Financial Section

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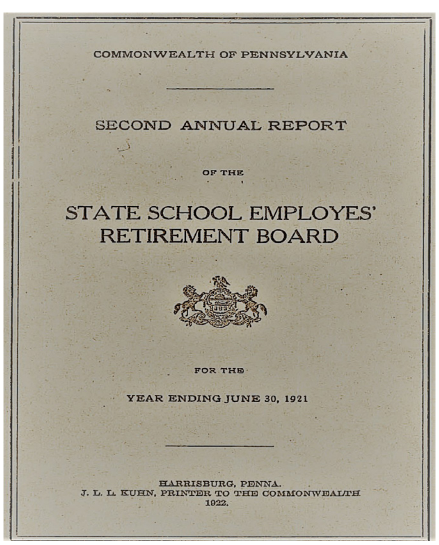


COMMONWEALTH OF PENNSYLVANIA

SECOND ANNUAL REPORT

OF THE

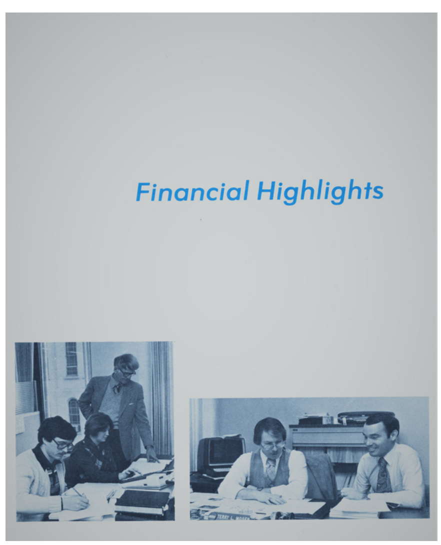
STATE SCHOOL EMPLOYES' RETIREMENT BOARD

FOR THE

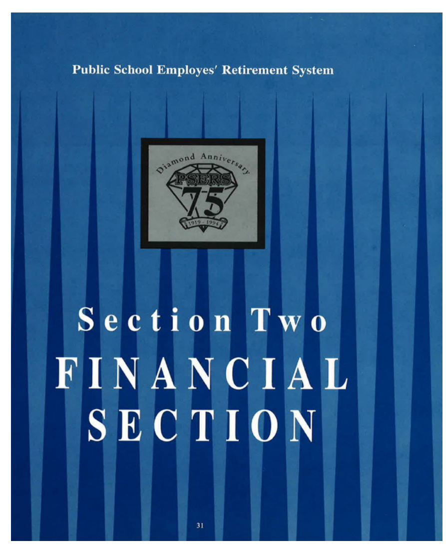
YEAR ENDING JUNE 30, 1921

HARRISBURG, PENNA.
J. L. L. KUHN, PRINTER TO THE COMMONWEALTH
1922.

1980 Financial Section Divider



1994 Financial Section Divider



CliftonLarsonAllen LLP
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INDEPENDENT AUDITORS' REPORT

The Board of Trustees of
Commonwealth of Pennsylvania Public School Employees' Retirement System
Harrisburg, Pennsylvania

Report on the Financial Statements
We have audited the financial statements of the Commonwealth of Pennsylvania Public School Employees' Retirement System (PSERS), which comprise the Statement of Fiduciary Net Position as of June 30, 2019 and 2018, and the related Statement of Changes in Fiduciary Net Position for the years then ended, and the related Notes to the Financial Statements, 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 accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of 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. 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 auditor considers 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 net position of PSERS as of June 30, 2019 and 2018, and the respective changes in its net position for the years then ended in accordance with accounting principles generally accepted in the United States of America.

A member of Nexia International

The Board of Trustees of
Commonwealth of Pennsylvania Public School Employees' Retirement System
Harrisburg, Pennsylvania

Other Matters

Required Supplementary Information
Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis and the Schedules of Changes in the Employer Net Pension Liability, Employer Net Pension Liability, Employer Pension Contributions, Changes in the Employer Net OPEB (Premium Assistance) Liability, Employer Net OPEB (Premium Assistance) Liability, Employer OPEB (Premium Assistance) Contributions, Investment Returns – Pension and OPEB, and related Notes, as listed in the 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 audits 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 Information
Our audits were conducted for the purpose of forming an opinion on the basic financial statements. The Schedule of Administrative and Investment Expenses, Summary of Investment Expenses, and the Schedule of Payments to Non-Investment Consultants, as listed in the table of contents, for the year ended June 30, 2019 are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The other supplementary information is the responsibility of management and was derived from and relate 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 audits of the basic financial statements for the year ended June 30, 2019 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 accompanying supplementary information is fairly stated, in all material respects, in relation to the basic financial statements as a whole for the year ended June 30, 2019.

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

CliftonLarsonAllen LLP

CliftonLarsonAllen LLP

Baltimore, Maryland
September 30, 2019

Management's Discussion and Analysis

Management's Discussion and Analysis (MD&A) of the Commonwealth of Pennsylvania Public School Employees' Retirement System (PSERS, System, Fund) for the fiscal year ended June 30, 2019 (FY 2019) provides a narrative summary of PSERS' financial position and performance, including highlights and comparative data. The MD&A is presented as required supplementary information to the financial statements and should be read in conjunction with the financial statements, the notes to financial statements, and the supplementary schedules.

Overview of Financial Statements

PSERS is primarily responsible for administering a defined benefit pension plan for public school employees in the Commonwealth of Pennsylvania. PSERS also administers two voluntary postemployment healthcare programs, the Health Insurance Premium Assistance Program (Premium Assistance) and the Health Options Program (HOP), for its annuitants. As part of the HOP, PSERS has an Employer/Union Direct Contract with the Centers for Medicare and Medicaid Services (CMS) to provide a Medicare Part D Prescription Drug Plan to participants. On July 1, 2019 PSERS began administration of a Defined Contribution (DC) Plan for new employees. These financial statements reflect start-up funding and expenses for the DC plan. The financial statements present the financial position and activities for the pension plan, the DC Plan and the two postemployment healthcare programs.

The ***Statements of Fiduciary Net Position*** provide a snapshot of the financial position of PSERS at June 30, 2019. Amounts are shown for the most recent and previous fiscal years for comparison and analysis of changes in individual line items.

The ***Statements of Changes in Fiduciary Net Position*** summarize PSERS' financial activities that occurred during the fiscal period from July 1, 2018 to June 30, 2019. Amounts are shown for the most recent and previous fiscal years for comparison and analysis of changes in individual line items.

The ***Notes to Financial Statements*** provide additional information that is essential for a full understanding of the financial statements. The notes are an integral part of the financial statements and include detailed information not readily evident in the basic financial statements such as accounting policies, plan membership and benefits, and summary disclosures of selected financial data.

