New York City Board of Education Retirement System

(A Fiduciary Fund of The City of New York)

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

For the Years Ended June 30, 2019 and 2018

MARKS PANETH

ACCOUNTANTS & ADVISORS

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM

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

Management's Responsibility for the Combining Financial Statements

Management is responsible for the preparation and fair presentation of these combining financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of the combining financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

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

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the combining financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the combining financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the System's preparation and fair presentation of the combining financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the System's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the combining financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions

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

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis, Schedule 1, Schedule 2, and Schedule 3, as listed in the table of contents, be presented to supplement the basic combining financial statements. Such information, although not a part of the basic combining financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of the financial reporting for placing the basic combining financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic combining financial statements, and other knowledge we obtained during our audit of the basic combining financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Marks Paneth LLP

New York, NY
October 24, 2019

This narrative discussion and analysis of the New York City Board of Education Retirement System's ("BERS" or the "System") financial performance provides an overview of the System's combining financial activities for the Fiscal Years ended June 30, 2019 and 2018. It is meant to assist the reader in understanding the System's combining financial statements by providing an overall review of the combining financial activities during the years, the effects of significant changes, and a comparison of the prior years' activities and results. This discussion and analysis is intended to be read in conjunction with the System's combining financial statements. The System administers the BERS Qualified Pension Plan (the "QPP") and the BERS Tax-Deferred Annuity Program (the "TDA Program").

OVERVIEW OF BASIC COMBINING FINANCIAL STATEMENTS

The following discussion and analysis is intended to serve as an introduction to the System's basic combining financial statements. The basic combining financial statements, which are prepared in accordance with Governmental Accounting Standards Board ("GASB") pronouncements and include the financial statements of the QPP and the TDA Program, are as follows:

- **The Combining Statements of Fiduciary Net Position**—presents the financial position of the System at fiscal year-end. It provides information about: the nature and amounts of resources with present service capacity that the System presently controls (assets); consumption of net assets by the System that is applicable to a future reporting period (deferred outflow of resources); present obligations to sacrifice resources that the System has little or no discretion to avoid (liabilities); and acquisition of net assets by the System that is applicable to a future reporting period (deferred inflow of resources) with the difference between assets/deferred outflow of resources and liabilities/deferred inflow of resources being reported as net position. Investments are shown at fair value. All other assets and liabilities are determined on an accrual basis.

- **The Combining Statements of Changes in Fiduciary Net Position**—presents the results of activities during the fiscal year. All changes affecting the assets/deferred outflow and liabilities/deferred inflow of the System are reflected on an accrual basis when the activity occurred, regardless of the timing of the related cash flows. In that regard, changes in the fair values of investments are included in the year's activity as net appreciation (depreciation) in fair value of investments.

- **The Notes to Combining Financial Statements**—provide additional information that is essential to a full understanding of the data provided in the combining financial statements. The notes present information about the System's accounting policies, significant account balances and activities, material risks, obligations, contingencies and subsequent events, if any.

- **Required Supplementary Information**—as required by GASB includes the management discussion and analysis and information presented after the notes to the combining financial statements.

FINANCIAL HIGHLIGHTS

QPP Fiduciary Net Position

QPP's net position restricted for benefits stood at $4.99 billion during Fiscal Year 2019, an increase of 6.83% from Fiscal Year 2018. The increase was primarily due to an increase in the fair value of investments. Fair value of investments, which includes the collateral from security lending, increased from $6.45 billion in Fiscal Year 2018 to $6.90 billion in Fiscal Year 2019, an increase of 6.91%. Return on investments stood at 5.89%.

During Fiscal Year 2018, QPP's net position restricted for benefits stood at $4.67 billion, an increase of 13.99% from Fiscal Year 2017. The increase in the net position during Fiscal Year 2018 was due to an increase in the fair value of investments. Fair value of investments, including the collateral from security lending, stood at $6.45 billion, an increase of 13.14% from Fiscal Year 2017. Return on investments stood at 8.76%.

QPP Fiduciary Net Position
June 30, 2019, 2018, and 2017

(In thousands)	**2019**	**2018**	**2017**
Assets:			
Cash	$ 3,694	$ 2,106	$ 3,232
Receivables	240,378	149,067	155,750
Investments, at fair value	6,491,787	6,067,189	5,332,614
Collateral from securities lending	412,005	390,140	374,943
Other	248,466	206,757	160,453
Total assets	7,396,330	6,815,259	6,026,992
Liabilities:			
Accounts payable	43,333	34,454	13,884
Other liability	-	-	-
Payable for investment securities purchased	182,667	115,140	92,173
Accrued benefits payable	10,034	9,747	9,943
Due to the TDA Program's Fixed return fund from the System	1,756,459	1,592,875	1,436,478
Payables for securities lending	412,005	390,140	374,943
Total liabilities	2,404,498	2,142,356	1,927,421
Net position restricted for benefits	$ 4,991,832	$ 4,672,903	$ 4,099,571

Total receivables increased from $149.06 million in Fiscal Year 2018 to $240.37 million in Fiscal Year 2019, an increase of 61.26%. Included in the total receivables are the receivables for investment, which increased from $84.96 million in Fiscal Year 2018 to $173.66 million in Fiscal Year 2019, an increase of $88.70 million from Fiscal Year 2018. Payables for investments increased from $115.14 million in Fiscal Year 2018 to $182.66 million in Fiscal Year 2019, an increase of $67.52 million from Fiscal Year 2018.

At the close of Fiscal Year 2018, total receivables decreased from $155.75 million in Fiscal year 2017 to $149.06 million, a decrease of 4.29%. The decrease in the receivables was caused by the decrease in the receivables for investment. Receivables for investments were at $84.96 million in Fiscal Year 2018, a decrease of 13.90% from Fiscal Year 2017.

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.

Member loans stood at $50.58 million in Fiscal Year 2019, a marginal increase of 1.10% from Fiscal Year 2018.

The account "Due to the TDA Program's Fixed return fund from the System" represents a liability to the TDA program, since the TDA Program assets are pooled with QPP assets for investment purposes. The liability for Fiscal Year 2019 stood at $1.75 billion, an increase of 10.27% from Fiscal Year 2018. This liability includes the TDA member's account balances for deposits invested in fixed investment program.

Changes in QPP Fiduciary Net Position

During Fiscal Year 2019, the QPP member contributions increased to $46.30 million, an increase of 13.36% from Fiscal Year 2018. In Fiscal Year 2018, the QPP member contributions increased to $40.84 million, an increase of 2.57% from Fiscal Year 2017 contributions of $39.82 million.

Changes in QPP Program Fiduciary Net Position
Years Ended June 30, 2019, 2018, and 2017

(In thousands)	**2019**	**2018**	**2017**
Additions:			
Member contributions	$ 46,304	$ 40,846	$ 39,821
Employer contributions	269,637	318,643	288,233
Net investment income before securities lending transaction	404,959	561,877	856,632
Net securities lending income	1,920	3,700	5,878
TDA Program's interest income in the fixed return fund	(141,695)	(127,972)	(106,554)
Other - payments to other retirement systems and other revenues/expenses	35,624	51,024	(122,954)
Total additions	616,749	848,118	961,056
Deductions:			
Benefit payments and withdrawals	280,463	261,574	262,432
Administrative expenses	17,357	13,212	15,486
Total deductions	297,820	274,786	277,918
Net increase in net position	318,929	573,332	683,138
Net position restricted for benefits:			
Beginning of year	4,672,903	4,099,571	3,416,433
End of year	$ 4,991,832	$ 4,672,903	$ 4,099,571

Employer contributions received through the QPP Program decreased from $318.64 million in the Fiscal Year 2018 to $269.63 million in Fiscal Year 2019, a decrease of 15.38%. The employer contributions are made on a statutory basis based on the one–year lag methodology.

The net investment income, which includes the security lending income, decreased from $565.57 million in Fiscal Year 2018 to $406.87 million in Fiscal Year 2019. Return on investments decreased from 8.76% in Fiscal Year 2018 to 5.89% in Fiscal Year 2019.

The benefit payments and withdrawals increased from $261.57 million in Fiscal Year 2018 to $280.46 million in Fiscal Year 2019, an increase of 7.22%. During Fiscal Year 2018, the benefits payments and withdrawals decreased by 0.33%, from $262.43 million to $261.57 million.

Administrative expenses increased from $13.21 million in Fiscal Year 2018 to $17.35 million in Fiscal Year 2019, a net increase of $4.14 million. During Fiscal Year 2018, administrative expenses stood at $13.21 million, a decrease of 14.68% from Fiscal Year 2017.

