KPMG

NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Basic Financial Statements and Supplementary Information

March 31, 2019

(With Independent Auditors’ Report Thereon)

NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Table of Contents

KPMG LLP
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Independent Auditors' Report

The Trustee
New York State and Local Retirement System:

Report on the Financial Statements

We have audited the accompanying financial statements of the New York State and Local Retirement System (the System) as of and for the year ended March 31, 2019, and the related notes to the financial statements, which collectively comprise the System's basic financial statements for the year then ended as listed in the table of contents.

Management's Responsibility for the Financial Statements

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

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditors consider internal control relevant to the entity's preparation and fair presentation of the 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 entity'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 financial statements.

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

Opinion

In our opinion, the financial statements referred to above present fairly in all material respects, the fiduciary net position of the System as of March 31, 2019, and the changes in its fiduciary net position for the year then ended, in accordance with U.S. generally accepted accounting principles.

Other Matters

Required Supplementary Information

U.S. generally accepted accounting principles require that the management's discussion and analysis and required supplementary information as listed in the accompanying table of contents be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic 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 financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Supplementary Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the System's basic financial statements. The accompanying other supplementary information as listed in the accompanying table of contents is presented for purposes of additional analysis and is not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the other supplementary information is fairly stated in all material respects in relation to the basic financial statements as a whole.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated July 19, 2019 on our consideration of the System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the System's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the System's internal control over financial reporting and compliance.

KPMG LLP

July 19, 2019

The following overview of the financial activity of the New York State and Local Retirement System (the System) for the fiscal year ended March 31, 2019 is intended to provide the reader with an analysis of the System's overall financial position. The System is comprised of the New York State and Local Employees' Retirement System (ERS) and the New York State and Local Police and Fire Retirement System (PFRS). The net position of the System is held in the New York State Common Retirement Fund (the Fund), which was established to hold all assets and record changes in fiduciary net position allocated to the System. This management's discussion and analysis should be read in conjunction with the basic financial statements of the System, which follow.

Financial Highlights

The fiduciary net position of the System held in trust to pay pension benefits was $215.17 billion as of March 31, 2019. This amount reflects an increase of $3.1 billion from the prior fiscal year. This change is primarily the result of the net appreciation of the fair value of the investment portfolio. Investment appreciation for the fiscal years ended March 31, 2019 and 2018 was $7.18 billion and $17.86 billion, respectively.

- The System's investments reported a positive money-weighted rate of return, net of investment expense, of 5.14 percent for the fiscal year ended March 31, 2019 and a positive money-weighted rate of return, net of investment expense, of 11.29 percent for the fiscal year ended March 31, 2018.
- Retirement and death benefits paid during the fiscal year ended March 31, 2019 to 481,795 annuitants totaled $12.74 billion, as compared to $12.03 billion paid to 470,596 annuitants for the fiscal year ended March 31, 2018. The increase is primarily due to the number of new retirees.
- Contributions from employers decreased to $4.75 billion for the fiscal year ended March 31, 2019, from $4.82 billion for the fiscal year ended March 31, 2018. The decrease in contributions is attributable to the decrease in the average employer contribution rates from the previous fiscal year.
- The Net Pension Liability (NPL) for ERS was $7.09 billion for the measurement period ended March 31, 2019 as compared to $3.23 billion for the measurement period ended March 31, 2018. The fiduciary net position, restricted for pension benefits as of March 31, 2019, was $182.72 billion, which represents 96.27 percent of the calculated total pension liability for ERS. The NPL is allocated to participating employers and reported pursuant to Governmental Accounting Standards Board (GASB) Statements 67 and 68.
- The NPL for PFRS was $1.68 billion for the measurement period ended March 31, 2019 as compared to $1.01 billion for the measurement period ended March 31, 2018. The fiduciary net position, restricted for pension benefits as of March 31, 2019, was $32.45 billion, which represents 95.09 percent of the calculated total pension liability for PFRS. The NPL is allocated to participating employers and reported pursuant to GASB Statements 67 and 68.

Overview of the Financial Statements

The financial statements consist of the combining basic statement of fiduciary net position, the combining basic statement of changes in fiduciary net position, and the notes to the basic financial statements. The required supplementary information that appears after the notes to the basic financial statements is not a required part of the basic financial statements, but is supplementary information required by the Governmental Accounting Standards Board (GASB). The other supplementary information following the required supplementary information is not required, but management has chosen to include such information to increase transparency.

The combining basic statement of fiduciary net position reflects the resources available to pay members, retirees and beneficiaries at the close of the System’s fiscal year. This statement also provides information about the fair value and composition of the System’s net position.

The combining basic statement of changes in fiduciary net position presents the changes to the System’s net position for the fiscal year, including net investment income (loss), which includes net appreciation (depreciation) in fair value of the investment portfolio, and contributions from members and employers. Benefits and administrative expenses paid by the System are included under the deductions section of the statement.

The notes to the financial statements are an integral part of the basic financial statements and provide additional information about the plans, policies, and performance of the System.

The required supplementary information includes: Management’s Discussion and Analysis, Schedule of Changes in the Employers’ Net Pension Liability and Related Ratios, Schedule of Employer Contributions and Schedule of Investment Returns.

The additional supplementary information includes: Schedule of Administrative Expenses, Schedule of Investment Expenses, and Schedule of Consulting Fees.

Analysis of the Overall Financial Position of the System

The purpose of the System’s investments is to provide for long-term growth, while also ensuring a reliable cash flow that meets the funding requirements of the near-term pension obligation. To achieve these goals, the investments are allocated to a variety of asset types and strategies in order to meet the System’s current funding needs as well as future growth requirements. Equity-related investments are included for their long-term return and growth characteristics. While a majority of fixed income and debt-related investments are generally included in the allocation for their ability to control investment risk and provide for a reliable cash flow that meets the funding requirements, a portion is strategically invested in more actively traded markets. It is important to note that the change from year to year is due not only to changes in fair values but also to purchases, sales, and redemptions. Tables 1, 2, and 3 summarize and compare financial data for the current and prior years.

Table 1

Summary schedule of fiduciary net position as of March 31, 2019, as compared to March 31, 2018:

	2019	2018	Dollar change	Percentage change
		(Dollars in thousands)		
Assets:				
Investments	$ 210,523,715	$ 207,415,970	$ 3,107,745	1.5%
Securities lending collateral – invested	5,742,731	5,606,936	135,795	2.4
Receivables and other assets	5,368,698	5,525,416	(156,718)	(2.8)
Total assets	221,635,144	218,548,322	3,086,822	1.4
Liabilities:				
Securities lending obligations	5,749,147	5,614,883	134,264	2.4
Payables and other liabilities	716,836	856,628	(139,792)	(16.3)
Total liabilities	6,465,983	6,471,511	(5,528)	(0.1)
Net position, restricted for pension benefits	$ 215,169,161	$ 212,076,811	$ 3,092,350	1.5%

The fiduciary net position of the System totaled $215.2 billion as of March 31, 2019, an increase of $3.1 billion from the prior fiscal year, primarily attributable to the net appreciation of invested assets.

Table 2

Schedule of invested assets as of March 31, 2019, as compared to March 31, 2018:

	2019	2018	Dollar change	Percentage change
		(Dollars in thousands)		
Domestic equity	$ 73,303,652	$ 75,771,363	$ (2,467,711)	(3.3)%
Global fixed income	45,651,602	44,820,784	830,818	1.9
International equity	36,256,971	39,025,688	(2,768,717)	(7.1)
Private equity	19,750,977	17,500,516	2,250,461	12.9
Real estate	15,678,555	14,182,669	1,495,886	10.5
Absolute return strategy investments	7,812,169	7,879,320	(67,151)	(0.9)
Short-term investments	6,118,985	3,366,569	2,752,416	81.8
Opportunistic funds	2,833,785	2,507,027	326,758	13.0
Real assets	2,220,026	1,518,624	701,402	46.2
Mortgage loans	896,993	843,410	53,583	6.4
Total investments	$ 210,523,715	$ 207,415,970	$ 3,107,745	1.5%

The largest percentage increases to the invested assets were in short-term investments, real assets, opportunistic funds and private equity investments, which represent 2.91 percent, 1.05 percent, 1.35 percent and 9.38 percent of the total portfolio, respectively. The increase in short-term investments reflects higher rates available in cash markets as well as increased focus on liquidity. In the real assets and opportunistic portfolios, the growth largely reflected new allocations to bring these newer portfolios closer to their targeted asset allocations as well as deployment of committed capital by underlying asset managers. The increase in private equity investments was primarily due to positive performance and continued efforts to meet the target allocation. The public equity portfolios provided the bulk of liquidity for the Fund, which is reflected in the nominal decrease in value of both the domestic equity and international equity portfolios.

Absolute return strategy investments include equity-oriented long-only global funds of $2.82 billion. Though these funds are in an absolute return strategy vehicle, the underlying assets are long-only equity positions.

Table 3

Summary schedule of changes in fiduciary net position for the year ended March 31, 2019, as compared to the year ended March 31, 2018:

	2019	2018	Dollar change	Percentage change
	(Dollars in thousands)			
Additions:				
Net investment income	$ 10,761,776	$ 21,338,033	$ (10,576,257)	(49.6)%
Total contributions	5,300,982	5,388,310	(87,328)	(1.6)
Total additions	16,062,758	26,726,343	(10,663,585)	(39.9)
Deductions:				
Total benefits paid	12,833,931	12,128,919	705,012	5.8
Administrative expenses	136,477	122,806	13,671	11.1
Total deductions	12,970,408	12,251,725	718,683	5.9
Net increase	3,092,350	14,474,618	(11,382,268)	(78.6)
Net position, restricted for pension benefits – beginning of year	212,076,811	197,602,193	14,474,618	7.3
Net position, restricted for pension benefits – end of year	$ 215,169,161	$ 212,076,811	$ 3,092,350	1.5%

The change in net investment income is primarily attributable to the decrease in net appreciation in fair value of investments from 2018 to 2019. The increase in total benefits paid is attributable to the number of new retirees.