The ***Required Supplementary Information*** immediately following the notes to financial statements provide seven schedules illustrating the Changes in the Employer Net Pension Liability, Employer Net Pension Liability, Employer Pension Contributions, Changes in the Employer Net OPEB (Premium Assistance) Liability, Employer Net OPEB (Premium Assistance) Liability, Employer OPEB (Premium Assistance) Contributions, and Investment Returns - Pension and OPEB.

The remaining supplementary schedules provide additional detailed information concerning the administrative expenses, investment expenses, and payments to non-investment consultants. These schedules emphasize the long-term nature of the pension and premium assistance plans and show the progress of PSERS in accumulating assets sufficient to pay benefits when due. All of this supplementary information is considered useful in understanding and evaluating the financial activities of PSERS.

Financial Highlights

- The time-weighted rate of return on investments was 6.68% for FY 2019, 9.27% for the fiscal year ended June 30, 2018 (FY 2018), and 10.14% for the fiscal year ended June 30, 2017 (FY 2017). The return for the ten-year period ended June 30, 2019 was 9.02%, which exceeded the 7.25% actuarial investment rate of return assumption. Unless otherwise noted, all rates of return are net of fees.

- PSERS' total net position increased by $2.4 billion from $56.7 billion at June 30, 2018 to $59.1 billion at June 30, 2019. The change in total net position from June 30, 2017 to June 30, 2018 was an increase of $3.2 billion from $53.5 billion at June 30, 2017 to $56.7 billion at June 30, 2018. The increase in both years was due mostly to net investment income plus member and employer contributions exceeding deductions for benefit and administrative expenses.

- After increasing for many years, PSERS' unfunded liability on a market value basis (Net Pension Liability) declined for the third year in a row from $49.6 billion at June 30, 2016 to $46.8 billion at June 30, 2019 due to the Fund receiving actuarially required contributions and earning investment returns above the assumed rate of return for the three-year period.

- Total employer contributions increased from $4.4 billion in FY 2018 to $4.6 billion in FY 2019. This increase was primarily attributable to an increase in the total employer contribution rate from 32.57% in FY 2018 to 33.43% in FY 2019 in accordance with Act 120 of 2010. The increase in the employer contribution rate was the smallest since FY 2010. PSERS' employers fully funded the actuarially required contributions in FY 2019, FY 2018 and

Management's Discussion and Analysis (continued)

FY 2017 and these contributions are making a positive difference in PSERS' funding.

- PSERS' total benefit expense slightly increased from $7.1 billion in FY 2018 to $7.2 billion in FY 2019. The average monthly benefit and the number of members receiving benefits increased in FY 2019. This growth was partially offset by a decrease in lump sum payments in FY 2019 due to a small decrease in the number of retirees electing to receive lump sums.

Progress of Act 120 on PSERS' Funding

On November 23, 2010, the Governor signed HB 2497 into law. The legislation is now known as Act 120 of 2010. Act 120 preserves the benefits of existing members and includes a series of actuarial and funding changes to PSERS and benefit reductions for individuals who become new members of PSERS on or after July 1, 2011 to June 30, 2019. The Act created two new membership classes, T-E and T-F. T-E and T-F members are "shared-risk," meaning that their employee contributions can increase or decrease due to investment performance. Act 120 addressed the pending employer contribution rate spike projected for FY 2013 by smoothing the projected rate increases over a five- to nine-year time period. Instead of a large rate spike in one year, under Act 120, the employer contribution rate has increased steadily each year from the 5.64% in effect when Act 120 became law to the 33.43% rate in FY 2019. Prior to Act 120, PSERS' Annual Required Contribution (ARC) percentage of contributions received under Governmental Accounting Standards Board (GASB) standards was only 27%. As a result of the Act 120 funding increases, on July 1, 2016, PSERS began receiving 100% of actuarially required contributions based on sound actuarial practices and principles for the first time in 15 years. This marks a significant milestone in PSERS' contribution history and establishes a path to full funding. PSERS received the actuarially required contributions in FY 2017, FY 2018, & FY 2019, and the large annual employer contribution rate increases that occurred from FY 2012 to FY 2018 are now

Analysis of Fiduciary Net Position

(Dollar Amounts in Thousands)

Summary of Fiduciary Net Position	FY 2019	Increase (Decrease)	FY 2018	Increase (Decrease)	FY 2017
Assets:					
Receivables	**$ 2,571,738**	$ 367,737	$ 2,204,001	$ (332,841)	$ 2,536,842
Investments	**57,728,557**	1,826,227	55,902,330	3,416,519	52,485,811
Securities lending collateral pool	**4,518,372**	1,538,253	2,980,119	964,056	2,016,063
Capital assets	**21,345**	(2,085)	23,430	(571)	24,001
Miscellaneous	**25,378**	7,849	17,529	278	17,251
Total Assets	**64,865,390**	3,737,981	61,127,409	4,047,441	57,079,968
Liabilities:					
Payables and other liabilities	**1,211,801**	(206,762)	1,418,563	(138,396)	1,556,959
Obligations under securities lending	**4,518,372**	1,538,253	2,980,119	964,056	2,016,063
Total Liabilities	**5,730,173**	1,331,491	4,398,682	825,660	3,573,022
Net Position	**$ 59,135,217**	$ 2,406,490	$ 56,728,727	$ 3,221,781	$ 53,506,946
Summary of Changes in Fiduciary Net Position					
Additions:					
Contributions	**$ 5,666,392**	$ 278,420	$ 5,387,972	$ 430,367	$ 4,957,605
Commonwealth of Pennsylvania	**5,200**	(1,601)	6,801	6,801	-
Participant premiums and CMS	**436,828**	12,934	423,894	13,477	410,417
Net investment income	**3,634,950**	(1,082,676)	4,717,626	(279,077)	4,996,703
Total Additions	**9,743,370**	(792,923)	10,536,293	171,568	10,364,725
Deductions:					
Benefit expense	**7,237,244**	93,903	7,143,341	219,437	6,923,904
Administrative expenses	**99,636**	8,541	91,095	6,658	84,437
Total Deductions	**7,336,880**	102,444	7,234,436	226,095	7,008,341
Effect of change in accounting principle	**-**	80,076	(80,076)	(80,076)	-
Changes in Net Position	**$ 2,406,490**	$ (815,291)	$ 3,221,781	$ (134,603)	$ 3,356,384

Management's Discussion and Analysis (continued)

complete. Employer contribution rate increases in the future are expected to be in line with inflation.

