-COLA CO</li> <li>TIGROUP INC</li> </ul>	1,635,120 2,453,622 579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	3,091,357 3,083,648 3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ul> <li>PROCTER &amp; GAMBLE CO</li> <li>AMAZON.COM INC</li> <li>ALLERGAN PLC</li> <li>VERIZON COMMUNICATIONS INC</li> <li>JPMORGAN CHASE &amp; CO</li> <li>AMGEN INC</li> <li>GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>WELLS FARGO &amp; CO</li> <li>ALPHABET INC</li> <li>BIOGEN INC</li> <li>BIOGEN INC</li> <li>PHILIP MORRIS INTERNATIONAL INC</li> <li>MERCK &amp; CO INC</li> <li>PEPSICO INC</li> <li>CHEVRON CORP</li> <li>WALT DISNEY CO</li> <li>ALTRIA GROUP INC</li> <li>GOCA-COLA CO</li> <li>TIGROUP INC</li> </ul>	2,453,622 579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	3,083,648 3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ul> <li>AMAZON.COM INC</li> <li>ALLERGAN PLC</li> <li>VERIZON COMMUNICATIONS INC</li> <li>JPMORGAN CHASE &amp; CO</li> <li>AMGEN INC</li> <li>GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>WELLS FARGO &amp; CO</li> <li>ALPHABET INC</li> <li>BIOGEN INC</li> <li>PHILIP MORRIS INTERNATIONAL INC</li> <li>MERCK &amp; CO INC</li> <li>PEPSICO INC</li> <li>CHEVRON CORP</li> <li>WALT DISNEY CO</li> <li>ALTRIA GROUP INC</li> <li>COCA-COLA CO</li> <li>MEDTRONIC PLC</li> <li>CITIGROUP INC</li> </ul>	579,317 2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	3,043,403 3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ol> <li>ALLERGAN PLC</li> <li>VERIZON COMMUNICATIONS INC</li> <li>JPMORGAN CHASE &amp; CO</li> <li>AMGEN INC</li> <li>GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>WELLS FARGO &amp; CO</li> <li>ALPHABET INC</li> <li>BIOGEN INC</li> <li>PHILIP MORRIS INTERNATIONAL INC</li> <li>MERCK &amp; CO INC</li> <li>PEPSICO INC</li> <li>CHEVRON CORP</li> <li>WALT DISNEY CO</li> <li>ALTRIA GROUP INC</li> <li>GOCA-COLA CO</li> <li>MEDTRONIC PLC</li> <li>CITIGROUP INC</li> </ol>	2,504,048 2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	3,005,775 2,919,324 2,809,789 2,730,331 2,687,589
<ul> <li>VERIZON COMMUNICATIONS INC</li> <li>JPMORGAN CHASE &amp; CO</li> <li>AMGEN INC</li> <li>GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>WELLS FARGO &amp; CO</li> <li>ALPHABET INC</li> <li>BIOGEN INC</li> <li>PHILIP MORRIS INTERNATIONAL INC</li> <li>MERCK &amp; CO INC</li> <li>PEPSICO INC</li> <li>CHEVRON CORP</li> <li>WALT DISNEY CO</li> <li>ALTRIA GROUP INC</li> <li>COCA-COLA CO</li> <li>MEDTRONIC PLC</li> <li>CITIGROUP INC</li> </ul>	2,081,320 2,196,557 1,897,365 2,626,795 2,855,536	2,919,324 2,809,789 2,730,331 2,687,589
<ol> <li>JPMORGAN CHASE &amp; CO</li> <li>AMGEN INC</li> <li>GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>WELLS FARGO &amp; CO</li> <li>ALPHABET INC</li> <li>BIOGEN INC</li> <li>PHILIP MORRIS INTERNATIONAL INC</li> <li>MERCK &amp; CO INC</li> <li>PEPSICO INC</li> <li>CHEVRON CORP</li> <li>WALT DISNEY CO</li> <li>ALTRIA GROUP INC</li> <li>GOCA-COLA CO</li> <li>MEDTRONIC PLC</li> <li>CITIGROUP INC</li> </ol>	2,196,557 1,897,365 2,626,795 2,855,536	2,809,789 2,730,331 2,687,589
<ul> <li>22 AMGEN INC</li> <li>23 GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>24 WELLS FARGO &amp; CO</li> <li>25 ALPHABET INC</li> <li>26 BIOGEN INC</li> <li>27 PHILIP MORRIS INTERNATIONAL INC</li> <li>28 MERCK &amp; CO INC</li> <li>29 PEPSICO INC</li> <li>30 CHEVRON CORP</li> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDTRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>	1,897,365 2,626,795 2,855,536	2,730,331 2,687,589
<ul> <li>23 GMO CURRENCY HEDGED INTERNATIONAL BOND FUND</li> <li>24 WELLS FARGO &amp; CO</li> <li>25 ALPHABET INC</li> <li>26 BIOGEN INC</li> <li>27 PHILIP MORRIS INTERNATIONAL INC</li> <li>28 MERCK &amp; CO INC</li> <li>29 PEPSICO INC</li> <li>30 CHEVRON CORP</li> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDTRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>	2,626,795 2,855,536	2,687,589
<ul> <li>24 WELLS FARGO &amp; CO</li> <li>25 ALPHABET INC</li> <li>26 BIOGEN INC</li> <li>27 PHILIP MORRIS INTERNATIONAL INC</li> <li>28 MERCK &amp; CO INC</li> <li>29 PEPSICO INC</li> <li>30 CHEVRON CORP</li> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDTRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>	2,855,536	
<ul> <li>25 ALPHABET INC</li> <li>26 BIOGEN INC</li> <li>27 PHILIP MORRIS INTERNATIONAL INC</li> <li>28 MERCK &amp; CO INC</li> <li>29 PEPSICO INC</li> <li>30 CHEVRON CORP</li> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDTRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>		0.660.000
<ul> <li>26 BIOGEN INC</li> <li>27 PHILIP MORRIS INTERNATIONAL INC</li> <li>28 MERCK &amp; CO INC</li> <li>29 PEPSICO INC</li> <li>30 CHEVRON CORP</li> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDTRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>	1 2/7 756	2,668,298
<ul> <li>27 PHILIP MORRIS INTERNATIONAL INC</li> <li>28 MERCK &amp; CO INC</li> <li>29 PEPSICO INC</li> <li>30 CHEVRON CORP</li> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDTRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>	1,241,1JU	2,534,685
<ul> <li>28 MERCK &amp; CO INC</li> <li>29 PEPSICO INC</li> <li>30 CHEVRON CORP</li> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDTRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>	2,629,047	2,420,137
<ul> <li>29 PEPSICO INC</li> <li>30 CHEVRON CORP</li> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDTRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>	1,358,436	2,285,908
<ul> <li>30 CHEVRON CORP</li> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDTRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>	1,647,339	2,252,554
<ul> <li>31 WALT DISNEY CO</li> <li>32 ALTRIA GROUP INC</li> <li>33 COCA-COLA CO</li> <li>34 MEDTRONIC PLC</li> <li>35 CITIGROUP INC</li> </ul>	1,401,753	2,163,039
32 ALTRIA GROUP INC 33 COCA-COLA CO 34 MEDTRONIC PLC 35 CITIGROUP INC	1,537,869	2,125,492
33 COCA-COLA CO 34 MEDTRONIC PLC 35 CITIGROUP INC	941,536	2,065,896
34 MEDTRONIC PLC 35 CITIGROUP INC	842,327	1,981,256
35 CITIGROUP INC	1,157,021	1,957,210
	1,074,092	1,939,762
	4,307,285	1,915,960
JU INTEL CORF	1,311,972	1,910,982
37 CISCO SYSTEMS INC	1,716,662	1,878,516
38 VISA INC	736,349	1,864,848
39 HOME DEPOT INC	677,049	1,846,065
40 BANK OF AMERICA CORP	4,429,829	1,767,686
41 ORACLE CORP	995,107	1,676,524
42 BRISTOL-MYERS SQUIBB CO	826,046	1,662,598
43 INTERNATIONAL BUSINESS MACHINES CORP	1,188,401	1,628,099
44 THERMO FISHER SCIENTIFIC INC	958,637	1,579,685
45 CELGENE CORP	931,666	1,564,653
46 GMO - QUALITY FUND-V	1,451,910	1,454,423
47 WAL-MART STORES INC	1,019,978	1,423,404
48 QUALCOMM INC	1,328,678	1,396,319
49 GILEAD SCIENCES INC	, ,	1,367,752
50 BROADCOM LTD	510,603	1,357,798
E: Full listing of holdings can be obtained at	510,603 806,719	

NYC Board of Education Retirement System 65 Court Street, Room 1603, Brooklyn, NY 11201



## Schedule of Payments of Commissions to Brokers Fiscal Year Ended June 30, 2016

INDIVIDUAL OR		COMMISSION	COMMISSION
BROKERAGE FIRM	<b># OF SHARES</b>	PAID	PER SHARE (in \$)
ABLE NOSER	3,002	81	0.027
ACADEMY SECURITIES INC	34,592	692	0.027
AGORA CORDE TITUL E VAL MOB	186,384	1,545	0.020
ALLEN & COMPANY LLC	3,339	134	0.040
AMERICAN PORTFOLIOS FINANIAL	370	19	0.040
	1,586	48	0.030
ASCENDIANT CAPITAL MARKETS, LLC		48 213	
AVONDALE PARTNERS LLC	6,263		0.034
B.RILEY & CO., LLC	13,616	344	0.025
BANCO SANTANDER CENTRAL HISPANO	3,644	204	0.056
BANK J.VONTOBEL UND CO. AG	7,554	2,610	0.346
BARCLAYS BANK PLC	3,007	26	0.009
BARCLAYS CAPITAL	232,013	689	0.003
BARCLAYS CAPITAL INC	296	9	0.030
BARCLAYS CAPITAL INC./LE	2,398,573	8,938	0.004
BARCLAYS CAPITAL LE	47,107	890	0.019
BARRINGTON RESEARCH ASSOCIATES	1,591	48	0.030
BB&T SECURITIES, LLC	14,862	470	0.032
BERENBERG	5,339	160	0.030
BLOOMBERG TRADEBOOK LLC	62,376	1,661	0.027
BMO CAPITAL MARKETS	8,336	175	0.021
BNP PARIBAS PRIME BROKERAGE, INC.	3,393	102	0.030
BNP PARIBAS SECURITIES SERVICE	1,962,907	2,456	0.001
BNP PARIBAS SECURITIES SERVICES	4,516	425	0.094
BNP PARIBAS SECURITIES SERVICES SA	57,462	1,620	0.028
BNY CONVERGEX EXECUTION SOLUTIONS LLC	2,456,286	12,097	0.005
BNY CONVERGEX LJR	354	7	0.020
BREAN CAPITAL LLC	15,616	559	0.036
BROADCORT CAPITAL CORP	605	12	0.020
BTIG, LLC	61,356	2,114	0.034
BUCKINGHAM RESEARCH GROUP INC	4,163	167	0.040
BURKE ANDQUICK PARTNERS LLC	183	6	0.035
CABRERA CAPITAL MARKETS	129,869	1,896	0.015
CACEIS BANK DEUTSCHLAND GMBH	5,963	1,862	0.312
CANACCORD GENUITY INC.	44,190	1,358	0.031
CANADIAN IMPERIAL BANK OF COMMERCE	51,681	1,040	0.020
CANTOR FITZGERALD & CO / CASTLEOAK SEC	32,881	658	0.020
CANTOR FITZGERALD & CO.	26,885	628	0.023
CANTOR FITZGERALD/CANTOR CLEARING SERV	333,357	1,000	0.003
CAPITAL INSTITUTIONAL SVCS INC EQUITIES	27,361	1,366	0.050
CHEEVERS & CO. INC.	392,574	6,676	0.017
CHINA FORTUNE SECURITIES.,LTD	217,896	665	0.003
CHINA INTERNATIONAL CAPITAL CORPORA	23,230	27	0.001
CIBC WORLD MKTS INC	8,517	264	0.031
CIMB SECURITIES (HK) LTD.	18,245	39	0.002
CITATION GROUP	30,344	1,515	0.050
CITIBANK N.A.	23,625	915	0.039
CITIBANK OF COLOMBIA	36,546	242	0.007
CITIGROUP GLOBAL MARKETS INC	1,995,984	7,253	0.004
CITIGROUP GLOBAL MARKETS INC	5,992,820	2,155	0.004
CITIGROUP GLOBAL MARKETS INC.	95,748	323	0.003
CITIGROUP GLOBAL MARKETS LIMITED CLSA AUSTRALIA PTY LTD	1,793,527	6,658	0.004
	369,264	1,876	0.005

# Schedule of Payments of Commissions to Brokers Fiscal Year Ended June 30, 2016 (Cont'd)

INDIVIDUAL OR		COMMISSION	COMMISSION
BROKERAGE FIRM	# OF SHARES	PAID	PER SHARE (in \$)
CLSA SINGAPORE PTE LTD.	3,587,069	6,658	0.002
COMPASS POINT RESEARCH & TRADING, LLC	12,706	504	0.002
CONVERGEX EXECUTION SOLUTIONS LLC	41,615	1,248	0.030
CONVERGEX LLC	6,342	221	0.035
COWEN AND COMPANY, LLC	70,755	2,359	0.033
CRAIG - HALLUM	66,815	1,959	0.029
CREDIT LYONNAIS SECURITIES (USA) INC	23,519	1,062	0.025
CREDIT LYONNAIS SECURITIES INDIA	1,857,083	17,690	0.043
CREDIT LYONNAIS SECONTILES INDIA	15,332,858	9,200	0.001
CREDIT RESEARCH & TRADING LLC	13,035	9,200 465	0.036
CREDIT SUISSE SECS INDIA PRIVATE LTD	13,090	354	0.027
CREDIT SUISSE SECS INDIA PRIVATE ETD	868,905	5,022	0.006
CREDIT SUISSE SECORTIES (EDROPE) LTD	7,645,212	13,047	0.002
CSI US INSTITUTIONAL DESK	8,162	286	0.035
CUTTONE &CO.	900	32	0.035
DAIWA SBCM EUROPE	16,124	250	0.035
DAIWA SECURITIES (HK) LTD.	181,862	65	0.000
DAIWA SECURITIES (IIK) LID. DAIWA SECURITIES AMERICA INC	130,127	1,693	0.013
DANSKE BANK A.S.			0.003
DANSKE DANK A.S. DAVIDSON D.A. & COMPANY INC.	308,752	1,051 247	0.003
DAVIDSON D.A. & COMPANY INC. DAVY STOCKBROKERS	9,057	932	0.027
	23,931	932 352	0.039
DBS VICKERS SECURITIES (SINGAPORE)	21,372		0.016
	793,386	2,871	0.004
DEUTSCHE BANK SECURITIES INC	12,448,835	17,576 520	0.001
DEUTSCHE SECURITIES ASIA LIMITED	481,965		
DOUGHERTY & COMPANY LLC	23,083	752 299	0.033
	10,065		0.030
	37,790	1,007	0.027
DSP MERRILL LYNCH LTD	442,176	1,021	0.002
FBN SECURITIES INC	632	25	0.040
FBR CAPITAL MARKETS & CO.	7,640	254	0.033
FEDERATED MANAGED GROWTH & INCOME 17 A7	275,006	2,062 49	0.007
FIDELITY CAPITAL MARKETS FIDELITY CLEARING CANADA ULC	2,451		0.020
	76,867	1,537	0.020
FIRST ANALYSIS SECURITIES CORP	1,638	49	0.030
GABELLI & COMPANY	4,263	171	0.040
GOLDMAN SACHS & CO	8,177,179	18,022	0.002
GOLDMAN SACHS & CO INTL.	106	8	0.076
GOLDMAN SACHS INTERNATIONAL	192,156	1,733	0.009
GUGGENHEIM CAPITAL MARKETS LLC	14,975	524	0.035
	5,232	105	0.020
HEIGHT SECURITIES, LLC	9,743	341	0.035
HONGKONG AND SHAGHAI BANKING CORPO	1,234,818 22,692	615	0.000
HSBC BANK BRASIL SA BANCO MULTIPLO	,	6	0.000
	588,756	3,229	0.005
	1,657,334	1,640	0.001
HSBC SECURITIES (USA) INC.	1,871,600	1,893	0.001
HSBC SECURITIES INDIA HOLDINGS	32,497	672 2 5 1 5	0.021
ICAP DO BRASIL DTVM LTDA	530,228	2,515	0.005
ICBC FINCL SVCS, EQUITY CLEARANCE	956 215 027	6	0.006
ICICI BROKERAGE SERVICES	215,937	432	0.002
IMPERIAL CAPITAL LLC	3,043	91	0.030