Economic Factors and Rates of Return

The Fund announced positive investment performance for the fiscal year ended March 31, 2019, with a time-weighted rate of return of 5.23 percent, a strong result despite a volatile 4th quarter in which both the equity and fixed income markets saw dramatic moves. The Fund saw a positive result across its portfolios. Alternatives outperformed public markets attesting to the Fund's long term diversification strategy.

General market volatility continued to pick up over the year and the Fund continues to monitor the increasing uncertainty in the markets. This was the tenth consecutive year of positive performance for the Fund following the fiscal crisis of 2008.

Requests for Information

This financial report is designed to provide a general overview of the System's finances for all interested parties. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the New York State and Local Retirement System, 110 State Street, Albany, New York 12244-0001. The report can also be accessed on the Comptroller's website at: www.osc.state.ny.us/retire/about_us/financial_statements_index.php.

NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Combining Basic Statement of Fiduciary Net Position

March 31, 2019

(Dollars in thousands)

	Employees' Retirement System	Police and Fire Retirement System	Total
Assets:			
Investments (notes 2(b), 4, 5, 8, and 11):			
Domestic equity	$ 62,209,365	$ 11,094,287	$ 73,303,652
Global fixed income	38,742,369	6,909,233	45,651,602
International equity	30,769,587	5,487,384	36,256,971
Private equity	16,761,726	2,989,251	19,750,977
Real estate	13,305,653	2,372,902	15,678,555
Absolute return strategy investments	6,629,821	1,182,348	7,812,169
Short-term investments	5,192,895	926,090	6,118,985
Opportunistic funds	2,404,900	428,885	2,833,785
Real assets	1,884,032	335,994	2,220,026
Mortgage loans	761,236	135,757	896,993
Total investments	178,661,584	31,862,131	210,523,715
Securities lending collateral – invested (notes 7 and 8)	4,873,586	869,145	5,742,731
Forward foreign exchange contracts (notes 6 and 8)	15,224	2,715	17,939
Receivables:			
Employers' contributions	2,448,689	398,915	2,847,604
Members' contributions	2,687	223	2,910
Member loans	1,018,678	4,817	1,023,495
Investment income	331,014	59,032	390,046
Investment sales	248,470	44,312	292,782
Other	296,140	116,629	412,769
Total receivables	4,345,678	623,928	4,969,606
Capital assets, at cost, net of accumulated depreciation	323,467	57,686	381,153
Total assets	188,219,539	33,415,605	221,635,144
Liabilities:			
Securities lending obligations (notes 7 and 8)	4,879,031	870,116	5,749,147
Forward foreign exchange contracts (notes 6 and 8)	15,060	2,686	17,746
Accounts payable – investments	304,953	54,385	359,338
Benefits payable	125,120	13,352	138,472
Other liabilities	177,251	24,029	201,280
Total liabilities	5,501,415	964,568	6,465,983
Net position, restricted for pension benefits	$ 182,718,124	$ 32,451,037	$ 215,169,161

See accompanying notes to basic financial statements.

NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Combining Basic Statement of Changes in Fiduciary Net Position

Year ended March 31, 2019

(Dollars in thousands)

	Employees' Retirement System	Police and Fire Retirement System	Total
Additions:			
Income from investing activities:			
Net appreciation in fair value of investments	$ 6,098,261	$ 1,081,673	$ 7,179,934
Interest income	1,122,135	199,039	1,321,174
Dividend income	1,550,157	274,960	1,825,117
Other income	946,751	167,930	1,114,681
Less investment expenses	(614,230)	(108,949)	(723,179)
Total income from investing activities	9,103,074	1,614,653	10,717,727
Income from securities lending activities:			
Securities lending income	148,975	26,424	175,399
Securities lending rebates	(107,406)	(19,051)	(126,457)
Less securities lending management fees	(4,156)	(737)	(4,893)
Total income from securities lending activities	37,413	6,636	44,049
Total net investment income	9,140,487	1,621,289	10,761,776
Contributions:			
Employers	3,890,215	854,094	4,744,309
Members	345,846	40,673	386,519
Interest on accounts receivable	94,893	15,109	110,002
Other, net	65,538	(5,386)	60,152
Total contributions	4,396,492	904,490	5,300,982
Total additions	13,536,979	2,525,779	16,062,758
Deductions:			
Benefits paid:			
Retirement benefits	10,578,972	1,947,974	12,526,946
Death benefits	202,809	11,857	214,666
Other, net	90,915	1,404	92,319
Total benefits paid	10,872,696	1,961,235	12,833,931
Administrative expenses	119,304	17,173	136,477
Total deductions	10,992,000	1,978,408	12,970,408
Net increase	2,544,979	547,371	3,092,350
Net position, restricted for pension benefits – beginning of year	180,173,145	31,903,666	212,076,811
Net position, restricted for pension benefits – end of year	$ 182,718,124	$ 32,451,037	$ 215,169,161

See accompanying notes to basic financial statements.

(1) Description of Plans

The Office of the New York State Comptroller administers the following plans: the New York State and Local Employees' Retirement System (ERS) and the New York State and Local Police and Fire Retirement System (PFRS), which are collectively referred to as the New York State and Local Retirement System (the System). The net position of the System is held in the New York State Common Retirement Fund (the Fund), which was established to hold all assets and record changes in fiduciary net position allocated to the System.

The Comptroller of the State of New York serves as the trustee of the Fund and is the administrative head of the System. The Comptroller is an elected official determined in a direct statewide election and serves a four-year term. Thomas P. DiNapoli has served as Comptroller since February 7, 2007. In November 2018, he was elected for a new term commencing January 1, 2019.

The external advisory committees appointed by the Comptroller meet periodically throughout the year and provide independent, expert assistance in guiding the Fund. These committees include: the Advisory Council for the Retirement System; the Investment Advisory Committee; the Real Estate Advisory Committee; the Actuarial Advisory Committee; and the Audit Advisory Committee.

System benefits are established under the provisions of the New York State Retirement and Social Security Law (RSSL). Once a public employer elects to participate in the System, the election is irrevocable. The New York State Constitution provides that pension membership is a contractual relationship and plan benefits cannot be diminished or impaired. Benefits can be changed for future members only by enactment of a State statute. Generally, members of the System are employees, other than teachers, of the State and its municipalities, other than New York City.

ERS and PFRS are cost-sharing, multiple-employer, defined benefit pension plans. The System is included in the State of New York's financial report as a pension trust fund. The Public Employees' Group Life Insurance Plan (GLIP) provides death benefits in the form of life insurance. In these statements, GLIP amounts are apportioned to and included in ERS and PFRS.

As of March 31, 2019, the number of participating employers for ERS and PFRS consisted of the following:

	ERS	PFRS
State	1	1
Counties	57	4
Cities	61	61
Towns	914	207
Villages	483	365
Other	802	39
School districts	697	—
Total	3,015	677

As of March 31, 2019, the System membership for ERS and PFRS consisted of the following:

	ERS	PFRS
Retirees and beneficiaries currently receiving benefits	444,719	37,076
Active members	501,037	32,573
Inactive members*	122,053	2,513
Total members and benefit recipients	1,067,809	72,162

* Includes vested members not currently receiving benefits and nonvested members.

(a) Membership Tiers

Pension legislation enacted in 1973, 1976, 1983, 2009 and 2012 established distinct classes of membership. For convenience, the System uses a tier concept to distinguish these groups, generally:

ERS

Tier 1 Those persons who last became members before July 1, 1973.

Tier 2 Those persons who last became members on or after July 1, 1973, but before July 27, 1976.

Tier 3 Generally, those persons who are State correction officers who last became members on or after July 27, 1976, but before January 1, 2010, and all others who last became members on or after July 27, 1976, but before September 1, 1983.

Tier 4 Generally, except for correction officers, those persons who last became members on or after September 1, 1983, but before January 1, 2010.

Tier 5 Those persons who last became members on or after January 1, 2010, but before April 1, 2012.

Tier 6 Those persons who first became members on or after April 1, 2012.

PFRS

Tier 1 Those persons who last became members before July 31, 1973.

Tier 2 Those persons who last became members on or after July 31, 1973, but before July 1, 2009.

Tier 3 Those persons who last became members on or after July 1, 2009, but before January 9, 2010.

Tier 4 Not Applicable

Tier 5 Those persons who last became members on or after January 9, 2010, but before April 1, 2012, or who were previously PFRS Tier 3 members who elected to become Tier 5.

Tier 6 Those persons who first became members on or after April 1, 2012.

(b) Vesting

Members who joined the System prior to January 1, 2010 need five years of service to be 100 percent vested. Members who joined on or after January 1, 2010 (ERS) or January 9, 2010 (PFRS) require ten years of service credit to be 100 percent vested.

(c) Employer Contributions

Participating employers are required under the RSSL to contribute to the System at an actuarially determined rate adopted annually by the Comptroller. The average contribution rate for ERS for the fiscal year ended March 31, 2019 was approximately 14.9 percent of covered employee payroll. The average contribution rate for PFRS for the fiscal year ended March 31, 2019 was approximately 23.5 percent of covered employee payroll. Delinquent annual bills for employer contributions accrue interest at the actuarial interest rate applicable during the year. For the fiscal year ended March 31, 2019, the applicable interest rate was 7 percent.

(d) Member Contributions

Generally, Tier 3, 4, and 5 members must contribute 3 percent of their salary to the System. As a result of Article 19 of the RSSL, eligible Tier 3 and 4 employees, with a membership date on or after July 27, 1976, who have ten or more years of membership or credited service with the System, are not required to contribute. Members cannot be required to begin making contributions or to make increased contributions beyond what was required when membership began. For Tier 6 members, the contribution rate varies from 3 percent to 6 percent depending on salary. Generally, Tier 5 and 6 members are required to contribute for all years of service.