Funded Status and State Accumulation Account

PSERS uses an actuarial reserve type of funding that is financed by member contributions, employer contributions, and earnings from invested assets. Figure 1 illustrates a thirty five-year history of PSERS' funded status. An independent actuarial valuation of PSERS' actuarial assets and liabilities is performed annually. As part of this valuation, the progress toward funding pension obligations of PSERS is measured by comparing the actuarial value of assets to the actuarial accrued liability. This measurement is referred to as the funded ratio or funded status. PSERS' funded ratio increased from 56.3% at June 30, 2017 to 56.5% as of June 30, 2018, the most recent actuarial valuation. Due to fully funded employer contributions, favorable demographic experience, and positive investment returns, the funded ratio on an actuarial value basis improved a year sooner than expected. The 56.5% actuarial funded ratio as of June 30, 2018, is a significant turning point for the System as future funded ratio projections are now expected to rise, reversing years of decline since the 123.8% funded ratio peak at June 30, 2000.

The results of operations for FY 2019 will be reflected in the actuarial valuation for the year ended June 30, 2019. Due to the normal lag time for completion of the actuarial valuation, the resulting funded status will be available at the end of the 2019 calendar year and will be reported in the financial statements for the fiscal year ending June 30, 2020 (FY 2020). Based on the investment performance for the ten-year period ended June 30, 2019, which is above the investment rate of return assumption during that time period, and due to receiving the full actuarially required contributions the funded ratio at June 30, 2019 is expected to increase. The June 30, 2018 actuarial valuation recognized the last year of losses from the Great Recession under the System's ten-year asset smoothing. As a result, the funded ratio in the June 30, 2019 valuation and thereafter is expected to improve.

Under GASB 67, the market value funded ratio, which is referred to as the plan fiduciary net position as a percentage of total pension liability, increased from 54.00% at June 30, 2018 to 55.66% at June 30, 2019 as the Fund received the full actuarially determined contributions, had investment returns close to the investment return assumption and experienced a small growth in benefit payments in FY 2019. This is the third year in a row that the market value funded ratio increased as the Fund has reached a turning point after experiencing declining actuarial and market value funded ratios for many years. The Fund's net pension liability also declined for the third year in a row. All the ingredients are now in place and a path to full funding has been established.

PSERS' State Accumulation Account improved from $(17.2) billion at June 30, 2018 to $(15.4) billion at June 30, 2019 due to favorable investment performance, and employer contributions at the actuarially required level that exceeded benefit payments and administrative expenses. Investment earnings and actuarially required employer contributions will continue to reduce the deficit in this account in the future (See Note 3).

Investments

PSERS is a long-term investor and manages the pension fund with long-term objectives in mind. A primary element

Figure 1 - PSERS' Funded Ratio
Funded Ratio = Actuarial Value of Assets / Actuarial Accrued Liability

Management's Discussion and Analysis (continued)

of PSERS' investment philosophy is diversification among various asset classes, which is the best way to achieve its goals. PSERS makes estimates of future long-term market returns and establishes an asset allocation plan taking into account the risk associated with each asset class as well as the financial objectives of the Fund.

This past fiscal year was a volatile and challenging one for global economies. The U.S. economy showed a significant decrease in momentum during the fiscal year as measured by the Institute for Supply Management (ISM) Purchasing Managers' Index (PMI), an indicator of activity in the sector. During the fiscal year, the ISM PMI decreased by 8.3 points to 51.7 at June 30, 2019, however, this was offset by a rise in Gross Domestic Product (GDP) and a decrease in unemployment. Significant headwinds affecting many non-U.S. economies included political uncertainty in Europe, specifically the rise of populism as evidenced by the formation of a populist coalition government in Italy, Great Britain's planned exit from the European Union (Brexit), and the imposition of billions of dollars of tariffs on goods imported into the U.S. from China. Faced with these challenges, central banks globally made efforts to encourage borrowing with the European Central Bank (ECB) and the Bank of Japan keeping short-term interest rates in negative territory.

The U.S. economy showed improvement this past year, driven by favorable monetary conditions and a change in the Federal Reserve (Fed) interest rate expectations during the year. The Fed increased interest rates two times in the first half of the fiscal year; however, it pivoted in the second half of the year from a tightening bias to an easing bias which improved optimism about the U.S. economy. The Federal Funds target rate increased by 0.5% during the past fiscal year with a range of 2.25% to 2.50%. While interest rates increased, they continue to be historically low providing for improvement in broad economic conditions. The U.S. real GDP increased year-over-year an average of 2.3% per quarter during the past fiscal year with a range of 1.1% to 3.1%. The official unemployment rate fell during the fiscal year from 4.0% at June 30, 2018 to 3.7% at June 30, 2019, approaching what the Fed would consider full employment.

The Euro Area economy continued to struggle, with modest growth during the past year. The unemployment rate began to normalize and improved to 7.6% as of June 2019 from 8.3% a year earlier. The Euro Area economy fell into contraction territory as evidenced by the Markit Eurozone Manufacturing PMI measurement of 47.6 in June 2019 falling from 54.9 last June. Aggressive actions by the ECB have generated improvements in employment but have failed to sustain economic growth and inflation. Although it slightly tightened monetary conditions by ending quantitative easing in December 2018, the ECB has continued its policy of very accommodative overnight interest rates by introducing another round of Targeted Long-Term Refinancing Operations in 2019.

Japan's economy has moderately retreated over the past fiscal year. As of the second quarter 2019, Japan's real GDP grew by a year-over-year rate increase of 1.2% versus a 1.5% year-over-year rate increase as of June 2018. Japanese policy makers continue to aggressively attempt to stimulate their economy through a combination of low interest rates (the Bank of Japan policy rate is negative 0.1%), the purchase of higher risk assets by the Bank of Japan, coordinated diversification into higher risk assets by large public investors, and fiscal spending policies to encourage liquidity to move into riskier assets. China had robust growth compared to the other developed regions of the world. China's real GDP increased by 6.2% over the past year, moderately slower than the 6.7% pace for the year-ended June 2018. In addition, the trade war with the United States is putting pressure on the Chinese economy with no signs of abating anytime soon.

For FY 2019, PSERS' time-weighted rate of return on investments was 6.68% which was below PSERS' total fund Policy Index of 7.68% for the same time period. A time-weighted rate of return considers investment performance of a hypothetical dollar invested from the beginning of an investment period to the period's end. The Policy Index is a custom benchmark, based on the Board-established asset allocation structure, that seeks to generate a return that meets the actuarial rate of return assumption. Net investment income of $3.6 billion in FY 2019 declined from a net investment income of $4.7 billion in FY 2018. FY 2018 returns exceeded the actuarial investment rate of return.