Interest to the TDA Program's fixed return fund represents the statutory interest credited on the TDA Program member account balances. The statutory rate of interest is currently 7.00% for UFT members and 8.25% for all other members. During Fiscal Year 2019, the interest to the TDA Program's fixed return fund stood at $141.69 million, an increase of $13.72 million from Fiscal Year 2018. The table below displays revenue (expenses) to the System due to any surplus or deficiency between the actual rate of return on the fixed investments and the statutory rate.

Net Investment Income (Loss) to the System from TDA Member Holdings in Fixed Return Fund*:
Years Ended June 30, 2019, 2018, 2017, 2016 and 2015

(In thousands)	2019	2018	2017	2016	2015
Net investment income	$ 403,041	$ 559,753	$ 854,992	$ 164,435	$ 174,876
TDA percent of Fixed Assets (average)	25.26%	25.13%	25.63%	25.03%	23.77%
Investment Income on account of TDA investment	$ 101,812	$ 140,661	$ 219,121	$ 41,165	$ 41,568
Less: Statutory Interest to TDA	(141,695)	(127,972)	(106,554)	(94,789)	(85,104)
Revenue (Expense) to the System	$ (39,883)	$ 12,689	$ 112,567	$ (53,624)	$ (43,536)

*Includes security-lending income

TDA Program Fiduciary Net Position

The TDA program's net position restricted for benefits stood at $2.12 billion during Fiscal Year 2019, a net increase of 8.06% from Fiscal Year 2018. The increase was primarily due to an increase in the fair value of investments, combined with an increase in the receivables from QPP towards TDA program. Fair value of TDA variable investments including collateral security lending stood at $548.27 million in Fiscal Year 2019, an increase of 5.84% from Fiscal Year 2018. Receivables from QPP towards TDA program increased by 10.27% in Fiscal Year 2019; from $1.59 billion in Fiscal Year 2018 to $1.75 billion in Fiscal Year 2019.

During Fiscal Year 2018, the TDA Program's net position restricted for benefits increased to $1.96 billion, a net increase of $169.12 million or 9.40% from Fiscal Year 2017. The increase in Fiscal Year 2018 was primarily due to an increase in the fair value of investments and the receivables from QPP towards TDA program, which went up 11.85% and 10.89%, respectively. The TDA Program's fair value of variable investment including collateral security lending stood at $518.04 million, an increase of 11.85% from Fiscal Year 2017. Receivable from QPP towards the TDA Program increased by 10.89% in Fiscal Year 2018, from $1.43 billion for Fiscal Year 2017 to $1.59 billion in Fiscal Year 2018.

TDA Program Fiduciary Net Position
June 30, 2019, 2018, and 2017

(In thousands)	2019	2018	2017
Assets:			
Cash	$ 410	$ 355	$ 105
Receivables	48,205	44,831	42,281
Due to the TDA Program's Fixed return fund from the System	1,756,459	1,592,875	1,436,478
Investments, at fair value	544,694	512,426	457,248
Collateral from securities lending	3,583	5,618	5,917
Other	-	-	-
Total assets	2,353,351	2,156,105	1,942,029
Liabilities:			
Accounts payable	$ -	$ -	$ -
Other liability	209,241	173,813	128,452
Payable for investment securities purchased	3,654	709	1,435
Accrued benefits payable	9,455	7,157	6,537
Payables for securities lending transactions	3,583	5,618	5,917
Total liabilities	225,933	187,297	142,341
Net position restricted for benefits	$ 2,127,418	$ 1,968,808	$ 1,799,688

Total receivables increased by $3.37 million in Fiscal Year 2019, an increase of 7.53% from Fiscal Year 2018. Member loan outstanding marginally increased from $43.56 million in Fiscal Year 2018 to $43.79 million in Fiscal Year 2019, an increase of 0.51% from Fiscal Year 2018.

During Fiscal Year 2019, receivables and payables for investment stood at $3.45 million and $3.65 million respectively. 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.

At the end of Fiscal Year 2018, total receivables increased from $42.28 million in Fiscal Year 2017 to $44.83 million. Included in these receivables, the TDA Program's member loans outstanding went from $40.75 million at the close of Fiscal Year 2017 to $43.56 million at the close of Fiscal Year 2018, a 6.90% increase.

Changes in TDA Program Fiduciary Net Position

During Fiscal Year 2019, member contributions to the TDA Program increased to $102.20 million, a 13.59% increase from $89.97 million contribution in Fiscal Year 2018. The number of contributing members increased by 5.48%. Net investment income including net securities lending income decreased from $59.16 million in Fiscal Year 2018 to $40.08 million in Fiscal Year 2019, a net decrease of $19.08 million.

Member contributions to the TDA Program increased to $89.97 million during Fiscal Year 2018, a 4.90% increase from the $85.76 million contributed in Fiscal Year 2017. Net investment income decreased from $75.73 million in Fiscal Year 2017 to $59.16 million in Fiscal Year 2018, a net decrease of $16.57 million.

Changes in TDA Program Fiduciary Net Position
Years Ended June 30, 2019, 2018, and 2017

(In thousands)	2019	2018	2017
Additions:			
Member contributions	$ 102,203	$ 89,972	$ 85,765
Net investment income before securities lending transaction	40,008	59,075	75,633
Net securities lending income	79	93	106
TDA Program's interest income in the fixed return fund	141,695	127,972	106,554
Other - payments to other retirement systems and other revenues/expenses	(43,842)	(54,240)	(48,113)
Total additions	240,143	222,872	219,945
Deductions:			
Benefit payments and withdrawals	81,414	53,668	50,208
Administrative expenses	119	84	125
Total deductions	81,533	53,752	50,333
Net increase in net position	158,610	169,120	169,612
Net position restricted for benefits:			
Beginning of year	1,968,808	1,799,688	1,630,076
End of year	$2,127,418	$1,968,808	$1,799,688

Benefit payments and withdrawals increased from $53.66 million in Fiscal Year 2018 to $81.41 million in Fiscal Year 2019, an increase of $27.75 million. The increase was primarily due to an increase in the benefit payments towards death benefits and refund payments. The death benefit payments increased from $10.85 million in Fiscal Year 2018 to $25.49 million in Fiscal Year 2019, an increase of $14.64 million from Fiscal Year 2018. The refund payments stood at $55.49 million in Fiscal Year 2019, an increase of $13.06 million from Fiscal Year 2018.

During Fiscal Year 2018, the benefit payments and withdrawals stood at $53.66 million, an increase of $3.46 million from Fiscal Year 2017. The increase was due to an increase in the death benefit payments from $9.42 million in Fiscal Year 2017 to $10.85 million in Fiscal Year 2018.

Investment Summary

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

Investment Summary
(In thousands)

Fair Value		June 30, 2019		June 30, 2018		June 30, 2017
Short-term Investments	$	89,806	$	139,691	$	57,514
Debt Securities		1,853,710		1,542,859		1,111,952
U.S. Equity Securities		2,698,595		2,236,820		636,126
Alternative Investments		892,479		765,549		612,677
Collective Trust Funds		1,501,891		1,894,696		3,371,593
Promissory Notes		-		-		-
Collateral Securities Lending		415,588		395,758		380,860
Total	$	7,452,069	$	6,975,373	$	6,170,722

Because the QPP's liabilities are of a long-term nature, the assets of the QPP and the TDA Programs are invested with a long-term investment horizon. Assets are invested in a diversified portfolio of capital market securities. Investments in these assets are expected to produce higher returns but are also subject to greater volatility and may produce negative returns. The system's investments increased by 6.83% in FY 2019, 13.04% in FY 2018, increased by 13.64% in Fiscal Year 2017.

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 Director of Fiscal Operations, New York City Board of Education Retirement System, 65 Court Street, 16th Floor, and Brooklyn, New York 11201.