(e) Benefits

Tiers 1 and 2

Eligibility: Tier 1 members, with the exception of those retiring under special retirement plans, must be at least age 55 to be eligible to collect a retirement benefit. There is no minimum service requirement for Tier 1 members. Tier 2 members, with the exception of those retiring under special retirement plans, must have five years of service and be at least age 55 to be eligible to collect a retirement benefit. The age at which full benefits may be collected for Tier 1 is 55, and the full benefit age for Tier 2 is 62.

Benefit Calculation: Generally, the benefit is 1.67 percent of final average salary for each year of service if the member retires with less than 20 years. If the member retires with 20 or more years of service, the benefit is 2 percent of final average salary for each year of service. Tier 2 members with five or more years of service can retire as early as age 55 with reduced benefits. Tier 2 members age 55 or older with 30 or more years of service can retire with no reduction in benefits. As a result of Article 19 of the RSSL, Tier 1 and Tier 2 members who worked continuously from April 1, 1999 through October 1, 2000 received an additional month of service credit for each year of credited service they have at retirement, up to a maximum of 24 additional months.

Final average salary is the average of the wages earned in the three highest consecutive years of employment. For Tier 1 members who joined on or after June 17, 1971, each year’s compensation used in the final average salary calculation is limited to no more than 20 percent greater than the previous year. For Tier 2 members, each year of final average salary is limited to no more than 20 percent greater than the average of the previous two years.

Tiers 3, 4, and 5

Eligibility: Tier 3 and 4 members, with the exception of those retiring under special retirement plans, must have five years of service and be at least age 55 to be eligible to collect a retirement benefit. Tier 5 members, with the exception of those retiring under special retirement plans, must have ten years of service and be at least age 55 to be eligible to collect a retirement benefit. The full benefit age for Tiers 3, 4 and 5 is 62.

Benefit Calculation: Generally, the benefit is 1.67 percent of final average salary for each year of service if the member retires with less than 20 years. If a member retires with between 20 and 30 years of service, the benefit is 2 percent of final average salary for each year of service. If a member retires with more than 30 years of service, an additional benefit of 1.5 percent of final average salary is applied for each year of service over 30 years. Tier 3 and 4 members with five or more years of service and Tier 5 members with ten or more years of service can retire as early as age 55 with reduced benefits. Tier 3 and 4 members age 55 or older with 30 or more years of service can retire with no reduction in benefits.

Final average salary is the average of the wages earned in the three highest consecutive years of employment. For Tier 3, 4 and 5 members, each year's compensation used in the final average salary calculation is limited to no more than 10 percent greater than the average of the previous two years.

Tier 6

Eligibility: Tier 6 members, with the exception of those retiring under special retirement plans, must have ten years of service and be at least age 55 to be eligible to collect a retirement benefit. The full benefit age for Tier 6 is 63 for ERS members and 62 for PFRS members.

Benefit Calculation: Generally, the benefit is 1.67 percent of final average salary for each year of service if the member retires with less than 20 years. If a member retires with 20 years of service, the benefit is 1.75 percent of final average salary for each year of service. If a member retires with more than 20 years of service, an additional benefit of 2 percent of final average salary is applied for each year of service over 20 years. Tier 6 members with ten or more years of service can retire as early as age 55 with reduced benefits.

Final average salary is the average of the wages earned in the five highest consecutive years of employment. For Tier 6 members, each year's compensation used in the final average salary calculation is limited to no more than 10 percent greater than the average of the previous four years.

Special Plans

The 25-Year Plans allow a retirement after 25 years of service with a benefit of one-half of final average salary, and the 20-Year Plans allow a retirement after 20 years of service with a benefit of one-half of final average salary. These plans are available to certain PFRS members, sheriffs, and correction officers.

Disability Retirement Benefits

Disability retirement benefits are available to ERS and PFRS members unable to perform their job duties because of permanent physical or mental incapacity. There are three general types of disability benefits: ordinary, performance of duty, and accidental disability benefits. Eligibility, benefit amounts, and other rules such as any offsets of other benefits depend on a member's tier, years of service, and plan.

(Continued)

Ordinary Death Benefits

Death benefits are payable upon the death, before retirement, of a member who meets eligibility requirements as set forth by law. The first $50,000 of an ordinary death benefit is paid in the form of group term life insurance. The benefit is generally three times the member's annual salary. For most members, there is also a reduced post-retirement ordinary death benefit available.

Post-Retirement Benefit Increases

A cost-of-living adjustment is provided annually to: (i) all retirees who have attained age 62 and have been retired for five years; (ii) all retirees who have attained age 55 and have been retired for ten years; (iii) all disability retirees, regardless of age, who have been retired for five years; (iv) ERS recipients of an accidental death benefit, regardless of age, who have been receiving such benefit for five years; and (v) the spouse of a deceased retiree receiving a lifetime benefit under an option elected by the retiree at retirement. An eligible spouse is entitled to one-half the cost-of-living adjustment amount that would have been paid to the retiree when the retiree would have met the eligibility criteria. This cost-of-living adjustment is a percentage of the annual retirement benefit of the eligible retiree as computed on a base benefit amount not to exceed $18,000 of the annual retirement benefit. The cost-of-living percentage shall be 50 percent of the annual Consumer Price Index as published by the U.S. Bureau of Labor, but cannot be less than 1 percent or exceed 3 percent.

(2) Summary of Significant Accounting Policies

(a) Basis of Accounting

The System maintains records and accounts, and prepares financial statements using the accrual basis of accounting. Employer contributions are recognized when legally due, pursuant to statutory requirements, in accordance with the terms of each plan. Member contributions are based on earned member salaries and are recognized when due. Benefits, expenses, and refunds are recognized when due and payable.

(b) Investments

Investments are recorded on a trade-date basis and reported at fair value. Fair value is defined as the amount that can reasonably be expected to be received for an investment in a current sale between a willing buyer and a willing seller. Due to the nature of investments, it is reasonable that changes in the value of investments will occur in the near future, and such changes could materially affect the amounts reported. The amounts reported as investments on the financial statements are allocated between ERS and PFRS based on each system’s monthly average equity in the Fund. See note 4(c) for detailed information on the System’s policy on investment valuation and note 8 for more detail regarding the methods used to measure the fair value of investments.

(c) Member Loan Programs

Members who joined prior to January 1, 2018 are entitled to participate in a loan program that allows them to borrow up to 75 percent of their member contributions or $50,000, whichever is less. Members who joined on or after January 1, 2018, may borrow up to 50 percent of their contribution balance or $50,000, whichever is less. Repayment of outstanding amounts is generally made through payroll deductions within five years. The interest rate charged for COESC Member Loans is fixed at 1 percent below the actuarial interest rate at the time the loan is granted. The rate for loans issued during the fiscal year ended March 31, 2019 was 6 percent.

(d) Capital Assets

Capital assets are capitalized at cost and depreciated on a straight-line basis over the related assets' estimated useful lives.

During the fiscal year ended March 31, 2014, the System began capitalizing outlays associated with the redesign of its pension administration system. As of March 31, 2019, capitalized outlays for the project total $332.51 million. This project is currently ongoing and is expected to be completed in the period ending December 31, 2020, at which time depreciation of the capitalized costs will begin.

(e) Contributions Receivable

Employers' contributions receivable are presented net of withdrawals, refunds, advance employer payments, and credits due employers. Receivable amounts from participating employers include $23.3 million for amortization of retirement incentives, new plan adoptions, and retroactive membership.

The RSSL includes several provisions related to the amortization of employer contribution amounts. These include:

- Chapter 57 of the Laws of 2010 authorized the State and local employers to amortize a portion of their annual pension costs during periods when actuarial contribution rates exceed thresholds established by the statute. Amortized amounts will be paid in equal annual installments over a ten-year period including a rate of interest set by the Comptroller annually. Employers may prepay these amounts at any time without penalty. The first payment will be due in the fiscal year following the decision to amortize. Chapter 57 further provides that when contribution rates fall below legally specified levels and all outstanding amortizations have been paid, employers that elected to amortize will be required to pay additional moneys into reserve funds, specific to each employer, which will be used to offset their contributions in the future. These reserve funds will be invested separately from pension assets.

The following represents the amortized receivable balance from the State and Local participating employers as of March 31, 2019, including the statutory amortization threshold and interest rate, for each respective fiscal year:

Chapter 57, Laws of 2010

	% of Payroll				
Year	ERS	PFRS	Interest %	State	Local
				(Dollars in millions)	
2011	9.5	17.5	5.00	$ 52.3	$ 7.2
2012	10.5	18.5	3.75	191.7	57.8
2013	11.5	19.5	3.00	340.1	135.3
2014	12.5	20.5	3.67	512.1	95.9
2015	13.5	21.5	3.15	455.3	84.4
2016	14.5	22.5	3.21	261.5	47.3
2017	15.1	23.5	2.33	—	5.0
2018	14.9	24.3	2.84	—	4.0
2019	14.4	23.5	3.64	—	4.2
				$ 1,813.00	$ 441.1

- The fiscal year 2014 Enacted Budget included an alternate contribution program (the Alternate Contribution Stabilization Program) that provided certain participating employers with a one-time election to amortize slightly more of their required contributions than would be available for amortization under the 2010 legislation. In addition, the maximum payment period was increased from ten years to twelve years. The election was available to: counties, cities, towns, villages, BOCES, school districts and the four public health care centers operated in the counties of Nassau, Westchester and Erie. The State was not eligible to participate in the Alternate Contribution Stabilization Program.

The following represents the amortized receivable balance from Local participating employers as of March 31, 2019, including the statutory amortization threshold and interest rate, for each respective fiscal year:

Chapter 57, Laws of 2013

Year	% of Payroll ERS	% of Payroll PFRS	Interest %		Local (Dollars in millions)
2014	12.0	20.0	3.76	$	142.8
2015	12.0	20.0	3.50		135.2
2016	12.5	20.5	3.31		105.3
2017	13.0	21.0	2.63		79.4
2018	13.5	21.5	3.31		69.8
2019	14.0	22.0	3.99		25.1
				$	557.6

(f) Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingencies. These estimates are subject to a certain amount of uncertainty in the near term, which could result in changes in the values reported for those assets in the combined statement of fiduciary net position. Estimates also affect the reported amounts of income/additions and expenses/deductions during the reporting period. Actual results could differ from these estimates.