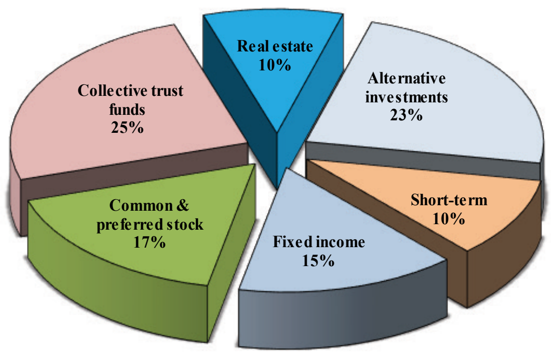
The time-weighted annualized rate of return over the past three- and five-year periods ended June 30, 2019 was 8.71% and 6.04%, respectively. The time-weighted return for the three-year period exceeded the total fund Policy Index return by 62 basis points. The time-weighted return for the five-year period trailed the total fund Policy Index return by 2 basis points. The annualized time-weighted rate of return for the ten- and twenty five-year periods ended June 30, 2019 was 9.02% and 8.08%, respectively.

PSERS' long-term actuarial investment rate of return assumption was 7.25% during FY 2019 and FY 2018.

The asset distribution of PSERS' investment portfolio at June 30, 2019, 2018, and 2017, at fair value, and including defined contribution and postemployment healthcare assets, is presented in Figure 2 and Table 1.

Management's Discussion and Analysis (continued)

Figure 2 - Asset Distribution
June 30, 2019



FY 2019

- ***Short-term investments*** (cash and cash equivalents) decreased from $6.2 billion at June 30, 2018 to $6.0 billion at June 30, 2019 mainly due to a reclassification of assets.
- ***Fixed income investments*** increased by $3.5 billion from $5.2 billion at June 30, 2018 to $8.7 billion at June 30, 2019. Due to a reallocation of exposure from other asset classes, PSERS significantly increased its fixed income investments during FY 2019.
- ***Common and preferred stock investments*** decreased by $3.0 billion from $12.8 billion at June 30, 2018 to $9.8 billion at June 30, 2019. Due to a reallocation of exposure to other asset classes, PSERS decreased its common and preferred stock investments during FY 2019.
- ***Collective trust funds*** increased by $0.3 billion from $14.0 billion at June 30, 2018 to $14.3 billion at June 30, 2019 mostly due to positive investment performance.
- ***Real estate investments*** increased by $0.5 billion from $5.0 billion at June 30, 2018 to $5.5 billion at June 30, 2019 due to significant contributions to new and existing partnerships combined with valuation increases in partnership portfolio holdings which exceeded significant partnership distributions.
- ***Alternative investments*** increased by $0.8 billion from $12.6 billion at June 30, 2018 to $13.4 billion at June 30, 2019 due to contributions to new and existing partnerships combined with valuation increases in partnership portfolio holdings which exceeded significant distributions.

FY 2018

- ***Short-term investments*** (cash and cash equivalents) remained consistent at $6.1 billion at June 30, 2017 and $6.2 billion at June 30, 2018.
- ***Fixed income investments*** increased by $0.2 billion from $5.0 billion at June 30, 2017 to $5.2 billion at June 30, 2018 mainly due to investment performance.
- ***Common and preferred stock investments*** increased by $1.5 billion from $11.3 billion at June 30, 2017 to $12.8 billion at June 30, 2018. Due to a reallocation of exposure from other asset classes and favorable investment performance, PSERS increased its common and preferred stock investments during FY 2018.
- ***Collective trust funds*** increased by $1.2 billion from $12.8 billion at June 30, 2017 to $14.0 billion at June 30, 2018 mostly due to investment performance.
- ***Real estate investments*** decreased by $0.3 billion from $5.3 billion at June 30, 2017 to $5.0 billion at June 30, 2018 due to significant partnership distributions which exceeded contributions to new and existing partnerships and valuation increases in partnership portfolio holdings.
- ***Alternative investments*** increased by $0.7 billion from $11.9 billion at June 30, 2017 to $12.6 billion at June 30, 2018 due to contributions to new and existing partnerships combined with valuation increases in partnership portfolio holdings which exceeded significant partnership distributions.

Securities Lending

The System's net income from securities lending activities increased from $12.5 million in FY 2018 to $14.3 million in FY 2019. Lending income and expense both rose significantly as the economy in general moved from a low interest to a higher interest rate environment.

Table 1 - Investment Balances by Asset Class

(Dollar Amounts in Thousands)

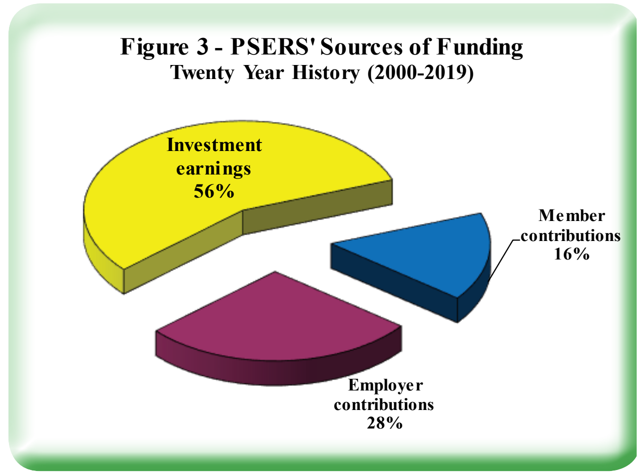
Asset Class	2019	%	2018	%	2017	%
Short-term	**$ 6,027,740**	**10.4**	$ 6,173,655	11.0	$ 6,107,020	11.6
Fixed income	**8,652,870**	**15.0**	5,235,603	9.4	4,961,284	9.5
Common and preferred stock	**9,813,146**	**17.0**	12,832,667	23.0	11,337,865	21.6
Collective trust funds	**14,305,045**	**24.8**	14,011,193	25.1	12,816,147	24.4
Real estate	**5,484,621**	**9.5**	5,039,237	9.0	5,340,555	10.2
Alternative investments	**13,445,135**	**23.3**	12,609,975	22.5	11,922,940	22.7
Total	**$ 57,728,557**	**100.0**	$ 55,902,330	100.0	$ 52,485,811	100.0

Management's Discussion and Analysis (continued)

The spread increased from FY 2018 to FY 2019 as gross earnings on the borrowers' collateral outpaced the amounts rebated to the borrowers.

Contributions

Employer contributions increased from $4.4 billion in FY 2018 to $4.6 billion in FY 2019 due to the increase in the total employer contribution rate from 32.57% in FY 2018 to 33.43% in FY 2019. Total employer contributions increased from $3.9 billion in FY 2017 to $4.4 billion in FY 2018. This increase was primarily attributable to an increase in the total employer contribution rate from 30.03% in FY 2017 to 32.57% in FY 2018.