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM
COMBINING STATEMENTS OF FIDUCIARY NET POSITION
JUNE 30, 2019
(In thousands)

	QPP	TDA Program	Eliminations	TOTAL
ASSETS:				
Cash	$ 3,694	$ 410	$ -	$ 4,104
Receivables:				
Investment securities sold	173,665	3,459	-	177,124
Accrued interest and dividends	15,501	953	-	16,454
Member loans	50,586	43,793	-	94,379
Other	626	-	-	626
Total receivables	240,378	48,205	-	288,583
Investments — at fair value				
Fixed return funds:				
Short-term investments:				
Commercial paper	46,954	-	-	46,954
Short-term investment fund	26,625	-	-	26,625
Discount notes, U.S. Treasury bills and Agencies	11,108	-	-	11,108
Debt securities	1,841,703	-	-	1,841,703
Equity securities	2,116,377	-	-	2,116,377
Alternative Investments	892,479	-	-	892,479
Collective Trust Funds				
International equity	1,096,779	-	-	1,096,779
Domestic Equity	261,858	-	-	261,858
Mortgage debt security	20,203	-	-	20,203
Treasury Inflation protected securities	-	-	-	-
Fixed Income	123,051	-	-	123,051
Collateral from securities lending	411,646	-	-	411,646
Variable return funds:				
Short-term investments	467	4,652	-	5,119
Debt securities	1,095	10,912	-	12,007
Equities	53,088	529,130	-	582,218
Collateral from securities lending	359	3,583	-	3,942
Total investments	6,903,792	548,277	-	7,452,069
Due to the TDA Program's Fixed return fund from System	-	1,756,459	(1,756,459)	-
Other assets	248,466	-	(209,241)	39,225
Total assets	7,396,330	2,353,351	(1,965,700)	7,783,981
LIABILITIES:				
Accounts payable	43,333	-	-	43,333
Other liability	-	209,241	(209,241)	-
Payable for investment securities purchased	182,667	3,654	-	186,321
Accrued benefits payable	10,034	9,455	-	19,489
Due to the TDA Program's Fixed return fund from System	1,756,459	-	(1,756,459)	-
Payables for securities lending	412,005	3,583	-	415,588
Total liabilities	2,404,498	225,933	(1,965,700)	664,731
NET POSITION RESTRICTED FOR BENEFITS:				
Benefits to be provided by QPP (Qualified Pension Plan)	4,991,832	-	-	4,991,832
Benefits to be provided by TDA Program	-	2,127,418	-	2,127,418
TOTAL NET POSITION RESTRICTED FOR BENEFITS:	$ 4,991,832	$ 2,127,418	$ -	$ 7,119,250

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

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM
COMBINING STATEMENTS OF FIDUCIARY NET POSITION
JUNE 30, 2018
(In thousands)

	QPP	TDA Program	Eliminations	TOTAL
ASSETS:				
Cash	$ 2,106	$ 355	$ -	$ 2,461
Receivables:				
Investment securities sold	84,962	400	-	85,362
Accrued interest and dividends	13,273	862	-	14,135
Member loans	50,038	43,569	-	93,607
Other	794	-	-	794
Total receivables	149,067	44,831	-	193,898
Investments — at fair value				
Fixed return funds:				
Short-term investments:				
Commercial paper	69,031	-	-	69,031
Short-term investment fund	56,088	-	-	56,088
Discount notes, U.S. Treasury bills and Agencies	9,331	-	-	9,331
Debt securities	1,531,460	-	-	1,531,460
Equity securities	1,687,635	-	-	1,687,635
Alternative Investments	765,549	-	-	765,549
Collective Trust Funds				
International equity	1,167,563	-	-	1,167,563
Domestic Equity	152,372	-	-	152,372
Mortgage debt security	34,966	-	-	34,966
Treasury Inflation protected securities	283,241	-	-	283,241
Fixed Income	256,554	-	-	256,554
Collateral from securities lending	389,554	-	-	389,554
Variable return funds:				
Short-term investments	495	4,746	-	5,241
Debt securities	1,076	10,323	-	11,399
Equities	51,828	497,357	-	549,185
Collateral from securities lending	586	5,618	-	6,204
Total investments	6,457,329	518,044	-	6,975,373
Due to the TDA Program's Fixed return fund from System	-	1,592,875	(1,592,875)	-
Other assets	206,757	-	(173,813)	32,944
Total assets	6,815,259	2,156,105	(1,766,688)	7,204,676
LIABILITIES:				
Accounts payable	34,454	-	-	34,454
Other liability	-	173,813	(173,813)	-
Payable for investment securities purchased	115,140	709	-	115,849
Accrued benefits payable	9,747	7,157	-	16,904
Due to the TDA Program's Fixed return fund from System	1,592,875	-	(1,592,875)	-
Payables for securities lending	390,140	5,618	-	395,758
Total liabilities	2,142,356	187,297	(1,766,688)	562,965
NET POSITION RESTRICTED FOR BENEFITS:				
Benefits to be provided by QPP (Qualified Pension Plan)	4,672,903	-	-	4,672,903
Benefits to be provided by TDA Program	-	1,968,808	-	1,968,808
TOTAL NET POSITION RESTRICTED FOR BENEFITS:	$ 4,672,903	$ 1,968,808	$ -	$ 6,641,711

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

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM
COMBINING STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED JUNE 30, 2019
(In thousands)

	QPP	TDA Program	TOTAL
ADDITIONS:			
Contributions			
Member contributions	$ 46,304	$ 102,203	$ 148,507
Employer contributions	269,637	-	269,637
Total contributions	315,941	102,203	418,144
Investment income			
Interest income	85,249	3,435	88,684
Dividend income	82,451	7,698	90,149
Net appreciation in fair value of investments	268,479	29,540	298,019
Total investment income	436,179	40,673	476,852
Less — investment expenses	(31,220)	(665)	(31,885)
Net investment income, before securities lending transactions	404,959	40,008	444,967
Securities lending transactions			
Securities lending income	2,124	88	2,212
Securities lending fees	(204)	(9)	(213)
Net securities lending income	1,920	79	1,999
Net investment income	406,879	40,087	446,966
Other — payments to other retirement systems and other revenues/expenses	35,624	(43,842)	(8,218)
TDA Program's interest income in the fixed return fund	(141,695)	141,695	-
Total additions	616,749	240,143	856,892
DEDUCTIONS:			
Benefit payments and withdrawals	280,463	81,414	361,877
Administrative expenses	17,357	119	17,476
Total deductions	297,820	81,533	379,353
NET INCREASE IN NET POSITION	318,929	158,610	477,539
NET POSITION RESTRICTED FOR BENEFITS:			
Beginning of year	4,672,903	1,968,808	6,641,711
End of year	$ 4,991,832	$ 2,127,418	$ 7,119,250

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

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM
COMBINING STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION
FOR THE YEAR ENDED JUNE 30, 2018
(In thousands)

	QPP	TDA Program	TOTAL
ADDITIONS:			
Contributions			
Member contributions	$ 40,846	$ 89,972	$ 130,818
Employer contributions	318,643	-	318,643
Total contributions	359,489	89,972	449,461
Investment income			
Interest income	75,362	3,468	78,830
Dividend income	79,629	6,655	86,284
Net appreciation in fair value of investments	426,315	49,706	476,021
Total investment income	581,306	59,829	641,135
Less — investment expenses	(19,429)	(754)	(20,183)
Net investment income, before securities lending transactions	561,877	59,075	620,952
Securities lending transactions			
Securities lending income	3,995	103	4,098
Securities lending fees	(295)	(10)	(305)
Net securities lending income	3,700	93	3,793
Net investment income	565,577	59,168	624,745
Other — payments to other retirement systems and other revenues/expenses	51,024	(54,240)	(3,216)
TDA Program's interest income in the fixed return fund	(127,972)	127,972	-
Total additions	848,118	222,872	1,070,990
DEDUCTIONS:			
Benefit payments and withdrawals	261,574	53,668	315,242
Administrative expenses	13,212	84	13,296
Total deductions	274,786	53,752	328,538
NET INCREASE IN NET POSITION	573,332	169,120	742,452
NET POSITION RESTRICTED FOR BENEFITS:			
Beginning of year	4,099,571	1,799,688	5,899,259
End of year	$ 4,672,903	$ 1,968,808	$ 6,641,711

The accompanying notes are an integral part of these combining 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 City Fire Pension Fund ("FIRE"). Each pension system is a separate Public Employee Retirement System ("PERS") with a separate oversight body and is financially independent of the other.

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

The QPP is a cost-sharing, multiple-employer pension plan. 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, 2019, June 30, 2018, June 30, 2017, June 30, 2016 and June 30, 2015, the QPP's membership consisted of:

	2019*	2018	2017	2016	2015
Retirees and beneficiaries receiving benefits	18,549	18,041	17,425	16,937	16,438
Terminated vested members not receiving benefits	1,461	1,937	1,528	851	237
Other inactives**	2,418	6,006	2,618	2,629	3,972
Active members receiving salary	30,468	25,864	25,794	25,864	24,903
Total	**52,896**	**51,848**	**47,365**	**46,281**	**45,550**

* Preliminary figures.

** Represent 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 members' 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, 2019, June 30, 2018, June 30, 2017, June 30, 2016 and June 30, 2015, the TDA Program participants consisted of:

	2019	**2018**	**2017**	**2016**	**2015**
Contributing members	18,881	17,899	16,917	16,113	15,736
Retired members with TDA balances	6,798	6,484	6,673	5,844	5,530

Summary of Benefits

QPP Benefits

The State Constitution provides that pension rights of public employees are contractual and shall not be diminished or impaired. In 1973, 1976, 1983 and 2012, significant amendments made to the State Retirement and Social Security Law ("RSSL") modified certain benefits for employees joining the QPP on or after the effective date of such amendments. As such, benefits under the QPP fall into various categories based on the year when an employee joined the QPP. A brief overview follows:

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

  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, ("Tier 1" and "Tier 2"), ITHP contributions made on their behalf as well as their own contributions are invested, at their election, in either the fixed return fund or the variable return fund, or 50% of such contributions in each. These investment elections can be changed every two years. The QPP guaranteed a 7.5% return on member contributions or ITHP contributions to the fixed return fund until June 30, 1982, increased the guaranteed return to 8% as of July 1, 1982, and to 8.25% as of July 1, 1988, for members who enrolled in the QPP prior to July 27, 1976 (5% on member contributions for members enrolled on or after July 27, 1976). The variable return fund includes only member contributions and ITHP contributions made on their behalf as described above and is expressed in terms of units, which are valued monthly, based on investment experience.