(3) System Reserves

The legally required reserves, as covered by provisions of the RSSL, are maintained by the System, are fully funded as of March 31, 2019, and are described below:

Annuity Savings Funds – Funds in which contributions of Tier 1 and Tier 2 members are accumulated.

Annuity Reserve Funds – Funds from which member contribution annuities are paid.

Pension Accumulation Funds – Funds in which employer contributions and income from the investments of the System are accumulated.

Pension Reserve Funds – Funds from which pensions are paid.

Designated Annuitant Funds – Funds from which beneficiary annuities are paid.

Loan Insurance Funds – Funds that provide loan insurance coverage for members with existing no default loan balances at time of death.

Group Life Insurance Plan Reserve – Reserves that provide group term death benefits not to exceed $50,000, payable upon the death of eligible members.

Coescalation (COESC) Contribution Funds – Funds in which member contributions are accumulated. These funds are transferred to the Pension Accumulation Fund at retirement.

As of March 31, 2019, the System reserves for ERS and PFRS consisted of the following:

		ERS		PFRS
		(Dollars in thousands)		
Annuity savings	$	286	$	60,818
Annuity reserve		64,627		14,242
Pension accumulation		71,044,262		12,079,734
Pension reserve		102,881,489		20,146,830
Designated annuitant		49,718		19,956
Loan insurance		2,018		105
Group Life Insurance Plan reserve		108,743		4,384
COESC contribution		8,566,981		124,968
Total	$	182,718,124	$	32,451,037

(4) Investments

(a) Investment Policy

The State Comptroller, currently Comptroller Thomas P. DiNapoli, is Trustee of the Fund. He is directly accountable for the investment of Fund assets and for the oversight and management of the Fund. Comptroller DiNapoli is responsible for implementing an asset allocation with an appropriate balance of risk and return. The Trustee has put in place investment policies and practices designed to ensure that investments are made for the exclusive benefit of the participants and beneficiaries of the System, on whose behalf the assets of the Fund are invested, and that Fund investments are made with the care that a prudent person serving in a like capacity and familiar with such matters would use in the conduct of an enterprise of like character and with like aims – the “prudence” and “exclusive benefit” fiduciary standards of investment. Additionally, the Trustee has adopted policies and practices to ensure that the Fund is managed with high levels of ethical conduct and transparency.

The Comptroller seeks the input of a wide range of internal and external advisors to determine the allocation of assets and the appropriate investment choices for the Fund. The Comptroller appoints a Chief Investment Officer to oversee PICM operations, manage staff, and supervise investments on a day-to-day basis. The Fund also relies on advice from a network of outside advisors, consultants, and legal counsel, as well as the members of independent external advisory committees appointed by the Comptroller. Outside advisors and internal investment staff are part of the chain of approval that must recommend all investment decisions before they reach the Comptroller for final approval.

The asset allocation is not intended to be an absolute limit on the type of investments that can be made by the Comptroller or considered by staff. The Comptroller is expressly permitted to invest the assets of the Fund pursuant to various provisions of State law, including, among others, Article 4-A of the RSSL, which also contains limitations on the amount and quality of investments the Fund may hold in certain asset categories. Investments purchased pursuant to these provisions are so-called “legal list” investments. In addition to the foregoing, section 177(9) of the RSSL contains a provision that currently provides that up to 25 percent of the Fund’s assets may be placed in investments not specifically authorized by any other provision of law. In making investments under this provision, the Comptroller is subject to the exclusive benefit and prudence standards in the statute. Subject to such standards, investments made under this provision must also, to the extent reasonably possible, benefit the overall economic health of the State. Investments made pursuant to section 177(9) of the RSSL are so-called “basket clause” investments.

(Continued)

(b) Asset Allocation

The following was the adopted asset allocation policy as of March 31, 2019:

Asset class	Target allocation
Domestic equity	36.0%
International equity	14.0
Private equity	10.0
Real estate	10.0
Absolute return strategies*	2.0
Opportunistic funds	3.0
Real assets	3.0
Bonds and mortgages	17.0
Cash	1.0
Inflation-indexed bonds	4.0
	100.0%

*Excludes equity-oriented long-only global funds of $2.82 billion. For investment management purposes, these funds are included in domestic equity and international equity.

(c) Methods Used to Value Investments

Equity securities traded on a national or international exchange are reported at current quoted fair values.

Bonds and other fixed income assets are primarily reported at fair values obtained from independent pricing services.

Mortgages are valued on the basis of future principal and interest payments and are discounted at prevailing interest rates for similar instruments.

Direct investments in real estate are valued based on independent appraisals made every three years or according to the contract.

Real estate partnerships, global fixed income funds, commingled international equity funds and various alternative investments (private equity, absolute return strategies, opportunistic funds, and real assets) are reported at net asset values as provided by the general partners or investment managers.

Information on securities lending is available in note 7. Information on foreign currency risks and derivative financial instruments can be found in note 5(f) and note 6, respectively.

The Fund trades in foreign exchange contracts in the normal course of its investing activities in order to manage exposure to market risks. Such contracts, which are generally for a period of less than one year, are used to purchase and sell foreign currency at a guaranteed future price. These contracts are recorded at fair value using foreign currency exchange rates.

(d) Rates of Return

In accordance with U.S. generally accepted accounting principles, the money-weighted rate of return on plan investments, net of investment expenses, was 5.14 percent for the year ended March 31, 2019. For internal purposes, the System evaluates investment performance using the time-weighted rate of return, gross of certain investment fees, which was 5.23 percent for the year ended March 31, 2019.

(5) Deposit and Investment Risk Disclosure

(a) Custodial Credit Risk for Investments

Investment securities are exposed to custodial credit risk if the securities are not registered in the name of the Fund, or are held either by the counterparty or the counterparty's trust department or agent, but not in the name of the Fund.

Equity and fixed income investments owned directly by the Fund, which trade in the United States (U.S.) markets, are generally held by the Fund's custodian, in separate accounts, in the name of the Comptroller of the State of New York in Trust for the Fund. These securities are typically held in electronic form through the Federal Book Entry System and by the Depository Trust Company (DTC) and its subsidiaries acting as an agent of the Fund's custodian bank. Securities held directly by the Fund that trade in markets outside the U.S. are held by a subsidiary of the Fund's custodian bank in the local market, a bank performing custodial services in the local market acting as an agent for the Fund's custodian bank, and in some foreign markets, the securities are held in electronic form by a DTC subsidiary or an organization similar to DTC.

Equity investments held indirectly by the Fund via limited partnerships, commingled investment funds, joint ventures, and other similar vehicles are held in custody by an organization contracted by the general partner and/or the investment management firm responsible for the management of each investment organization.

Title to real estate invested in by the Fund is held either by a real estate holding company or a real estate investment fund. Ownership of mortgage assets is documented by the Fund's holding of original mortgage and note documents by the Office of the State Comptroller's PICM.

(b) Custodial Credit Risk for Deposits

Deposits are exposed to custodial credit risk if the deposits are not covered by depository insurance or the deposits are uncollateralized, collateralized with securities held by the pledging financial institution, or collateralized with securities held by the pledging institution's trust department or agent, but not in the name of the Fund.

In accordance with existing policies and procedures, the PICM in the Office of the State Comptroller monitors deposit balances for the purpose of determining collateralization levels. Collateral sufficient to cover all uninsured deposits is held at the State's custodial bank.

(c) Interest Rate Risk

The System is subject to interest rate risk, which is the risk that changes in market interest rates will adversely affect the fair value of the Fund's fixed income securities. Pursuant to the Fund's investment policies and procedures and to address changing economic factors and their impact on various sectors of the economy, PICM staff meets regularly to discuss the investment strategy for the fixed income portfolio. Several factors are taken into account when formulating this strategy, including sector weightings and the current duration of the portfolio.

The price volatility of the Fund's fixed income holdings is measured by duration. Effective duration is a measure of the price sensitivity of a bond to interest rate movements. Effective duration follows the concept that interest rates and bond prices move in opposite directions.

As of March 31, 2019, the duration of the fixed income portfolio is as follows (dollars in thousands):

Category		Fair value	Percentage of portfolio		Effective duration (In years)
Bonds:					
Core portfolio:					
Treasury	$	9,665,736	21.1	%	7.80
Federal agency		46,246	0.1		4.99
Corporate		11,455,506	25.1		6.91
Asset-backed		992,139	2.2		3.19
Commercial mortgage-backed		1,595,253	3.5		4.82
Mortgage-backed		5,371,583	11.8		3.79
Collateralized loan obligations		2,740,120	6.0		0.09
Municipal bonds		131,209	0.3		6.10
Core portfolio		31,997,792	70.1		5.51
Treasury Inflation-Protected Securities (TIPS)		7,740,463	17.0		7.22
Externally managed funds:					
Advent Capital		389,566	0.9		3.30
BlackRock		2,419,848	5.3		2.35
DoubleLine Capital		255,977	0.5		14.20
Neuberger Berman		1,783,178	3.9		3.60
New Century Advisors		257,717	0.6		7.92
Semper Capital		292,391	0.6		3.21
Smith Graham		514,670	1.1		3.85
Total Bonds	$	45,651,602	100.0	%	
Mortgages:					
Berkadia		425,317	47.4		3.81
CPC		471,676	52.6		7.61
Total Mortgages	$	896,993	100.0	%	
Total	$	46,548,595			

(d) Credit Risk of Debt Securities

Fixed income obligations purchased pursuant to section 177(1-a) of the RSSL must be investment grade at the time of their acquisition. A bond is considered investment grade if its credit rating is Baa or higher by Moody’s or BBB– or higher by Standard & Poor’s. Fixed income obligations purchased pursuant to section 177(9) of the RSSL, the “basket clause,” are subject to a standard of prudence. As of March 31, 2019, credit ratings, obtained from several industry rating services, for the fixed income portfolio are as follows (dollars in thousands):

	Quality rating		Fair value	Percentage of fair value
Bonds:				
	AAA	$	26,921,025	58.97 %
	AA		2,810,072	6.16
	A		5,363,323	11.75
	BBB		5,634,225	12.34
	BB		157,235	0.34
	B		18,261	0.04
	CCC		15,728	0.03
	CC		5,383	0.01
	C		10,297	0.02
	D		21,316	0.05
	Not Rated		199,320	0.44
	Externally managed funds:*			
	BlackRock		2,419,848	5.30
	Range AAA to D & Not Rated			
	Neuberger Berman		1,783,178	3.91
	Range AAA to D & Not Rated			
	Semper Capital		292,391	0.64
	Range AAA to D & Not Rated			
	Total Bonds	$	45,651,602	100.00 %
Mortgages:	Not Rated	$	896,993	100.00 %
	Total	$	46,548,595	

* These externally managed funds are considered investments under the “basket clause,” subject to the standards of prudence. All or a part of the holdings can be non-investment grade.