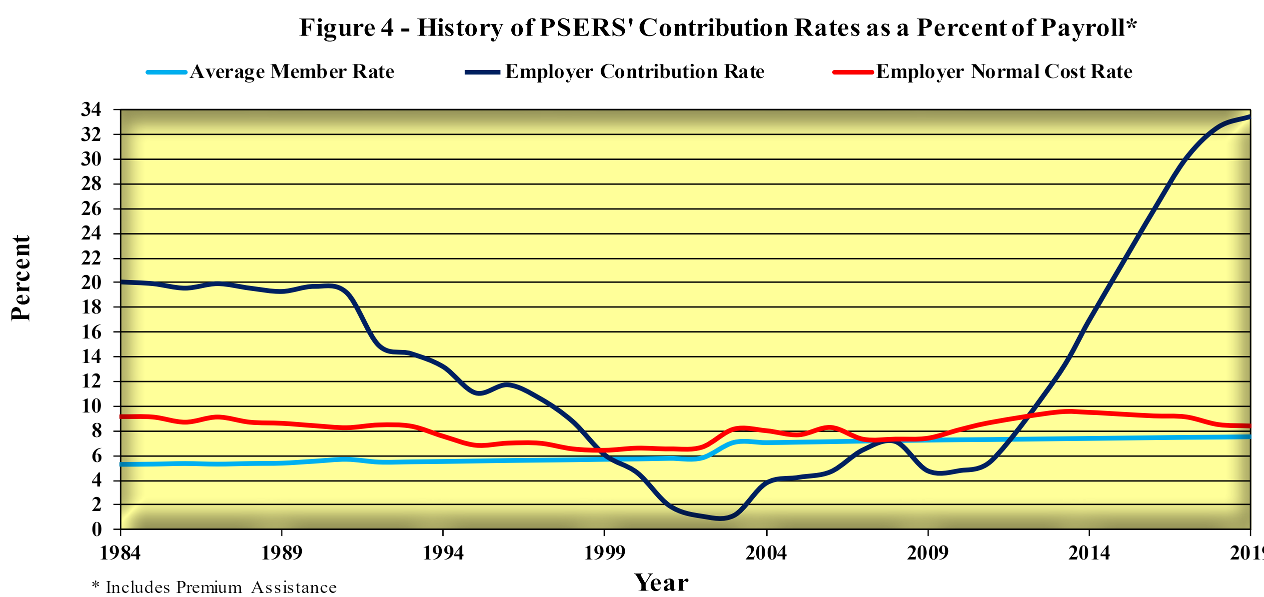
Total member contributions slightly increased from $1.03 billion in FY 2018 to $1.06 billion in FY 2019. The increase was mainly due to an increase in member contributions from active member payroll. Total member contributions increased from $1.01 billion in FY 2017 to $1.03 billion in FY 2018. The increase was mainly due to an increase in member contributions from active member payroll and purchase of service.

As a result of an increase in member purchase of service contributions, member contribution receivables increased from $350.4 million at June 30, 2018 to $352.4 million at June 30, 2019. Due to the increase in the receivables of member contributions from active member payroll, in the last quarter of FY 2017 to the last quarter of FY 2018, member contribution receivables increased from $349.7 million at June 30, 2017 to $350.4 million at June 30, 2018. The increase in the employer contribution rate from FY 2018 to FY 2019, resulted in the employer contribution receivables rising from $1.2 billion at June 30, 2018 to $1.3 billion at June 30, 2019. See Figure 4 for a thirty five-year history of PSERS' contribution rates.

Commonwealth Share of Employer Contributions

The Commonwealth reimburses all school entity employers (school districts, intermediate units and vocational technical schools) a portion of all employer contributions paid to the System. The Commonwealth reimburses at least 50% of school entities' contributions. The Commonwealth reimbursement rate, however, could be larger based on its Market Value / Personal Income Aid Ratio, which is a Commonwealth of Pennsylvania Department of Education calculation of local tax rates and socioeconomic factors. This reimbursement that school entities receive from the Commonwealth is referred to as the Commonwealth Share of employer contributions. The Commonwealth Share of contributions is paid to the school entities approximately 75 days after the end of each quarter. School entities have five days after receiving the Commonwealth Share to pay

Below is a thirty five-year history of PSERS' contribution rates:



Management's Discussion and Analysis (continued)

the total employer contributions to PSERS. Total employer contributions are comprised of the Commonwealth Share and remaining contributions which are referred to as the school and non-school entity share.

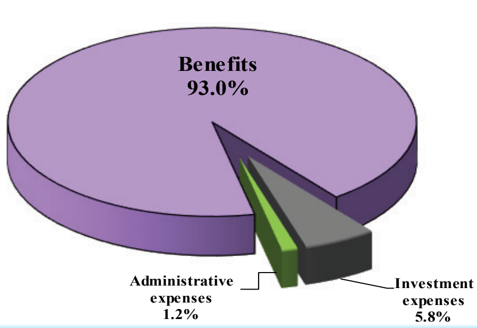
For non-school entity employers (state college/universities, community colleges, and state agencies) the Commonwealth remits directly to the System 50% of total employer contributions due, and the non-school entity employer remits 50% of the total employer contributions due directly to the System.

The Commonwealth Share of total employer contributions for FY 2019 was $2.5 billion. The school and non-school entity share of total employer contributions for FY 2019 was $2.1 billion. For FY 2019 total employer contributions received was $4.6 billion.

Investment Income

Net investment income decreased from $4.7 billion in FY 2018 to $3.6 billion in FY 2019, which is consistent with the decrease in the time-weighted investment rate of return from 9.27% for FY 2018 to 6.68% for FY 2019. The investment returns in FY 2018 exceeded the actuarial return assumption. Net investment income slightly decreased from $5.0 billion in FY 2017 to $4.7 billion in FY 2018, which is consistent with the decrease in the time-weighted investment rate of return from 10.14% for FY 2017 to 9.27% for FY 2018. As depicted in Figure 3, investment earnings provided 56% of PSERS' funding over the past 20 years. Net investment income also includes investment expenses as a deduction. The "Total PSERS' Benefits and Expenses" section that follows includes an analysis of investment expenses.

Figure 5 - Total PSERS' Benefits and Expenses
Fiscal Year Ended June 30, 2019



Total PSERS' Benefits and Expenses

The primary source of expense during FY 2019 was for the payment of pension and healthcare benefits approximating $7.2 billion. The breakdown consisted of $6.7 billion for Pension, $112.8 million for Premium Assistance, and $363.3 million for HOP benefits. Figure 5 illustrates the significant portion of expenses attributable to benefit payments.