- Certain members of Tier 1 and Tier 2 have the right to make voluntary member contributions ("Voluntary Contributions") in excess of their required member contributions ("Required

Contributions"). The investment of the Voluntary Contributions and the Required Contributions is directed by each member. A member may invest: (1) in the QPP's fixed return fund, which is credited with interest at the Statutory Interest Rate (currently 8.25% (7.0% for UFT members)), and/or (2) in the QPP's variable return fund. At the time of retirement or refund of contributions, a member's aggregate balance of actual Required Contributions and Voluntary Contributions, including the actual accumulated earnings thereon, less the outstanding balance of any member loans ("Net Actual Contributions"), may exceed ("Excess of Contributions") or fall short of ("Deficiency of Contributions") the member's Expected Balance. The Expected Balance is the sum of the Required Contributions which a member should have made during his or her credited service, plus the earnings that would have accumulated thereon at the Statutory Interest rate. The amount of the member's retirement annuity or the refund of contributions that he or she is entitled to is increased by any Excess of Contributions or reduced by any Deficiency of Contributions. The total value of active members' Excess of Contributions, net of all Deficiencies of Contributions, is $3.35 million and $3.45 million, for the years ended June 30, 2019 and 2018, 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. Also, certain members retiring prior to age 62 may have their benefit reduced by an age-based factor. 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 ten 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 age 62 have their benefit reduced by an age-based factor.

- 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 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 eligible titles who joined after February 27, 2008, but before December 10, 2009 were automatically enrolled in the 55/27 retirement program. Participants in the 55/27 retirement may retire if they are at least age 55 as of their retirement date and have attained at least 27 years of credited service. 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 ten years, rather than five 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, or 35% upon the attainment of 20 years of 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 five years, rather than three, 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 2019 is $19,000. Participants, who have attained age 50, are permitted to make additional contributions. The additional contribution limit for 2019 is $6,000. Additionally, participants can elect to invest their contributions in either the fixed return fund or the variable return fund.

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

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

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

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

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

When a member resigns before attaining vested rights under the QPP, he or she may withdraw the value of his or her TDA Program account or leave the funds in the account for a period of up to five years after the date of resignation. If a member resigns after attaining vested rights under the QPP, he or she may leave his or her funds in the TDA Program account, accruing earnings until reaching the age at which minimum distributions are required by IRS regulations. Once a member withdraws from the QPP, participation in the TDA Program will cease, and the member will receive a refund of the value of his or her account in the TDA Program.

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

a. The participant may withdraw the total balance, either by receiving it as a taxable distribution or by rolling it over into an Individual Retirement Account (IRA);

b. The participant may defer distribution of the account; or

c. The participant may elect to receive the balance of the account as a life annuity. The available benefit options depend on the member's Tier.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES AND SYSTEM ASSET MATTERS

Basis of Accounting—The QPP as well as the TDA Program use the accrual basis of accounting where the measurement focus is on a flow of economic resources. Revenues are recognized in the accounting period in which they are earned, and expenses are recognized in the period incurred. Contributions from members are recognized when respective employers make payroll deductions from the QPP's members and the TDA Program participants. Employer contributions to the QPP are recognized when due and the employer has made a formal commitment to provide the contributions. Benefits and refunds are recognized when due and payable in accordance with the terms of governing the QPP and the TDA Program.

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

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

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

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

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

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

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

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

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

Securities Lending Transactions—State statutes and Board policies permit the System to lend its investments to broker-dealers and other entities for collateral, for the same securities in the future with a simultaneous agreement to return the collateral in the form of cash, treasury and U.S. Government securities. The Systems' agent lends the following types of securities: short term securities, common stocks, long-term corporate bonds, U.S. Government and U.S. Government agency bonds, asset-backed securities, and international equities and bonds held in collective investment funds. In return, the System receives collateral in the form of cash, U.S. Treasury and U.S. Government agency securities at 100% to 108% of the principal plus accrued interest for reinvestment. At June 30, 2019 and 2018, 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 39.33 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 fiduciary net position. Cash received as collateral on securities lending transactions and investments made with that cash are reported as assets. Securities received as collateral are also reported as assets if the government entity has the ability to pledge or sell them without a borrower default. Accordingly, the System recorded the investments purchased with the cash collateral as collateral from securities lending with a corresponding liability for securities lending. Securities on loan are carried at market value, the values reported by the QPP as of June 30, 2019 and 2018 are $409.64 million and $400.62 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 37.53 days.

GASB Statement No. 72, *Fair Value Measurement and Application*. GASB 72 requires the System to use valuation techniques which are appropriate under the circumstances and are a market approach, a cost approach or income approach. GASB 72 establishes a hierarchy of inputs used to measure fair value consisting of three levels. Level 1 inputs are quoted prices in active markets for identical assets or liabilities. Level 2 inputs are inputs, other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly. Level 3 inputs are unobservable inputs, and typically reflect management's estimates of assumptions that market participants would use in pricing the asset or liability. GASB 72 also contains note disclosure requirements regarding the hierarchy of valuation inputs and valuation techniques that was used for the fair value measurements.

3. INVESTMENTS AND DEPOSITS

The Comptroller of the City of New York (the "Comptroller") acts as an investment advisor to BERS. In addition, BERS employs an independent investment consultant as an investment advisor. BERS utilizes several investment managers to manage the long-term debt and equity portfolios. The managers are regularly reviewed, with regard to both their investment performance and their adherence to investment guidelines.

The BERS investment policy statement was ratified by the Board of Trustees in January 2009 and amended in October 2011, 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 restricted 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—The plausible risk of a loss or default resulting from a borrower's inability to repay a loan or fulfill its contractual debt obligations. Portfolios other than U.S. Government and related portfolios, have credit rating limitations. Investment grade portfolios are limited to mostly ratings of Baa2 and above, except that they are also permitted a 10% maximum exposure to Ba2 & B2 rated securities. While high yield non-investment grade managers primarily invest in Ba2 & B2 rated securities, they can also invest up to 10% of their portfolio in securities rated Caa2. The quality ratings of the Fund's investments, by percentage of the rated portfolio, as described by nationally recognized rating organizations, at June 30, 2019 and 2018 are as follows:

Investment Type Fixed Funds June 30, 2019	Moody's Quality Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa & Below	NR	Total
U.S. Government	62.92%	0.03%	0.02%	0.01%	- %	0.01%	- %	0.03%	0.07%	- %	- %	- %	- %	- %	- %	- %	- %	0.31%	63.40%
Corporate bonds	0.64	0.24	0.12	0.28	0.79	1.10	0.99	1.80	2.27	2.10	1.38	2.60	3.34	3.05	3.22	2.47	1.98	3.51	31.88
Short term																			
Commercial Paper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.27	2.27
STIF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.45	2.45
Portfolio	63.56%	0.27%	0.14%	0.29%	0.79%	1.11%	0.99%	1.83%	2.34%	2.10%	1.38%	2.60%	3.34%	3.05%	3.22%	2.47%	1.98%	8.54%	100.00%

Investment Type Fixed Funds June 30, 2018	Moody's Quality Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa & Below	NR	Total
U.S. Government	63.21%	0.03%	0.06%	0.01%	- %	0.01%	0.04%	- %	0.07%	- %	- %	- %	- %	- %	- %	- %	- %	0.49%	63.92%
Corporate bonds	1.00	0.17	0.17	0.36	0.74	0.79	1.45	1.81	1.95	1.78	1.48	1.60	2.90	2.58	2.29	2.26	2.02	3.63	28.98
Short-term:																			
Commercial Paper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.27	3.27
STIF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.83	3.83
Portfolio	64.21%	0.20%	0.23%	0.37%	0.74%	0.80%	1.49%	1.81%	2.02%	1.78%	1.48%	1.60%	2.90%	2.58%	2.29%	2.26%	2.02%	11.22%	100.00%

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, 2019 and 2018, are as follows:

Investment Type	Moody's Quality																			
Variable Funds June 30, 2019	**Aaa**	**Aa1**	**Aa2**	**Aa3**	**A1**	**A2**	**A3**	**Baa1**	**Baa2**	**Baa3**	**Ba1**	**Ba2**	**Ba3**	**B1**	**B2**	**B3**	**Caa1**	**Caa2**	**NR**	**Total**
U.S. Government	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %
Corporate bond	-	-	-	-	-	0.49	-	0.42	-	0.72	0.30	-	0.74	0.22	0.30	-	-	-	49.53	52.72
Yankee bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Municipal bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
U.S. Agencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Short-term:																				
U.S. Treasury Bills	0.30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.30
Money Market	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46.85	46.85
Cash Equivalent	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.13	0.13
Portfolio	0.30%	0.00%	0.00%	0.00%	0.00%	0.49%	0.00%	0.42%	0.00%	0.72%	0.30%	0.00%	0.74%	0.22%	0.30%	0.00%	0.00%	0.00%	96.51%	100.00%

Investment Type	Moody's Quality																			
Variable Funds June 30, 2018	**Aaa**	**Aa1**	**Aa2**	**Aa3**	**A1**	**A2**	**A3**	**Baa1**	**Baa2**	**Baa3**	**Ba1**	**Ba2**	**Ba3**	**B1**	**B2**	**B3**	**Caa1**	**Caa2**	**NR**	**Total**
U.S. Government	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	- %	0.54%	0.54%
Corporate bond	-	-	-	-	-	0.98	0.18	-	0.31	0.46	-	0.29	1.27	0.25	-	0.49	0.39	-	46.40	51.02
Yankee bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Municipal bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
U.S. Agencies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Short-term:																				
Money Market	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48.33	48.33
Cash Equivalent	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.11	0.11
Portfolio	0.00%	0.00%	0.00%	0.00%	0.00%	0.98%	0.18%	0.00%	0.31%	0.46%	0.00%	0.29%	1.27%	0.25%	0.00%	0.49%	0.39%	0.00%	95.38%	100.00%

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. Whereas the systems invest in commingled funds the assets within the fund are held in the name of the trustee of the fund and not in the name of the System. All of the System's cash deposits are insured by FDIC or collateralized by securities held by a financial institution separate from their corresponding financial institution.

Interest Rate Risk—The risk that the value of debt securities will be affected by fluctuations in market interest rates. Although there is no formal interest rate risk management policy, the duration of the portfolio, relative to the duration of the portfolio's benchmark, is monitored by the Bureau of Asset Management. The lengths of investment maturities for fixed return fund (in years), as shown by the percent of the rated portfolio, at June 30, 2019 and 2018 are as follows:

Years to Maturity	Investment Maturities				
Investment Type June 30, 2019	Fair Value	Less Than One Year	One to Five Years	Six to Ten Years	More Than Ten Years
U.S Government	63.40%	1.30%	17.69%	22.24%	22.17%
Corporate Bonds	31.88	0.43	12.14	13.26	6.05
Short-term:					
Commercial Paper	2.27	2.27	-	-	-
STIF	2.45	2.45	-	-	-
Portfolio	100.00%	6.45%	29.83%	35.50%	28.22%

Years to Maturity	Investment Maturities				
Investment Type June 30, 2018	Fair Value	Less Than One Year	One to Five Years	Six to Ten Years	More Than Ten Years
U.S Government	63.92%	0.84%	28.84%	16.38%	17.86%
Corporate Bonds	28.98	0.68	10.65	11.83	5.82
Short-term:					
Commercial Paper	3.27	3.27	-	-	-
STIF	3.83	3.83	-	-	-
Portfolio	100.00%	8.62%	39.49%	28.21%	23.68%

The lengths of investment maturities (in years) of the variable return fund, as shown by the percent of the rated portfolio, at June 30, 2019 and 2018 are as follows:

Years to Maturity	**Investment Maturities**				
Investment Type June 30, 2019	**Fair Value**	**Less than One Year**	**One to Five Years**	**Six to Ten Years**	**More than Ten Years**
U.S. Government	0.00%	0.00%	0.00%	0.00%	0.00%
Corporate bonds	52.72	1.83	33.77	13.31	3.81
Yankee Bonds	-	-	-	-	-
Municipal Bonds	-	-	-	-	-
U.S. Agencies	-	-	-	-	-
Short-term:					
U.S. Treasury Bills	0.30	0.30	-	-	-
Money Market	46.85	46.85	-	-	-
Cash Equivalent	0.13	0.13	-	-	-
Portfolio	100.00%	49.11%	33.77%	13.31%	3.81%

Years to Maturity	**Investment Maturities**				
Investment Type June 30, 2018	**Fair Value**	**Less than One Year**	**One to Five Years**	**Six to Ten Years**	**More than Ten Years**
U.S. Government	0.54%	0.54%	0.00%	0.00%	0.00%
Corporate bonds	51.02	2.89	27.60	15.20	5.33
Yankee Bonds	-	-	-	-	-
Municipal Bonds	-	-	-	-	-
U.S. Agencies	-	-	-	-	-
Short-term:					
Money Market	48.33	48.33	-	-	-
Cash Equivalent	0.11	0.11	-	-	-
Portfolio	100.00%	51.87%	27.60%	15.20%	5.33%

Foreign Currency Risk—Foreign currency risk is the risk that changes in the exchange rates will adversely impact the fair value of an investment. Currency risk is present in underlying portfolios that invest in foreign stocks and/or bonds. The currency markets 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, 2019 and 2018 in the fixed return fund are as follows (amounts in thousands of U.S. dollars):

Trade Currency	June 30, 2019	June 30, 2018
Euro Currency	$ 323,243	$ 263,722
Hong Kong Dollar	185,711	162,239
Japanese Yen	138,122	128,349
British Pound Sterling	125,382	112,793
South Korean Won	72,510	80,477
Swiss Franc	54,401	51,079
Indian Rupee	41,860	46,999
New Taiwan Dollar	38,707	44,247
Brazilian Real	36,591	29,791
Swedish Krona	23,981	25,835
Canadian Dollar	23,943	16,616
South African Rand	23,621	31,233
Australian Dollar	21,747	14,004
Danish Krone	21,475	20,724
Thailand Baht	20,275	21,747
Singapore Dollar	19,293	20,155
Turkish Lira	18,191	17,399
Norwegian Krone	17,078	16,844
Indonesian Rupiah	13,056	14,414
Polish Zloty	11,172	9,865
Malaysian Ringgit	9,448	14,363
Mexican Peso (New)	4,029	4,864
Chinese Yuan Renminbi	3,725	504
Chilean Peso	3,363	1,998
Qatari Rial	3,335	4,638
Hungarian Forint	2,754	931
UAE Dirham	2,381	1,550
Philippine Peso	2,213	2,017
New Israeli Sheqel	2,000	1,406
Colombian Peso	1,125	1,462
New Zealand Dollar	464	113
Egyptian Pound	386	428
Czech Koruna	208	456
Peruvian Nouveau Sol	122	221
Pakistan Rupee	37	108
Chinese Yuan (Offshore)	5	-
Moroccan Dirham	1	1
	$ 1,265,955	**$ 1,163,592**

The foreign currency exposures of the variable return funds as of June 30, 2019 and 2018 are as follows (amounts in thousands of U.S. dollars):

Trade Currency	June 30, 2019	June 30, 2018
Euro Currency	$ 31,919	$ 29,135
Japanese Yen	22,009	20,342
British Pound Sterling	16,754	16,378
Swiss Franc	9,554	7,540
Australian Dollar	5,890	5,287
Hong Kong Dollar	3,731	3,118
South Korean Won	2,630	2,814
Indian Rupee	2,387	236
Swedish Krona	2,223	1,933
Danish Krone	1,774	1,463
Singapore Dollar	1,526	1,391
Taiwan Dollar	1,480	1,571
Brazilian Real	1,267	589
Canadian Dollar	1,084	866
South African Rand	941	1,073
Norwegian Krone	803	792
Thailand Baht	610	654
Turkish Lira	403	369
Malaysian Ringgit	321	472
Mexican Nuevo Peso	284	254
Indonesian Rupiah	283	1,965
Israeli Shekel	279	229
Polish Zloty	256	138
UAE Dirham	232	88
New Zealand Dollar	205	162
Hungarian Forint	106	80
Chilean Peso	78	73
Egyptian Pound	36	8
Czech Koruna	3	4
Philippine Peso	2	69
Total	**$ 109,070**	**$ 99,093**

Securities Lending Transactions: ***Credit Risk***— The quality ratings of investments held as collateral for Securities Lending at June 30, 2019 and 2018 are as follows:

Investment Type and Fair Value - Fixed Return Fund
Securities Lending Transactions
(In thousands)