(e) Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of the Fund’s investment in a single issuer.

As of March 31, 2019, the System did not hold any investments in any one issuer that totaled 5 percent or more of the pension plan’s fiduciary net position. Investments issued or explicitly guaranteed by the U.S. government and pooled investments are excluded.

Issuer limits for investments held by the Fund are established by law and by policy guidelines adopted by the PICM.

Short-term fixed income investments not purchased pursuant to section 177(9) of the RSSL are generally limited to the following investment types maturing in one year or less:

- Obligations for which the full faith and credit of the U.S. government is pledged to provide payment of interest and principal.
- Obligations issued by any Federal Home Loan Bank or obligations fully guaranteed as to principal and interest by the Federal National Mortgage Association or the Federal Home Loan Mortgage Corporation.
- Commercial paper that has received the highest rating from two nationally recognized rating services. A maximum of $1 billion of the short-term portfolio may be invested in any one commercial paper issuer.
- Simultaneous purchase and sale of U.S. Treasury obligations may be executed with Primary Government dealers. A maximum of $200 million may be invested with any one Primary Government dealer.
- Corporate and asset-backed securities (ABS) that are rated investment grade by two nationally recognized rating services. ABS must have a weighted average life of one year or less.

Fixed income investments not purchased pursuant to section 177(9) of the RSSL are generally limited to the following investment types with maturities longer than one year:

- Obligations for which the full faith and credit of the U.S. government is pledged to provide payment of principal and interest.
- Obligations payable in U.S. dollars issued by any department, agency, or political subdivision of the U.S. government or issued by any corporation, company, or other issuer of any kind or description created or existing under the laws of the U.S., any state of the U.S., the District of Columbia, or the Commonwealth of Puerto Rico, and obligations payable in U.S. funds of Canada or any province or city of Canada, provided each obligation at the time of investment shall be rated investment grade by two nationally recognized rating services (or by one nationally recognized rating service in the event only one such service rates such obligation). The aggregate investment by the Fund in the obligations of any one issuer shall not exceed 2 percent of the assets of the Fund or 5 percent of the direct liabilities of the issuer.
- Interest-bearing obligations payable in U.S. funds, which at the time of investment are rated in one of the three highest rating grades by each rating service approved by the New York State Department of Financial Services that has rated such obligations. The aggregate amount invested in the obligations of any single issuer may not exceed 1 percent of the assets of the Fund.
- Bonds issued or guaranteed by the State of Israel and approved by the United States Comptroller of the Currency, payable in U.S. dollars, not to exceed 5 percent of the assets of the Fund.
- Obligations issued or guaranteed by the International Bank for Reconstruction and Development (not to exceed 5 percent of the assets of the Fund), the Inter-American Development Bank, the Asian Development Bank, or the African Development Bank.

Fixed income investments purchased pursuant to section 177(9) of the RSSL are subject to standards of prudence and the exclusion benefit rules. Subject to such standards, investments made under section 177(9) must, to the extent reasonably possible, benefit the overall economic health of the State.

(f) Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit. The Fund has exposure through direct investments in international equities, international equity commingled funds, international fixed income investments, international real estate investments, international absolute return strategies, international private equity investments, international opportunistic funds, and international real asset funds. The Fund's asset allocation and investment policies allow for active and passive investments in international securities. The Fund permits the managers of direct investments in international equities to use forward currency contracts to manage their exposure to foreign currencies relative to the U.S. dollar. Where the Fund participates in commingled funds, limited partnerships, or other investment arrangements, the decision whether or not to use forward currency contracts to manage their foreign currency exposure is left up to the individual investment managers. To address the impact of changes in exchange rates, only forward foreign exchange contracts of one year or less are allowed when used to lessen portfolio volatility or hedge the portfolio's currency exposure.

Foreign investments included in the combining basic statement of fiduciary net position as of March 31, 2019 are as follows (dollars in thousands):

	Fixed income	Equity	Cash	Real estate	Private equity, opportunistic, absolute return strategy and real asset funds	Total
Afgan Afgani	$ —	$ —	$ —	$ —	$ 16	$ 16
Albanian Lek	—	—	—	28	14	42
Angolan Kwanza	—	—	—	—	75	75
Argentine Peso	619	—	—	—	38,359	38,978
Australian Dollar	—	394,073	8,406	107,041	233,286	742,806
Bahamian Dollar	—	—	—	85	79	164
Bahraini Dinar	—	—	—	—	217	217
Bermudian Dollar	—	—	—	—	88,375	88,375
Botswana Pula	—	—	—	—	3,067	3,067
Brazilian Real	—	246,925	147	65,452	436,430	748,954
British Pound	23,240	2,350,444	5,826	275,802	1,519,991	4,175,303
Bulgarian Lev	—	—	—	136	10,217	10,353
Burmese Kyat	—	—	—	—	10,720	10,720
Cambodian Riel	—	—	—	—	11,214	11,214
Canadian Dollar	—	439,899	5,959	98,075	443,309	987,242
Cayman Islands Dollar	—	—	—	24,287	2,334,641	2,358,928
Chilean Peso	—	17,309	30	—	5,110	22,449
Chinese Yuan Renminbi	1,858	103,234	—	110,420	1,161,758	1,377,270
Colombian Peso	—	10,736	—	6	38,952	49,694
Costa Rican Colon	—	—	—	—	703	703
Croatian Kuna	—	—	—	11	25,948	25,959
Czech Koruna	—	3,797	—	968	9,786	14,551
Danish Krone	—	307,341	786	176,432	170,682	655,241
Egyptian Pound	—	5,503	94		15,474	21,071
Euro	134,081	3,736,628	4,548	1,446,768	2,864,515	8,186,540
Ghanaian Cedi	—	—	—	—	3,101	3,101
Hong Kong Dollar	2,028	1,262,867	1,001	39,538	266,450	1,571,884
Hungarian Forint	—	28,719	—	—	20,846	49,565
Indian Rupee	—	348,205	133	181,434	448,038	977,810
Indonesian Rupiah	6,486	103,790	—	—	82,090	192,366
Israeli Shekel	—	72,103	(334)	—	131,093	202,862
Jamaican Dollar	—	—	—	—	5	5
Japanese Yen	1,526	2,174,638	948	55,599	232,971	2,465,682
Kenyan Shilling	—	—	—	—	19,348	19,348
Liberian Dollar	—	—	—	—	3,281	3,281
Macanese Pataca	—	—	—	—	(859)	(859)
Malaysian Ringgit	—	94,590	170	—	57,616	152,376
Mauritian Rupee	—	—	—	396	10,809	11,205
Mexican Peso	7,482	80,916	105	8,883	82,375	179,761

	Fixed income	Equity	Cash	Real estate	Private equity, opportunistic, absolute return strategy and real asset funds	Total
Mongolian Togrog	$ —	$ —	$ —	$ —	$ (82)	$ (82)
Moroccan Dirham	—	—	—	2	10,112	10,114
Mozambique Metical	—	—	—	—	1,263	1,263
New Taiwan Dollar	—	339,977	296	3,787	6,849	350,909
New Zealand Dollar	—	9,473	27	—	50,613	60,113
Nigerian Naira	302	—	—	—	100,860	101,162
Norwegian Krone	—	68,604	535	578	70,577	140,294
Pakistani Rupee	—	1,294	—	—	(1,420)	(126)
Panamanian Balboa	—	—	—	—	(116)	(116)
Paraguayan Guarani	—	—	—	—	(1,079)	(1,079)
Peruvian Sol	—	1,386	1	—	53,618	55,005
Philippine Peso	—	9,960	9	—	10,447	20,416
Polish Zloty	—	38,004	560	36,629	112,305	187,498
Qatari Riyal	—	7,332	32	—	—	7,364
Romanian Leu	—	—	—	136	7,316	7,452
Russian Ruble	—	—	—	2,879	47,115	49,994
Saudi Riyal	—	—	—	—	92	92
Serbian Dinar	—	—	—	408	65	473
Singapore Dollar	—	225,604	2,449	46,276	136,647	410,976
South African Rand	9,462	165,458	7,217	—	33,364	215,501
South Korean Won	356	472,303	337	34,969	128,565	636,530
Sri Lankan Rupee	—	—	—	—	3,764	3,764
Swedish Krona	—	407,806	2,025	20,759	630,350	1,060,940
Swiss Franc	80	919,353	701	13	217,971	1,138,118
Tanzanian Shilling	—	—	—	—	3	3
Thai Baht	—	90,534	1	—	4,845	95,380
Turkish Lira	—	52,428	114	11,003	47,460	111,005
Ugandan Shilling	—	—	—	—	87	87
Ukrainian Hryvnia	—	—	—	85	5,173	5,258
United Arab Emirates Dirham	—	2,226	—	9	27,435	29,670
Uruguayan Peso	—	—	—	—	115	115
Venezuelan Bolivar	—	—	—	—	6,077	6,077
Vietnamese Dong	—	—	—	—	30,591	30,591
West African CFA Franc	—	—	—	—	1,848	1,848
Zambian Kwacha	—	—	—	—	197	197
Other	—	—	—	3,316	949	4,265
Total subject to foreign currency risk	187,520	14,593,459	42,123	2,752,210	12,524,078	30,099,390
Commingled international equity in U.S. Dollars	—	16,965,733	—	—	—	16,965,733
Foreign investments in U.S. Dollars	1,546,723	4,697,779	—	—	5,480,710	11,725,212
Total foreign investments	$ 1,734,243	$ 36,256,971	$ 42,123	$ 2,752,210	$ 18,004,788	$ 58,790,335

(6) Derivatives

A derivative is generally defined as an investment contract or security with a value that depends on, or is derived from, the value of an underlying asset, reference rate, or financial index.