# 0F SHARES         PAID         PER SHARE (in s)           INDUSTRIAL AND COMMERCIAL BANK         4.389         128         0.029           INSTINET         4.357         2.6.32         0.012           INSTINET AUSTRALIA CLEARING SRVC PTY LTD         327,634         741         0.002           INSTINET PAUSTRALIA CLEARING SRVC PTY LTD         327,634         744         0.002           INSTINET PACIFIC LIMITED         9.633,480         7.505         0.001           INSTINET SINGAPORE SERVICES PT         1.877,618         1.851         0.001           INSTINET LK. LTD         9.683,014         19,783         0.002           INVESTMENT TECHNOLOGY GROUP ILD         892,766         7.158         0.008           INVESTMENT TECHNOLOGY GROUP ILD         892,766         7.158         0.006           ITG CANADA         11,648         72         0.006           ITG INC         11,753         126         0.011           ITG SECURITIES (HK) LTD         291,921         432         0.001           JP. MORGAN SECURITIES INC         20,657         446         0.022           JP. MORGAN SECURITIES INC         1.867,41         3,954         0.021           JP. MORGAN SECURITIES INC         22,606         845	INDIVIDUAL OR		COMMISSION	COMMISSION
INDUSTRIAL AND COMMERCIAL BANK         4.389         128         0.029           INSTINET         516,712         6.232         0.012           INSTINET AUSTRALIA CLEARING SRVC PTY LTD         327,634         741         0.002           INSTINET AUSTRALIA CLEARING SRVC PTY LTD         327,634         741         0.002           INSTINET FACIFIC LIMITED         9,633,480         7,505         0.001           INSTINET SINGAPORE SERVICES PT         1.877,618         1,973         0.002           INVESTMENT TECHNOLOGY GROUP INC.         731,810         7,133         0.010           INVESTMENT TECHNOLOGY GROUP ID         892,766         7,158         0.008           INVESTMENT TECHNOLOGY GROUP ID         892,766         7,158         0.001           INVESTMENT TECHNOLOGY GROUP ID         291,921         432         0.001           ITG CANADA         11,753         126         0.011           ITG INC         117,773         142         0.002           IP MORGAN SECURITIES INC         20,657         446         0.022           JP MORGAN SECURITIES INC         20,657         446         0.022           JN MORGAN SECURITIES INC         186,741         3.954         0.021           JP MORGAN SECURITIES INC		# OF SHARES		
INSTINET         516,712         6,232         0.012           INSTINET AUSTRALIA CLEARING SRVC PTY LTD         327,634         741         0.002           INSTINET FACIFIC LIMITED         9,633,480         7,505         0.001           INSTINET FACIFIC LIMITED         9,633,480         7,505         0.001           INSTINET SINGAPORE SERVICES PT         1,877,618         1,851         0.002           INVESTE BANK PLC         9,022,781         1,774         0.000           INVESTE BANK PLC         9,022,781         1,774         0.000           INVESTEMENT TECHNOLOGY GROUP LTD         892,766         7,158         0.008           ISI GROUP INC         67,763         1,362         0.021           INVESTEMENT TECHNOLOGY GROUP LTD         281,593         811         0.028           IG IG INC         11,648         72         0.006           IFG INC         281,593         811         0.028           IG SECURITIES INC         281,593         811         0.022           J.P. MORGAN SECURITIES INC         20,657         446         0.022           J.P. MORGAN SECURITIES INC         9,017         312         0.035           J.P. MORGAN SECURITIES INC         9,017         312         0.035				• •
INSTINET AUSTRALIA CLEARING SRVC PTY LTD         327,634         741         0.002           INSTINET LLC         212,797         449         0.002           INSTINET SINGAPORE SERVICES PT         1.877,618         1.9,783         0.001           INSTINET SINGAPORE SERVICES PT         1.877,618         1.9,783         0.002           INVESTMENT TECHNOLOGY GROUP INC.         731,810         7,193         0.010           INVESTMENT TECHNOLOGY GROUP INC.         731,810         7,138         0.002           INVESTMENT TECHNOLOGY GROUP INC         67,763         1.362         0.020           ITG CANADA         11,648         72         0.006           ITG CANADA         11,648         72         0.001           ITG SECURITIES (HK) LTD         291,921         432         0.001           ITG SECURITIES (HK) LTD         291,921         432         0.001           J.P. MORGAN SECURITIES (NC         2.0657         446         0.022           J.P. MORGAN SECURITIES (NC         20,657         446         0.022           J.P. MORGAN SECURITIES (NC         2.056         845         0.038           J.P. MORGAN SECURITIES (NC         270,344         934         0.000           J.P. MORGAN SECURITIES NC         1.86				
INSTINET LLC         212.797         449         0.002           INSTINET PACIFIC LIMITED         9,633.480         7,505         0.001           INSTINET SINGAPORE SERVICES PT         1.877,618         1.851         0.001           INSTINET U.K. LTD         9,683.014         19,783         0.002           INVESTEC BAIK PLC         9,022.781         1,774         0.000           INVESTMENT TECHNOLOGY GROUP INC.         731.810         7,193         0.010           INVESTMENT TECHNOLOGY GROUP LTD         892,766         7,158         0.008           ISI GROUP INC         67,763         1.362         0.020           ITG INC         11,648         72         0.006           ITG INC         11,648         72         0.006           ITG SECURITES (HK) LTD         291.921         432         0.001           JP MORGAN SECURITIES INC         20.657         446         0.022           JP. MORGAN SECURITIES INC         20.657         446         0.022           JP. MORGAN SECURITIES INC         186,741         3.954         0.021           JP. MORGAN SECURITIES INC         9.017         312         0.035           JP. MORGAN SECURITIES INC         9.017         312         0.032 <td></td> <td></td> <td></td> <td></td>				
INSTINET PACIFIC LIMITED         9.633.480         7.505         0.001           INSTINET SINGAPORE SERVICES PT         1.877.618         1.851         0.002           INVESTIKEN LVK. LTD         9.683.014         19.783         0.002           INVESTIKENT TECHNOLOGY GROUP INC.         731.810         7.193         0.010           INVESTMENT TECHNOLOGY GROUP INC.         731.810         7.158         0.008           ISI GROUP INC         67.763         1.362         0.020           ITG CANADA         11.648         72         0.006           ITG CANADA         11.753         1.26         0.011           ITG CANADA         291.921         432         0.001           J P. MORGAN SECURTITES (HK) LTD         291.921         432         0.001           J.P. MORGAN SECURTITES (INC         20.657         446         0.022           J.P. MORGAN SECURTITES (TAWAN) LTD         2.270.344         934         0.000           J.P. MORGAN SECURTITES (TAWAN) LTD         22.506         845         0.038           JANNEY MONTGOMERY, SCOTT INC         9.017         312         0.032           JANNEY MONTGOMERY, SCOTT INC         9.017         312         0.023           JPM DRGAN SECURTITES INC         169.781				
INSTINET SINGAPORE SERVICES PT         1.877.618         1.851         0.001           INSTINET U.K. LTD         9.683.014         19.783         0.002           INVESTEC BANK PLC         9.022.781         1.774         0.000           INVESTMENT TECHNOLOGY GROUP INC.         731,810         7.193         0.010           INVESTMENT TECHNOLOGY GROUP LTD         892,766         7.158         0.008           ISI GROUP INC         67.763         1.362         0.020           ITG CANADA         11.648         72         0.006           ITG INC         11.753         126         0.011           ITG INC         28.593         811         0.022           J.P. MORGAN SECURITES INC         20.657         446         0.022           J.P. MORGAN SECURITES INC         2.270,344         934         0.000           J.P. MORGAN SECURITES INC         186,741         3.954         0.021           J.P. MORGAN SECURITIES INC         186,741         3.954         0.021           J.P. MORGAN SECURITIES INC         278.306         5.306         0.019           JEFFERIES & COMPANY INC         278.306         5.306         0.021           JANNEY MONTGOMERY, SCOTT INC         9.017         312         0.032<		-		
INSTINET U.K. LTD         9,683,014         19,783         0.002           INVESTEC BANK PLC         9,022,781         1,774         0.000           INVESTMENT TECHNOLOGY GROUP INC.         731,810         7,193         0.010           INVESTMENT TECHNOLOGY GROUP LTD         892,766         7,158         0.002           ITG GANADA         11,648         72         0.006           ITG INC         285,993         811         0.022           ITG INC         291,921         432         0.001           JP MORGAN SECURITIES INC         20,657         446         0.002           JP. MORGAN SECURITIES INC         186,741         3,954         0.021           J.P. MORGAN SECURITIES INC         169,781         315         0.022           J.P. MORGAN SECURITIES INC         278,306         5,306         0.019           JEFFERIES INTERNATIONAL LTD         169,781         315				
INVESTEC BANK PLC         9.022,781         1.774         0.000           INVESTMENT TECHNOLOGY GROUP INC.         731,810         7,193         0.010           INVESTMENT TECHNOLOGY GROUP INC.         731,810         7,193         0.001           INVESTMENT TECHNOLOGY GROUP LTD         892,766         7,158         0.008           ISI GROUP INC         67,763         1.362         0.020           ITE CANADA         11,648         72         0.001           ITG INC.         28,593         811         0.028           ITG SECURTIES (HK) LTD         291,921         432         0.001           J.P. MORGAN SECURTIES (TAWAN) LTD         2,270,344         934         0.000           J.P. MORGAN SECURTIES (TAWAN) LTD         2,270,344         934         0.021           J.P. MORGAN SECURTIES (TAWAN) LTD         2,278,306         5.306         0.019           JEFFERIES & COMPANY INC         278,306         5.306         0.022           JANNEY MONTGOMERY, SCOT				
INVESTMENT TECHNOLOGY GROUP INC.         731.810         7.193         0.010           INVESTMENT TECHNOLOGY GROUP ITD         892,766         7.158         0.008           ISI GROUP INC         67,763         1.362         0.020           ITG CANADA         11,648         72         0.006           ITG INC         11,753         126         0.011           ITG INC.         28,593         811         0.028           ITG SECURITIES (HK) LTD         291,921         432         0.001           J.P. MORGAN SECURITIES INC         20,657         446         0.022           J.P. MORGAN SECURITIES INC         186,741         3,954         0.001           J.P. MORGAN SECURITIES INC         186,741         3,954         0.021           J.P. MORGAN SECURITIES INC         9,017         312         0.035           JANNEY MONTGOMERY, SCOTT INC         9,017         312         0.032           JMP SECURITIES         16,306         423         0.022           JMP SECURITIES         16,306         243         0.022           JMP SECURITIES         16,306         243         0.023           JOHNSCAN CICE & COMPANY LIC         18,557         522         0.028           JOHNSO				
INVESTMENT TECHNOLOGY GROUP LTD         892,766         7.158         0.008           ISI GROUP INC         67,763         1.362         0.020           ITG CANADA         11,648         72         0.006           ITG INC         11,753         126         0.011           ITG INC         28,593         811         0.028           ITG SECURITIES (HK) LTD         291,921         432         0.001           J P. MORGAN SECURITIES INC         20,657         446         0.022           J.P. MORGAN SECURITIES (TAWAN) LTD         2.270,344         934         0.000           J.P. MORGAN SECURITIES (TAWAN) LTD         2.270,344         934         0.001           J.P. MORGAN SECURITIES (TAWAN) LTD         2.270,344         934         0.021           J.P. MORGAN SECURITIES (NC.         186,741         3,954         0.021           J.P.MORGAN SECURITIES (NC.         9,017         312         0.035           JEFFERIES INTERNATIONAL LTD         169,781         315         0.002           JANEY MONTGOMERY, SCOTT INC         278,306         5,306         0.019           JEFFERIES INTERNATIONAL LTD         169,781         315         0.022           JAN SECURITIES INC         8,557         522			,	
ISI GROUP INC         67,763         1,362         0.020           ITG CANADA         11,648         72         0.006           ITG INC         11,753         126         0.011           ITG INC         28,593         811         0.028           ITG SECURTIES (HK) LTD         291,921         432         0.001           J P. MORGAN SECURTIES INC         20,657         446         0.022           J.P. MORGAN SECURTIES INC         20,657         446         0.022           J.P. MORGAN SECURTIES INC         20,657         446         0.022           J.P. MORGAN SECURTIES INC         186,741         3.954         0.021           J.P. MORGAN SECURTIES INC         186,741         3.954         0.021           J.P. MORGAN SECURTIES INC         9,017         312         0.035           JEFFERIES & COMPANY INC         278,306         5,306         0.019           JEFFERIES INTERNATIONAL LTD         169,781         315         0.022           JOH SECURTIES INC         16,306         423         0.026           JOH SECURTIES INC         18,557         522         0.023           JOH SECURTIES INC         19,857         522         0.028           JOHNSON RICE & CO				
ITG CANADA         11,648         72         0.006           ITG INC         11,753         126         0.011           ITG INC         28,593         811         0.028           ITG SECURITIES (HK) LTD         291,921         432         0.001           J P MORGAN SECURITIES INC         20,657         446         0.022           J.P. MORGAN CLEARING CORP.         777,046         4.302         0.006           J.P. MORGAN SECURITIES INC.         186,741         3,954         0.021           J.P.MORGAN SECURITIES INC.         186,741         3,954         0.021           J.P.MORGAN SECURITIES INC.         9,017         312         0.035           JEFFERIES & COMPANY INC         278,306         5,306         0.019           JEFFERIES INTERNATIONAL LTD         169,781         315         0.002           JNK SECURITIES INC         8,586         279         0.032           JOH SERENBERG GOSSLER AND CO         70,085         1,592         0.023           JOHNSON RICE & COMPANY LLC         18,557         522         0.028           JOHNSON RICE & COMPANY LLC         18,557         522         0.023           JOHNSON RICE & COMPANY LLC         1,093,361         4,578         0.004     <				
ITG INC         11,753         126         0.011           ITG INC.         28,593         811         0.028           ITG SECURITIES (HK) LTD         291,921         432         0.001           J P MORGAN SECURITIES INC         20,657         446         0.022           J.P. MORGAN SECURITIES (TAWAN) LTD         2,270,344         934         0.000           J.P. MORGAN SECURITIES (TAWAN) LTD         2,2506         845         0.038           JANNEY MONTGOMERY, SCOTT INC         9,017         312         0.035           JEFFERIES INTERNATIONAL LTD         169,781         315         0.002           JMP SECURTIES         16,306         423         0.026           JNK SECURTIES         16,306         423         0.026           JOH SECURTIES         8586         279         0.032           JOH BERENBERG GOSSLER AND CO         70,085         1,592         0.023           JOHNSON RICE & CO         9,080         268         0.029           JONESTRADING INSTITUTIONAL SERVICES LLC         121,661         2,635         0.022           JP MORGAN SECURITIES NV         63,628         1,231         0.0018           JPMORGAN SECURITIES NV         63,6446         0.001         1,993,361			,	
ITG INC.         28,593         811         0.028           ITG SECURTIES (HK) LTD         291,921         432         0.001           J P MORGAN SECURTIES INC         20,657         446         0.022           J.P. MORGAN SECURTIES (INWAN) LTD         2,270,344         934         0.000           J.P. MORGAN SECURITIES (INWAN) LTD         2,270,344         934         0.0021           J.P. MORGAN SECURITIES (FAR EAST)LTD SEOUL         22,506         845         0.038           JANNEY MONTGOMERY, SCOTT INC         9,017         312         0.035           JEFFERIES & COMPANY INC         278,306         5,306         0.019           JEFFERIES INTERNATIONAL LTD         169,781         315         0.002           JNK SECURTIES         16,306         423         0.026           JNK SECURTIES INC         8,586         279         0.032           JOHNSON RICE & COMPANY LLC         18,557         522         0.023           JOHNSON RICE & COMPANY LLC         12,661         2,635         0.022           JP MORGAN SECURTIES PLC         1,093,361         4,578         0.004           JP MORGAN SECURTIES NV         69,628         1,231         0.013           JPMORGAN SECURTIES NV         69,628 <t< td=""><td></td><td></td><td></td><td></td></t<>				
ITG SECURITIES (HK) LTD         291,921         432         0.001           J P MORGAN SECURITIES INC         20,657         446         0.022           J.P. MORGAN CLEARING CORP.         777,046         4,302         0.006           J.P. MORGAN SECURITIES (TAIWAN) LTD         2,270,344         934         0.000           J.P. MORGAN SECURITIES (TAIWAN) LTD         2,270,344         934         0.001           J.P. MORGAN SECURITIES INC.         186,741         3,954         0.021           J.P.MORGAN SECURITIES INC.         9,017         312         0.035           JANNEY MONTGOMERY, SCOTT INC         9,017         312         0.032           JAPN SECURITIES INC SCOTT INC         9,017         315         0.002           JMK SECURITIES INC SCOTT INC         9,017         315         0.002           JNK SECURITIES INC SCOTT INC         9,086         423         0.026           JNK SECURITIES INC SCOTT INC         8,586         279         0.032           JOHNSON RICE & CO         9,080         268         0.029           JOHNSON RICE & CO         9,080         268         0.029           JONESTRADING INSTITUTIONAL SERVICES LLC         121,661         2,635         0.022           JP MORGAN SECURITIES SINGAPOR				
J P MORGAN SECURITIES INC 20,657 446 0.022 J.P. MORGAN CLARING CORP. 777,046 4,302 0.006 J.P. MORGAN SECURITIES (TAIWAN) LTD 2,270,344 934 0.000 J.P. MORGAN SECURITIES INC. 186,741 3,954 0.021 J.P.MORGAN SECURITIES INC. 9,017 312 0.035 JANNEY MONTGOMERY, SCOTT INC 9,017 312 0.035 JEFFERIES & COMPANY INC 278,306 5,306 0.019 JEFFERIES & COMPANY INC 278,306 5,306 0.019 JEFFERIES & COMPANY INC 35,866 279 0.032 JNK SECURITIES INC 8,586 279 0.032 JOH BERENBERG GOSSLER AND CO 70,085 1.592 0.023 JOHNSON RICE & COMPANY LLC 18,557 522 0.028 JOHNSON RICE & COMPANY LLC 121,661 2,635 0.022 JOHNSON RICE & COMPANY LLC 121,661 2,635 0.022 JONESTRADING INSTITUTIONAL SERVICES LLC 121,661 2,635 0.022 JONESTRADING INSTITUTIONAL SERVICES LLC 121,661 0.033 JP MORGAN SECURITIES SINGAPORE 53,945 46 0.001 JPMORGAN SECURITIES SINGAPORE 53,043 1.63 0.003 KEEFE BRUSEL SCURTIES SINGAPORE 53,043 1.63 0.003 KEEFE BRUSETIES SINC 68,977 2,139 0.031 KKEEFE BRUSETIES NV 69,628 1,231 0.018 KGG AMERICAS LLC 53,043 1.63 0.003 KEEFE BRUSETIES NC 68,579 2,343 0.034 KING GMARICAS LLC 55,10 144 0.020 KINGEN SECURTIES LIC 30,396 1,026 0.034 KING CAPITAL MARKETS I.P. 100,867 2,076 0.021 LADENBURG THALMARKETS L.P. 100,867 2,076 0.021 LADENBURG THALMARKETS L.P. 100,867 2,076 0.021 LODUBOR SECURITIES LLC 2,655 84 0.032 LONG CAPITAL MARKETS L.P. 100,867 2,076 0.021 LADENBURG THALMAN & CO 5,510 144 0.0202 KINGH EQUITY MARKETS L.P. 100,867 2,076 0.021 LADENBURG THALMAN & CO 5,510 144 0.0202 KINGH EQUITY MARKETS L.P. 100,867 2,076 0.021 LADENBURG THALMARKETS L.P. 100,867 2,076 0.021 LADENBURG THALMARKETS L.P. 100,867 2,076 0.021 LONGBOW SECURITIES LLC 2,655 84 0.032 LONG CAPITAL MARKETS L.P. 10,074 9,456 0.012 LONGBOW SECURITIES LLC 3,811 10 0.003				
J.P. MORGAN CLEARING CORP.         777,046         4,302         0.006           J.P. MORGAN SECURITIES (TAIWAN) LTD         2.270,344         934         0.000           J.P. MORGAN SECURITIES INC.         186,741         3,954         0.021           J.P.MORGAN SECURITIES (FAR EAST)LTD SEOUL         22,506         845         0.038           JANNEY MONTGOMERY, SCOTT INC         9,017         312         0.035           JEFFERIES iNTERNATIONAL LTD         169,781         315         0.002           JMP SECURITIES         16,306         423         0.026           JNK SECURITIES         16,306         423         0.026           JNK SECURITIES         16,306         423         0.022           JOH BERENBERG GOSSLER AND CO         70,085         1,592         0.023           JOHNSON RICE & CO         9,080         268         0.029           JONSTRADING INSTITUTIONAL SERVICES LLC         121,661         2,635         0.022           JP MORGAN SECURITIES SINGAPORE         53,945         46         0.001           JPMORGAN SECURITIES NA LONDON         16,559         79         0.005           JPMORGAN SECURITIES NA LONDON         16,559         79         0.005           JPMORGAN SECURITIES NA LONDON				
J.P. MORGAN SECURITIES (TAIWAN) LTD         2,270,344         934         0.000           J.P. MORGAN SECURITIES INC.         186,741         3,954         0.021           J.P.MORGAN SECURITIES INC.         22,506         845         0.035           JANNEY MONTGOMERY, SCOTT INC         9,017         312         0.035           JEFFERIES & COMPANY INC         278,306         5,306         0.019           JEFFERIES INTERNATIONAL LTD         169,781         315         0.002           JMP SECURITIES INC         8,586         279         0.032           JOH BERENBERG GOSSLER AND CO         70,085         1,592         0.023           JOHNSON RICE & COMPANY LLC         18,557         522         0.028           JOHNSON RICE & COMPANY LLC         121,661         2,635         0.022           JP MORGAN SECURITIES FLC         1,093,361         4,578         0.004           JP MORGAN SECURITIES SINGAPORE         53,945         46         0.001           JPMORGAN SECURITIES NV         69,628         1,231         0.018           JPMORGAN SECURITIES NV         69,628         1,231         0.031           KEGA MERICAS LLC         53,045         6.800         0.0021           JPMORGAN SECURITIES NV         69,628		'		
J.P. MORGAN SECURITIES INC.         186,741         3,954         0.021           J.P.MORGAN SECURITIES (FAR EAST)LTD SEOUL         22,506         845         0.038           JANNEY MONTGOMERY, SCOTT INC         9,017         312         0.035           JEFFERIES & COMPANY INC         278,306         5,306         0.019           JEFFERIES & INTERNATIONAL LTD         169,781         315         0.002           JMN SECURITIES         16,306         423         0.026           JNK SECURITIES         16,306         423         0.026           JNK SECURITIES         1592         0.023         JOH BERENBERG GOSSLER AND CO         70,085         1,592         0.023           JOH BERENBERG GOSSLER AND CO         70,085         1,592         0.023         JOHNSON RICE & CO         9,080         268         0.029           JOHNSON RICE & CO         9,080         268         0.029         JONESTRADING INSTITUTIONAL SERVICES LLC         1,093,361         4,578         0.004           JP MORGAN SECURITIES PLC         1,093,361         4,578         0.004         JPMORGAN SECURITIES SINGAPORE         53,945         46         0.001           JPMORGAN SECURITIES NA ALONDON         16,559         79         0.005         JPMORGAN SECURITIES NV         69,				
J.P.MORGAN SECURITIES(FAR EAST)LTD SEOUL         22,506         845         0.038           JANNEY MONTGOMERY, SCOTT INC         9.017         312         0.035           JEFFERIES & COMPANY INC         278,306         5,306         0.019           JEFFERIES INTERNATIONAL LTD         169,781         315         0.002           JMP SECURITIES         16,306         423         0.026           JNK SECURITIES INC         8.586         279         0.032           JOH BERENBERG GOSSLER AND CO         70,085         1,592         0.023           JOHNSON RICE & CO         9,080         268         0.029           JONSSTRADING INSTITUTIONAL SERVICES LLC         121,661         2,635         0.022           JP MORGAN SECURITIES SINGAPORE         53,945         46         0.001           JPMORGAN SECURITIES SINGAPORE         53,945         46         0.001           JPMORGAN SECURITIES NV         69,628         1,231         0.018           KCG AMERICAS LLC         53,043         163         0.003           KEEFE BRUYETTE & WOODS INC         68,977         2,139         0.031           KEPLER EQUITIES PARIS         11,837         754         0.064           KEPLER EQUITIES PARIS         13,3915 <t< td=""><td></td><td></td><td></td><td></td></t<>				
JANNEY MONTGOMERY, SCOTT INC         9,017         312         0.035           JEFFERIES & COMPANY INC         278,306         5,306         0.019           JEFFERIES INTERNATIONAL LTD         169,781         315         0.002           JMP SECURITIES         16,306         423         0.026           JNK SECURITIES INC         8,586         279         0.032           JOH BERENBERG GOSSLER AND CO         70,085         1,592         0.023           JOHNSON RICE & COMPANY LLC         18,557         522         0.028           JOHNSON RICE & COMPANY LLC         121,661         2,635         0.022           JP MORGAN SECURITIES PLC         1,093,361         4,578         0.004           JP MORGAN SECURITIES PLC         1,093,361         4,578         0.004           JP MORGAN SECURITIES NINCAPORE         53,945         46         0.001           JPMORGAN SECURITIES (ASIA PACIFIC)LTD         1,325,703         140         0.000           KB SECURITIES (ASIA PACIFIC)LTD         1,325,703         140         0.001           JPMORGAN SECURITIES (ASIA PACIFIC)LTD         1,325,703         140         0.003           KEG AMERICAS LLC         53,043         163         0.003           KEEFE BRUYETTE & WOODS INC		,		
JEFFERIES & COMPANY INC         278,306         5,306         0.019           JEFFERIES INTERNATIONAL LTD         169,781         315         0.002           JMP SECURITIES         16,306         423         0.026           JNK SECURITIES INC         8,586         279         0.032           JOH BERENBERG GOSSLER AND CO         70,085         1,592         0.023           JOHNSON RICE & COMPANY LLC         18,557         522         0.028           JOHNSON RICE & CO         9,080         268         0.029           JONESTRADING INSTITUTIONAL SERVICES LLC         121,661         2,635         0.022           JP MORGAN SECURITIES PLC         1,093,361         4,578         0.004           JP MORGAN SECURITIES SINGAPORE         53,945         46         0.001           JPMORGAN SECURITIES (ASIA PACIFIC)LTD         1,325,703         140         0.000           KB SECURITIES (ASIA PACIFIC)LTD         1,325,703         140         0.001           JPMORGAN SECURITIES (ASIA PACIFIC)LTD         1,325,703         140         0.003           KEEFE BRUYETTE & WOODS INC         68,977         2,139         0.031           KEEFE BRUYETTE & WOODS INC         68,579         2,343         0.034           KING, CL,& ASSOCIATES		,		
JEFFERIES INTERNATIONAL LTD         169,781         315         0.002           JMP SECURTITES         16,306         423         0.026           JNK SECURTITES INC         8,586         279         0.032           JOH BERENBERG GOSSLER AND CO         70,085         1,592         0.023           JOHNSON RICE & COMPANY LLC         18,557         522         0.028           JOHNSON RICE & CO         9,080         268         0.029           JONESTRADING INSTITUTIONAL SERVICES LLC         121,661         2,635         0.022           JP MORGAN SECURITIES PLC         1,093,361         4,578         0.004           JP MORGAN SECURITIES SINGAPORE         53,945         46         0.001           JPMORGAN SECURITIES (ASIA PACIFIC)LTD         1,325,703         140         0.000           KB SECURITIES N V         69,628         1,231         0.018           KCG AMERICAS LLC         53,043         163         0.003           KEEFE BRUYETTE & WOODS INC         68,977         2,139         0.031           KEEFE REQUITIES PARIS         11,837         754         0.064           KEYBANC CAPITAL MARKETS INC         68,579         2,343         0.034           KING, CL,& ASSOCIATES, INC         333,915	,			
JMP SECURITIES         16,306         423         0.026           JNK SECURITIES INC         8,586         279         0.032           JOH BERENBERG GOSSLER AND CO         70,085         1,592         0.023           JOHNSON RICE & COMPANY LLC         18,557         522         0.028           JOHNSON RICE & CO         9,080         268         0.029           JONESTRADING INSTITUTIONAL SERVICES LLC         121,661         2,635         0.022           JP MORGAN SECURITIES PLC         1,093,361         4,578         0.004           JP MORGAN SECURITIES SINGAPORE         53,945         46         0.001           JPMORGAN SECURITIES SINGAPORE         53,945         46         0.001           JPMORGAN SECURITIES NU         1,325,703         140         0.000           KB SECURITIES N V         69,628         1,231         0.018           KCG AMERICAS LLC         53,043         163         0.003           KEEFE BRUYETTE & WOODS INC         68,977         2,139         0.031           KEPLER EQUITIES PARIS         11,837         754         0.064           KVPBANC CAPITAL MARKETS INC         33,915         6,880         0.021           KINGSWAY FINANCIAL SVCS GROUP LTD         254,611         541				
JNK SECURITIES INC         8,586         279         0.032           JOH BERENBERG GOSSLER AND CO         70,085         1,592         0.023           JOHNSON RICE & COMPANY LLC         18,557         522         0.028           JOHNSON RICE & CO         9,080         268         0.029           JONESTRADING INSTITUTIONAL SERVICES LLC         121,661         2,635         0.022           JP MORGAN SECURITIES PLC         1,093,361         4,578         0.004           JP MORGAN SECURITIES SINGAPORE         53,945         46         0.001           JPMORGAN SECURITIES SINGAPORE         53,945         46         0.000           KB SECURITIES NV         16,559         79         0.005           JPMORGAN SECURITIES NU         1,325,703         140         0.000           KB SECURITIES NV         69,628         1,231         0.018           KCG AMERICAS LLC         53,043         163         0.003           KEEFE BRUYETTE & WOODS INC         68,977         2,139         0.031           KEPLER EQUITIES PARIS         11,837         754         0.064           KEVBANC CAPITAL MARKETS INC         68,579         2,343         0.034           KING CL,& ASSOCIATES, INC         33,315         6,880				
JOH BERENBERG GOSSLER AND CO         70,085         1,592         0.023           JOHNSON RICE & COMPANY LLC         18,557         522         0.028           JOHNSON RICE & CO         9,080         268         0.029           JONESTRADING INSTITUTIONAL SERVICES LLC         121,661         2,635         0.022           JP MORGAN SECURITIES PLC         1,093,361         4,578         0.004           JP MORGAN SECURITIES SINGAPORE         53,945         46         0.001           JPMORGAN CHASE BANK NA LONDON         16,559         79         0.005           JPMORGAN SECURITIES (ASIA PACIFIC)LTD         1,325,703         140         0.000           KB SECURITIES N V         69,628         1,231         0.018           KCG AMERICAS LLC         53,043         163         0.003           KEFFE BRUYETTE & WOODS INC         68,977         2,139         0.031           KEFFE BRUYETTE & WOODS INC         68,579         2,343         0.034           KING, CL,& ASSOCIATES, INC         333,915         6,880         0.021           KINGSWAY FINANCIAL SVCS GROUP LTD         254,611         541         0.002           KNIGHT EQUITY MARKETS L.P.         100,867         2,076         0.021           LADENBURG THALMAN & CO <td></td> <td></td> <td></td> <td></td>				
JOHNSON RICE & COMPANY LLC         18,557         522         0.028           JOHNSON RICE & CO         9,080         268         0.029           JONESTRADING INSTITUTIONAL SERVICES LLC         121,661         2,635         0.022           JP MORGAN SECURITIES PLC         1,093,361         4,578         0.004           JP MORGAN SECURITIES SINGAPORE         53,945         46         0.001           JPMORGAN CHASE BANK NA LONDON         16,559         79         0.005           JPMORGAN SECURITIES (ASIA PACIFIC)LTD         1,325,703         140         0.000           KB SECURITIES N V         69,628         1,231         0.018           KCG AMERICAS LLC         53,043         163         0.003           KEFFE BRUYETTE & WOODS INC         68,977         2,139         0.031           KEPLER EQUITIES PARIS         11,837         754         0.064           KEYBANC CAPITAL MARKETS INC         68,579         2,343         0.034           KING, CL,& ASSOCIATES, INC         333,915         6,880         0.021           KINGBWAY FINANCIAL SVCS GROUP LTD         254,611         541         0.002           KNIGHT EQUITY MARKETS L.P.         100,867         2,076         0.021           LADENBURG THALMAN & CO				
JOHNSON RICE & CO         9,080         268         0.029           JONESTRADING INSTITUTIONAL SERVICES LLC         121,661         2,635         0.022           JP MORGAN SECURITIES PLC         1,093,361         4,578         0.004           JP MORGAN SECURITIES SINGAPORE         53,945         46         0.001           JPMORGAN SECURITIES ADV         69,628         1,231         0.018           KCG AMERICAS LLC         53,043         163         0.003           KEFFE BRUYETTE & WOODS INC         68,977         2,139         0.031           KEPLER EQUITIES PARIS         11,837         754         0.064           KEYBANC CAPITAL MARKETS INC         68,579         2,343         0.034           KING, CL, & ASSOCIATES, INC         333,915         6,880         0.021           KINGSWAY FINANCIAL SVCS GROUP LTD				
JP MORGAN SECURITIES PLC         1,093,361         4,578         0.004           JP MORGAN SECURITIES SINGAPORE         53,945         46         0.001           JPMORGAN CHASE BANK NA LONDON         16,559         79         0.005           JPMORGAN SECURITIES (ASIA PACIFIC)LTD         1,325,703         140         0.000           KB SECURITIES N V         69,628         1,231         0.018           KCG AMERICAS LLC         53,043         163         0.003           KEEFE BRUYETTE & WOODS INC         68,977         2,139         0.031           KEPLER EQUITIES PARIS         11,837         754         0.064           KEYBANC CAPITAL MARKETS INC         68,579         2,343         0.034           KING, CL,& ASSOCIATES, INC         333,915         6,880         0.021           KINGSWAY FINANCIAL SVCS GROUP LTD         254,611         541         0.002           KNIGHT EQUITY MARKETS L.P.         100,867         2,076         0.021           LADENBURG THALMAN & CO         5,510         144         0.026           LEERINK PARTNERS LLC         30,396         1,026         0.034           LIQUIDNET INC         790,794         9,456         0.012           LONGBOW SECURITIES LLC         2,655	JOHNSON RICE & CO			
JP MORGAN SECURITIES SINGAPORE         53,945         46         0.001           JPMORGAN CHASE BANK NA LONDON         16,559         79         0.005           JPMORGAN SECURITIES (ASIA PACIFIC)LTD         1,325,703         140         0.000           KB SECURITIES N V         69,628         1,231         0.018           KCG AMERICAS LLC         53,043         163         0.003           KEEFE BRUYETTE & WOODS INC         68,977         2,139         0.031           KEPLER EQUITIES PARIS         11,837         754         0.064           KEYBANC CAPITAL MARKETS INC         68,579         2,343         0.034           KING, CL,& ASSOCIATES, INC         333,915         6,880         0.021           KINGSWAY FINANCIAL SVCS GROUP LTD         254,611         541         0.002           KNIGHT EQUITY MARKETS L.P.         100,867         2,076         0.021           LADENBURG THALMAN & CO         5,510         144         0.026           LEERINK PARTNERS LLC         30,396         1,026         0.034           LIQUIDNET INC         790,794         9,456         0.012           LONGBOW SECURITIES LLC         2,655         84         0.032           LOOP CAPITAL MARKETS         1,520,406         10	JONESTRADING INSTITUTIONAL SERVICES LLC	121,661	2,635	0.022
JPMORGAN CHASE BANK NA LONDON         16,559         79         0.005           JPMORGAN SECURITIES (ASIA PACIFIC)LTD         1,325,703         140         0.000           KB SECURITIES N V         69,628         1,231         0.018           KCG AMERICAS LLC         53,043         163         0.003           KEEFE BRUYETTE & WOODS INC         68,977         2,139         0.031           KEPLER EQUITIES PARIS         11,837         754         0.064           KEYBANC CAPITAL MARKETS INC         68,579         2,343         0.034           KING, CL, & ASSOCIATES, INC         333,915         6,880         0.021           KINGSWAY FINANCIAL SVCS GROUP LTD         254,611         541         0.002           KNIGHT EQUITY MARKETS L.P.         100,867         2,076         0.021           LADENBURG THALMAN & CO         5,510         144         0.026           LEERINK PARTNERS LLC         30,396         1,026         0.034           LIQUIDNET INC         790,794         9,456         0.012           LONGBOW SECURITIES LLC         2,655         84         0.032           LOOP CAPITAL MARKETS         1,520,406         10,942         0.007           LUMINEX TRADING AND ANALYTICS LLC         3,811	JP MORGAN SECURITIES PLC	1,093,361	4,578	0.004
JPMORGAN SECURITIES (ASIA PACIFIC)LTD         1,325,703         140         0.000           KB SECURITIES N V         69,628         1,231         0.018           KCG AMERICAS LLC         53,043         163         0.003           KEEFE BRUYETTE & WOODS INC         68,977         2,139         0.031           KEPLER EQUITIES PARIS         11,837         754         0.064           KEYBANC CAPITAL MARKETS INC         68,579         2,343         0.034           KING, CL,& ASSOCIATES, INC         333,915         6,880         0.021           KINGSWAY FINANCIAL SVCS GROUP LTD         254,611         541         0.002           KNIGHT EQUITY MARKETS L.P.         100,867         2,076         0.021           LADENBURG THALMAN & CO         5,510         144         0.026           LEERINK PARTNERS LLC         30,396         1,026         0.034           LIQUIDNET INC         790,794         9,456         0.012           LONGBOW SECURITIES LLC         2,655         84         0.032           LOOP CAPITAL MARKETS         1,520,406         10,942         0.007           LUMINEX TRADING AND ANALYTICS LLC         3,811         10         0.003           M RAMSEY KING SECURITIES INC         11,675         <	JP MORGAN SECURITIES SINGAPORE	53,945	46	0.001
KB SECURITIES N V         69,628         1,231         0.018           KCG AMERICAS LLC         53,043         163         0.003           KEEFE BRUYETTE & WOODS INC         68,977         2,139         0.031           KEPLER EQUITIES PARIS         11,837         754         0.064           KEYBANC CAPITAL MARKETS INC         68,579         2,343         0.034           KING, CL,& ASSOCIATES, INC         333,915         6,880         0.021           KINGSWAY FINANCIAL SVCS GROUP LTD         254,611         541         0.002           KNIGHT EQUITY MARKETS L.P.         100,867         2,076         0.021           LADENBURG THALMAN & CO         5,510         144         0.026           LEERINK PARTNERS LLC         30,396         1,026         0.034           LIQUIDNET INC         790,794         9,456         0.012           LONGBOW SECURITIES LLC         2,655         84         0.032           LOOP CAPITAL MARKETS         1,520,406         10,942         0.007           LUMINEX TRADING AND ANALYTICS LLC         3,811         10         0.003           M RAMSEY KING SECURITIES INC         11,675         302         0.026	JPMORGAN CHASE BANK NA LONDON	16,559	79	0.005
KCG AMERICAS LLC53,0431630.003KEEFE BRUYETTE & WOODS INC68,9772,1390.031KEPLER EQUITIES PARIS11,8377540.064KEYBANC CAPITAL MARKETS INC68,5792,3430.034KING, CL,& ASSOCIATES, INC333,9156,8800.021KINGSWAY FINANCIAL SVCS GROUP LTD254,6115410.002KNIGHT EQUITY MARKETS L.P.100,8672,0760.021LADENBURG THALMAN & CO5,5101440.026LEERINK PARTNERS LLC30,3961,0260.034LIQUIDNET INC790,7949,4560.012LONGBOW SECURITIES LLC2,655840.032LOOP CAPITAL MARKETS1,520,40610,9420.007LUMINEX TRADING AND ANALYTICS LLC3,811100.003M RAMSEY KING SECURITIES INC11,6753020.026	JPMORGAN SECURITIES(ASIA PACIFIC)LTD	1,325,703	140	0.000
KEEFE BRUYETTE & WOODS INC68,9772,1390.031KEPLER EQUITIES PARIS11,8377540.064KEYBANC CAPITAL MARKETS INC68,5792,3430.034KING, CL,& ASSOCIATES, INC333,9156,8800.021KINGSWAY FINANCIAL SVCS GROUP LTD254,6115410.002KNIGHT EQUITY MARKETS L.P.100,8672,0760.021LADENBURG THALMAN & CO5,5101440.026LEERINK PARTNERS LLC30,3961,0260.034LIQUIDNET INC790,7949,4560.012LONGBOW SECURITIES LLC2,655840.032LOOP CAPITAL MARKETS1,520,40610,9420.007LUMINEX TRADING AND ANALYTICS LLC3,811100.003M RAMSEY KING SECURITIES INC11,6753020.026	KB SECURITIES N V	69,628	1,231	0.018
KEPLER EQUITIES PARIS11,8377540.064KEYBANC CAPITAL MARKETS INC68,5792,3430.034KING, CL,& ASSOCIATES, INC333,9156,8800.021KINGSWAY FINANCIAL SVCS GROUP LTD254,6115410.002KNIGHT EQUITY MARKETS L.P.100,8672,0760.021LADENBURG THALMAN & CO5,5101440.026LEERINK PARTNERS LLC30,3961,0260.034LIQUIDNET INC790,7949,4560.012LONGBOW SECURITIES LLC2,655840.032LOOP CAPITAL MARKETS1,520,40610,9420.007LUMINEX TRADING AND ANALYTICS LLC3,811100.003M RAMSEY KING SECURITIES INC11,6753020.026	KCG AMERICAS LLC	53,043	163	0.003
KEYBANC CAPITAL MARKETS INC         68,579         2,343         0.034           KING, CL,& ASSOCIATES, INC         333,915         6,880         0.021           KINGSWAY FINANCIAL SVCS GROUP LTD         254,611         541         0.002           KNIGHT EQUITY MARKETS L.P.         100,867         2,076         0.021           LADENBURG THALMAN & CO         5,510         144         0.026           LEERINK PARTNERS LLC         30,396         1,026         0.034           LIQUIDNET INC         790,794         9,456         0.012           LONGBOW SECURITIES LLC         2,655         84         0.032           LOOP CAPITAL MARKETS         1,520,406         10,942         0.007           LUMINEX TRADING AND ANALYTICS LLC         3,811         10         0.003           M RAMSEY KING SECURITIES INC         11,675         302         0.026	KEEFE BRUYETTE & WOODS INC	68,977	2,139	0.031
KING, CL,& ASSOCIATES, INC       333,915       6,880       0.021         KINGSWAY FINANCIAL SVCS GROUP LTD       254,611       541       0.002         KNIGHT EQUITY MARKETS L.P.       100,867       2,076       0.021         LADENBURG THALMAN & CO       5,510       144       0.026         LEERINK PARTNERS LLC       30,396       1,026       0.034         LIQUIDNET INC       790,794       9,456       0.012         LONGBOW SECURITIES LLC       2,655       84       0.032         LOOP CAPITAL MARKETS       1,520,406       10,942       0.007         LUMINEX TRADING AND ANALYTICS LLC       3,811       10       0.003         M RAMSEY KING SECURITIES INC       11,675       302       0.026	KEPLER EQUITIES PARIS	11,837	754	0.064
KINGSWAY FINANCIAL SVCS GROUP LTD       254,611       541       0.002         KNIGHT EQUITY MARKETS L.P.       100,867       2,076       0.021         LADENBURG THALMAN & CO       5,510       144       0.026         LEERINK PARTNERS LLC       30,396       1,026       0.034         LIQUIDNET INC       790,794       9,456       0.012         LONGBOW SECURITIES LLC       2,655       84       0.032         LOOP CAPITAL MARKETS       1,520,406       10,942       0.007         LUMINEX TRADING AND ANALYTICS LLC       3,811       10       0.003         M RAMSEY KING SECURITIES INC       11,675       302       0.026	KEYBANC CAPITAL MARKETS INC	68,579	2,343	0.034
KNIGHT EQUITY MARKETS L.P.         100,867         2,076         0.021           LADENBURG THALMAN & CO         5,510         144         0.026           LEERINK PARTNERS LLC         30,396         1,026         0.034           LIQUIDNET INC         790,794         9,456         0.012           LONGBOW SECURITIES LLC         2,655         84         0.032           LOOP CAPITAL MARKETS         1,520,406         10,942         0.007           LUMINEX TRADING AND ANALYTICS LLC         3,811         10         0.003           M RAMSEY KING SECURITIES INC         11,675         302         0.026	KING, CL,& ASSOCIATES, INC	333,915	6,880	0.021
LADENBURG THALMAN & CO         5,510         144         0.026           LEERINK PARTNERS LLC         30,396         1,026         0.034           LIQUIDNET INC         790,794         9,456         0.012           LONGBOW SECURITIES LLC         2,655         84         0.032           LOOP CAPITAL MARKETS         1,520,406         10,942         0.007           LUMINEX TRADING AND ANALYTICS LLC         3,811         10         0.003           M RAMSEY KING SECURITIES INC         11,675         302         0.026	KINGSWAY FINANCIAL SVCS GROUP LTD	254,611	541	0.002
LEERINK PARTNERS LLC         30,396         1,026         0.034           LIQUIDNET INC         790,794         9,456         0.012           LONGBOW SECURITIES LLC         2,655         84         0.032           LOOP CAPITAL MARKETS         1,520,406         10,942         0.007           LUMINEX TRADING AND ANALYTICS LLC         3,811         10         0.003           M RAMSEY KING SECURITIES INC         11,675         302         0.026	KNIGHT EQUITY MARKETS L.P.	100,867	2,076	0.021
LIQUIDNET INC         790,794         9,456         0.012           LONGBOW SECURITIES LLC         2,655         84         0.032           LOOP CAPITAL MARKETS         1,520,406         10,942         0.007           LUMINEX TRADING AND ANALYTICS LLC         3,811         10         0.003           M RAMSEY KING SECURITIES INC         11,675         302         0.026	LADENBURG THALMAN & CO	5,510		0.026
LONGBOW SECURITIES LLC         2,655         84         0.032           LOOP CAPITAL MARKETS         1,520,406         10,942         0.007           LUMINEX TRADING AND ANALYTICS LLC         3,811         10         0.003           M RAMSEY KING SECURITIES INC         11,675         302         0.026	LEERINK PARTNERS LLC	30,396	1,026	0.034
LOOP CAPITAL MARKETS         1,520,406         10,942         0.007           LUMINEX TRADING AND ANALYTICS LLC         3,811         10         0.003           M RAMSEY KING SECURITIES INC         11,675         302         0.026	-	790,794	9,456	0.012
LUMINEX TRADING AND ANALYTICS LLC         3,811         10         0.003           M RAMSEY KING SECURITIES INC         11,675         302         0.026				
M RAMSEY KING SECURITIES INC 11,675 302 0.026				
	MACQUARIE BANK LIMITED	7,453,577	3,764	0.001
MACQUARIE CAPITAL (USA) INC 10,926 228 0.021	-			
MACQUARIE SECURITIES (USA) INC 60,810 1,731 0.028	-			
MACQUARIE SECURITIES LTD SEOUL 77,298 3,304 0.043	MACQUARIE SECURITIES LTD SEOUL	77,298	3,304	0.043