June 30, 2019	Moody's Quality											
	Aaa	Aa	A1	A2	A3	Baa	Ba	B	Caa	Ca	NR	Total
U.S. Government	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Corporate bonds	-	-	-	-	-	-	-	-	-	-	-	-
Yankee bonds	-	-	-	-	-	-	-	-	-	-	-	-
Short-term:												
Reverse Repurchase Agreements	-	-	-	21,472	125,411	6,195	-	-	-	-	196,132	349,210
Money Market	6,644	-	-	-	-	-	-	-	-	-	11,721	18,365
Bank Notes	-	-	-	-	-	-	-	-	-	-	-	-
US Agency	-	-	-	-	-	-	-	-	-	-	3,978	3,978
Cash or Cash Equivalent	-	-	40,093	-	-	-	-	-	-	-	-	40,093
Uninvested	-	-	-	-	-	-	-	-	-	-	-	-
Total	$ 6,644	$ -	$ 40,093	$ 21,472	$ 125,411	$ 6,195	$ -	$ -	$ -	$ -	$ 211,831	$ 411,646
Percentage of securities lending portfolio	1.61%	0.00%	9.74%	5.22%	30.47%	1.50%	0.00%	0.00%	0.00%	0.00%	51.46%	100.00%

Investment Type and Fair Value - Fixed Return Fund
Securities Lending Transactions
(In thousands)

June 30, 2018	Moody's Quality											
	Aaa	Aa	A1	A2	A3	Baa	Ba	B	Caa	Ca	NR	Total
U.S. Government	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Corporate bonds	-	-	-	-	-	-	-	-	-	-	-	-
Yankee bonds	-	-	-	-	-	-	-	-	-	-	-	-
Short-term:												
Reverse Repurchase Agreements	-	-	-	10,968	72,442	102,100	-	-	-	-	153,184	338,694
Money Market	11,560	-	-	-	-	-	-	-	-	-	-	11,560
Bank Notes	-	-	-	-	-	-	-	-	-	-	1,649	1,649
US Agency	-	-	-	-	-	-	-	-	-	-	-	-
Cash or Cash Equivalent	-	-	37,651	-	-	-	-	-	-	-	-	37,651
Uninvested	-	-	-	-	-	-	-	-	-	-	-	-
Total	$ 11,560	$ -	$ 37,651	$ 10,968	$ 72,442	$ 102,100	$ -	$ -	$ -	$ -	$ 154,833	$ 389,554
Percentage of securities lending portfolio	2.97%	0.00%	9.66%	2.81%	18.60%	26.21%	0.00%	0.00%	0.00%	0.00%	39.75%	100.00%

Investment Type and Fair Value - Variable Return Fund
Securities Lending Transactions
(In thousands)

June 30, 2019	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa	NR	Total
	Moody's Quality																		
U.S. Government	$ 850	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 850
Corporate bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yankee bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Short-term:																			
U.S. Treasury Bills	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91
Repurchase Agreements	2,678	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	323	3,001
Uninvested	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	$ 3,619	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 323	$ 3,942
By Percent	91.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	8.19%	100.00%

Investment Type and Fair Value - Variable Return Fund
Securities Lending Transactions
(In thousands)

June 30, 2018	Aaa	Aa1	Aa2	Aa3	A1	A2	A3	Baa1	Baa2	Baa3	Ba1	Ba2	Ba3	B1	B2	B3	Caa	NR	Total
	Moody's Quality																		
U.S. Government	$ 842	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 842
Corporate bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Yankee bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Short-term:																			
Repurchase Agreements	1,237	-	-	-	-	-	727	-	-	-	-	-	-	-	-	-	-	3,398	5,362
Uninvested	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	$ 2,079	$ -	$ -	$ -	$ -	$ -	$ 727	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,398	$ 6,204
By Percent	33.51%	0.00%	0.00%	0.00%	0.00%	0.00%	11.72%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	54.77%	100.00%

Interest Rate Risk—The lengths of investment maturities (in years) of the collateral for Securities Lending at June 30, 2019 and 2018 are as follows:

Years to Maturity Fixed Return Fund (In thousands) June 30, 2019	**Investment Maturities (in years)**				
	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					
Repurchase Agreements	-	-	-	-	-
Reverse Repurchase Agreements	349,210	349,210	-	-	-
Certificate of Deposits	-	-	-	-	-
Commerical Paper	-	-	-	-	-
Money Market	18,365	18,365	-	-	-
Bank Notes	-	-	-	-	-
US Treasury	-	-	-	-	-
US Agency	3,978	3,978	-	-	-
Time Deposit	-	-	-	-	-
Cash or Cash Equivalent	40,093	40,093	-	-	-
Univested	-	-	-	-	-
Total	$ 411,646	$ 411,646	$ -	$ -	$ -
By Percent	100.00%	100.00%	0.00%	0.00%	0.00%

Years to Maturity Fixed Return Fund (In thousands) June 30, 2018	**Investment Maturities (in years)**				
	Fair Value	**Less than One Year**	**One to Five Years**	**Six to Ten Years**	**More than Ten Years**
U.S. Government	$ -	$ -	$ -	$ -	$ -
Corporate Bonds	-	-	-	-	-
Yankee Bonds	-	-	-	-	-
Short-term					
Repurchase Agreements	-	-	-	-	-
Reverse Repurchase Agreements	338,694	338,694	-	-	-
Certificate of Deposits	-	-	-	-	-
Commercial Paper	-	-	-	-	-
Money Market	11,560	11,560	-	-	-
Bank Notes	1,649	1,649	-	-	-
US Treasury	-	-	-	-	-
US Agency	-	-	-	-	-
Time Deposit	-	-	-	-	-
Cash or Cash Equivalent	37,651	37,651	-	-	-
Uninvested	-	-	-	-	-
Total	$ 389,554	$ 389,554	$ -	$ -	$ -
By Percent	100.00%	100.00%	0.00%	0.00%	0.00%

Years to Maturity Variable Return Fund (in thousands) June 30, 2019	**Investment Maturities (in years)**				
	Fair Value	**Less than One Year**	**One to Five Years**	**Six to Ten Years**	**More than Ten Years**
U.S. Government	$ 850	$ 48	$ 626	$ 93	$ 83
Corporate Bonds	-	-	-	-	-
Yankee Bonds	-	-	-	-	-
Short-Term					
Repurchase Agreements	3,001	3,001	-	-	-
Reverse Repurchase Agreements	-	-	-	-	-
Certificate of Deposits	-	-	-	-	-
Commercial Paper	-	-	-	-	-
Money Market	-	-	-	-	-
Bank Notes	-	-	-	-	-
US Treasury	91	91	-	-	-
US Agency	-	-	-	-	-
Time Deposit	-	-	-	-	-
Cash or Cash Equivalent	-	-	-	-	-
Uninvested	-	-	-	-	-
Total	$ 3,942	$ 3,140	$ 626	$ 93	$ 83
By Percent	100.00%	79.65%	15.88%	2.36%	2.11%

Years to Maturity Variable Return Fund (in thousands) June 30, 2018	**Investment Maturities (in years)**				
	Fair Value	**Less than One Year**	**One to Five Years**	**Six to Ten Years**	**More than Ten Years**
U.S. Government	$ 842	$ 249	$ 431	$ 76	$ 86
Corporate Bonds	-	-	-	-	-
Yankee Bonds	-	-	-	-	-
Short-Term					
Repurchase Agreements	5,362	5,362	-	-	-
Reverse Repurchase Agreements	-	-	-	-	-
Certificate of Deposits	-	-	-	-	-
Commercial Paper	-	-	-	-	-
Money Market	-	-	-	-	-
Bank Notes	-	-	-	-	-
US Treasury	-	-	-	-	-
US Agency	-	-	-	-	-
Time Deposit	-	-	-	-	-
Cash or Cash Equivalent	-	-	-	-	-
Uninvested	-	-	-	-	-
Total	$ 6,204	$ 5,611	$ 431	$ 76	$ 86
By Percent	100.00%	90.43%	6.95%	1.23%	1.39%

For the years ended June 30, 2019 and 2018, 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 7.00% and 10.31%, respectively. The money-weighted rate of return expresses investment performance, net of investment expense adjusted for the changing amounts 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 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, 2019 and June 30, 2018:

Fixed Return Funds GASB 72 Disclosure (in thousands) June 30, 2019	**Level One**	**Level Two**	**Level Three**	**QPP Total**
INVESTMENTS — At fair value				
Short-term investments:				
Commercial paper	-	$ 46,954	-	$ 46,954
Discount notes	-	1,576	-	1,576
Short-term investment fund	-	26,625	-	26,625
U.S. Treasury bills and Agencies	-	9,532	-	9,532
Debt securities:				
Bank loans	-	7,390	-	7,390
Corporate and Other	-	487,820	-	487,820
Mortgage debt securities	-	197,830	17,723	215,553
Treasury Inflation Protected Securities	-	312,116	-	312,116
U.S. Government and Agency	-	818,824	-	818,824
Equity securities	2,116,353	-	24	2,116,377
Alternative investments	-	-	892,479	892,479
Collective Pooled funds:				
Bank Loans	-	118,705	574	119,279
Corporate and Other	-	3,772	-	3,772
Domestic equity	260,619	-	1,239	261,858
International equity	1,096,708	-	71	1,096,779
Mortgage debt securities		9,448	10,755	20,203
Treasury inflation protected securities	-	-	-	-
	$ 3,473,680	$ 2,040,592	$ 922,865	$ 6,437,137