Forward Currency Contracts

The System may enter into forward currency contracts to manage exposure to fluctuations in foreign currency exchange rates on portfolio holdings. The System also enters into forward exchange contracts to settle future obligations. A forward exchange contract is a commitment to purchase or sell a foreign currency at a future date at a negotiated forward rate. A contract is classified as a forward contract when the settlement date is more than two days after the trade date. Risk associated with such contracts includes movement in the value of a foreign currency relative to the U.S. dollar. The contracts are valued at forward exchange rates and include net appreciation/depreciation in the combining statement of fiduciary net position. Realized gain or loss on forward currency contracts is the difference between the original contract and the closing value of such contract and is included in the combining basic statement of changes in fiduciary net position.

The table below summarizes the fair value of foreign currency contracts as of March 31, 2019 (dollars in thousands):

Currency	Forward currency contracts	Spot currency contracts	Totals
Australian Dollar	$ —	$ 1,239	$ 1,239
Brazilian Real	—	765	765
British Pound	—	1,697	1,697
Canadian Dollar	—	1,921	1,921
Danish Krone	—	7,138	7,138
Euro	—	(2,117)	(2,117)
Hong Kong Dollar	—	987	987
Israeli Shekel	69	408	477
Japanese Yen	(992)	(1,704)	(2,696)
Malaysian Ringgit	—	(80)	(80)
New Taiwan Dollar	—	(65)	(65)
New Zealand Dollar	—	(139)	(139)
Norwegian Krone	—	115	115
Singapore Dollar	—	39	39
South African Rand	—	(329)	(329)
South Korean Won	—	(146)	(146)
Swedish Krona	—	(1,009)	(1,009)
Swiss Franc	(4,406)	774	(3,632)
Thai Baht	—	(94)	(94)
U.S. Dollar	5,522	(9,395)	(3,873)
Total	$ 193	$ 5	$ 198

(7) Securities Lending Program

Section 177-d of the RSSL authorizes the Fund to enter into security loan agreements with broker/dealers and state or national banks. The Fund has designated its master custodian bank (the custodian) to manage a securities lending program. This program is subject to a written contract between the Fund and the custodian who acts as securities lending agent for the Fund. The custodian is authorized to lend securities within the borrower limits and guidelines established by the Fund. Types of collateral received from borrowers for securities loaned are cash, government securities, and obligations of federal agencies. The custodian is authorized to invest the cash collateral in short-term investments in accordance with reinvestment guidelines for the Fund. These include domestic corporate and bank notes, U.S. Treasury obligations, obligations of federal agencies, repurchase agreements, and specific asset-backed securities. All rights of ownership to securities pledged as collateral remain with the borrower except in the event of default. As of March 31, 2019, there were no violations of legal or contractual provisions. The Fund has not experienced any losses resulting from the default of a borrower or lending agent during the year ended March 31, 2019.

The Fund lends fixed income, domestic equity, and international equity securities to approved broker/dealers. Collateral for securities loaned equals 102 percent of fair market value for domestic securities and 105 percent for international securities. Credit risk associated with the investment of cash collateral pledged by borrowers is mitigated by the maturity restrictions, percentage limitations, and rating requirements for individual asset classes included in the Fund’s reinvestment guidelines. The custodian acknowledges responsibility to reimburse the Fund for losses that might arise from managing the program in a manner inconsistent with the contract. The Fund manages its market risk by recording investments at market value daily and maintaining the value of the collateral held by the Fund in excess of the value of the securities loaned. As of March 31, 2019, the fair value of securities on loan was $7.24 billion. The associated collateral was $7.41 billion, of which $5.74 billion was cash collateral and $1.67 billion was securities. The cash collateral has been reinvested in other instruments, which had a fair value of $5.74 billion as of March 31, 2019. The securities lending obligations were $5.75 billion. The unrealized loss in invested cash collateral on March 31, 2019 was $6.42 million, which is reported in the combining basic statement of changes in fiduciary net position as part of “Net appreciation in fair value of investments.”

All open security loans can be terminated on demand by either the Fund or the borrower. To provide sufficient liquidity, the policy of the Fund is to maintain a minimum of 10 percent collateral in overnight investments. While the Fund’s Securities Lending Investment Guidelines allow investments up to a maximum of three years for U.S. Treasury and federal agency obligations and one year for all other investments, the average term of open security loans at March 31, 2019 was 31 days. All loans were open loans. There were no direct matching loans.

The collateral pool is valued at fair value obtained from independent pricing services.

(8) Fair Value Measurement

The System's investments, measured and reported at fair value, including securities lending collateral and obligations and forward foreign exchange contracts, are classified according to the following hierarchy in which the levels are based on the nature of inputs used to measure the fair value of the investment:

Level 1 – Investment fair values based on prices quoted in active markets for identical assets.

Level 2 – Investment fair values based on observable inputs for the assets either directly or indirectly, other than those considered Level 1 inputs, which may include quoted prices for identical assets in markets that are not considered to be active, and quoted prices of similar assets in active or inactive markets.

Level 3 – Investment fair values based on unobservable inputs.

The categorization of investments within the hierarchy above is based solely upon the objectivity of the inputs used in the measurement of the fair value of the investments and does not reflect the level of risk associated with the investments.

Investments classified in Level 1 of the fair value hierarchy are valued from predetermined external pricing vendors or primary dealers who source quoted prices in active markets which are readily attainable exit values of these securities. Investments classified in Level 2 are subject to alternative pricing sources, including a combination of price sources, descriptive data and pricing models based on attributes such as spread data, sector, quality, duration, and prepayment characteristics. Investments classified as Level 3 are valued using best available sources such as property appraisals, discounted cash flow models and public market comparables of similar assets where applicable. The values are supplied by advisors or general partners who hold those or similar assets in investment vehicles they oversee. These pricing sources may or may not be indicative of realizable exit values attainable for the assets.

(Continued)

The table below summarizes assets and liabilities carried at fair value based on levels from the fair value hierarchy as of March 31, 2019, with certain assets carried at net asset value (NAV) and cost also included to allow reconciliation to the statement of fiduciary net position (dollars in thousands):

	Total	Level 1	Level 2	Level 3
Assets:				
Investments by fair value level:				
Fixed income securities:				
Short-term instruments	$ 5,564,731	$ —	$ 5,564,731	$ —
Global fixed income securities	41,031,185	—	41,031,185	—
Total fixed income securities	46,595,916	—	46,595,916	—
Equity securities:				
Domestic equities	73,303,652	73,303,652	—	—
International equities	32,000,957	31,999,444	15	1,498
Total equity securities	105,304,609	105,303,096	15	1,498
Mortgages	896,993	—	—	896,993
Private equity	526,396	—	—	526,396
Opportunistic	229,474	—	—	229,474
Real assets	15,863	—	—	15,863
Real estate	812,847	—	—	812,847
Securities lending collateral	4,076,905	—	4,076,905	—
Forward foreign exchange contracts	17,939	—	17,939	—
Total investment assets by fair value level	$ 158,476,942	$ 105,303,096	$ 50,690,775	$ 2,483,071
Investments measured at cost:				
Global fixed income securities	$ 125,000			
Securities lending collateral	1,665,826			
Total investments measured at cost	$ 1,790,826			
Investments measured at Net Asset Value (NAV):				
Global fixed income funds[1]	$ 4,495,417			
Commingled international equity funds[2]	4,256,014			
Alternative investments:[3]				
Private equity	19,224,581			
Absolute return strategy investments	7,812,169			
Opportunistic funds	2,604,311			
Real assets	2,204,163			
Real estate	14,865,708			
Total alternative investments	46,710,932			
Total investments measured at NAV	$ 55,462,363			
Investment related cash and cash equivalents not included in above	554,254			
Total investment assets	$ 216,284,385			
Liabilities:				
Investments by fair value level:				
Forward foreign exchange contracts	(17,746)	—	(17,746)	—
Total investment liabilities by fair value level	$ (17,746)	$ —	$ (17,746)	$ —

The table below summarizes liquidity information for investments valued at NAV (dollars in thousands):

Investments measured at NAV		Amount		Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Global fixed income funds[1]	$	4,495,417	$	—	Daily	0-30 days
Commingled international equity funds[2]		4,256,014		—	Daily, Weekly, Monthly, Quarterly	2-120 days
Alternative investments:[3]						
Private equity		19,224,581		14,551,123	N/A	N/A
Absolute return strategy investments		7,812,169		257,972	Monthly, Quarterly, Annually, Semi-annually	5-120 days
Opportunistic		2,604,311		2,497,254	N/A, Monthly, Quarterly	N/A, 30-540 days
Real assets		2,204,163		2,113,207	N/A	N/A
Real estate		14,865,708		3,598,681	N/A	N/A
Total investments measured at NAV	$	55,462,363	$	23,018,237		

[1] Global fixed income funds consist of three funds for which the System is the only investor. These funds invest primarily in both privately and publicly issued global fixed income securities. The investments are valued at the net asset value of units held at the end of the period based upon the fair value of the underlying investments.

[2] Commingled international equity funds consist of five commingled investment vehicles which invest primarily in publicly traded global equity securities. The funds are valued at the net asset value of units held at the end of the period based upon the fair value of the underlying investments.