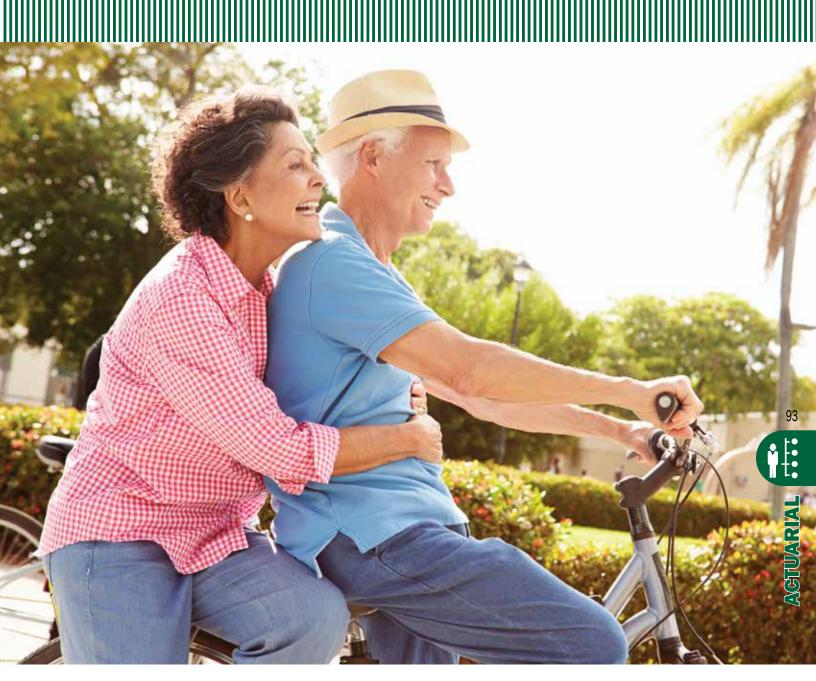
# Schedule of Payments of Commissions to Brokers Fiscal Year Ended June 30, 2016 (Cont'd)