Fixed Return Funds GASB 72 Disclosure (in thousands)	Level One	Level Two	Level Three	QPP Total
June 30, 2018				
INVESTMENTS — At fair value				
Short-term investments:				
Commercial paper	$ -	$ 69,031	$ -	$ 69,031
Discount notes	-	-	-	-
Short-term investment fund	-	56,088	-	56,088
U.S. Treasury bills and Agencies	3,699	5,632	-	9,331
Debt securities:				
Bank loans	-	5,691	-	5,691
Corporate and Other	-	455,064	-	455,064
Mortgage debt securities	-	193,178	-	193,178
U.S. Government and Agency	-	877,527	-	877,527
Equity securities	1,687,625	10	-	1,687,635
Alternative investments	-	-	765,549	765,549
Collective Pooled funds:				
Bank Loans	-	113,634	-	113,634
Corporate and Other	-	142,920	-	142,920
Domestic equity	151,429	-	943	152,372
International equity	1,167,550	-	13	1,167,563
Mortgage debt securities	-	9,777	25,189	34,966
Treasury inflation protected securities	-	283,241	-	283,241
	$ 3,010,303	$ 2,211,793	$ 791,694	$ 6,013,790

Equity and Fixed Income Securities—Equity securities classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets issued by pricing vendors for these securities. Debt and equity securities classified in Level 2 of the fair value hierarchy are valued using prices determined by the use of matrix pricing techniques maintained by the various pricing vendors for these securities. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices. Debt and equity securities classified in Level 3 of the fair value are securities whose stated market price is unobservable by the marketplace; many of these securities are priced by the issuers or industry groups for these securities. Fair value is defined as the quoted market value on the last trading day of the period. These prices are obtained from various pricing sources by our custodian bank. Collective Trust funds are reported using NAV. The Debt and equity securities held in Collective Trust Funds are held in those funds on behalf of the pension system and there is no restriction on the use and or liquidation of those assets for the exclusive benefit of the 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 FASB 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.

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

Variable-Return Funds
GASB 72 Disclosure
As of June 30, 2019
(In thousands)

	Level 1	Level 2	Level 3	Total
Variable Return Funds:				
Short-term Investments	$ -	$ 5,119	$ -	$ 5,119
Debt Securities	-	12,007	-	12,007
Equities	555,938	19,298	6,982	582,218
Total	$ 555,938	$ 36,424	$ 6,982	$ 599,344

Variable-Return Funds
GASB 72 Disclosure
As of June 30, 2018
(In thousands)

	Level 1	Level 2	Level 3	Total
Variable Return Funds:				
Short-term Investments	$ -	$ 5,241	$ -	$ 5,241
Debt Securities	-	11,399	-	11,399
Equities	536,582	12,544	59	549,185
Total	$ 536,582	$ 29,184	$ 59	$ 565,825

Level One – Valued using prices quoted in active markets
Level Two – Valued using a matrix pricing technique: based on relationship to benchmark quoted prices
Level Three – Valued using discounted cash flow techniques

4. CONTRIBUTIONS AND ACTUARIAL ASSUMPTIONS

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

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

Member Contributions

- Members who joined the QPP prior to July 1, 1973 ("Tier 1") contribute on the basis of a normal rate of contribution which is assigned by the QPP at membership, and which is dependent upon age and actuarial tables in effect at the time of membership. Tier 1 members can also make Increased Take Home Pay ("ITHP") contributions, for which they can receive an additional annuity after retirement.

- Members who joined after July 1, 1973 and before July 27, 1976 ("Tier 2") also contribute on the basis of a normal rate of contribution which is assigned by the QPP at membership, and which is dependent upon age and actuarial tables in effect at the time of membership. Note that the actuarial tables are different in Tier 2. Tier 2 members can also make ITHP contributions, for which they can receive an additional annuity after retirement.

- Members who joined after July 27, 1976 and before April 1, 2012 ("Tier 4") contribute 3% of salary until the earlier of the 10th anniversary of their membership date, or upon the completion of 10 years of credited service. Certain Tier 4 members are enrolled in special early retirement plans and must therefore also make Additional Member Contributions ("AMC"), depending on the specific plan.

- Members who joined on or after April 1, 2012 ("Tier 6") are required to make Basic Member Contributions ("BMC") until they separate from service or until they retire. The BMC rate is dependent on annual wages earned during a plan year and ranges from 3% for salaries less than $45,000 to 6% for salaries greater than $100,000. Certain Tier 6 members are enrolled in special early retirement plans and must therefore also make Additional Member Contributions ("AMC"), depending on the specific plan.

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

5. QPP NET PENSION LIABILITY

The components of the net pension liability of the Employers at June 30, 2019 and 2018 were as follows:

(In thousands)	2019	2018
Total pension liability	$ 5,266,066	$ 5,174,287
Fiduciary net position *	4,991,832	4,672,903
Employers' net pension liability	$ 274,234	$ 501,384
Fiduciary net position as a percentage of the total pension liability	94.79 %	90.31 %

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

Actuarial Methods and Assumptions—The total pension liability as of June 30, 2019 and 2018 were determined by actuarial valuations as of June 30, 2017 and June 30, 2016, 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 and beneficiaries were developed from an experience study of the QPP.

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

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

Expected Rate of Return on Investments—The long-term expected rate of return on QPP investments was determined using a building-block method in which best-estimate ranges of expected real rates of return (i.e., expected returns, net of QPP investment expenses and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected real rates of return by the target asset allocation percentage and by adding expected inflation. The target asset allocation and best estimates of arithmetic real rates of return for each major asset class are summarized in the following table:

Asset Class	Target Asset Allocation	Long-Term Expected Real Rate of Return
U.S. public market equities	30.0%	6.8%
International public market equities	13.0	7.4
Emerging public market equities	7.0	10.3
Private market equities	9.0	10.8
Fixed income (Core, TIPS, Opportunistic)	28.0	2.4
Alternatives (Real assets, Hedge funds)	13.0	5.6
Total	100.0%	

Discount Rate—The discount rate used to measure the total pension liability was 7%. The projection of cash flows used to determine the discount rate assumed that employee contributions will be made at the rates applicable to the current Tier for each member and that Employer contributions will be made at rates as determined by the Actuary. Based on those assumptions, the QPP’s fiduciary net position was projected to be available to make all projected future benefit payments of current active and non-active QPP members. Therefore, the long-term expected rate of return on QPP investments was applied to all periods of projected benefit payments to determine the total pension liability.

The following presents the net pension liability of the Employers, calculated using the discount rate of 7.0%, as well as what the Employers' net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.0 percent) or 1-percentage-point higher (8.0 percent) than the current rate:

(In thousands)	1% Decrease (6%)	Discount Rate (7%)	1% Increase (8%)
Employers' net pension liability—June 30, 2019	$ 927,727	$ 274,234	$ (274,944)

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, 2019 and 2018 is $50.58 million and $50.03 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, 2019 and 2018 is $43.79 million and $43.56 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 $1.55 million and $1.48 million were incurred on behalf of the System by other City agencies, primarily the Comptroller's Office for 2019 and 2018, 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 2019 and 2018, 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 $17.47 million and $13.29 million, respectively.

In August 2019, the System entered into a Sub-sublease agreement for office space. The agreement is for a term of six years and seven months and requires a total commitment of approximately $11,180,000 over the term of the lease.

9. CONTINGENT LIABILITIES AND OTHER MATTERS

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

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

Refer to Note 5 for the results of the most recent actuarial audits for the QPP.

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

The most recently completed study was published by Bolton, Inc., dated June 2019. Bolton analyzed experience for the four and ten-year periods ending June 30, 2017 and made recommendations with respect to the actuarial assumptions and methods based on their analysis. Based in part on these recommendations, the Actuary proposed new assumptions and methods for use in determining Employer Contributions for Fiscal Years beginning on and after July 1, 2018. These assumptions and methods have been adopted by the Board of Trustees during Fiscal Year 2019.

Previously, Gabriel, Roeder, Smith & Company (GRS) published their study in October 2015.

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

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

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

Chapter 489 of the Laws of 2013 extended the Notice of Participation filing deadline to September 11, 2014 for vested members to file a sworn statement indicating participation in the World Trade Center Rescue, Recovery and Clean-up Operations.

Chapter 427 of the Laws of 2014 ("Chapter 427/14") provides non-contributory retirement service credit for members called to active military duty on or after September 11, 2001 and prior to January 1, 2006 who did not receive their full salary from a participating employer and are otherwise eligible to receive retirement service credit for such service. Such member would not be required to make member contributions to receive such credit.