Total PSERS' benefit expense slightly increased from $7.1 billion in FY 2018 to $7.2 billion in FY 2019. The increase is attributable to an ongoing increase to the average monthly benefit and an increase in the number of members receiving benefits. This increase was partially offset by a decrease in lump sum payments in FY 2019 due to a small decrease in the number of retirees electing to receive lump sums. Pension benefits payable increased slightly from $582.4 million at June 30, 2018 compared to $585.0 million at June 30, 2019. This increase was mainly attributable to an increase in pension and death payments payable. Total PSERS' benefit expense increased from $6.9 billion in FY 2017 to $7.1 billion in FY 2018. The increase is attributable to an ongoing increase to the average monthly benefit and an increase in the number of members receiving benefits. Pension benefits payable increased from $529.8 million at June 30, 2017 compared to $582.4 million at June 30, 2018. This increase was mainly attributable to an increase in pension payments payable which was partially offset by a small decrease in death payments payable. New retirements during FY 2018 increased by approximately 2% from FY 2017 and lump sum rollovers increased by 10%.

Investment expenses decreased by $17.9 million from $467.7 million in FY 2018 to $449.8 million in FY 2019 mainly due to a decrease in management fees in absolute return and fixed income of $23 million. The decrease in absolute return is mainly attributable to a renegotiation of fee terms and lower performance fees earned in FY 2019. The decrease in fixed income is due to a decrease in performance fees. The decreases are partially offset by increases in management fees in the international equity asset class of $8 million. As a percentage of total benefits and expenses, investment expense decreased from 6.1% in FY 2018 to 5.8% in FY 2019.

As a percentage of total benefits and expenses, investment expense has decreased from a high of 8.2% in FY 2013 to 5.8% in FY 2019 as investment expenses have declined from $557.6 million in FY 2013 to $449.8 million in FY 2019. During this same period net assets increased $10.4 billion from $48.7 billion at June 30, 2012 to $59.1 billion at June 30, 2019.

PSERS continues to be one of the most transparent among large public pension funds in the nation for the disclosure of management fees. For example, certain pension funds report no or very little management fees for alternative investments because they are considered part of the cost of the investment and are netted against performance rather than shown separately. PSERS, however, gathers

Management's Discussion and Analysis (continued)

management fee information from each of its limited partnerships and collective trust fund investments, even if it is not specifically disclosed in the fund's standard reports or identified in capital call requests. Such management fee information includes both base and performance fees obtained from either the fund's administrator statement, capital account statement or financial statements. This information is then utilized to report all relevant management fees in the System's financial statements. While the national debate over what constitutes a "fee" continues, PSERS will endeavor to remain transparent and report fees in accordance with current GASB standards and prevailing public pension industry practices to keep PSERS' financial statements both meaningful and comparative to its peers. In addition, PSERS reports all other investment expenses, including staff compensation and overhead, consultant, legal, and bank expenses incurred.

Administrative expenses increased by $8.5 million from $91.1 million during FY 2018 compared to $99.6 million during FY 2019. This rise was mainly attributable to the increase in administrative costs for HOP due to an increase in the number of participants and the acquisition of third party administrative and consulting services for the Defined Contribution Plan. As depicted in Figure 5, administrative expenses represent only 1.2% of total benefits and expenses.

New GASB Standards

During the fiscal year ended June 30, 2018 the System adopted GASB Statement No. 75, A*ccounting and Financial Reporting for Postemployment Benefits Other Than Pensions (OPEB).* GASB 75 addresses financial accounting and reporting for governments that provide or finance OPEB. GASB 75 replaces GASB 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*, as amended, and GASB No. 57, *OPEB Measurements by Agent Employers and Agent Multiple-Employer Plans,* for OPEB.

Management's Discussion and Analysis (continued)

Postemployment Healthcare

PSERS administers two postemployment healthcare programs, the Health Insurance Premium Assistance Program (Premium Assistance) and the Health Options Program (HOP), for its annuitants. The following paragraphs and summary financial data provide supplementary information to the financial statements which contain the financial position and activities for the two postemployment healthcare programs.

Health Insurance Premium Assistance Program (Premium Assistance)

Financial Highlights

- Total net position increased by $2.5 million in FY 2019 mainly due to net investment income and employer contributions exceeding benefit expense deductions and from a net decrease in administrative expenses. The total net position continues to be sufficient to fund one full year of benefits. The change from June 30, 2017 to June 30, 2018 was a decrease of $1.0 million mainly due to deductions for benefits and administrative expenses slightly exceeding net investment income and employer contributions. The contribution rate remained the same at 0.83% for FY 2018 and FY 2019.
- Investments increased from $91.7 million at June 30, 2018 to $93.6 million at June 30, 2019 as revenue exceeded expenses in FY 2019.

Contributions

Total employer contributions for Premium Assistance increased slightly from $112.0 million in FY 2018 to $115.0 million in FY 2019 due to an increase in active member payroll.

Investment Income

Total investment income for Premium Assistance increased from $1.5 million for FY 2018 to $2.3 million for FY 2019 due to higher short-term interest rates.

Benefits and Expenses

Overall deductions for Premium Assistance slightly increased from $114.5 million in FY 2018 to $114.7 million in FY 2019. This increase is due to the increase in the number of members receiving premium assistance benefits offset by a decrease in administrative expenses.

Health Options Program (HOP)

Financial Highlights

- Total net position increased by $31.7 million in FY 2019 primarily due to the rise in premiums and investment income and a slight decline in total expenses that outpaced the rise in administrative expenses. The change from June 30, 2017 to June 30, 2018 is also primarily due to the rise in premiums and investment income that outpaced the rise in expenses in both benefit payments and administrative expenses.
- Total receivables decreased from $58.6 million at June 30, 2018 to $54.5 million at June 30, 2019. The decrease is attributed to a change in the CMS reimbursement.
- Investments increased from $237.5 million at June 30, 2018 to $286.1 million at June 30, 2019 as HOP income exceeded expenses, which produced more funds for investment.
- Total liabilities increased 16.1% from $63.3 million at June 30, 2018 to $73.4 million at June 30, 2019. The increase is mainly due to increased participation in the program and claim costs causing an increase in drug claims payable and administrative expense payable.

Participant and CMS Premiums

Total Participant and CMS premiums for HOP increased from $423.9 million for FY 2018 to $436.8 million for FY 2019 due to an increase in plan participation.

Investment Income

Investment income for HOP increased from $2.0 million for FY 2018 to $3.7 million for FY 2019 due to the increase in investments and higher short-term interest rates.

Benefits and Expenses

Overall deductions for HOP decreased from $418.2 million in FY 2018 to $408.8 million in FY 2019. This decrease is due to the increase in prescription drug rebate dollars which offset the increase in claim expenses and administrative costs.