INDIVIDUAL OR		COMMISSION	COMMISSION
BROKERAGE FIRM	# OF SHARES	PAID	PER SHARE (in \$)
MAINFIRST BANK DE	62,487	1,688	0.027
MAXIM GROUP	10,943	286	0.026
MERRILL LYNCH AND CO INC	1,733,108	2,716	0.002
MERRILL LYNCH INTERNATIONAL	13,232,871	8,319	0.001
MERRILL LYNCH PIERCE FENNER & SMITH INC	2,411,122	19,050	0.001
MERRILL LYNCH PIERCE FENNER AND S	285,953	464	0.002
MERRILL LYNCH PROFESSIONAL CLEARING CORP	2,641	104	0.039
MISCHLER FINANCIAL GROUP, INC-EQUITIES	49,043	731	0.015
MISCHEER HINANCIAE GROOT, INCLUCTIES	9,219	324	0.035
MKM PARTNERS LLC	37,504	1,389	0.037
MORGAN STANLEY AND CO INTERNATIONAL	22,736	1,708	0.075
MORGAN STANLEY AND CO INTERNATIONAL MORGAN STANLEY AND CO INTL TAIPEI METRO	3,957,062	2,808	0.001
MORGAN STANLEY AND CO. INTERNATIONAL	2,176,174	2,584	0.001
MORGAN STANLEY AND CO. INTERNATIONAL MORGAN STANLEY ASIA LTD	343,996	1,090	0.001
MORGAN STANLEY CO INCORPORATED	3,221,512	12,500	0.003
MORGAN STANLEY INDIA COMPANY PVT LTD	15,277	119	0.004
NATIONAL FINANCIAL SERVICES CORP.	11,303	286	0.025
NATIONAL FINANCIAL SERVICES CORP. NATIXIS SECURITIES	72,714	1,979	0.025
NEEDHAM & COMPANY	17,544	530	0.027
NEEDHAM AND COMPANY LLC	54,280	1,689	0.030
NOBLE INTERNATIONAL INVESTMENTS INC.	3,682	106	0.029
NOBLE INTERNATIONAL INVESTMENTS INC.	682,927	7,178	0.029
NOMURA FINANCIAL ADVISORY & SEC INDIA NOMURA FINANCIAL AND INVESTMENT	50,997	486	0.011
NOMURA FINANCIAL AND INVESTMENT	377,588	204	0.001
NORTH SOUTH CAPITAL LLC	42,094	1,512	0.001
NORTH SOUTH CAPITAL LLC NORTHLAND SECURITIES INC.	7,958	300	0.038
NUMIS SECURITIES LIMITED	3,400	146	0.038
OPPENHEIMER & CO. INC.	19,660	614	0.043
PAREL	20,230	621	0.031
PAREL PAVILION GLOBAL MARKETS LTD	1,107,728	3,999	0.004
PENSERRA SECURITIES	1,272,799	11,624	0.004
PENSERRA SECURITIES	161,014	642	0.009
PERSHING LLC	2,714,529	7,726	0.004
PERSHING SECURITIES LIMITED	821,745	2,552	0.003
PICKERING ENERGY PARTNERS, INC	12,533	439	0.035
PIPER JAFFRAY	60,530	1,940	0.032
RAYMOND JAMES AND ASSOCIATES INC	112,806	3,622	0.032
RBC CAPITAL MARKETS	75,941	1,866	0.025
RBC DOMINION SECURITIES INC.	31,029	979	0.025
REDBURN PARTNERS LLP	1,172,510	5,199	0.004
ROBERT W.BAIRD CO.INCORPORATE	149,377	5,045	0.034
ROSENBLATT SECURITIES LLC	6,063	167	0.028
ROTH CAPITAL PARTNERS LLC	5,181	155	0.028
ROYAL BANK OF CANADA EUROPE LTD	526,131	2,242	0.004
SAMSUNG SECURITIES CO LTD	2,743	197	0.072
SAMUEL A RAMIREZ & COMPANY INC	189,182	1,419	0.007
SANDLER ONEILL & PART LP	8,051	244	0.030
	4,663	244 147	0.030
SANDLER ONEILL AND PARTNERS L.P. SANFORD C. BERNSTEIN AND CO. LLC	4,663 774,582	418	0.001
SANFORD C. BERNSTEIN AND CO. LLC SANFORD C. BERNSTEIN LTD	457,169	4,836	0.001
SANFORD C. BERNSTEIN LID SANFORD CBERNSTEIN CO LLC	121,342	4,838 2,206	0.011
SANFORD CBERNSTEIN COLLC SANTANDER CENTRAL HISPANO BOLSA	566,029		
JANIANDER VENTRAL HIJPANU DULJA	500,029	1,823	0.003

INDIVIDUAL OR		COMMISSION	COMMISSION
BROKERAGE FIRM	<b># OF SHARES</b>	PAID	PER SHARE (in \$)
SCOTIA CAPITAL (USA) INC	22,854	800	0.035
SEAPORT GROUP SECURITIES, LLC	17,722	581	0.033
SG AMERICAS SECURITIES LLC	810,762	3,199	0.004
SG SECURITIES HK	17,956,933	4,493	0.000
SHENYIN AND WANGUO SECURITIES CO. LTD	492,892	463	0.001
SIDOTI & COMPANY LLC	56,819	1,679	0.030
SMBC NIKKO CAPITAL MARKETS LIMITED	20,926	739	0.035
SOCIETE GENERALE LONDON BRANCH	1,082,709	3,816	0.004
SPEAR, LEEDS AND KELLOGG	1,399	7	0.005
STATE STREET GLOBAL MARKETS, LLC	59,905	973	0.016
STEPHENS,INC.	101,968	3,432	0.034
STERNE AGEE & LEACH INC.	8,898	445	0.050
STIFEL NICOLAUS & CO INC	177,857	5,700	0.032
STRATEGAS SECURITIES LLC	31,870	797	0.025
STURDIVANT AND CO., INC.	15,290	459	0.030
SUNTRUST CAPITAL MARKETS, INC.	57,801	1,798	0.031
TD SECURITIES (USA) LLC	500	5	0.010
TELSEY ADVISORY GROUP LLC	411,195	11,478	0.028
TERA MENKUL DEGERLER A.S.	135,137	108	0.001
THE HONGKONG AND SHANGHAI BANK	43,554	992	0.023
THE VERTICAL TRADING GROUP	8,628	281	0.033
TOPEKA CAPITAL MARKETS INC	211,130	4,680	0.022
UBS AG	375,491	6,430	0.017
UBS LIMITED	3,544,838	8,889	0.003
UBS SECURITIES ASIA LTD	6,886,386	3,014	0.000
UBS SECURITIES CANADA INC	61,533	212	0.003
UBS SECURITIES LLC	188,325	2,792	0.015
VANDHAM SECURITIES CORP	484	15	0.030
WEDBUSH MORGAN SECURITIES INC	26,876	758	0.028
WEEDEN & CO.	30,226	1,075	0.036
WELLS FARGO PRIME SERVICES, LLC	496,878	3,725	0.007
WELLS FARGO SECURITIES LLC	45,343	268	0.006
WELLS FARGO SECURITIES, LLC	32,319	1,152	0.036
WILLIAM BLAIR & COMPANY L.L.C	116,870	3,900	0.033
WILLIAMS CAPITAL GROUP LP (THE)	72,919	1,896	0.026
WOORI INVESTMENT SECURITIES	24,820	911	0.037
WUNDERLICH SECURITIES INC	3,067	89	0.029
WUNDERLICH SECURITIES INC.	12,711	392	0.031
XP INVESTIMENTOS CCTVM SA	178,414	1,271	0.007



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# **ACTUARIAL**

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### **OFFICE OF THE ACTUARY**

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

> SHERRY S. CHAN CHIEF ACTUARY

> > December 20, 2016

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, 2016

Dear Members of the Board of Trustees:

The financial objective of the New York City Board of Education Retirement System -Qualified Pension Plan (BERS 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, 2014 (Lag) actuarial valuation to determine Fiscal Year 2016 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 2016, 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."

GASB67, *Financial Reporting for Pension Plans*, amends GASB Statement No. 25 (GASB25) and is effective for financial statements for fiscal years beginning after June 15, 2013 (i.e., Fiscal Year 2014 for BERS).

GASB68, *Accounting and Financial Reporting for Pensions*, amends GASB Statement No. 27 (GASB27) and is effective for financial statements for fiscal years beginning after June 15, 2014 (i.e., Fiscal Year 2015 for the City of New York (the City)).

On October 11, 2016, 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, 2016" (the Fiscal Year 2016 GASB67/68 Report). Appendix C of The Fiscal Year 2016 GASB67/68 Report contains information developed in accordance with GASB67 for BERS.

#### **Actuarial Assumptions and Methods**

Provided in this Actuarial Section of the CAFR is a "Summary of Actuarial Assumptions and Methods in Effect for the June 30, 2014 (Lag) Actuarial Valuation." These actuarial assumptions and methods (2012 A&M) were first employed in the June 30, 2010 (Lag) actuarial valuation that was used to determine Fiscal Year 2012 Employer Contributions to the Plan.

These 2012 A&M were developed after reviewing the results of independent actuarial studies dated December 2011 by The Hay Group (Hay) and November 2006 by The Segal Company (Segal) in accordance with Section 96 of the New York City Charter, after which the Actuary issued a February 10, 2012 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" (February 2012 Report).

The Board of Trustees of the Plan adopted those changes in actuarial assumptions that require Board approval. The State Legislature and the Governor enacted Chapter 3 of the Laws of 2013 (Chapter 3/13) to provide for those changes to the actuarial assumptions and methods that require legislation, including the Actuarial Interest Rate (AIR) assumption of 7.0% per annum, net of investment expenses.

In October 2015 the independent actuarial auditor, Gabriel, Roeder, Smith & Company (GRS), issued a report on their NYC Charter-mandated actuarial experience studies for the fouryear and ten-year periods ended June 30, 2013 (the GRS Report).

Based, in part, on the GRS Report, on published studies of mortality improvement, and on input from the City's outside consultants and auditors, the Actuary proposed, and the Board of Trustees of BERS adopted, new post-retirement mortality tables for use in determining employer contributions beginning in Fiscal Year 2016. The new tables of post-retirement mortality 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 (the Valuation Tables). Scale MP-2015 replaced Mortality Improvement Scale AA.

In addition, beginning in Fiscal Year 2016, the Actuary revised the Actuarial Asset Valuation Method to constrain the Actuarial Asset Value to be within a 20% corridor of the Market Value of Assets.

The 2012 A&M reflecting the above revisions is referred to as the "2016 A&M."

These actuarial assumptions and methods (2016 A&M) used for funding purposes meet the parameters set 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, 2014 (Lag) actuarial valuation is shown later in this Actuarial Section of the CAFR.

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, 2014 (Lag) actuarial valuation is included in this CAFR. A summary of the census data used in the June 30, 2013 (Lag) actuarial valuation of the Plan is available in the June 30, 2015 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 Actuarial Cost Method (Table 8).

Also included in the Actuarial Section of the CAFR is a Solvency Test (i.e., Comparative Summary of Aggregate Accrued Liabilities Funded by Actuarial Value of Assets) (Table 9), as prescribed by the Government Finance Officers Association (GFOA). This Solvency Test represents an alternative approach to describing progress toward funding objectives.

#### **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, 2014 (Lag) Actuarial Valuation.
- Active Member Valuation Data.
- Summary of Plan Membership.
- Funded Status Based on Entry Age Actuarial Cost Method.
- Comparative Summary of Aggregate Accrued Liabilities Funded by Actuarial Value of Assets Solvency Test.
- Retirants and Beneficiaries Added to and Removed from Rolls.
- Statutory vs. Actuarial Contributions.
- Summary of Plan Provisions.

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

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

If you have any questions about 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.



#### Acknowledgment of Qualification

I, Sherry S. Chan, am the Chief Actuary for, and independent of, the New York City Pension Funds and Retirement Systems. I am a Fellow of the Society of Actuaries, a Fellow of the Conference of Consulting Actuaries and a Member of the American Academy of 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,

Greeky Chan

Sherry S. Chan, FSA, FCA, MAAA 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
  - 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

2366L&R:eh

(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 most recently completed study was published by Gabriel Roeder Smith & Company (GRS) dated October 2015 and analyzed experience for Fiscal Years 2010 through 2013. GRS made recommendations with respect to the actuarial assumptions and methods based on their analysis.

Based, in part, on the GRS Report, on published studies of mortality improvement, and on input from the City's outside consultants and auditors, the Actuary proposed, and the BERS Board of Trustees of the Plan adopted, new post-retirement mortality tables for use in determining employer contributions beginning in Fiscal Year 2016. The new tables of post-retirement mortality 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 (the Valuation Tables). Scale MP-2015 replaced Mortality Improvement Scale AA.

In addition, beginning in Fiscal Year 2016, the Actuary revised the Actuarial Asset Valuation Method to constrain the Actuarial Asset Value to be within a 20% corridor of the Market Value of Assets.

The previously completed studies were published by The Hay Group (Hay), dated December 2011 and by The Segal Company (Segal), dated November 2006. Hay analyzed experience for Fiscal Years 2006 through 2009 and made recommendations with respect to the actuarial assumptions and methods based on their analysis. Segal analyzed experience for Fiscal Years 2002 through 2005 and made recommendations with respect to the actuarial assumptions and methods based on their analysis.

Based, in part, upon a review of the Segal and Hay studies, the Actuary issued a February 10, 2012 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" (February 2012 Report).

The Board of Trustees of the Plan adopted those changes to actuarial assumptions that require Board approval. The State Legislature and the Governor have enacted Chapter 3 of the Laws of 2013 (Chapter 3/13) to provide for those changes to the actuarial assumptions and methods that require legislation, including the Actuarial Interest Rate (AIR) assumption of 7.0% per annum, net of investment expenses, the Entry Age Actuarial Cost Method and the amortization of Unfunded Actuarial Accrued Liabilities.

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### Summary of Actuarial Assumptions and Methods In Effect For The June 30, 2014 (Lag) Actuarial Valuation (Cont'd)

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).

- (2) The mortality tables for service and disability pensioners were developed from an experience study of the Plan's pensioners. Sample probabilities are shown in Table 1A. Mortality tables for beneficiaries were developed from experience review. Sample probabilities are shown in Table 1B.
- (3) 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 or Disability or Retirement, and in Table 4 for members withdrawing from Active Service after eligibility for Service Retirement.
- 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.
- (5) 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.
- (6) The valuation assumes a closed group of members.
- (7) Beginning with the June 30, 2010 (Lag) actuarial valuation, the Entry Age Actuarial Cost Method (EAACM) of funding is utilized by the Plan's Actuary to calculate the contribution required of the Employer.

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 (or service) of the individual between entry age and assumed exit age(s). The employer portion of this APV allocated to a valuation year is the Employer Normal Cost. The portion of this APV not provided for at a valuation date by the APV of Future Employer Normal Costs or future member contributions is the Actuarial Accrued Liability (AAL).

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

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

Increases (decreases) in obligations due to benefit changes, actuarial assumption changes and/or 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.

The June 30, 2014 (Lag) actuarial valuation uses a June 30, 2014 valuation date to determine Fiscal Year 2016 Employer Contributions.

This methodology requires technical adjustments to certain components used to determine Fiscal Year 2016 Employer Contributions as follows:

• Present Value of Future Salary (PVFS)

The PVFS at June 30, 2014 is reduced by the value of salary projected to be paid during Fiscal Year 2015.

• Salary for Determining Employer Contributions

Salary used to determine the employer normal contribution is the salary projected to be paid during Fiscal Year 2016 to members on payroll at June 30, 2014.

• UAAL Payments

For determining the UAAL payments for Fiscal Year 2016, and to be consistent with OYLM, the UAAL as of June 30, 2014 is adjusted by the discounted value of employer normal contributions paid during Fiscal Year 2015 and the discounted value of the administrative expenses reimbursed during Fiscal Years 2015 and 2016.

(10) The Actuary reset the AAV to the Market Value of Assets (MVA) as of June 30, 2011 (i.e., Market Value Restart).

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 AAV 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 AAV is constrained to be within a 20% corridor of the Market Value.

- (11) The APVB as of June 30, 2014, used to determine Fiscal Year 2016 Employer Contributions, includes estimates of liabilities for:
  - World Trade Center Disability Benefits.
  - World Trade Center Death Benefits.
- (12) As discussed herein, the actuarial assumptions and methods are unchanged from those used in the June 30, 2013 (Lag) actuarial valuation except for the adoption of revised post-retirement mortality Tables and a 20% corridor constraining the Actuarial Asset Value as described in sections (1) and (10) above, respectively.

#### Table 1A

#### DEATHS AMONG SERVICE AND DISABILITY PENSIONERS

Percentage of Pensioners Dying within Next Year

	Service P	ensioners	Disability	Pensioners
Age	Males	Females	Males	Females
40	0.0947%	0.0573%	1.2639%	1.3481%
45	0.2982	0.1002	1.3564	1.4734
50	0.5603	0.2093	1.6327	1.7585
55	0.8732	0.3336	2.1003	1.8410
60	1.0191	0.4917	2.4210	1.9145
65	1.2791	0.6538	2.5828	2.1211
70	1.8603	1.0620	3.0075	2.4756
75	2.5748	1.7589	3.8204	3.2337
80	4.4557	2.9656	5.1977	4.4159
85	7.3027	4.9949	7.3175	6.4750
90	11.4055	8.5739	11.4213	11.1714
95	20.5692	15.5282	20.5864	18.8480
100	31.4230	21.6851	31.4230	22.6011
105	37.5244	27.6686	37.5244	27.6686
110	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 BENEFICAIRIES Percentage of Pensioners Dying within Next Year

Years of Service	Males	Females
40	0.0947%	0.0687%
45	0.2684	0.1202
50	0.4203	0.2512
55	0.8245	0.4448
60	1.0827	0.7377
65	1.4619	1.0274
70	1.9843	1.4161
75	2.9181	2.2280
80	5.3467	3.7564
85	8.2155	6.2437
90	14.2568	10.7174
95	22.8721	18.1287
100	31.4230	21.7021
105	37.5244	27.6686
110	100.0000	100.0000

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

#### Table 2A

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

	Accid Disal			inary Ibility	Dea	ath
Age	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	NA	NA	NA	NA	NA	NA

#### Percentage of Active Members Separating within Next Year

#### Table 2B

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

#### Percentage of Active Members Separating within Next Year

	Accid Disa	lental bility		inary Ibility	Dea	th
Age	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	NA	NA	NA	NA	NA	NA

#### Table 3

#### WITHDRAWALS FOR OTHER THAN DEATH OR DISABILITY OR RETIREMENT

#### Percentage of Active Members Withdrawing within Next Year

	Probability	of Withdrawal
Years of Service	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 Next Year

				With Unreduc	ced Benefit <sup>(1)</sup>		
			lembers not Ele nal Retirement			embers Electing I Retirement Pro	
		Years	of Service Since	e First Elig.	Years of S	Service Since Fi	rst Elig.
Age	With <sup>(2)</sup> Reduced Benefits	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

(1) Separate probabilities of Service Retirement are applicable to those active members who elected an Optional Retirement Program such as Chapter 96 of the Laws of 1995 or Chapter 19 of the Laws of 2008.

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

#### Table 5

#### SALARY SCALE

Years of Service	Assumed Annual Percentage Increases Within Next Year*
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

\* Salary Scale includes a General Wage Increase assumption of 3.0% per annum.

#### Table 6

#### **ACTIVE MEMBER VALUATION DATA**

Valuation Date	Number	Annual Payroll	Annual Average Salary	Percentage Increase (Decrease) in Average Salary
6/30/05 (Lag)	23,005	\$715,077,619	\$31,084	4.0%
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

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

#### SUMMARY OF PLAN MEMBERSHIP

As of the June 30, 2014 (Lag) and June 30, 2013 (Lag) actuarial valuations, the Plan's Membership consisted of:

#### Table 7

Summary of Plan Members	ship	
Group	2014 (Lag)	2013 (Lag)
Retirees and beneficiaries currently receiving benefits	15,995	15,455
Terminated vested members not yet receiving benefits	195	182
Other Inactives*	4,005	4,127
Active members	25,182	_25,848
Total	45,377	45,612

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

This Schedule is being provided by the Actuary for the Plan to improve the transparency and decision usefulness of this financial report.

Prior to the June 30, 2010 (Lag) Actuarial Valuation, the Actuarial Cost Method (ACM) used to develop the funding requirements for the Plan was the Frozen Initial Liability (FIL) ACM. Under this ACM, 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 ACM 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 Entry Age ACM, equals the Actuarial Accrued Liability (AAL). Under the Entry Age ACM, the UAAL equals the AAL minus the Actuarial Value of Assets.