[3] Alternative investments include private equity, absolute return strategy investments, opportunistic funds, real assets and real estate through various fund structures. Private equity (9.0 percent* at March 31, 2019) consists of buyout, co-investments, distressed debt and turnaround funds, fund of funds, growth equity, special situations, and venture capital. Absolute return strategy investments (3.6 percent* at March 31, 2019) consist of investments in strategies including hedged equity, credit, global macro, managed futures, distressed debt, emerging markets, and long-only equity strategies. Opportunistic (1.3 percent* at March 31, 2019) consists of investments in both public and private companies, property, and real assets. Real assets (1.0 percent* at March 31, 2019) consist of commodities, farmland, inflation-linked bonds, infrastructure, and renewables. Real estate (7.2 percent* at March 31, 2019) consists of investments in closed-end, open-end, and fund of funds. The fair values of the alternative investments have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partner's capital. NAV is used as a practical expedient to estimate fair value. Private equity, opportunistic, real assets, and real estate are not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which on average can occur over a span of 5-10 years.

* Percentages are stated relative to total investments and securities lending collateral invested.

See note 7 for detailed securities lending information and note 6 for detail forward foreign currency information.

(9) Net Pension Liability of Participating Employers

The components of the net pension liability of the employers participating in the System as of March 31, 2019, were as follows:

	Employees' Retirement System	Police and Fire Retirement System	Total
		(Dollars in thousands)	
Employers' total pension liability	$ 189,803,429	$ 34,128,100	$ 223,931,529
Fiduciary net position	182,718,124	32,451,037	215,169,161
Employers' net pension liability	$ 7,085,305	$ 1,677,063	$ 8,762,368
Ratio of fiduciary net position to the employers' total pension liability	96.27%	95.09%	96.09%

(a) Actuarial Assumptions

The total pension liability at March 31, 2019 was determined by using an actuarial valuation as of April 1, 2018, with update procedures used to roll forward the total pension liability to March 31, 2019. The actuarial valuation used the following actuarial assumptions:

	ERS	PFRS
Inflation	2.5%	2.5%
Salary increases	4.2	5.0
Investment rate of return (net of investment expense, including inflation)	7.0	7.0
Cost-of-living adjustments	1.3%	1.3%

Annuitant mortality rates are based on April 1, 2010 – March 31, 2015 System experience with adjustments for mortality improvements based on the Society of Actuaries' Scale MP-2014.

The actuarial assumptions used in the April 1, 2018 valuation are based on the results of an actuarial experience study for the period April 1, 2010 – March 31, 2015.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected return, net of 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 future real rates of return by the target asset allocation percentage and by adding expected inflation.

Best estimates of arithmetic real rates of return for each major asset class included in the target asset allocation as of March 31, 2019 (see Investment policy – note 4(a)) are summarized below:

Asset class	Long-term expected real rate of return
Domestic equity	4.55%
International equity	6.35
Private equity	7.50
Real estate	5.55
Absolute return strategies*	3.75
Opportunistic portfolio	5.68
Real assets	5.29
Bonds and mortgages	1.31
Cash	(0.25)
Inflation-indexed bonds	1.25

The real rate of return is net of the long-term inflation assumption of 2.50 percent.

*Excludes equity-oriented long-only funds. For investment management purposes, these funds are included in domestic equity and international equity.

(b) Discount Rate

The discount rate used to calculate the total pension liability was 7.0 percent. The projection of cash flows used to determine the discount rate assumes that contributions from plan members will be made at the current contribution rates and that contributions from employers will be made at statutorily required rates, actuarially. Based upon the assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

(c) Sensitivity of the Net Pension Liability to the Discount Rate Assumption

The following presents the current period net pension liability of the employers calculated using the current-period discount rate assumption of 7.0 percent, as well as what the net pension liability (asset) would be if it were calculated using a discount rate that is one percentage-point lower (6.0 percent) or one percentage-point higher (8.0 percent) than the current assumption (dollars in thousands):

	One percent decrease (6.0%)	Current assumption (7.0%)	One percent increase (8.0%)
ERS net pension liability (asset)	$ 30,978,082	$ 7,085,305	$ (12,986,323)
PFRS net pension liability (asset)	$ 6,060,656	$ 1,677,063	$ (1,983,745)

(Continued)

(10) Federal Income Tax Status

ERS and PFRS are qualified defined benefit retirement plans under section 401(a) of the Internal Revenue Code (IRC) and are exempt from federal income taxes under section 501(a) of the IRC. ERS and PFRS last received favorable determination letters from the Internal Revenue Service dated August 28, 2014 stating that ERS and PFRS are in compliance with the applicable requirements of the Internal Revenue Code. Therefore, no provision for income taxes has been included in the System's financial statements.

(11) Commitments

As of March 31, 2019, the System had contractual commitments totaling $16.72 billion to fund future private equity investments, $5.04 billion to fund future real estate investments, $2.95 billion to fund future investments in opportunistic funds, $2.4 billion to fund future real asset investments and $258 million to fund future absolute return strategy investments. When compared to note 8 the variances that exist in the private equity commitments and real estate equity commitments, are due to the above representing total commitments of the investment type inclusive of investments measured at fair value and net asset value. Future commitments will be funded over the commitment period through transaction income including distributions, redemptions, and maturities.

(12) Contingencies

The System is a defendant in litigation proceedings involving individual benefit payments, participant eligibility, and other issues arising from its normal activities. Management of the System believes there will be no material adverse effect on the basic financial statements as a result of the outcome of these matters.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

Schedule 1(a)

NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Schedule of Changes in the Employers' Net Pension Liability and Related Ratios

(Unaudited)

(Dollars in thousands)

	2019 Employees' Retirement System	2018 Employees' Retirement System	2017 Employees' Retirement System	2016 Employees' Retirement System	2015 Employees' Retirement System
Total pension liability:					
Service cost	$ 3,218,553	$ 3,004,697	$ 2,951,979	$ 2,916,374	$ 2,989,807
Interest	12,463,933	12,063,525	11,723,859	11,198,823	11,581,437
Difference between expected and actual experience	704,393	1,235,058	226,737	(2,378,116)	135,177
Changes in assumptions	888,656	—	—	5,350,157	—
Benefit payments	(10,781,781)	(10,200,205)	(9,740,272)	(9,224,904)	(8,829,751)
Other, net	(90,915)	(103,071)	(65,261)	(150,294)	(77,388)
Net change in total pension liability	6,402,839	6,000,004	5,097,042	7,712,040	5,799,282
Total pension liability–beginning	183,400,590	177,400,586	172,303,544	164,591,504	158,792,222
Total pension liability–ending (a)	189,803,429	183,400,590	177,400,586	172,303,544	164,591,504
Fiduciary net position:					
Contributions–employer	3,890,215	3,949,873	3,949,710	4,347,619	4,893,110
Contributions–member	345,846	318,439	306,218	289,332	272,004
Net investment income (loss)	9,140,487	18,128,993	17,194,267	(327,068)	10,582,102
Benefit payments	(10,781,781)	(10,200,205)	(9,740,272)	(9,224,904)	(8,829,751)
Refunds of contributions	(90,915)	(103,071)	(65,261)	(150,294)	(77,388)
Administrative expense	(119,304)	(106,972)	(93,943)	(93,012)	(93,357)
Other additions	160,431	181,725	200,379	198,333	193,176
Net change in fiduciary net position	2,544,979	12,168,782	11,751,098	(4,959,994)	6,939,896
Fiduciary net position–beginning	180,173,145	168,004,363	156,253,265	161,213,259	154,273,363
Fiduciary net position–ending (b)	182,718,124	180,173,145	168,004,363	156,253,265	161,213,259
Net pension liability–ending (a) – (b)	$ 7,085,305	$ 3,227,445	$ 9,396,223	$ 16,050,279	$ 3,378,245
Ratio of fiduciary net position to total pension liability	96.27%	98.24%	94.70%	90.68%	97.95%
Covered-employee payroll	$ 27,374,387	$ 26,686,412	$ 26,200,001	$ 25,644,078	$ 24,480,045
Net pension liability as a percentage of covered-employee payroll	25.88%	12.09%	35.86%	62.59%	13.80%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditors' report and notes to required supplementary information.

Schedule 1(b)

NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Schedule of Changes in the Employers' Net Pension Liability and Related Ratios

(Unaudited)

(Dollars in thousands)

	2019 Police and Fire Retirement System	2018 Police and Fire Retirement System	2017 Police and Fire Retirement System	2016 Police and Fire Retirement System	2015 Police and Fire Retirement System
Total pension liability:					
Service cost	$ 713,480	$ 674,079	$ 657,407	$ 628,863	$ 625,648
Interest	2,236,527	2,154,117	2,065,752	1,935,222	1,997,215
Difference between expected and actual experience	106,384	241,387	302,375	(537,163)	39,833
Changes in assumptions	118,521	—	—	1,531,662	—
Benefit payments	(1,959,831)	(1,827,136)	(1,708,410)	(1,683,580)	(1,606,417)
Other, net	(1,404)	1,493	5,632	(1,694)	(158)
Net change in total pension liability	1,213,677	1,243,940	1,322,756	1,873,310	1,056,121
Total pension liability–beginning	32,914,423	31,670,483	30,347,727	28,474,417	27,418,296
Total pension liability–ending (a)	34,128,100	32,914,423	31,670,483	30,347,727	28,474,417
Fiduciary net position:					
Contributions–employer	854,094	873,434	837,253	792,585	904,339
Contributions–member	40,673	30,950	22,609	17,297	12,789
Net investment income (loss)	1,621,289	3,209,040	3,030,977	(57,765)	1,862,789
Benefit payments	(1,959,831)	(1,827,136)	(1,708,410)	(1,683,580)	(1,606,417)
Refunds of contributions	(1,404)	1,493	5,631	(1,694)	(158)
Administrative expense	(17,173)	(15,834)	(13,191)	(13,608)	(13,794)
Other additions	9,723	33,889	36,021	134,548	37,623
Net change in fiduciary net position	547,371	2,305,836	2,210,890	(812,217)	1,197,171
Fiduciary net position–beginning	31,903,666	29,597,830	27,386,940	28,199,157	27,001,986
Fiduciary net position–ending (b)	32,451,037	31,903,666	29,597,830	27,386,940	28,199,157
Net pension liability–ending (a) – (b)	$ 1,677,063	$ 1,010,757	$ 2,072,653	$ 2,960,787	$ 275,260
Ratio of fiduciary net position to total pension liability	95.09%	96.93%	93.46%	90.24%	99.03%
Covered-employee payroll	$ 3,730,337	$ 3,683,960	$ 3,633,237	$ 3,526,980	$ 3,257,100
Net pension liability as a percentage of covered-employee payroll	44.96%	27.44%	57.05%	83.95%	8.45%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditors' report and notes to required supplementary information.