Management's Discussion and Analysis (continued)

Premium Assistance

Summary of Fiduciary Net Position (Dollar Amounts in Thousands)

Assets:	FY 2019	Increase (Decrease)	FY 2018	Increase (Decrease)	FY 2017
Receivables	**$ 35,814**	$ 606	$ 35,208	$ (5,718)	$ 40,926
Investments	**93,625**	1,920	91,705	8,788	82,917
Miscellaneous	**307**	60	247	(8)	255
Total Assets	**129,746**	2,586	127,160	3,062	124,098
Liabilities:					
Payables and other liabilities	**4,561**	135	4,426	4,071	355
Total Liabilities	**4,561**	135	4,426	4,071	355
Net Position	**$ 125,185**	$ 2,451	$ 122,734	$ (1,009)	$ 123,743

Summary of Changes in Fiduciary Net Position

Additions:	FY 2019	Increase (Decrease)	FY 2018	Increase (Decrease)	FY 2017
Contributions	**$ 114,829**	$ 2,843	$ 111,986	$ 1001	$ 110,985
Net investment income	**2,313**	858	1,455	792	663
Total Additions	**117,142**	3,701	113,441	1,793	111,648
Deductions:					
Benefit expenses	**112,777**	930	111,847	1,618	110,229
Administrative expenses	**1,914**	(689)	2,603	364	2,239
Total Deductions	**114,691**	241	114,450	1,982	112,468
Changes in Net Position	**$ 2,451**	$ 3,460	$ (1,009)	$ (189)	$ (820)

Health Options Program

Summary of Fiduciary Net Position (Dollar Amounts in Thousands)

Assets:	FY 2019	Increase (Decrease)	FY 2018	Increase (Decrease)	FY 2017
Receivables	**$ 54,512**	$ (4,065)	$ 58,577	$ (8,669)	$ 67,246
Investments	**286,077**	48,579	237,498	17,747	219,751
Miscellaneous	**48**	(2,669)	2,717	2,624	93
Total Assets	**340,637**	41,845	298,792	11,702	287,090
Liabilities:					
Payables and other liabilities	**73,445**	10,173	63,272	4,049	59,223
Total Liabilities	**73,445**	10,173	63,272	4,049	59,223
Net Position	**$ 267,192**	$ 31,672	$ 235,520	$ 7,653	$ 227,867

Summary of Changes in Fiduciary Net Position

Additions:	FY 2019	Increase (Decrease)	FY 2018	Increase (Decrease)	FY 2017
Participant and CMS premiums	**$ 436,828**	$ 12,934	$ 423,894	$ 13,477	$ 410,417
Net investment income	**3,654**	1,694	1,960	1,282	678
Total Additions	**440,482**	14,628	425,854	14,759	411,095
Deductions:					
Benefit expenses	**363,295**	(13,053)	376,348	36,252	340,096
Administrative expenses	**45,515**	3,662	41,853	4,782	37,071
Total Deductions	**408,810**	(9,391)	418,201	41,034	377,167
Changes in Net Position	**$ 31,672**	$ 24,019	$ 7,653	$ (26,275)	$ 33,928

Statements of Fiduciary Net Position
June 30, 2019 and 2018
(Dollar Amounts in Thousands)

	2019				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Assets:					
Receivables:					
Members	$ 349,892	$ -	$ 2,475	$ 82	$ 352,449
Employers	1,284,751	-	33,241	-	1,317,992
Investment income	514,815	19	98	173	515,105
Investment proceeds	330,059	-	-	-	330,059
CMS Part D and prescriptions	-	-	-	54,257	54,257
Interfund receivable	1,876	-	-	-	1,876
Total Receivables	2,481,393	19	35,814	54,512	2,571,738
Investments, at fair value:					
Short-term	5,637,562	10,476	93,625	286,077	6,027,740
Fixed income	8,652,870	-	-	-	8,652,870
Common and preferred stock	9,813,146	-	-	-	9,813,146
Collective trust funds	14,305,045	-	-	-	14,305,045
Real estate	5,484,621	-	-	-	5,484,621
Alternative investments	13,445,135	-	-	-	13,445,135
Total Investments	57,338,379	10,476	93,625	286,077	57,728,557
Securities lending collateral pool	4,518,372	-	-	-	4,518,372
Capital assets (net of accumulated depreciation $34,515)	21,345	-	-	-	21,345
Miscellaneous	25,023	-	307	48	25,378
Total Assets	64,384,512	10,495	129,746	340,637	64,865,390
Liabilities:					
Accounts payable and accrued expenses	97,129	1,386	295	3,377	102,187
Benefits payable	584,960	-	81	38,098	623,139
HOP Participant premium advances	-	-	-	31,970	31,970
Investment purchases and other payables	289,484	-	2,462	-	291,946
Obligations under securities lending	4,518,372	-	-	-	4,518,372
Interfund payable	-	153	1,723	-	1,876
Other liabilities	160,683	-	-	-	160,683
Total Liabilities	5,650,628	1,539	4,561	73,445	5,730,173
Net position restricted for pension, DC and postemployment healthcare benefits	$ 58,733,884	$ 8,956	$ 125,185	$ 267,192	$ 59,135,217

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

Statements of Fiduciary Net Position
June 30, 2019 and 2018
(Dollar Amounts in Thousands)

	2018				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Assets:					
Receivables:					
Members	$ 347,684	$ -	$ 2,703	$ 40	$ 350,427
Employers	1,207,900	-	31,789	-	1,239,689
Investment income	192,262	53	124	156	192,595
Investment proceeds	362,317	-	-	-	362,317
CMS Part D and prescriptions	-	-	-	58,381	58,381
Interfund receivable	-	-	592	-	592
Total Receivables	2,110,163	53	35,208	58,577	2,204,001
Investments, at fair value:					
Short-term	5,837,717	6,735	91,705	237,498	6,173,655
Fixed income	5,235,603	-	-	-	5,235,603
Common and preferred stock	12,832,667	-	-	-	12,832,667
Collective trust funds	14,011,193	-	-	-	14,011,193
Real estate	5,039,237	-	-	-	5,039,237
Alternative investments	12,609,975	-	-	-	12,609,975
Total Investments	55,566,392	6,735	91,705	237,498	55,902,330
Securities lending collateral pool	2,980,119	-	-	-	2,980,119
Capital assets (net of accumulated depreciation $31,840)	23,430	-	-	-	23,430
Miscellaneous	14,565	-	247	2,717	17,529
Total Assets	60,694,669	6,788	127,160	298,792	61,127,409
Liabilities:					
Accounts payable and accrued expenses	82,219	29	313	2,541	85,102
Benefits payable	582,430	-	72	26,721	609,223
HOP Participant premium advances	-	-	-	34,010	34,010
Investment purchases and other payables	537,857	-	4,041	-	541,898
Obligations under securities lending	2,980,119	-	-	-	2,980,119
Interfund payable	592	-	-	-	592
Other liabilities	147,738	-	-	-	147,738
Total Liabilities	4,330,955	29	4,426	63,272	4,398,682
Net position restricted for pension, DC and postemployment healthcare benefits	$ 56,363,714	$ 6,759	$ 122,734	$ 235,520	$ 56,728,727