Table 8 FUNDED STATUS BASED ON ENTRY AGE ACTUARIAL COST METHOD

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, 2014 (Lag) <sup>1</sup>	2,632,922	4,335,746	1,702,824	60.7%	1,045,188	162.9%
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, 2012 $(Lag)^{1}$	2,371,613	3,763,130	1,391,517	63.0	1,018,895	136.6
June 30, 2011 (Lag) <sup>1</sup>	2,323,629	3,681,694	1,358,065	63.1	920,369	147.6
June 30, 2010 (Lag) $^{\rm 1}$	2,056,452	3,558,251	1,501,799	57.8	912,290	164.6
June 30, 2009 (Lag)	1,963,719	2,858,115	894.396	68.7	910,609	98.2
June 30, 2008 (Lag)	2,084,116	2,721,629	637,513	76.6	852,106	74.8

#### (Dollar Amounts in Thousands)

Note: 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.

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# Comparative Summary of Actuarial Values and Percentages Covered by Actuarial Value of Assets

Table 9

## SOLVENCY TEST

(Dollar Amounts in thousands)

ctuarial ed by if Assets	(C)	55%	41	51	54	31	3	15	10	0	3	
centage of A /alues Cover iarial Value o	(B)	100%	100	100	100	100	100	100	100	94	100	
Per V Actu	(A)	100%	100	100	100	100	100	100	100	100	100	
Actuarial Value of Assets	(D)	\$1,841,041	1,830,338	1,983,714	2,084,116	1,963,719	2,056,452	2,323,629	2,371,613	2,277,791	2,632,922	
Active Members' Employer Financed Portion	(C)	\$ 742,368	809,206	839,993	904,890	965,681	1,306,868	1,319,938	1,283,582	1,372,542	1,475,008	
Current Retirants and Beneficiaries	(B)	\$1,131,335	1,181,666	1,233,708	1,262,046	1,303,453	1,627,094	1,714,099	1,804,626	1,918,824	2,080,400	
Accumulated Member Contributions	(A)	\$301,021	317,544	319,153	337,821	359,122	388,082	409,625	434,215	469,312	504,619	
As of June 30		2005 (Lag)	2006 (Lag)	2007 (Lag)	2008 (Lag)	2009 (Lag)	2010 (Lag)	2011 (Lag)	2012 (Lag)	2013 (Lag)	2014 (Lag)	
	Accumulated Current Active Members' Member Retirants and Employer Contributions Beneficiaries Financed Portion	AccumulatedCurrentActive Members'ActuarialPercentage of ActuarialMemberRetirants andEmployerValueValues Covered byContributionsBeneficiariesFinanced Portionof AssetsActuarial Value of Assets(A)(B)(C)(D)(A)(B)	AccumulatedCurrentActive Members'ActuarialPercentage of ActuarialMemberRetirants andEmployerValueValues Covered byContributionsBeneficiariesFinanced Portionof AssetsActuarial Value of Assets(A)(B)(C)(D)(A)(B)\$301,021\$1,131,335\$ 742,368\$1,841,041100%100%	Accumulated         Current         Active Members'         Actuarial         Percentage of Actuarial           Member         Retirants and Member         Retirants and Retirants and Contributions         Employer         Value         Percentage of Actuarial           Member         Retirants and Reneficiaries         Employer         Value         Values Covered by Actuarial Value of Assets           (A)         (B)         (C)         (D)         (A)         (B)           \$301,021         \$1,131,335         \$742,368         \$1,841,041         100%         100%           \$317,544         1,181,666         809,206         1,830,338         100         100         100	Accumulated         Current         Active Members'         Actuarial         Percentage of Actuarial           Member         Retirants and Member         Retirants and Financed Portion         Employer         Value         Percentage of Actuarial           Member         Retirants and Financed Portion         Employer         Value         Values Covered by Actuarial Value of Assets           (A)         (B)         (C)         (D)         (A)         (B)           \$301,021         \$1,131,335         \$742,368         \$1,841,041         100%         100%           \$317,544         1,181,666         809,206         1,830,338         100         100         100%           319,153         1,233,708         839,993         1,983,714         100         100         100	Accumulated Member         Current Retirants and Member         Active Members' Remployer         Actuarial Value         Percentage of Actuarial Values Covered by Values Covered by Actuarial Value of Assets           Member         Reneficiaries         Financed Portion         of Assets         Value         Values Covered by Values Covered by           Member         Beneficiaries         Financed Portion         of Assets         Values Covered by           Member         Beneficiaries         Financed Portion         0         (A)         (B)           (A)         (B)         (C)         (D)         (A)         (B)           \$\$301,021         \$1,131,335         \$\$742,368         \$\$1,841,041         100%         100%           \$\$317,544         1,181,666         \$\$809,206         1,830,338         100%         100%           \$\$317,544         1,233,708         8339,993         1,983,714         100         100           \$\$319,153         1,233,708         8339,993         1,983,714         100         100           \$\$337,821         1,262,046         904,890         2,084,116         100         100         100	Accumulated         Current         Active Members' Fmander         Actuarial Fmander         Percentage of Actuarial Values Covered by Values Covered by Actuarial Value of Assets           Member         Retirants and Retirants and Financed Portion         CONTributions         Beneficiaries         Values Covered by Values Covered by Actuarial Value of Assets           (A)         (B)         (C)         (D)         (A)         (B)         (B)           \$\$301,021         \$\$1,131,335         \$\$742,368         \$\$1,841,041         100%         100%         100%           \$\$301,021         \$\$1,131,335         \$\$742,368         \$\$1,841,041         100%         100%         100%           \$\$317,544         1,181,666         \$\$09,206         1,830,338         100         100%         100%           \$\$319,153         1,233,708         \$\$39,993         1,983,714         100         100         100           \$\$37,821         1,262,046         904,890         2,084,116         100         <	Accumulated         Current Member         Active Members/ Employer         Actuarial Value         Percentage of Actuarial           Member         Retirants and Beneficiaries         Employer         Value         Yalues Covered by Values Covered by           (A)         (B)         (C)         (D)         (A)         (B)           (A)         (B)         (B)         (A)         (B)         (A)         (B)           (B)         (B)         (B)         (B)         (B)         (B)         (B)         (B)           (B)         (B)         (B)         (B)         (B)         (B) <t< th=""><th>Accumulated Member         Current Retirants and Member         Actuarial Fmployer         Actuarial Value         Percentage of Actuarial Values Covered by Values Covered by Values Covered by Actuarial Value of Assets           (n)         (n)         (n)         (n)         (n)         (n)         (n)           \$301,021         \$1,131,335         \$ 742,368         \$1,841,041         100%         100%         Actuarial Value of Assets           \$301,021         \$1,131,335         \$ 742,368         \$1,841,041         100%</th><th>Accumulated Member         Current Retirants and Member         Actuarial Financed Portion         Actuarial Value         Percentage of Actuarial Values Covered by Values Covered by (A)           (A)         (B)         (C)         (D)         (A)         (B)           (A)         (B)         (C)         (D)         (A)         (B)           <math>(A)</math>         (B)         (C)         (D)         (A)         (B)           <math>(A)</math>         (B)         (C)         (D)         (A)         (B)           <math>\$\$301,021         \$\$1,131,335         \$\$72,368         \$\$1,841,041         100%         100%           <math>\$\$317,544         1,181,666         <math>\$809,206</math>         1,830,333         100%         100%         100%           <math>319,153</math>         1,233,708         <math>\$839,993</math>         1,830,338         100         100%         100%           <math>337,821</math>         1,262,046         <math>904,890</math> <math>\$2,084,116</math>         100         100         100         100           <math>337,821</math>         1,262,046         <math>904,890</math> <math>\$2,084,116</math>         100         100         100         100         100         100         100         100         100         100         100         100         100         100         &lt;</math></math></th><th>Accumulated MemberCurrent Retinants and Financed PortionActuarial Actuarial Financed PortionActuarial Percentage of Actuarial Values Covered by <math>(A)</math>Percentage of Actuarial Values Covered by <math>(A)</math>Member Retinants and BeneficiariesRetinants and EmployerFinanced Portion of AssetsPercentage of Actuarial Values Covered by <math>(A)</math>(A)(B)(B)(C)(D)(A)(B)<math>(A)</math><math>(B)</math><math>(C)</math><math>(C)</math><math>(D)</math><math>(A)</math><math>(B)</math><math>(A)</math><math>(B)</math><math>(C)</math><math>(C)</math><math>(D)</math><math>(A)</math><math>(B)</math><math>(A)</math><math>(B)</math><math>(C)</math><math>(C)</math><math>(D)</math><math>(A)</math><math>(B)</math><math>(A)</math><math>(B)</math><math>(C)</math><math>(C)</math><math>(D)</math><math>(A)</math><math>(B)</math><math>(A)</math><math>(B)</math><math>(C)</math><math>(C)</math><math>(D)</math><math>(A)</math><math>(D)</math><math>(A)</math><math>(A)</math><math>(B)</math><math>(B)</math><math>(C)</math><math>(D)</math><math>(D)</math><math>(D)</math><math>(D)</math><math>(D)</math><math>(A)</math><math>(B)</math><math>(B)</math><math>(C)</math><math>(B)</math><math>(B)</math><math>(D)</math><math>(D)</math><math>(D)</math><math>(D)</math><math>(A)</math><math>(B)</math><math>(B)</math><math>(B)</math><math>(B)</math><math>(B)</math><math>(B)</math><math>(D)</math><math>(D)</math><math>(D)</math><math>(D)</math><math>(A)</math><math>(B)</math><math>(B)</math><math>(B)</math><math>(B)</math><math>(B)</math><math>(D)</math><math>(D)</math><math>(D)</math><math>(D)</math><math>(D)</math><math>(D)</math><math>(A)</math><math>(B)</math><math>(B)</math><math>(B)</math><math>(B)</math><math>(B)</math><math>(B)</math><math>(D)</math><math>(D)</math><math>(D)</math><math>(D)</math><math>(D)</math><math>(A)</math><math>(B)</math><math>(B)</math><math>(B)</math><math>(B)</math><math>(B)</math><math>(B)</math></th><th>Accumulated Member         Current Retirants and Member         Actuarial Representage of Actuarial Member         Percentage of Actuarial Values Covered by Values Covered by Actuarial Values Covered by Actuarial Value of Assets         Percentage of Actuarial Values Covered by Actuarial Values Covered by Actuarial Value of Assets           (A)         (B)         (C)         (D)         (A)         (B)         (B)           \$\$301,021         \$\$1,131,335         \$\$742,368         \$\$1,841,041         100%         100%         100%           \$\$301,021         \$\$1,131,335         \$\$5,42368         \$\$1,841,041         100%         100%         100%           \$\$317,532         1,131,535         \$\$2,33,082         1,283,734         100%         100%         100%           \$\$35,122         1,262,046         904,890         2,084,116         100         100         100           \$\$35,122         1,303,453         904,890         2,084,116         100%         100%         100%           \$\$35,0122         1,303,453         904,890         2,084,116         100         100         100           \$\$38,082         1,627,094         1,306,868         2,084,116         100         100         100         100</th></t<>	Accumulated Member         Current Retirants and Member         Actuarial Fmployer         Actuarial Value         Percentage of Actuarial Values Covered by Values Covered by Values Covered by Actuarial Value of Assets           (n)         (n)         (n)         (n)         (n)         (n)         (n)           \$301,021         \$1,131,335         \$ 742,368         \$1,841,041         100%         100%         Actuarial Value of Assets           \$301,021         \$1,131,335         \$ 742,368         \$1,841,041         100%	Accumulated Member         Current Retirants and Member         Actuarial Financed Portion         Actuarial Value         Percentage of Actuarial Values Covered by Values Covered by (A)           (A)         (B)         (C)         (D)         (A)         (B)           (A)         (B)         (C)         (D)         (A)         (B) $(A)$ (B)         (C)         (D)         (A)         (B) $(A)$ (B)         (C)         (D)         (A)         (B) $$$301,021         $$1,131,335         $$72,368         $$1,841,041         100%         100%           $$317,544         1,181,666         $809,206         1,830,333         100%         100%         100%           319,153         1,233,708         $839,993         1,830,338         100         100%         100%           337,821         1,262,046         904,890 $2,084,116         100         100         100         100           337,821         1,262,046         904,890 $2,084,116         100         100         100         100         100         100         100         100         100         100         100         100         100         100         <$	Accumulated MemberCurrent Retinants and Financed PortionActuarial Actuarial Financed PortionActuarial Percentage of Actuarial Values Covered by $(A)$ Percentage of Actuarial Values Covered by $(A)$ Member Retinants and BeneficiariesRetinants and EmployerFinanced Portion of AssetsPercentage of Actuarial Values Covered by $(A)$ (A)(B)(B)(C)(D)(A)(B) $(A)$ $(B)$ $(C)$ $(C)$ $(D)$ $(A)$ $(B)$ $(A)$ $(B)$ $(C)$ $(C)$ $(D)$ $(A)$ $(D)$ $(A)$ $(A)$ $(B)$ $(B)$ $(C)$ $(D)$ $(D)$ $(D)$ $(D)$ $(D)$ $(A)$ $(B)$ $(B)$ $(C)$ $(B)$ $(B)$ $(D)$ $(D)$ $(D)$ $(D)$ $(A)$ $(B)$ $(B)$ $(B)$ $(B)$ $(B)$ $(B)$ $(D)$ $(D)$ $(D)$ $(D)$ $(A)$ $(B)$ $(B)$ $(B)$ $(B)$ $(B)$ $(D)$ $(D)$ $(D)$ $(D)$ $(D)$ $(D)$ $(A)$ $(B)$ $(B)$ $(B)$ $(B)$ $(B)$ $(B)$ $(D)$ $(D)$ $(D)$ $(D)$ $(D)$ $(A)$ $(B)$ $(B)$ $(B)$ $(B)$ $(B)$ $(B)$	Accumulated Member         Current Retirants and Member         Actuarial Representage of Actuarial Member         Percentage of Actuarial Values Covered by Values Covered by Actuarial Values Covered by Actuarial Value of Assets         Percentage of Actuarial Values Covered by Actuarial Values Covered by Actuarial Value of Assets           (A)         (B)         (C)         (D)         (A)         (B)         (B)           \$\$301,021         \$\$1,131,335         \$\$742,368         \$\$1,841,041         100%         100%         100%           \$\$301,021         \$\$1,131,335         \$\$5,42368         \$\$1,841,041         100%         100%         100%           \$\$317,532         1,131,535         \$\$2,33,082         1,283,734         100%         100%         100%           \$\$35,122         1,262,046         904,890         2,084,116         100         100         100           \$\$35,122         1,303,453         904,890         2,084,116         100%         100%         100%           \$\$35,0122         1,303,453         904,890         2,084,116         100         100         100           \$\$38,082         1,627,094         1,306,868         2,084,116         100         100         100         100

Also, see following "SOLVENCY TEST - NOTES."

#### **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 Aggregate Accrued Liabilities for:

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

The Aggregate Accrued Liabilities are the APV of projected benefits produced by the projected benefit attribution approach prorated on service. The Aggregate 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 use 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.

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**Retirants and Beneficiaries Added To and Removed From Rolls** 

Table 10

Year FuddedNumber Allowances(1)Annual Allowances(1)Number Allowances(1)6/30/05779\$ 8,763,3974316/30/051,06612,053,3924666/30/061,06612,053,3924666/30/0795810,886,7205406/30/0795810,886,7205406/30/0795810,886,7205406/30/0795810,886,7205406/30/086678,148,6534626/30/0993610,879,7984916/30/1085010,705,7375226/30/1190114,977,6364716/30/121,05316,201,7465786/30/131,05316,201,7465786/30/131,01016,977,455529	Added to Rolls Remow	Removed from Rolls	Rolls En	Rolls End of Year		
779         \$ 8,763,397           1,066         12,053,392           1,066         12,053,392           958         10,886,720           958         10,886,720           958         10,886,720           958         10,886,720           958         10,886,720           958         10,886,720           958         10,886,720           950         10,879,798           936         10,879,798           936         10,879,798           901         14,977,636           1,053         16,201,746           1,110         16,977,455		Annual Allowances	Number	Annual Allowances <sup>(2)</sup>	% Increase In Annual Allowances	Average Annual Allowances
1,066         12,053,392           958         10,886,720           958         10,886,720           667         8,148,653           936         10,879,798           936         10,879,798           936         10,705,737           901         14,977,636           1,053         16,201,746           1,110         16,977,455		3,995,277	11,973	\$ 133,647,065	3.7%	\$11,164
958     10,886,720       667     8,148,653       667     8,148,653       936     10,879,798       936     10,705,737       850     10,705,737       901     14,977,636       1,053     16,201,746       1,110     16,977,455		3,414,306	12,573	142,286,151	6.5	11,317
667         8,148,653           936         10,879,798           936         10,879,798           850         10,705,737           901         14,977,636           1,053         16,201,746           1,110         16,977,455		3,850,151	12,991	149,322,720	4.9	11,494
936     10,879,798       850     10,705,737       850     10,705,737       901     14,977,636       1,053     16,201,746       1,110     16,977,455		4,350,475	13,196	153,120,898	2.5	11,604
850         10,705,737           901         14,977,636           1,053         16,201,746           1,110         16,977,455		4,135,086	13,641	159,865,610	4.4	11,719
901         14,977,636           1,053         16,201,746           1,110         16,977,455		4,700,094	13,969	165,871,253	3.8	11,874
1,053         16,201,746           1,110         16,977,455		4,325,573	14,399	176,523,316	6.4	12,259
1,110 16,977,455		6,211,198	14,874	186,513,864	5.7	12,540
		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

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

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.

#### **Statutory vs. Annual Required Contributions**

Fiscal Year Ended	Statutory Contribution <sup>(1)</sup>	Annual Required Contribution	Employer Rate of Contribution <sup>(2)</sup>		
6/30/07	\$129,820,109	\$129,820,109	18.641%		
6/30/08	143,100,327	143,100,327	19.627		
6/30/09	134,224,615	134,224,615	17.766		
6/30/10	147,348,563	147,348,563	17.822		
6/30/11	180,191,397	180,191,397	20.461		
6/30/12	213,650,880	213,650,880	24.293		
6/30/13	196,245,777	196,245,777	22.145		
6/30/14	214,589,565 214,589		21.694		
6/30/15	258,099,327 258,099,327		25.383		
6/30/16	265,532,032	265,532,032	26.341		

(1) 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.

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

#### **Summary of Plan Provisions**

This Summary of Plan Provisions is applicable to Plan members included in the June 30, 2014 (Lag) actuarial valuation.

#### A. MEMBERSHIP

Membership in the New York City Board of Education Retirement System – Qualified Pension Plan is available to all non-temporary employees in education service, regardless of part-time or full-time status, other than persons eligible to participate in the New York City Teachers' Retirement System – Qualified Pension Plan.

All such persons holding permanent civil service positions are required to become members of the New York City Board of Education Retirement System – Qualified Pension Plan.

#### **B. BRIEF HISTORY**

The Board of Education Retirement System was established as of September 1, 1921 and originally provided for its members a fractional retirement plan (i.e., age 60-1/140th). Subsequently, additional fractional plans were made available (i.e., the age 55-1/120th and the age 55-1/100th). These plans are known as the Old Service Fraction Plans.

Amendments in 1968 to the Rules and Regulations of the Board of Education Retirement System substantially revised the benefit structure by establishing two new retirement plans effective July 1, 1968. Members who joined the System on or after the effective date were required to choose either one of the two plans, namely (1) the Career Pension Plan (Plan A), or (2) the 55-Year Increased-Service-Fraction Plan (Plan B). A member who joined the System prior to the effective date could continue under his/her existing plan, or could elect one of these new plans, providing such election was made prior to July 1, 1970. Members who elected one of these new plans are referred to as Tier I members.

Chapter 1046 of the Laws of 1973 imposed certain limitations on the benefits available to members joining the System after June 30, 1973. For members who joined the System between July 1, 1973 and June 30, 1976 (Tier II members), two plans were available: the Modified Career Pension Plan (Plan C); and the Modified 55-Year-Increased-Service-Fraction Plan (Plan D).

Chapter 890 of the Laws of 1976 established a new statewide pension plan, the Coordinated Escalator (CO-ESC) Retirement Plan, covering all employees joining on or after July 1, 1976 (Tier III members). However, the New York Court of Appeals on May 31, 1988 held, in Civil Service Employees' Association vs. Regan, that persons who became members between July 1, 1976 and July 26, 1976 are considered Tier II (i.e., Plans C and D) members.

Chapter 414 of the Laws of 1983 established the Coordinated Retirement Plan, effective September 1, 1983, superseding the CO-ESC plan for most employees joining the System on or after July 27, 1976 (Tier IV members). This plan set a normal retirement age of 62, and mandated a 3% contribution by the member for all years of membership. Members who joined July 27, 1976 through August 31, 1983, however, are entitled to receive a benefit from either the CO-ESC or Coordinated Plan, whichever provides a greater benefit.

Chapter 749 of the Laws of 1992 set forth pension rights, including retroactive rights, to part-time employees.

Chapter 96 of the Laws of 1995 (Chapter 96/95) established an Optional Retirement Program effective during Fiscal Year 1996. This Program increased early retirement benefits and required additional member contributions. This Program is optional for those hired prior to the effective date of the legislation and mandatory for those hired after.

Chapter 442 of the Laws of 1997 reduced from 4.35% to 2.85% the Additional Member Contributions for Tier II and Tier IV members participating in the Chapter 96/95 Optional Retirement Program.

Chapter 266 of the Laws of 1998 improved benefits for Tier IV members who had at least 20 years of service but less than 25 years of service and permitted certain Tier III retirees to elect to receive Tier IV benefits.

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

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

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

Chapter 644 of the Laws of 1998 provided that any active member with ten or more years of service and within three years of retirement may purchase up to three years of member service credit for U.S. Military Service during a period of war.

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

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

Chapter 110 of the Laws of 2000 amended the language of the legislation that later became Chapter 126 of the Laws of 2000 which provides for benefit enhancements for certain members.