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

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

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

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

Chapter 71 of the Laws of 2017, enacted on June 29, 2017, continues for Fiscal Year 2019, the Actuarial Interest Rate assumption of 7.0% per annum used to determine employer contributions to the New York City Pension Funds and Retirement Systems. This act also extends through Fiscal Year 2019, the interest rate of 8.25% per annum to credit interest on Tier 1 and Tier 2 member contributions and Increased-Take-Home-Pay (ITHP) Reserves.

Chapter 266 of 2018 extends the time for members or eligible beneficiaries to file a Notice of Participation in World Trade Center Rescue, Recovery, and Cleanup Operations to September 11, 2022.

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM

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

	2019	2018	2017	2016	2015
Total pension liability:					
Service cost	$ 168,501	$ 176,110	$ 168,625	$ 153,107	$ 147,898
Interest	366,084	350,999	346,510	320,315	299,592
Change of benefit terms	-	-	-	-	-
Differences between expected and actual experience	152,160	(164,587)	19,938	(75,907)	50,148
Changes of assumptions	(314,503)	-	-	183,677	-
Benefit payments and withdrawals	(280,463)	(261,574)	(262,432)	(240,727)	(223,244)
Net change in total pension liability	91,779	100,948	272,641	340,465	274,394
Total pension liability—beginning	5,174,287	5,073,339	4,800,698	4,460,233	4,185,839
Total pension liability—ending (a)	5,266,066	5,174,287	5,073,339	4,800,698	4,460,233
Plan fiduciary net position:					
Employer contributions	269,637	318,643	288,233	265,532	258,099
Member contributions	46,304	40,846	39,821	38,581	39,564
Net investment income	406,879	565,577	862,510	164,144	177,166
Payment of interest on TDA program fixed return funds	(141,695)	(127,972)	(106,554)	(94,789)	(85,104)
Benefit payments and withdrawals	(280,463)	(261,574)	(262,432)	(240,727)	(223,244)
Administrative expenses	(17,357)	(13,212)	(15,486)	(12,818)	(10,956)
Other	35,624	51,024	(122,954)	(157,499)	(52,021)
Net change in plan fiduciary net position	318,929	573,332	683,138	(37,576)	103,504
Plan fiduciary net position—beginning	4,672,903	4,099,571	3,416,433	3,454,009	3,350,505
Plan fiduciary net position—ending (b)	4,991,832	4,672,903	4,099,571	3,416,433	3,454,009
BERS's net pension liability—ending (a)-(b)	$ 274,234	$ 501,384	$ 973,768	$ 1,384,265	$ 1,006,224
Plan fiduciary net position as a percentage of the total pension liability	94.79 %	90.31 %	80.81 %	71.17 %	77.44 %
Covered payroll[1]	$ 1,264,079	$ 1,102,184	$ 1,052,171	$ 1,008,056	$ 1,016,822
BERS's net pension liability as percentage of covered payroll	21.69 %	45.49 %	92.55 %	137.32 %	98.96 %

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

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

See Independent Auditors' Report.

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM

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

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Actuarially determined contribution	$ 269,637	$ 318,643	$ 288,233	$ 265,532	$ 258,099	$ 214,590	$ 196,246	$ 213,651	$ 180,191	$ 147,349
Contributions in relation to the actuarially determined contribution	269,637	318,643	288,233	265,532	258,099	214,590	196,246	213,651	180,191	147,349
Contribution deficiency (excess)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Covered payroll[1]	$ 1,264,079	$ 1,102,184	$ 1,052,171	$ 1,008,056	$ 1,016,822	$ 989,168	$ 886,186	$ 879,476	$ 880,656	$ 826,782
Contributions as a percentage of covered-employee payroll	21.33 %	28.91 %	27.39 %	26.34 %	25.38 %	21.69 %	22.15 %	24.29 %	20.46 %	17.82 %

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

(Continued)

See Independent Auditors' Report.

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM

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

The above actuarially determined contributions were developed using a One-Year Lag Methodology, under which the actuarial valuation determines the employer contribution for the second following fiscal year (e.g. Fiscal Year 2019 contributions were determined using an actuarial valuation as of June 30, 2017). The methods and assumptions used to determine the actuarially determined contributions are as follows:

Valuation Dates	June 30, 2017	June 30, 2016	June 30, 2015	June 30, 2014	June 30, 2013	June 30, 2012	June 30, 2011	June 30, 2010	June 30, 2009– June 30, 2008
Actuarial cost method	Entry Age	Entry Age	Entry Age	Entry Age	Entry Age	Entry Age	Entry Age	Entry Age	Frozen Initial Liability[1]
Amortization method for unfunded actuarial accrued liabilities:									
Initial unfunded	Increasing dollar	Increasing dollar	Increasing dollar	Increasing dollar	Increasing dollar	Increasing dollar	Increasing dollar	Increasing dollar	NA[2]
Post-2010 unfundeds	Level dollar	Level dollar	Level dollar	Level dollar	Level dollar	Level dollar	Level dollar	Level dollar	NA[2]
Remaining amortization period:									
Initial unfunded	15 years (closed)	16 years (closed)	17 years (closed)	18 years (closed)	19 years (closed)	20 years (closed)	21 years (closed)	22 years (closed)	NA[4]
2010 ERI	0 year (closed)	0 year (closed)	1 year (closed)	2 years (closed)	3 years (closed)	4 years (closed)	5 years (closed)		
2011 Actuarial gain/loss	9 years (closed)	10 years (closed)	11 years (closed)	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA[4]
2012 Actuarial gain/loss	10 years (closed)	11 years (closed)	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA[4]
2013 Actuarial gain/loss	11 years (closed)	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA	NA[4]
2014 Actuarial gain/loss	12 years (closed)	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA	NA	NA[4]
2015 Actuarial gain/loss	13 years (closed)	14 years (closed)	15 years (closed)	NA	NA	NA	NA	NA	NA[4]
2016 Actuarial gain/loss	14 years (closed)	15 years (closed)	NA	NA	NA	NA	NA	NA	NA[4]
2017 Actuarial gain/loss	15 years (closed)	NA	NA	NA	NA	NA	NA	NA	
2017 Assumption Change	20 years (closed)	NA	NA	NA	NA	NA	NA	NA	
2017 Method Change	20 years (closed)	NA	NA	NA	NA	NA	NA	NA	
Actuarial Asset Valuation (AAV) method[3]	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AAV is defined to recognize Fiscal Year 2010 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 2010 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 2010 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 2010 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AAV is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AAV is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AAV is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with a "Market Value Restart" as of June 30, 2011. The June 30, 2010 AAV is defined to recognize Fiscal Year 2011 investment performance.	Modified six-year moving average of market values with "Market Value Restart" as of June 30, 1999.

(Continued)

See Independent Auditors' Report.

Valuation Dates	June 30, 2017	June 30, 2016	June 30, 2015	June 30, 2014	June 30, 2013	June 30, 2012	June 30, 2011	June 30, 2010	June 30, 2009–June 30, 2008
Actuarial assumptions:									
Assumed rate of return[4]	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	7.0% per annum, net of investment expenses	8.0% per annum, gross of investment expenses
Post-retirement mortality	Tables adopted by Board of Trustees during Fiscal Year 2019	Tables adopted by Board of Trustees during Fiscal Year 2016	Tables adopted by Board of Trustees during Fiscal Year 2016	Tables adopted by Board of Trustees during Fiscal Year 2016	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2006
Active service: withdrawal, death, disability, service retirement	Tables adopted by Board of Trustees during Fiscal Year 2019	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2012	Tables adopted by Board of Trustees during Fiscal Year 2006[4]
Salary increases[4]	In general, merit and promotion increases plus assumed general increases of 3.0% per year.	In general, merit and promotion increases plus assumed general increases of 3.0% per year.	In general, merit and promotion increases plus assumed general increases of 3.0% per year.	In general, merit and promotion increases plus assumed general increases of 3.0% per year.	In general, merit and promotion increases plus assumed general increases of 3.0% per year.	In general, merit and promotion increases plus assumed general increases of 3.0% per year.	In general, merit and promotion increases plus assumed general increases of 3.0% per year.	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[4]	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.5% per annum for Auto COLA. 2.5% per annum for Escalation.	1.3% per annum

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

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

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

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

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

See Independent Auditors' Report.

NEW YORK CITY BOARD OF EDUCATION RETIREMENT SYSTEM

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)
QUALIFIED PENSION PLAN
SCHEDULE OF INVESTMENT RETURNS

The following table displays annual money-weighted rate of return from fixed investments for each of the past six fiscal years:

Fiscal Year End	Money-Weighted Rate of Return
June 30, 2019	7.00%
June 30, 2018	10.31%
June 30, 2017	15.33%
June 30, 2016	0.20%
June 30, 2015	3.15%
June 30, 2014	19.51%

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

See Independent Auditors' Report.