Schedule 2

NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Schedule of Employer Contributions

(Unaudited)

(Dollars in millions)

Employees' Retirement System

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Actuarially determined contribution (1)	$ 3,890	$ 3,950	$ 3,950	$ 4,348	$ 4,893	$ 5,138	$ 4,524	$ 3,879	$ 3,623	$ 1,879
Contributions in relation to the actuarially determined contribution (2)	3,890	3,950	3,950	4,348	4,893	5,138	4,524	3,879	3,623	1,879
Contribution deficiency (excess)	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —
Covered-employee payroll	$ 27,374	$ 26,686	$ 26,200	$ 25,644	$ 24,480	$ 24,361	$ 24,405	$ 24,291	$ 24,389	$ 24,972
Contributions as a percentage of covered-employee payroll	14.21%	14.80%	15.08%	16.96%	19.99%	21.09%	18.54%	15.97%	14.86%	7.52%

Police and Fire Retirement System

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Actuarially determined contribution (1)	$ 854	$ 873	$ 837	$ 793	$ 904	$ 926	$ 812	$ 706	$ 542	$ 465
Contributions in relation to the actuarially determined contribution (2)	854	873	837	793	904	926	812	706	542	465
Contribution deficiency (excess)	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —
Covered-employee payroll	$ 3,730	$ 3,684	$ 3,633	$ 3,527	$ 3,257	$ 3,233	$ 3,163	$ 3,191	$ 3,146	$ 3,113
Contributions as a percentage of covered-employee payroll	22.90%	23.70%	23.04%	22.48%	27.76%	28.64%	25.67%	22.12%	17.23%	14.94%

(1) The actuarially determined contribution includes normal costs, the GLIP amounts, adjustments made to record the reconciliation of projected salary to actual salary and miscellaneous accounting adjustments.

(2) The contributions in relation to the actuarially determined contribution reflects actual payments and installment payment plans.

See accompanying independent auditors' report and notes to required supplementary information.

Schedule 3

NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Schedule of Investment Returns

(Unaudited)

	2019	2018	2017	2016	2015
Annual money-weighted rate of return, net of investment expenses [1]	5.14%	11.29%	11.40%	0.03%	6.98%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

[1] Investment expenses include management fees, investment and accounting staff salaries and benefits, and other investment related expenses.

See accompanying independent auditors' report and notes to required supplementary information.

Changes in Benefit Terms

There were no significant legislative changes in benefits for the April 1, 2018 actuarial valuation.

Changes of Assumptions

2016: There were changes in the economic (investment rate of return, inflation, COLA, and salary scales) and demographic (pensioner mortality and active member decrements) assumptions used in the April 1, 2015 actuarial valuation.

2019: The salary scales for both plans used in the April 1, 2018 actuarial valuation were increased by 10%.

Methods and Assumptions Used in Calculations of Actuarially Determined Contributions

The April 1, 2017 actuarial valuation determines the employer rates for contributions payable in fiscal year 2019. The following actuarial methods and assumptions were used:

Actuarial cost method	The System is funded using the Aggregate Cost Method. All unfunded actuarial liabilities are evenly amortized (as a percentage of projected pay) over the remaining worker lifetimes of the valuation cohort.
Asset valuation period	5-year level smoothing of the difference between the actual gain and the expected gain using the assumed investment rate of return.
Inflation	2.5%
Salary scale	3.8% in ERS, 4.5% in PFRS, indexed by service
Investment rate of return	7.0% compounded annually, net of investment expenses, including inflation.
Cost-of-living adjustments	1.3% annually
Active member decrements	Based upon FY 2011-2015 experience
Pensioner mortality	Gender/Collar specific tables based upon FY 2011-2015 experience
Mortality improvement	Society of Actuaries' Scale MP-2014

OTHER SUPPLEMENTARY INFORMATION

Schedule 4

NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Schedule of Administrative Expenses

(Unaudited)

Year ended March 31, 2019

(Dollars in thousands)

Personal services:		
Salaries	$	56,527
Overtime salaries		2,217
Fringe benefits		47,721
Total personal services		106,465
Building occupancy expenses:		
Building, lease and condominium fees		2,763
Utilities and municipal assessments		127
Office supplies and services		987
Telephone		30
Total building occupancy expenses		3,907
Computer expenses:		
IT shared services*		18,026
Total computer expenses		18,026
Personal and operating expenses:		
Training		124
Travel and auto expenses – includes pre-retirement seminars		1,006
Postage – includes member and retiree communication		1,842
Depreciation expense – Imaging System		1,832
Printing – includes member and retiree communication		153
Subscriptions/memberships		176
Total personal and operating expenses		5,133
Professional expenses:		
Audit services		224
Medical/clinical services		1,679
Miscellaneous consulting services		1,043
Total professional expenses		2,946
Total	$	136,477

* The System has implemented a shared service, information technology (IT) model within the New York State Office of the State Comptroller, wherein all IT costs, including personal services, will be incorporated into the IT shared services and reflected as nonpersonal service expenditures.

See accompanying independent auditors' report.

Schedule 5

NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Schedule of Investment Expenses

(Unaudited)

Year ended March 31, 2019

(Dollars in thousands)

Investment expenses:	
Investment management and incentive fees:	
Private equity	$ 204,295
Absolute return strategy funds(ARS)[1]	152,590
International equity	142,823
Real estate	60,114
Domestic equity	52,085
Opportunistic funds	43,906
Real assets	23,348
Fixed income	18,612
Total investment management and incentive fees	697,773
Investment-related expenses:	
Data processing expenses/licenses	6,163
Mortgage loan servicing fees	3,286
Legal fees	2,453
ARS/Opportunistic consulting and monitoring	2,375
Private equity consulting and monitoring	2,236
Miscellaneous expenses	2,189
Compliance/Risk monitoring	1,687
Administrative expenses	984
Real estate consulting and monitoring	941
General consulting	810
Research services	780
Real assets consulting and monitoring	367
Global equity consulting	365
Audit and audit-related fees	298
Fixed income consulting	250
Emerging manager program consulting and monitoring	142
Domestic equity consulting and monitoring	80
Total investment-related expenses	25,406
Total investment expenses	$ 723,179

[1] Absolute return strategy investments include equity-oriented long-only global funds. Though these funds are in an absolute return strategy vehicle, the underlying assets are long-only equity positions.

See accompanying independent auditors’ report.

Schedule 6

NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Schedule of Consulting Fees

(Unaudited)

Year ended March 31, 2019

Fees in excess of $50,000 paid to outside professionals other than investment advisors.

	Amount	Nature
Morgan Lewis & Bockius LLP	$ 833,902	Legal Services
MSCI BarraOne	725,000	Compliance/Risk Monitoring
Certified Management Consultants, Inc.	631,563	Medical/Clinical Services
KPMG LLP	521,937	Auditor Fees
J.P. Morgan Chase Bank	452,466	Retail Banking Services
Foster Pepper PLLC	409,933	Legal Services
Intex Solutions, Inc.	362,400	Compliance/Risk Monitoring
D & D Medical Associates, PC	278,471	Medical/Clinical Services
Strategas Securities, LLC	250,000	Research Services
DLA Piper LLP	229,546	Legal Services
First Choice Evaluations LLC	219,260	Medical/Clinical Services
BDO USA LLP	203,200	Compliance/Risk Monitoring
K&L Gates LLP	177,374	Legal Services
Glass Lewis & Co, LLC	174,000	Administrative Expense
Seward & Kissel LLP	167,986	Legal Services
First Advantage Back Track Reports, LLC	158,000	Compliance/Risk Monitoring
BCA Research, Inc	150,000	Research Services
MSCI ESG Research, Inc.	149,900	Research Services
Jackson Walker LLP	119,891	Legal Services
Ernst & Young LLP	119,264	Legal/Tax Consultant
Nixon Peabody LLP	101,974	Legal Services
NPC, Inc.	95,120	Medical/Clinical Services
CoStar Group, Inc.	93,600	Research Services
Marcum Accountants/Advisors	92,250	Compliance/Risk Monitoring
Seyfarth Shaw LLP	90,000	Legal Services
Orrick Herrington & Sutcliffe LLP	86,086	Legal Services
RELX, Inc.	86,008	Miscellaneous Consulting Services
Jeffrey M Meyer MD, PLLC	79,122	Medical/Clinical Services
New Wave People, Inc.	78,322	Miscellaneous Consulting Services
Groom Law Group	77,503	Legal/Tax Consultant
Cornerstone Macro LLC	75,138	Research Services
Corporate Resolutions, Inc.	67,500	Compliance/Risk Monitoring
Lenox Park Solutions LLC	65,000	Administrative Expense
Cox, Castle & Nicholson LLP	53,998	Legal Services
West Publishing	51,332	Miscellaneous Consulting Services

See accompanying independent auditors’ report.

KPMG LLP
515 Broadway
Albany, NY 12207-2974

Independent Auditors' Report on Internal Control over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*

The Trustee
New York State and Local Retirement System:

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States, the financial statements of the New York State and Local Retirement System (the System), which comprise the combining statement of fiduciary net position as of March 31, 2019, and the related combining statement of changes in fiduciary net position for the year then ended, and the related notes to the financial statements, and have issued our report thereon dated July 19, 2019.

Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered the System's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the System's internal control. Accordingly, we do not express an opinion on the effectiveness of the System's internal control.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A material weakness is a deficiency, or combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the System's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

KPMG

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the System's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the System's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

KPMG LLP

July 19, 2019