Chapter 125 of the Laws of 2000 (Chapter 125/00) provided eligible retirees with annual automatic Cost-of-Living Adjustments. It also provided for a five-year phase-in for the funding of the additional actuarial liabilities.

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

Chapter 553 of the Laws of 2000 permitted Tier IV members to retire early with a reduced benefit beginning at age 55 provided they have at least 5 years of credited service and are not members of the 25 Year Early Retirement Program or the Age 57 Retirement Program.

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

Chapter 509 of the Laws of 2001 reduced from 2.85% to 1.85% the Additional Member Contribution rate for Tier II and Tier IV members participating in the Chapter 96/95 Optional Retirement Programs.

Chapter 69 of the Laws of 2002 provided an Early Retirement Incentive (ERI) program for certain members.

Chapter 278 of the Laws of 2002 (Chapter 278/02) revised the phase-in schedule of Chapter 125/00 for Fiscal Year 2003 and later by extending from five to ten years the phase-in period for the funding of the additional actuarial liabilities attributable to Chapter 125/00.

Chapter 307 of the Laws of 2002 provided Corpus Funding of administrative expenses for the Plan commencing July 1, 2002 and allows for the appointment of an Executive Director for the Plan.

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

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

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

Chapter 133 of the Laws of 2005 continued the valuation and other interest rates for one year to June 30, 2006 from June 30, 2005.

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

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

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

Chapter 260 of the Laws of 2007 is a reopener of the Chapter 96/95 Optional Retirement Program for Tier II and Tier IV members in the Loader and Handler job titles.

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

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

Chapter 211 of the Laws of 2009 continued the valuation and other interest rates for one year to June 30, 2010 from June 30, 2009.

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Chapter 504 of the Laws of 2009 (Chapter 504/09) provides that individuals joining the Plan after December 10, 2009, who are represented by the United Federation of Teachers (UFT) and who participate in the 55/27 retirement program, will be required to make pension contributions of 4.85% of salary until they have 27 years of credited service and contributions of 1.85% of salary thereafter. These members will become vested after ten years of credited service.

Also, under Chapter 504/09, all members of the Plan represented by the UFT who participate in the Tax Deferred Annuity Program (TDA), will receive an interest rate of 7.0% per annum credited to their TDA Fixed Funds accounts beginning December 10, 2009.

Chapter 105 of the Laws of 2010 (Chapter 105/10) provided an Early Retirement Incentive (ERI) program for certain members.

Chapter 157 of the Laws of 2011 provided that members who were laid off from the School Construction Authority (SCA) on or after December 1, 2002 and who returned to work prior to January 8, 2008, can buy back their layoff time for retirement purposes.

Chapter 265 of the Laws of 2011 continued the valuation and other interest rates for one year to June 30, 2011 from June 30, 2010.

Chapter 180 of the Laws of 2011 continued the valuation and other interest rates for one year to June 30, 2012 from June 30, 2011.

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

Chapter 3 of the Laws of 2013 (Chapter 3/13) implemented changes in the actuarial procedures for determining Employer Contributions beginning Fiscal Year 2012. In particular, Chapter 3/13 continued the OYLM, employed the Entry Age Actuarial Cost Method (EAACM), an Actuarial Interest Rate (AIR) assumption of 7.0% per annum, net of investment expenses and defined the amortization of Unfunded Actuarial Accrued Liabilities (UAAL).

Chapter 489 of the Laws of 2013 (Chapter 489/13) extended the WTC Disability Law benefits to vested members.

Following is a description of the principal benefit provisions of the System, preceded by simplified definitions of the technical terms used therein.

#### C. COORDINATED RETIREMENT PLAN

ARTICLE 15 OF THE RETIREMENT AND SOCIAL SECURITY LAW (RSSL)

#### I. Definitions

Final Average Salary (FAS) - The average salary earned during any three consecutive years (five years for Tier 6) which provides the highest average salary. If the salary earned during any year included in the three-year period, however, exceed that of the average of the previous two years by more than 10%, the amount in excess of 10% will be excluded from the computation of FAS.

Salary - The regular compensation earned by and paid to a member.

#### II. Benefits Under The Coordinated Retirement Plan

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

#### a. SERVICE RETIREMENT

- 1. Normal Service Retirement
  - (a) Payability Date depends on Plan as follows:
    - (1) Age 62 and 5 years of service;
    - (2) Age 57 and 5 years of service;
    - (3) Age 55 and 25 years of service;
    - (4) Age 55 and 27 years of service; or
    - (5) Age 63 and 10 years of service.
  - (b) (1) Pension payable for members with fewer than 20 years of service (25 for members in Optional Retirement Plans): 1/60 times FAS times years of service.
    - Pension payable for members with at least 20 years of service (Tier 6) (25 for members in Optional Retirement Plans), but fewer than 30 years of service (Tier 4): 1/50 times FAS times years of service (Tier 4) or 35% plus 2% times FAS times years of service in excess of 20 (Tier 6).
    - (3) Pension payable for members with 30 or more years of service: 1/50 times FAS for each of the first thirty years of service, plus 3/200 times FAS for each additional year (Tier 4).

#### 2. Early Service Retirement:

Commencing as early as age 55, requires completion of five years of credited service (ten years for Tier 6). Benefit is equal to the Service Retirement benefit reduced depending on the number of months prior to age 62 (age 63 for Tier 6).

3. Deferred Vested Benefit

A member who has five or more years of service upon termination of employment (ten years if hired after December 10, 2009) is entitled to a deferred vested benefit payable starting at age 62 (age 63 for Tier 6). The benefit formulas are the same as those set forth under Normal Service Retirement.

#### b. DISABILITY RETIREMENT

1. Requirements

A member is eligible for ordinary disability retirement if:

- (a) he/she has completed ten or more years of service and,
- (b) he/she is incapacitated from performance of gainful employment.

If the disability is judged to be the result of an accident in the performance of duty, the service requirement is waived.

2. Benefit Payable

The benefit is the greatest of:

- (a)  $\frac{1}{3}$  of FAS,
- (b) 1/60 times FAS times years of credited service, or
- (c) the service retirement allowance but only if member has met the eligibility requirements for Service Retirement.

#### c. ORDINARY DEATH BENEFIT

Upon the death of a member in active service, a benefit is payable to his/her designated beneficiary. Under legislation effective July 26, 1986, the death benefits are the same as those applicable to members who joined the System between July 1, 1973 and July 26, 1976 (described in Section D.II.e of this Summary Of Plan Provisions).

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#### d. ACCIDENTAL DEATH BENEFIT

1. Requirements

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

- 2. Pension Payable
- The beneficiary receives a pension equal to 50% of wages earned during the last year of actual service (must be applied for within two years of death) and within 60 days if member joined after August 31, 1983.
- 3. Other Provisions
- (a) If the eligible beneficiary becomes ineligible to continue to receive the benefit, it shall be continued to the next eligible class of beneficiaries, and if none, to each successive class.
- (b) If the benefits paid do not exceed the amount of the ordinary lump sum benefit because of the absence of eligible beneficiaries, the difference is to be paid to the last eligible beneficiary, or if none, to the member's estate.

#### e. DESIGNATION OF BENEFICIARY

Beneficiaries are dealt with differently for ordinary death and accidental death benefits. For the ordinary death benefit, the latest named beneficiary, duly designated on a System form filed with the System will receive the death benefit. If none is designated, the benefit is paid to the member's estate.

For the accidental death benefit, beneficiaries are prescribed in the following order:

- 1. a surviving spouse who has not renounced survivorship rights in a separation agreement until remarriage;
- 2. surviving children, until age 25;
- 3. dependent parents whose eligibility shall be determined in accordance with regulations promulgated by the Board of Trustees; and,
- 4. any other person who qualified as a dependent on the final federal income tax return of the member filed in the year immediately preceding the year of death, until such person reaches 21 years of age.

#### D. PLANS FOR MEMBERS JOINING PRIOR TO JULY 27, 1976

#### I. Definitions

ACCUMULATED DEDUCTIONS - The total contributions made by a member to his annuity savings account, with regular and special interest, or increment thereon.

FINAL SALARY - (1) For a member who joined prior to July 1, 1973, salary earnable by the member in the year ending on the date of retirement or alternatively, the average annual compensation during any three calendar years designated by the member. (2) For a member who joined after June 30, 1973, the average salary earned during any three consecutive years which provides the highest average salary. However, if the salary earned during any year included in this three year period exceeds the average of the previous two years by more than 20%, the amount in excess of 20% is excluded from the computation.

MINIMUM ACCUMULATION - The amount of normal contributions accumulated with interest to the date on which a member either completed or could have completed 25 years of career pension plan service, less the amount of the reserve for Increased-Take-Home-Pay on such date.

PAYABILITY DATE - For members who elected the career pension plan, the date on which the service retirement allowance begins, which is the latest of (1) the date on which the member retires, (2) the date on which he/she attains the age 55 (age 50 for members in physically taxing positions for at least 25 years of service), or (3) the date on which he/she could have completed 25 years of service had he/she remained in Educational City Service. For a member who last joined the System prior to July 1, 1959, the payability date is the date of retirement, regardless of age, provided such member has completed 35 years of service. For all other members, the retirement allowance begins on the date of retirement.

PHYSICALLY TAXING POSITION - Any career pension plan position which has been included as physically taxing by the List Administrator.

RESERVE-FOR-INCREASED-TAKE-HOME-PAY - A reserve of 2 percent, 2.5 percent, 4 percent or 5 percent of the member's salary, pursuant to the provisions of Section 28 of the Rules and Regulations, accumulated with regular and additional interest, or increment thereon.

#### II. Benefits

#### a. SERVICE RETIREMENT

1. Career Pension Plan - (i) A member who joined prior to July 1, 1973 who elected the career pension plan (Plan A) is eligible to retire after having completed 20 years of career pension plan qualifying service, with benefits to begin on the payability date. Regardless

of the number of years of service, however, a member who has elected the career pension plan and who is at least 55 years of age may retire with benefits payable immediately by canceling his election of the career pension plan, thereby becoming eligible for the benefits under the 55 year-increased-service-fraction plan which is described in paragraph (2) below. (ii) In order for a member who joined after June 30, 1973 (Plan C) to be eligible for retirement, he must (a) have attained age 55 and (b) have rendered five years of credited service, in addition to the aforementioned requirements.

The service retirement allowance is the sum of (a) 2.2% of final salary, multiplied by the number of years of career pension plan service not in excess of 25, reduced by an annuity which is the actuarial equivalent of the Minimum Accumulation, (b) an annuity which is the actuarial equivalent of the accumulated deductions, and (c) for all years of service other than the first 25 years of career pension plan service, (i) a pension for increased-take-home-pay made in each year and (ii) 1.2% of final salary for each such year prior to July 1, 1968 and 1.7% of final salary for each year beginning on or after that date.

 55-Year-Increased-Service-Fraction Plan - (i) A member who joined prior to July 1, 1973 (Plan B) and who elected the 55-year-increased-service-fraction plan may retire after having attained age 55 with benefits payable immediately upon retirement. (ii) In order for a member who joined after June 30 1973, (Plan D) to be eligible for retirement, he must have rendered five years of credited service, in addition to the aforementioned requirement.

The service retirement allowance consists of a pension for service, a pension for increasedtake-home-pay and an annuity. The pension for service is equal to 1.2% of final salary multiplied by each year of service prior to July 1, 1968, plus 1.53% of final salary multiplied by each year of service after June 30, 1968; the pension for increased-take-home-pay is the actuarial equivalent of the reserve for increased-take-home-pay; and the annuity is the actuarial equivalent of the member's accumulated deductions.

Any Plan C or D member who did not join the Optional Retirement Programs and who retires prior to age 62 will have his pension for service reduced by 0.5% for each of the first 24 months that the payability date precedes age 62, and by 0.25% for each such additional month.

#### b. ORDINARY DISABILITY RETIREMENT

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

If upon becoming disabled, the member could have retired for service with benefits payable immediately, the ordinary disability allowance is the same as the service retirement allowance.

For all other members, the ordinary disability allowance is computed in the same manner as though the member had been eligible for service retirement under the 55-year-increased-service-fraction plan with benefits payable immediately regardless of age and without reduction for age.

#### c. ACCIDENT DISABILITY RETIREMENT

Upon the occurrence of disability caused by an accident in the actual performance of duty, a member is entitled to an accident disability retirement allowance consisting of a pension equal to three-fourths of final compensation, a pension for increased-take-home-pay which is the actuarial equivalent of the reserve for increased-take-home-pay, and an annuity purchased with the member's accumulated deductions. The pension is subject to reduction because of Worker's Compensation benefits granted on account of the accident.

#### d. CHANGING RETIREMENT PLAN

- 1. A member in Plan A (Plan C) may change to Plan B (Plan D) at any time after his first year of coverage under Plan A (Plan C).
- 2. A member who elected Plan B (Plan D) can change to Plan A (Plan C) at any time.
- 3. A member in an Old Service Fraction Plan can change to Plan A, B, C or D.
- 4. A Plan A (Plan C) member who intends to leave city service who has at least 5 years but less than 20 years of service credit, and who wishes to vest his rights must elect Plan B (Plan D) by filing with the Retirement System an affidavit withdrawing from Plan A (Plan C), prior to resignation.

#### e. ORDINARY DEATH BENEFIT

Upon the death of a member from causes other than an accident in the actual performance of duty, a benefit is paid to the member's estate or to such person as the member shall have nominated.

With respect to a member who joined before July 1, 1973, and total number of years of allowable service less than ten, the benefit is equal to the compensation earnable by the member in the six months immediately preceding death and, if the total number of years of allowable service is greater than ten, but less than twenty, the benefit is equal to the compensation earnable during the twelve months immediately preceding death. If the total number of years of allowable service is greater than twenty, the benefit is equal to twice the compensation earnable during the twelve months immediately preceding death.

In addition, the member's accumulated deductions and the reserve for increased-take-homepay are paid to the member's estate or to the member's designated beneficiary. The benefit payable on account of such a member who at the time of death would have been eligible for service retirement is either the benefit described above or an amount equal to the reserve on the retirement allowance which would have been payable had the member retired on the day before death, whichever is larger.

A member who joins after June 30, 1973 must choose between the following two death benefits which cannot be changed; upon death, a benefit is paid pursuant to such election.

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

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

A benefit is also payable upon death after retirement, which benefit is expressed as a percent of the benefit in force immediately before retirement as follows: If death occurs in the first year after retirement, 50% of such benefit; if death occurs in the second year following retirement, 25%; upon death occurring subsequently, 10%. If retirement occurred after age 60, the minimum death benefit payable after retirement is 10% of the death benefit in force at age 60.

The Rules and Regulations adopted by the Board of Trustees in accordance with Chapter 581 of the Laws of 1970 provide that the first \$50,000 of each benefit on account of death in active service is payable from the group term life insurance plan. Only the amount in excess of \$50,000, if any, is payable by the retirement system.

f. ACCIDENTAL DEATH

The benefit is payable upon the death of a member which occurs as a result of an accident sustained in the performance of duty.

The accidental death benefit is a lump sum equal to the reserve for increased-take-home-pay and a pension equal to one-half of final average salary, payable to the surviving spouse until remarriage or death, or if there is no surviving spouse, to a child or children until the attainment of age 18 of the youngest child, or if there is no surviving spouse or child to the dependent 125

parents. In addition, the member's accumulated deductions are paid to his/her estate or to the designated beneficiary. The pension is subject to reduction because of Worker's Compensation benefits granted on account of the accidental death.

#### g. TERMINATION OF EMPLOYMENT

A member who either resigns or is dismissed with fault receives a benefit equal to his accumulated deductions. At resignation with at least 5 years of service the member may elect, in lieu of a return of his accumulated deductions, to receive an allowance computed in the same manner as the retirement allowance for retirement under the 55-year-increased-service-fraction plan, except that the allowance is deferred to age 55. Should a member with less than 10 years of service who elected to receive a deferred retirement allowance die before the attainment of age 55, the benefit consists of the accumulated deductions. If a member who at resignation had at least 10 years of service and elected to receive a deferred retirement allowance dies before the attainment of age 55, the benefit is one-half of the ordinary death benefit.

A member not eligible for service retirement and who is removed from service without fault or delinguency and has not less than one-half year of service in the year immediately preceding the date of termination or who is so removed from a position in the competitive or labor class, regardless of service, is entitled to the return of his accumulated deductions in a lump sum payment or to a pension whose present value is equal to the pension he would have received at his earliest payability date, based on his service to date of termination. If the member has attained age 50 and has completed at least 20 years of service, an additional pension is payable equal to one-half the difference between the pension so computed and the pension payable at his earliest age for service retirement. In addition, he receives a pension which is the actuarial equivalent of his reserve for increased-take-home-pay and an annuity of such amount as his accumulated deductions will purchase.

#### h. AUTOMATIC ANNUAL COST-OF-LIVING ADJUSTMENTS (COLA)

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

Starting with benefits for September 2001, COLA are 50% of the increase in the CPI-U based on the year ending March 31, rounding to the next higher .1%, not less than 1% nor greater than 3% of the first \$18,000 of the sum of the maximum retirement allowance and prior COLA.

COLA are payable during the life of the retired member. One half of the amount is also payable after the member's death and during the life of the spouse beneficiary if such retired member

had elected one of the options under the Administrative Code which provides that benefits are to be continued for the life of such spouse after the death of the retired member, and where the death of such retired member occurred or occurs more than thirty days after the effective date of the retirement of such member.

#### E. OPTIONS ON RETIREMENT OR DEATH

#### No Option (Maximum Retirement Allowance)

A member upon retirement may receive the basic maximum retirement allowance payable in monthly installments throughout life with all payments ending at death.

Alternatively, a member may elect to receive an actuarial equivalent benefit in any one of the following optional forms.

With respect to plans other than the Coordinated Retirement Plan (Article 15):

#### Option 1 (Cash Refund)

With respect to members who joined prior to July 1, 1973, a cash refund allowance under which reduced payments will be made during life with a provision that in case of death before such payments have equaled the present value of the retirement allowance at date of retirement, the balance shall be paid to the designated beneficiary or estate. With respect to members who joined after June 30, 1973, this option is only available with respect to the benefits derived from employee contributions (annuity).

<u>Option 2</u> (Joint and 100% Survivor Allowance)

<u>Option 3</u> (Joint and 50% Survivor Allowance)

A joint and survivor allowance under which reduced payments will be made during life with a provision that at the death of the member the same payments (Option 2) or one half of such payments (Option 3) shall be continued throughout the life of such other person as the member shall have designated.

#### Option 4

Such other form of benefit which is the actuarial equivalent as may be certified by the Actuary and approved by the Board of Trustees. By resolution, the Board of Trustees has approved an option under which reduced payments will be made during life with a provision that upon his/her death, a sum specified by the member at the time of retirement shall be paid to the designated beneficiary or estate.

#### Option 4-2 and 4-3

Option 4-2 and Option 4-3 are known as the "Pop-Up" options. These are called "Pop-Ups" because they are variations of Options 2 and 3 that provide if a joint and survivor option is elected and the beneficiary predeceases the retiree, then the retirement allowance will increase (pop-up) to the level of the maximum retirement allowance.

#### Ten-Year (or Five-Year) Certain and Life

Ten-year (or five-year) certain and life allowance under which reduced payments will be made during the lifetime of the member with a provision that in case of death within ten (five) years of retirement, the remaining benefit that would have been payable had the member survived for ten (five) years shall be paid to the designated beneficiary or estate for the balance of the ten (five) years.

With respect to Article 15, the options are as follows:

- a. A five-year or ten-year certain and life option, the same as described above.
- A joint and survivor option under which reduced payments will be made during life with a provision b. that at the death of the member, 100%, 75%, 50% or 25% of such payments shall be continued throughout the life of such other person as the member shall have designated.
- c. A pop-up option as described above.
- F. CONTRIBUTIONS

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

#### EMPLOYEE CONTRIBUTIONS Ι.

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 10th 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 that purpose at the time he/she became a member, is determined so as 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 so as 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 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 of 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. Following is a table showing the effective periods and increased-take-home-pay rate.

Period	Increased-Take-Home-Pay Rate
07-01-1960 - 06-30-1961	2.5%
07-01-1961 - 06-30-1968	5%
07-01-1968 - 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 death of a member who joins after June 30, 1973.

#### II. Purchase Of Prior Service

A member is eligible to purchase credit for city service rendered prior to membership date by an additional contribution based on salary and periods of service being purchased.

In the case of any member in BERS prior to July 1, 1968, who has purchased service, the amount of purchased service can be used toward the twenty-five years needed for retirement eligibility under Plan A, provided such service was continuous and immediately preceded membership.

#### III. Loans

- a. After three years of membership in the Retirement System, a member may borrow up to 75% of accumulated deductions.
- A member may take three loans during any twelve month period. b.
- c. Loans are repaid through payroll deduction of not less than 5% of gross salary.

Beginning 90 days after the inception of the loan, the unpaid portion is insured without limitation. Should the borrower retire before the loan is repaid, the actuarial equivalent of the amount outstanding is deducted from his/her retirement allowance.

#### **IV. Employer Contributions**

The Entry Age Actuarial Cost Method is utilized by the Plan's Actuary to calculate the contribution from the employers.

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

#### G. VARIABLE ANNUITY PROGRAM

Beginning July 1, 1970, members were given the option to participate in a Variable Annuity Program, thereby providing a means which can reasonably be expected to protect a portion of their retirement income against the effect of increases in the cost of living. The monthly variable annuity payment is a fixed number of units, the value of which varies each month to reflect the financial experience of the investments which are almost entirely in common stocks. A member may elect to place part or all of his/her contributions and the City's contributions for increasedtake-home-pay in the variable annuity program. The remaining portion of the retirement allowance which is provided by the City must be paid in fixed dollar amounts. Subject to certain prescribed limitations, a member may periodically elect either to participate in the variable annuity program or to revoke a previous election.

An individual account of the member's own contributions is maintained in the Variable Annuity Savings Fund. Another individual account based on the City's contribution for increased-takehome-pay is maintained in the Variable Pension Accumulation Fund. Deposits in these accounts are credited in terms of units, the value of which is determined at the beginning of each month and remains unchanged during that month. On July 1, 1970, the effective date of the program, a unit was assigned an arbitrary value of \$10. Each month, thereafter, the unit value changed reflecting the investment experience of the common stock fund during the preceding month.

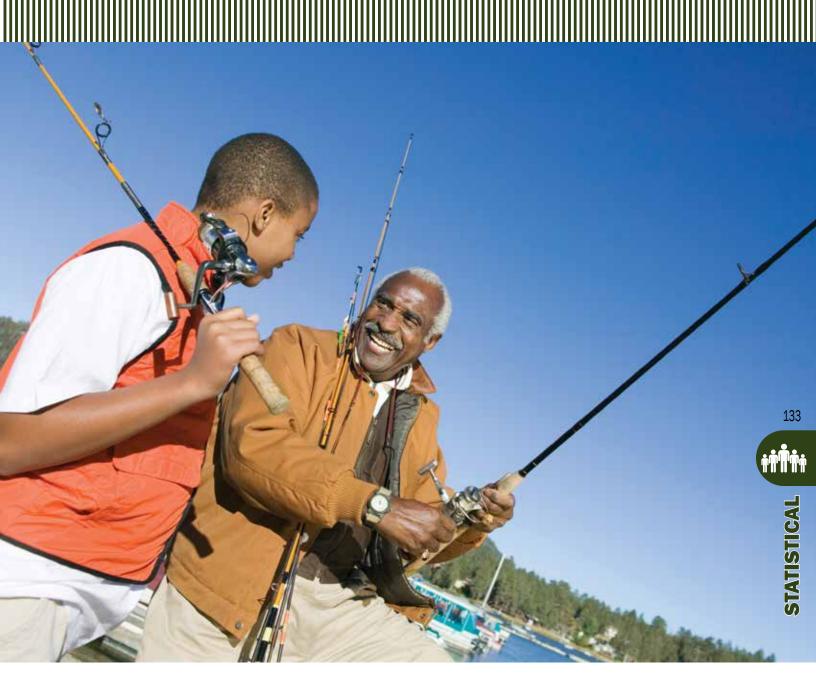
#### H. TAX-DEFERRED ANNUITY PROGRAM

Beginning January 1, 1970, members were given the option to participate in a tax-deferred annuity program, thereby providing a means of deferring income tax payments on their tax deferred contributions until the period after retirement. Each calendar year, a member may elect to contribute to the Tax-Deferred Annuity Program any amount not in excess of the maximum permissible amount under Section 403 (b) of the Internal Revenue Code. The City makes no contributions to the Tax-Deferred Annuity Program, but if elected by members, will guarantee the benefit payments to retired members. A member has the option either to have his/her contributions invested in variable funds.

The Tax-Deferred Annuity Program is maintained as a separate account within the Board of Education Retirement System. An individual account of the member's fixed dollar contributions is maintained in the Tax-Deferred-Annuity Savings Fund if he/she elected to have his/her benefit paid in fixed dollars; otherwise, in the Tax-Deferred Variable Annuity Savings Fund.



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### **STATISTICAL**

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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 a five year spread for the TDA. The second group of data offers an analysis of the QPP benefit payments based on demographic information. The third and final group gives a comparative analysis of the QPP 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:

- a) Age and service retirement
- b) Ordinary disability retirement
- c) Accidental disability retirement
- d) Accidental death retirement
- e) Other beneficiaries
- f) All pensioneers and beneficiaries

The third group of data is comprised of the following:

- a) Summary of activities by Age and Service
- b) Average annual benefit payments
- c) Participating Employers

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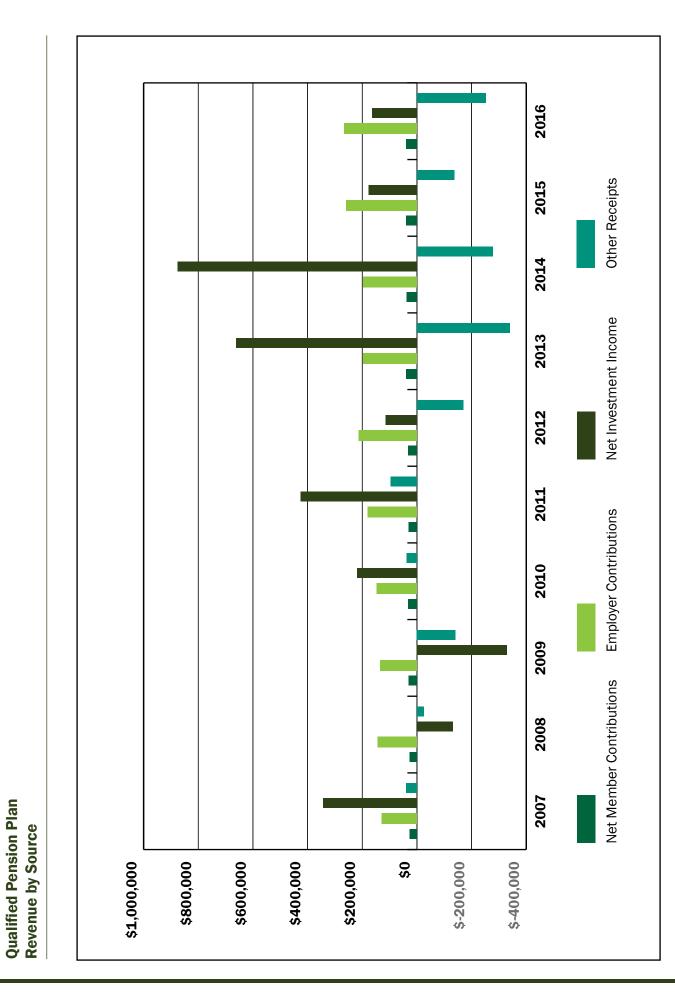
Qualified Pension Plan Revenue by Source (In thousands)

Income	
4	\$342,656
8	(\$130,569)
<u> </u>	(\$329,365)
<u> </u>	\$218,872
<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	\$425,690
0, 1	\$113,738
Q I	\$660,827
L()	\$875,453
	\$177,166
N 1	\$164.144

The table offers a horizontal comparison base for the revenue sources of the Plan for the past 10 years.

It particularly stresses the importance of employer contributions that have steadily increased over the years.

Net Investment Income has been restated for the fiscal years 2012 and 2013 due to the reclassification of certain data based on the GASB 67 recommendation.



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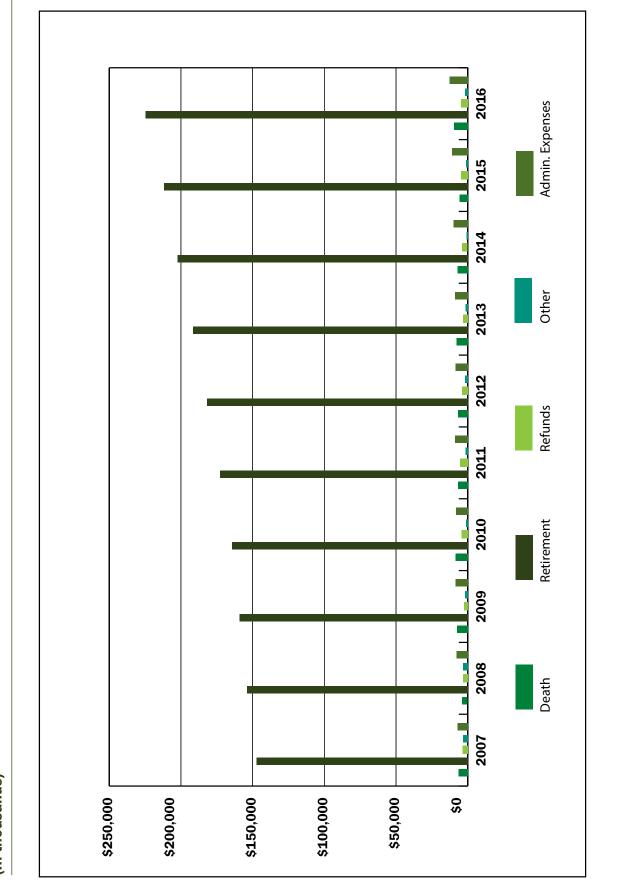
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Qualified Pension Plan Expenses by Type (In thousands)

	Total	\$167,731	\$172,410	\$ <b>180,00</b> 6	\$186,460	\$ <b>195,15</b> 8	\$203,194	\$213,020	\$224,091	\$234,20 <b>0</b>	\$253,545
Administrative	Expenses	\$7,281	\$7,854	\$8,413	\$8,047	\$8,892	\$8,687	\$8,927	\$9,776	\$10,956	\$12,818
	Other	\$3,191	\$3,448	\$2,018	\$1,296	\$1,662	\$1,936	\$1,412	\$981	\$1,172	\$1,758
Benefit Payments	Refunds	\$3,534	\$3,395	\$2,768	\$4,207	\$5,237	\$4,009	\$3,360	\$3,827	\$4,614	\$4,750
	Retirement	\$147,399	\$153,886	\$159,262	\$164,362	\$172,680	\$181,735	\$191,463	\$202,233	\$211,693	\$224,639
	Death	\$6,326	\$3,827	\$7,544	\$8,548	\$6,686	\$6,827	\$7,858	\$7,274	\$5,765	\$9,580
Fiscal Year Ended	June 30	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016

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) 139

STATISTICAL

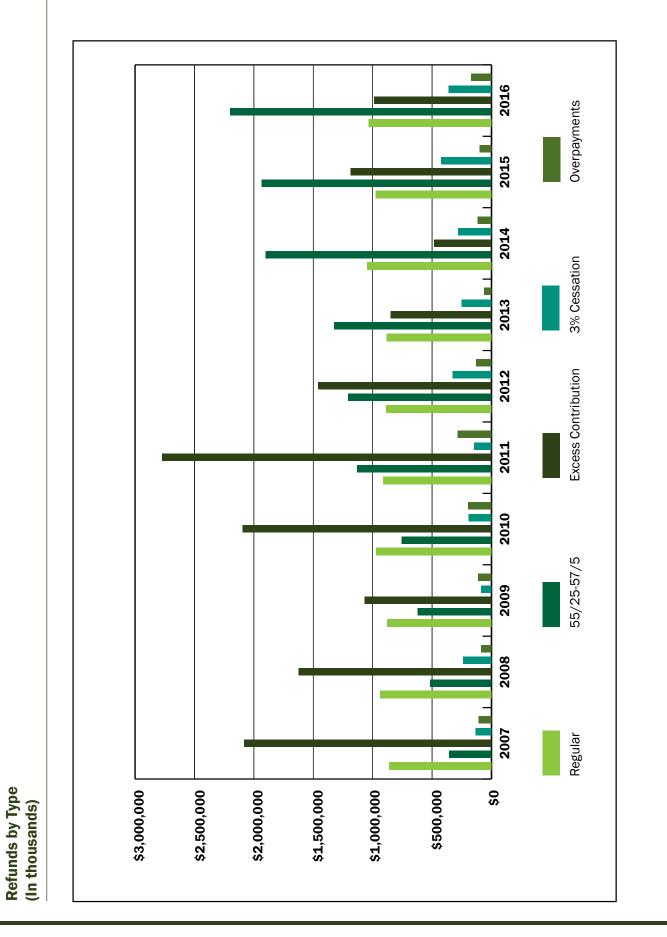


Qualified Pension Plan Refunds by Type (In thousands)

	Total	\$3,534	\$3,395	\$2,768	\$4,207	\$5,237	\$4,009	\$3,360	\$3,827	\$4,614	\$4,750
	Other Overpayments	\$106	\$85	\$113	\$197	\$283	\$130	\$61	\$116	\$97	\$171
Refunds	3% Cessation	\$133	\$236	\$88	\$193	744	\$328	\$251	\$281	\$425	\$361
Refu	Excess Contribution	\$2,079	\$1,622	\$1,067	\$2,092	\$2,772	\$1,456	\$846	\$484	\$1,186	\$986
	Add Pension 55/25-57/5	\$356	\$514	\$620	\$754	\$1,129	\$1,206	\$1,322	\$1,899	\$1,933	\$2,198
	Regular Resignation	\$859	\$937	\$879	\$971	606\$	\$888	\$880	\$1,047	\$973	\$1,033
Fiscal	Year Ended June 30	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016

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 additional contribution based refunds are more significant than resignation from the system.



Qualified Pension Plan

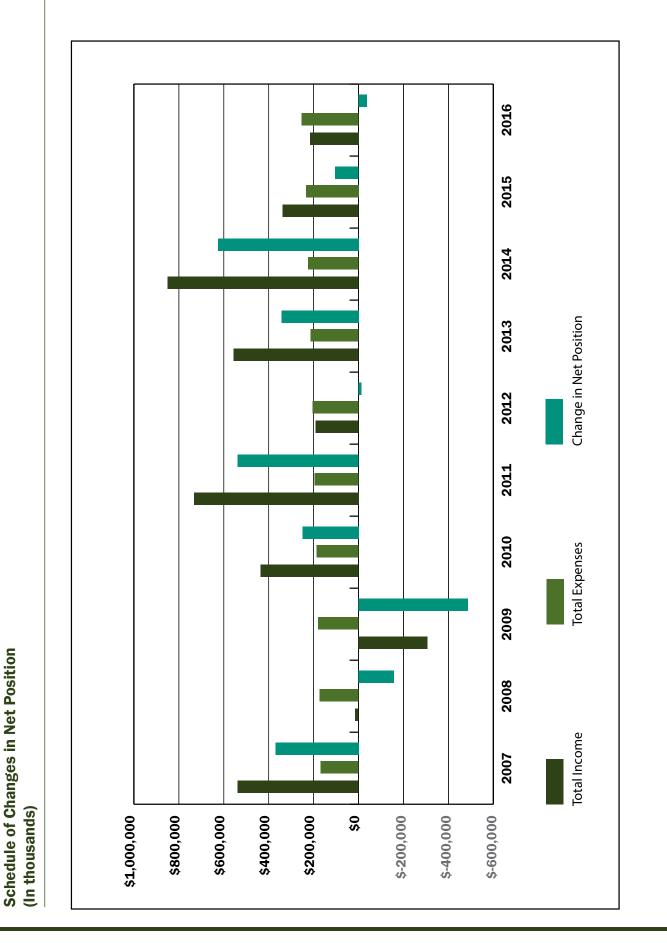
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Qualified Pension Plan Schedule of Changes in Net Position (In thousands)

Contributions       Contributions       Income         \$26,148       \$129,820       \$342,656         \$27,109       \$143,100       (\$130,569)         \$30,971       \$143,225       (\$329,365)         \$31,361       \$147,349       \$218,872         \$31,361       \$147,349       \$218,872         \$31,361       \$147,349       \$218,872         \$31,008       \$180,191       \$425,690         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$33,056       \$213,651       \$113,738         \$33,056       \$213,651       \$113,738         \$33,056       \$213,651       \$113,738         \$33,056       \$213,650       \$875,453         \$33,056       \$258,099       \$177,166	Net Investment Other Total		Bei Payr	Benefit Payments		Administrative	Total	Change in Net
\$26,148\$129,820\$342,656\$27,109\$143,100(\$130,569)\$30,971\$134,225(\$329,365)\$31,361\$147,349\$218,872\$31,361\$147,349\$218,872\$31,008\$180,191\$425,690\$31,008\$180,191\$425,690\$32,866\$213,651\$113,738\$32,866\$213,651\$113,738\$32,866\$213,651\$113,738\$33,056\$196,246\$660,827\$33,564\$258,099\$177,166	Income Receipts II	me Death	Refund	Retirement	<b>Other</b>	Expenses	Expenses	Position
\$27,109       \$143,100       (\$130,569)         \$30,971       \$134,225       (\$329,365)         \$31,361       \$147,349       \$218,872         \$31,361       \$147,349       \$218,872         \$31,361       \$147,349       \$218,872         \$31,008       \$180,191       \$425,690         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$33,056       \$196,246       \$660,827         \$33,056       \$196,246       \$660,827         \$33,056       \$214,590       \$875,453         \$33,564       \$258,099       \$177,166		772 \$6,326	\$3,534	\$147,399	\$3,191	\$7,281	\$167,731	\$370,041
\$30,971       \$134,225       (\$329,365)         \$31,361       \$147,349       \$218,872         \$31,361       \$147,349       \$218,872         \$31,008       \$180,191       \$425,690         \$31,008       \$180,191       \$425,690         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$33,056       \$213,651       \$113,738         \$33,056       \$213,651       \$113,738         \$33,056       \$196,246       \$660,827         \$33,193       \$214,590       \$875,453         \$33,564       \$258,099       \$177,166		\$3,827	\$3,395	\$153,886	\$3,448	\$7,854	\$172,410	(\$157,601)
\$31,361       \$147,349       \$218,872         \$31,008       \$180,191       \$425,690         \$31,008       \$180,191       \$425,690         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$32,056       \$196,246       \$660,827         \$33,056       \$196,246       \$660,827         \$33,193       \$214,590       \$875,453         \$33,564       \$258,099       \$177,166		<b>259)</b> \$7,544	\$2,768	\$159,262	\$2,018	\$8,413	\$180,006	(\$485,265)
\$31,008       \$180,191       \$425,690         \$32,866       \$213,651       \$113,738         \$32,866       \$213,651       \$113,738         \$39,056       \$196,246       \$660,827         \$37,193       \$214,590       \$875,453         \$39,564       \$258,099       \$177,166		<b>814</b> \$8,548	\$4,207	\$164,362	\$1,296	\$8,047	\$186,460	\$249,354
\$213,651 \$113,738 \$196,246 \$660,827 \$214,590 \$875,453 \$258,099 \$177,166		847 \$6,686	\$5,237	\$172,680	\$1,662	\$8,892	\$195,158	\$537,689
\$39,056       \$196,246       \$660,827       1         \$37,193       \$214,590       \$875,453       1         \$33,564       \$258,099       \$177,166       1		<b>164</b> \$6,827	\$4,009	\$181,735	\$1,936	\$8,687	\$203,194	(\$13,030)
\$37,193 \$214,590 \$875,453 \$39,564 \$258,099 \$177,166		072 \$7,858	\$3,360	\$191,463	\$1,412	\$8,927	\$213,020	\$343,052
\$39,564 \$258,099 \$177,166		705 \$7,274	\$3,827	\$202,233	\$981	\$9,776	\$224,09 <b>1</b>	\$625,614
	\$177,166 (\$137,125 <b>\$337,704</b>	<b>704</b> \$5,765	\$4,614	\$211,693	\$1,172	\$10,956	\$234,200	\$103,504
2016 \$38,581 \$265,532 \$164,144 (\$252,288)		<b>969</b> \$9,580	\$4,750	\$224,639	\$1,758	\$12,818	\$253,545	(37,576)

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



**Qualified Pension Plan** 

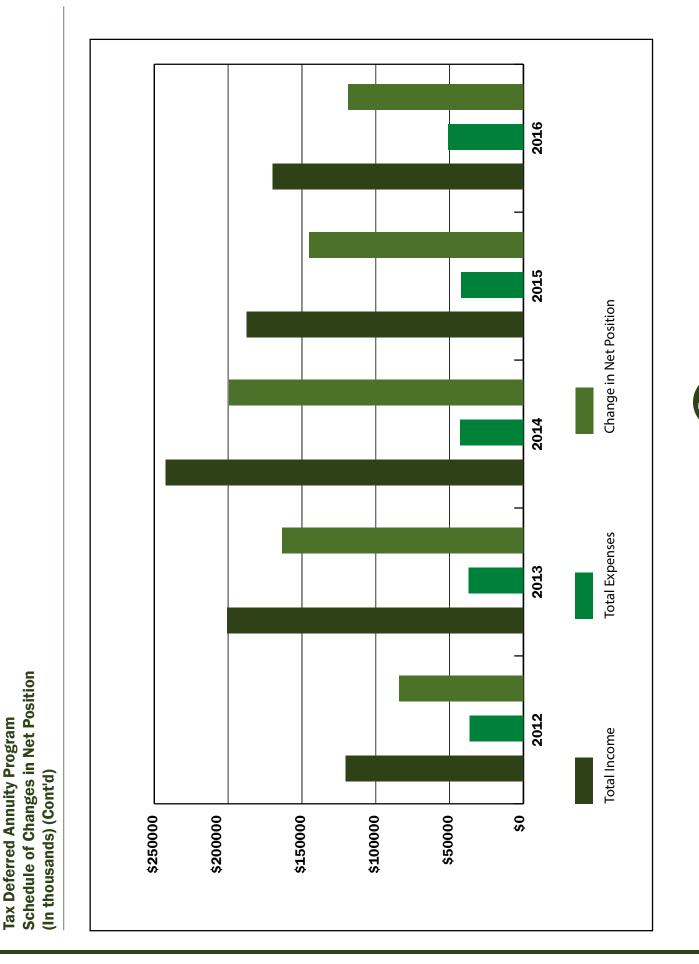




Tax Deferred Annuity Program Schedule of Changes in Net Position (In thousands) (Cont'd)

icipa	Net Year Participant Investment	nt Other	Transfer of Investment	Total		Be Payı	Benefit Payments		Administrative	Total	Change in Net
t i	Ended Contributions Income		Income	Income	Death	Refund	Retirement	Other	Expenses	Expenses	Position
\$59,024	24 \$6,468	\$ \$26,593	\$28,396	\$120,481	\$8,272	\$25,146	\$325	\$68	\$2,445	\$36,256	\$84,225
\$61,550	50 \$62,134	t (\$86,810)	\$163,756	\$200,630	\$6,523	\$27,802	\$301	\$31	\$2,455	\$37, <b>1</b> 12	\$163,518
\$63,767	37 \$82,223	3 (\$110,273)	\$206,615	\$242,332	\$9,242	\$30,755	\$354	\$59	\$2,531	\$42,941	\$199,391
\$74,890	0 \$22,950	\$4,448	\$85,104	\$ <b>1</b> 87,392	\$4,133	\$34,707	\$370	\$12	\$3,033	\$42,255	\$145,137
\$77,459	\$1,049	) (\$3,541)	\$94,789	\$169,756	\$13,292	\$36,467	\$351	\$80	\$850	\$5 <b>1</b> ,039	\$118,717

The table offers a 5 year horizontal comparison base for the operations of the BERS TDA Program.



STATISTICAL

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STATISTICAL

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		Total	\$159,032	\$157,715	\$166,806	\$172,910	\$179,366	\$188,562	\$199,321	\$209,507	\$217,459	\$234,219
	Death After	Retirement	\$481	\$284	\$68	<i>1</i> E\$	\$77	\$10	\$5	\$37	\$592	\$34
Lump Sum Payments	Death In	Service	\$4,678	\$2,318	\$6,188	\$6,887	\$5,328	\$5,035	\$5,890	\$4,768	\$3,642	\$7,094
		Survivors	\$1,167	\$1,226	\$1,288	\$1,624	\$1,280	\$1,782	\$1,963	\$2,469	\$1,532	\$2,453
illity	ment fits	Non-Duty	\$3,595	\$3,866	\$4,158	\$4,472	\$4,810	\$5,173	\$5,564	\$5,984	\$6,435	\$6,921
Disability	Retirement Benefits	Duty	\$1,712	\$1,841	\$1,980	\$2,130	\$2,291	\$2,464	\$2,649	\$2,849	\$3,065	\$3,296
Age And	Service Retirement	Benefits	\$147,399	\$148,179	\$153,124	\$157,760	\$165,580	\$174,099	\$183,250	\$193,400	\$202,193	\$214,422
	Fiscal Year Ended	June 30	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016

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.

	M	en	Wor	nen
Age	Number Of Retirants	Average Annual Allowance	Number Of Retirants	Average Annual Allowance
49 & UNDER	1	\$29,037	5	\$16,583
50 - 54	13	43,635	2	44,246
55 - 59	88	28,187	282	12,938
60 - 64	338	31,344	1,284	11,763
65 - 69	545	28,819	2,440	10,542
70 - 74	532	28,353	2,337	9,779
75 - 79	456	26,932	1,782	8,486
80 - 84	347	24,269	1,479	8,151
85 - 89	235	26,015	1,165	7,745
90 & OVER	118	21,944	701	7,731
TOTALS	2,673	\$27,634	11,477	\$9,508

## AGE AND SERVICE RETIREMENT

# **ORDINARY DISABILITY (NON-DUTY) RETIREMENT**

	Π	<b>Nen</b>	Woi	nen
Age	Number Of Retirants	Average Annual Allowance	Number Of Retirants	Average Annual Allowance
49 & UNDER	6	\$14,667	18	\$13,450
50 - 54	25	17,977	39	11,942
55 - 59	44	19,914	93	11,072
60 - 64	51	17,458	147	9,824
65 - 69	38	16,188	152	9,678
70 - 74	26	13,245	118	8,968
75 - 79	13	14,038	45	9,073
80 - 84	6	19,757	20	6,687
85 - 89	6	15,906	2	7,834
90 & OVER	3	7,261	1	12,354
TOTALS	218	\$16,889	635	\$9,981

NOTE: This schedule is based on 2014 data (LAG)

# ACCIDENTAL DISABILITY (DUTY) RETIREMENT

	I	Men	Wa	men
Age Of Retirants	Number Of Retirants	Average Annual Allowance	Number Of Retirants	Average Annual Allowance
49 & UNDER	0	\$0	3	\$9,890
50 - 54	5	16,918	9	8,396
55 - 59	8	15,154	13	10,986
60 - 64	11	14,382	21	9,853
65 - 69	8	19,722	17	7,343
70 - 74	6	20,180	13	6,609
75 - 79	8	26,023	13	7,797
80 - 84	1	26,273	8	5,978
85 - 89	6	26,594	3	8,466
90 & OVER	1	27,014	2	4,769
TOTALS	54	19,702	102	\$8,332

# **ACCIDENTAL DEATH (DUTY) RETIREMENT**

	M	len	Woi	nen
Age Of Retirants	Number Of Retirants	Average Annual Allowance	Number Of Retirants	Average Annual Allowance
49 & UNDER	0	\$O	0	\$O
50 - 54	0	0	0	0
55 - 59	1	5,961	0	0
60 - 64	0	0	0	0
65 - 69	0	0	0	0
70 - 74	0	0	0	0
75 - 79	1	9,115	0	0
80 - 84	0	0	0	0
85 - 89	0	0	0	0
90 & OVER	0	0	0	0
TOTALS	2	\$7,538	0	\$0

NOTE: This schedule is based on 2014 data (LAG)

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	Г	<b>Nen</b>	Woi	nen
Age Of Retirants	Number Of Retirants	Average Annual Allowance	Number Of Retirants	Average Annual Allowance
49 & UNDER	29	\$6,432	43	\$5,014
50 - 54	10	3,760	26	8,398
55 - 59	12	4,522	23	10,542
60 - 64	12	11,679	44	13,307
65 - 69	25	6,446	61	15,450
70 - 74	22	6,001	74	21,399
75 - 79	26	6,277	98	21,055
80 - 84	19	8,293	101	18,790
85 - 89	14	7,127	102	18,284
90 & OVER	8	7,047	85	14,707
TOTALS	177	\$6,715	657	\$16,536

# **OTHER BENEFICIARIES**

#### ALL PENSIONERS AND BENEFICIARIES

	Г	/len	Wor	nen
Age Of Retirants	Number Of Retirants	Average Annual Allowance	Number Of Retirants	Average Annual Allowance
49 & UNDER	36	\$8,432	69	\$8,265
50 - 54	53	21,488	76	11,160
55 - 59	153	23,125	411	12,320
60 - 64	412	28,599	1,496	11,591
65 - 69	616	27,014	2,670	10,584
70 - 74	586	26,760	2,542	10,063
75 - 79	504	25,484	1,938	9,131
80 - 84	373	23,388	1,608	8,790
85 - 89	261	24,783	1,272	8,592
90 & OVER	130	20,727	789	8,481
TOTALS	3,124	\$25,549	12,871	\$9,876

NOTE: This schedule is based on 2014 data (LAG)

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## DATA USED IN THE JUNE 30, 2014 (LAG) ACTUARIAL VALUATION FOR DETERMINING FISCAL YEAR 2016 EMPLOYER CONTRIBUTIONS

Age \ Svc	Under 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up	All Years
Number:										
UNDER 20	1	0	0	0	0	0	0	0	0	1
20 TO 24	103	0	0	0	0	0	0	0	0	103
25 TO 29	288	32	0	0	0	0	0	0	0	320
30 TO 34	369	136	25	0	0	0	0	0	0	530
35 TO 39	320	204	100	21	1	0	0	0	0	646
40 TO 44	289	245	154	60	16	1	0	0	0	765
45 TO 49	268	221	179	134	55	21	1	0	0	879
50 TO 54	272	205	167	158	138	85	14	2	0	1,041
55 TO 59	194	167	144	130	121	119	44	12	0	931
60 TO 64	117	115	86	86	73	79	44	20	5	625
65 TO 69	47	58	53	28	21	19	15	9	6	256
70 & UP	21	34	27	24	11	22	3	4	2	148
TOTAL	2,289	1,417	935	641	436	346	121	47	13	6,245
Salaries (In	thousands):									
UNDER 20	44	0	0	0	0	0	0	0	0	44
20 TO 24	2,885	0	0	0	0	0	0	0	0	2,885
25 TO 29	10,700	1,316	0	0	0	0	0	0	0	12,016
30 TO 34	16,564	7,523	1,106	0	0	0	0	0	0	25,192
35 TO 39	15,819	12,769	6,045	1,308	55	0	0	0	0	35,996
40 TO 44	13,985	16,687	10,833	3,887	867	26	0	0	0	46,285
45 TO 49	12,447	15,094	12,494	9,971	3,943	1,431	75	0	0	55,455
50 TO 54	12,021	12,195	10,660	11,781	10,516	6,932	1,087	155	0	65,347
55 TO 59	8,104	9,963	8,994	9,227	9,392	10,211	4,334	1,011	0	61,236
60 TO 64	4,957	6,423	4,984	5,611	6,057	6,817	4,168	1,737	420	41,174
65 TO 69	1,635	2,769	2,497	1,951	1,556	1,585	1,346	956	638	14,933
70 & UP	725	1,447	979	1,421	637	1,574	269	208	172	7,431
TOTAL *	99,886	86,185	58,591	45,156	33,024	28,576	11,280	4,066	1,230	367,994
Average Sal										
UNDER 20	43,880	0	0	0	0	0	0	0	0	43,880
20 TO 24	28,011	0	0	0	0	0	0	0	0	28,011
25 TO 29	37,153	41,117	0	0	0	0	0	0	0	37,550
30 TO 34	44,888	55,314	44,233	0	0	0	0	0	0	47,532
35 TO 39	49,433	62,595	60,446	62,279	55,460	0	0	0	0	55,721
40 TO 44	48,392	68,110	70,347	64,787	54,169	25,700	0	0	0	60,504
45 TO 49	46,444	68,298	69,797	74,407	71,695	68,156	75,440	0	0	63,089
50 TO 54	44,195	59,486	63,834	74,566	76,204	81,547	77,633	77,400	0	62,773
55 TO 59	41,774	59,658	62,458	70,976	77,621	85,808	98,506	84,212	0	65,774
60 TO 64	42,371	55,854	57,951	65,245	82,974	86,288	94,719	86,861	83,958	65,878
65 TO 69	34,781	47,733	47,109	69,671	74,104	83,432	89,749	106,220	106,367	58,330
70 & UP	34,530	42,561	36,241	59,188	57,896	71,548	89,810	51,945	85,945	50,211
TOTAL	43,637	60,822	62,664	70,447	75,743	82,589	93,222	86,517	94,606	58,926

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

\* Total may not add up due to rounding.

\*\* Average based on actual unrounded salary.

#### DATA USED IN THE JUNE 30, 2014 (LAG) ACTUARIAL VALUATION FOR DETERMINING FISCAL YEAR 2016 EMPLOYER CONTRIBUTIONS

Age $\setminus$ Svc	Under 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up	All Years
Number:										
UNDER 20	3	0	0	0	0	0	0	0	0	3
20 TO 24	120	0	0	0	0	0	0	0	0	120
25 TO 29	550	31	1	0	0	0	0	0	0	582
30 TO 34	700	262	48	1	0	0	0	0	0	1,011
35 TO 39	721	410	222	29	2	0	0	0	0	1,384
40 TO 44	839	501	350	116	27	1	0	0	0	1,834
45 TO 49	998	744	513	280	98	33	4	0	0	2,670
50 TO 54	995	893	836	488	186	79	37	1	0	3,515
55 TO 59	748	804	962	714	288	159	79	10	4	3,768
60 TO 64	363	472	640	533	309	155	48	23	14	2,557
65 TO 69	123	152	243	208	156	111	22	11	7	1,033
70 & UP	62	60	75	92	84	70	12	3	2	460
TOTAL	6,222	4,329	3,890	2,461	1,150	608	202	48	27	18,937
Salaries (In	thousands):									
UNDER 20	85	0	0	0	0	0	0	0	0	85
20 TO 24	3,148	0	0	0	0	0	0	0	0	3,148
25 TO 29	22,880	1,249	80	0	0	0	0	0	0	24,209
30 TO 34	33,168	14,342	2,102	43	0	0	0	0	0	49,654
35 TO 39	29,382	21,758	11,633	1,340	103	0	0	0	0	64,215
40 TO 44	29,984	20,182	16,241	6,114	1,734	82	0	0	0	74,336
45 TO 49	30,638	25,311	18,396	11,281	5,212	1,984	388	0	0	93,210
50 TO 54	27,980	28,847	27,506	16,547	7,897	4,472	2,503	93	0	115,845
55 TO 59	22,091	25,675	30,007	23,268	10,634	7,735	5,250	755	228	125,644
60 TO 64	10,711	15,123	19,431	15,736	11,275	6,263	2,742	1,405	882	83,568
65 TO 69	3,382	4,558	6,966	5,804	4,701	3,622	1,090	600	509	31,233
70 & UP	1,370	1,603	1,828	2,433	2,158	1,957	489	115	97	12,049
TOTAL *	214,817	158,648	134,188	82,565	43,715	26,115	12,462	2,968	1,716	677,194
Average Sal	aries: **									
UNDER 20	28,173	0	0	0	0	0	0	0	0	28,173
20 TO 24	26,230	0	0	0	0	0	0	0	0	26,230
25 TO 29	41,600	40,303	79,520	0	0	0	0	0	0	41,596
30 TO 34	47,382	54,741	43,782	42,910	0	0	0	0	0	49,114
35 TO 39	40,752	53,067	52,400	46,206	51,270	0	0	0	0	46,398
40 TO 44	35,738	40,284	46,402	52,705	64,229	81,700	0	0	0	40,532
45 TO 49	30,700	34,020	35,859	40,289	53,183	60,115	97,105	0	0	34,910
50 TO 54	28,120	32,304	32,902	33,908	42,459	56,606	67,652	92,880	0	32,957
55 TO 59	29,533	31,934	31,193	32,589	36,924	48,645	66,452	75,482	57,088	33,345
60 TO 64	29,507	32,041	30,360	29,523	36,488	40,408	57,129	61,087	62,989	32,682
65 TO 69	27,492	29,987	28,666	27,904	30,136	32,634	49,545	54,583	72,717	30,235
70 & UP	22,100	26,709	24,367	26,440	25,693	27,959	40,749	38,297	48,275	26,192
TOTAL	34,525	36,648	34,496	33,550	38,013	42,952	61,695	61,833	63,547	35,760

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

\* Total may not add up due to rounding.

\*\* Average based on actual unrounded salary.

## DATA USED IN THE JUNE 30, 2014 (LAG) ACTUARIAL VALUATION FOR DETERMINING FISCAL YEAR 2016 EMPLOYER CONTRIBUTIONS

Age ∖ Svc	Under 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up	All Years
Number:										
UNDER 20	4	0	0	0	0	0	0	0	0	4
20 TO 24	223	0	0	0	0	0	0	0	0	223
25 TO 29	838	63	1	0	0	0	0	0	0	902
30 TO 34	1,069	398	73	1	0	0	0	0	0	1,541
35 TO 39	1,041	614	322	50	3	0	0	0	0	2,030
40 TO 44	1,128	746	504	176	43	2	0	0	0	2,599
45 TO 49	1,266	965	692	414	153	54	5	0	0	3,549
50 TO 54	1,267	1,098	1,003	646	324	164	51	3	0	4,556
55 TO 59	942	971	1,106	844	409	278	123	22	4	4,699
60 TO 64	480	587	726	619	382	234	92	43	19	3,182
65 TO 69	170	210	296	236	177	130	37	20	13	1,289
70 & UP	83	94	102	116	95	92	15	7	4	608
TOTAL	8,511	5,746	4,825	3,102	1,586	954	323	95	40	25,182
-	thousands):		-	-	-		-	-	_	
UNDER 20	128	0	0	0	0	0	0	0	0	128
20 TO 24	6,033	0	0	0	0	0	0	0	0	6,033
25 TO 29	33,580	2,565	80	0	0	0	0	0	0	36,225
30 TO 34	49,731	21,865	3,207	43	0	0	0	0	0	74,847
35 TO 39	45,201	34,527	17,677	2,648	158	0	0	0	0	100,211
40 TO 44	43,969	36,869	27,074	10,001	2,601	107	0	0	0	120,622
45 TO 49	43,085	40,404	30,890	21,252	9,155	3,415	464	0	0	148,665
50 TO 54	40,001	41,042	38,166	28,328	18,413	11,403	3,590	248	0	181,192
55 TO 59	30,195	35,638	39,001	32,495	20,026	17,946	9,584	1,765	228	186,879
60 TO 64	15,668	21,547	24,414	21,347	17,332	13,080	6,910	3,142	1,302	124,742
65 TO 69	5,016	7,327	9,463	7,755	6,257	5,208	2,436	1,556	1,147	46,165
70 & UP	2,095	3,050	2,806	3,853	2,795	3,531	758	323	268	19,480
TOTAL *	314,703	244,833	192,779	127,722	76,738	54,690	23,742	7,034	2,946	1,045,188
Average Sa	aries: **									
UNDER 20	32,100	0	0	0	0	0	0	0	0	32,100
20 TO 24	27,052	0	0	0	0	0	0	0	0	27,052
25 TO 29	40,072	40,717	79,520	0	0	0	0	0	0	40,161
30 TO 34	46,521	54,937	43,936	42,910	0	0	0	0	0	48,570
35 TO 39	43,420	56,233	54,899	52,956	52,667	0	0	0	0	49,365
40 TO 44	38,980	49,422	53,718	56,824	60,486	53,700	0	0	0	46,411
45 TO 49	34,033	41,870	44,638	51,332	59,837	63,242	92,772	0	0	41,889
50 TO 54	31,571	37,379	38,052	43,852	56,832	69,533	70,392	82,560	0	39,770
55 TO 59	32,054	36,702	35,263	38,501	48,964	64,553	77,918	80,244	57,088	39,770
60 TO 64	32,642	36,706	33,629	34,486	45,371	55,897	75,107	73,075	68,507	39,202
65 TO 69	29,507	34,888	31,968	32,859	35,353	40,058	65,844	77,820	88,248	35,815
70 & UP	25,245	32,442	27,510	33,216	29,422	38,382	50,561	46,096	67,110	32,039
TOTAL	36,976	42,609	39,954	41,174	48,385	57,327	73,505	74,045	73,641	41,505

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

\* Total may not add up due to rounding.

\*\* Average based on actual unrounded salary.

Qualified Pension Plan Annual Average Benefit Payments Amount

Fiscal Year	Re	Service Retirement Benefits	șfits	6 -	Ordinary (Non-Duty) Disability Benefits	uty) fits		Accidental (Duty) Disability Benefits	iy) its		Survivor Benefits	
Ended June 30	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
2004 (Lag)	10,450	\$11,018	\$918	454	\$9,881	\$823	118	\$12,295	\$1,025	603	\$12,942	\$1,079
2005 (Lag)	10,723	\$11,106	\$926	495	\$9,802	\$817	125	\$12,555	\$1,046	628	\$12,956	\$1,080
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





# Schedule of Participating Employers As Of June 30, 2014 (Lag)

EmployeNumber of Employees <sup>(1)</sup> Mumber of Employees <sup>(1)</sup> Number of Employees <sup>(1)</sup> NVC Department of Education <sup>(2)</sup> 24,608\$ 990,464,59522,627NVC Department of Education <sup>(2)</sup> 24,608\$ 990,464,59522,627NVC Schools Construction Authority557\$ 990,464,595364NVC Schools Construction Authority557\$ 54,110,222364NVC Schools Construction Authority1\$ 54,110,222364Noterer Schools1\$ 54,110,2221364Beginning with Children3\$ 54,110,22217Renaissance14\$ 51,54917Notation Schools25,48254,045,487,73877Notation Schools25,48221,54977Notation Schools1117Notation Schools1111Notation Schools1117Notation Schools1111Notation Schools <th></th> <th>As of</th> <th>As of June 30, 2014 (Lag)</th> <th>As of Jun</th> <th>As of June 30, 2005</th>		As of	As of June 30, 2014 (Lag)	As of Jun	As of June 30, 2005
Department of Education <sup>(2)</sup> 24,608         \$ 990,464,595         22           Schools Construction Authority         557         \$ 54,110,222         2           Set Schools         554         554,110,222         2         2           Set Schools         554         554,110,222         5         2         2           Set Schools         554,110,222         \$ 54,110,222         5         2	Employer	Number of Employees <sup>(1)</sup>	Annual Payroll <sup>(1)</sup>	Number of Employees <sup>(1)</sup>	Annual Payroll <sup>(1)</sup>
Schools Construction Authority         557         \$ 54,110,222           Schools Construction Authority         \$ 54,110,222         \$ 54,110,222           Schools         Schools         \$ 54,110,222         \$ 54,110,222	NYC Department of Education <sup>(2)</sup>	24,608	\$ 990,464,595	22,627	\$ 685,062,766
behools Construction Authority       557       \$ 54,110,222         er Schools            er Schools             er Schools              er Schools               er Schools   <					
er Schools       3       \$ 101,372         eginning with Children       3       \$ 511,549         enaissance       14       \$ 51,045,187,738	NYC Schools Construction Authority	557		364	\$ 29,538,936
er Schools       3       \$ 101,372         eginning with Children       3       \$ 511,549         enaissance       14       \$ 51,045,187,738					
aginning with Children     3     \$ 101,372       anaissance     14     \$ 511,549       anaissance     25,182     \$1,045,187,738	Charter Schools				
enaissance 14 \$ 511,549 \$ 513,549 \$ 525,182 \$ \$ 510,549	Beginning with Children	ε		7	\$ 180,909
25,182 \$1,045,187,738	Renaissance	14		7	\$ 295,008
	Total	25,182	\$ 1,045,187,738	23,005	\$ 715,077,619

(1) The number of employees and their corresponding salaries (Annual Payroll) include only current active members receiving salary as of June 30th.

For actuarial valuation purposes these employees are included with the NYC Department of Education pending confirmation of status. A limited (de minimis) number of these employees have been reported as employed by employers other than those listed in the table. (7)









**Board of Education Retirement System** 65 Court Street, Room 1603 Brooklyn, NY 11201 718-935-5400 • 800-843-5575