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

Statements of Changes in Fiduciary Net Position
Years Ended June 30, 2019 and 2018
(Dollar Amounts in Thousands)

	2019				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Additions:					
Contributions:					
Members	**$ 1,064,043**	**$ -**	**$ -**	**$ -**	**$ 1,064,043**
Employers	**4,487,520**	**-**	**114,829**	**-**	**4,602,349**
Total contributions	**5,551,563**	**-**	**114,829**	**-**	**5,666,392**
HOP Participant premiums	**-**	**-**	**-**	**376,449**	**376,449**
Centers for Medicare & Medicaid Services premiums	**-**	**-**	**-**	**60,379**	**60,379**
Commonwealth of Pennsylvania	**-**	**5,200**	**-**	**-**	**5,200**
Investment income:					
From investing activities:					
Net appreciation in fair value of investments	**2,829,899**	**-**	**434**	**-**	**2,830,333**
Short-term	**124,184**	**273**	**1,907**	**3,682**	**130,046**
Fixed income	**256,597**	**-**	**-**	**-**	**256,597**
Common and preferred stock	**322,865**	**-**	**-**	**-**	**322,865**
Collective trust funds	**6,373**	**-**	**-**	**-**	**6,373**
Real estate	**226,303**	**-**	**-**	**-**	**226,303**
Alternative investments	**298,004**	**-**	**-**	**-**	**298,004**
Total investment activity income	**4,064,225**	**273**	**2,341**	**3,682**	**4,070,521**
Investment expenses	**(449,768)**	**-**	**(28)**	**(28)**	**(449,824)**
Net income from investing activities	**3,614,457**	**273**	**2,313**	**3,654**	**3,620,697**
From securities lending activities:					
Securities lending income	**116,564**	**-**	**-**	**-**	**116,564**
Securities lending expense	**(102,311)**	**-**	**-**	**-**	**(102,311)**
Net income from securities lending activities	**14,253**	**-**	**-**	**-**	**14,253**
Total net investment income	**3,628,710**	**273**	**2,313**	**3,654**	**3,634,950**
Total Additions	**9,180,273**	**5,473**	**117,142**	**440,482**	**9,743,370**
Deductions:					
Benefits	**6,734,145**	**-**	**112,777**	**363,295**	**7,210,217**
Refunds of contributions	**27,027**	**-**	**-**	**-**	**27,027**
Administrative expenses	**48,931**	**3,276**	**1,914**	**45,515**	**99,636**
Total Deductions	**6,810,103**	**3,276**	**114,691**	**408,810**	**7,336,880**
Net increase	**2,370,170**	**2,197**	**2,451**	**31,672**	**2,406,490**
Net position restricted for pension, DC and postemployment healthcare benefits:					
Balance, beginning of year	**56,363,714**	**6,759**	**122,734**	**235,520**	**56,728,727**
Balance, end of year	**$ 58,733,884**	**$ 8,956**	**$ 125,185**	**$ 267,192**	**$ 59,135,217**

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

Statements of Changes in Fiduciary Net Position
Years Ended June 30, 2019 and 2018
(Dollar Amounts in Thousands)

	2018				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Additions:					
Contributions:					
Members	$ 1,026,375	$ -	$ -	$ -	$ 1,026,375
Employers	4,249,611	-	111,986	-	4,361,597
Total contributions	5,275,986	-	111,986	-	5,387,972
HOP Participant premiums	-	-	-	359,896	359,896
Centers for Medicare & Medicaid Services premiums	-	-	-	63,998	63,998
Commonwealth of Pennsylvania	-	6,801	-	-	6,801
Investment income:					
From investing activities:					
Net appreciation in fair value of investments	3,710,566	-	1	-	3,710,567
Short-term	85,074	53	1,485	1,988	88,600
Fixed income	193,759	-	-	-	193,759
Common and preferred stock	321,547	-	-	-	321,547
Collective trust funds	5,166	-	-	-	5,166
Real estate	367,526	-	-	-	367,526
Alternative investments	485,718	-	-	-	485,718
Total investment activity income	5,169,356	53	1,486	1,988	5,172,883
Investment expenses	(467,653)	-	(31)	(28)	(467,712)
Net income from investing activities	4,701,703	53	1,455	1,960	4,705,171
From securities lending activities:					
Securities lending income	38,506	-	-	-	38,506
Securities lending expense	(26,051)	-	-	-	(26,051)
Net income from securities lending activities	12,455	-	-	-	12,455
Total net investment income	4,714,158	53	1,455	1,960	4,717,626
Total Additions	9,990,144	6,854	113,441	425,854	10,536,293
Deductions:					
Benefits	6,635,265	-	111,847	376,348	7,123,460
Refunds of contributions	19,881	-	-	-	19,881
Administrative expenses	46,544	95	2,603	41,853	91,095
Total Deductions	6,701,690	95	114,450	418,201	7,234,436
Net increase (decrease)	3,288,454	6,759	(1,009)	7,653	3,301,857
Net position restricted for pension, DC and postemployment healthcare benefits:					
Balance, beginning of year	53,075,260	-	123,743	227,867	53,426,870
Balance, end of year	$ 56,363,714	$ 6,759	$ 122,734	$ 235,520	$ 56,728,727

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

Notes to Financial Statements
Years Ended June 30, 2019 and 2018

1. Organization and Description of the System

(A) Organization

The System was established on July 18, 1917, under the provisions of Pamphlet Law 1043, No. 343 as a governmental cost-sharing multiple-employer plan that provides retirement allowances and other benefits to its members. Membership in the System is mandatory for nearly all qualifying public school employees in the Commonwealth of Pennsylvania (Commonwealth). At June 30, 2019, there were 773 participating employers, generally school districts. Membership at June 30, 2018, the most recent year for which actual amounts are available, is presented in Table 2.

The Public School Employees' Retirement Board (Board) is established by state law as an independent administrative board of the Commonwealth. The Board exercises control and management of the System, including the investment of its assets. The Board has fifteen members including the Commonwealth's Secretary of Education, the Commonwealth's Secretary of Banking and Securities, the State Treasurer, the Executive Director of the Pennsylvania School Boards Association, one member appointed by the Governor, six elected members (three from among the System's certified members, one from among the System's noncertified members, one from among the System's annuitants, and one from among school board members in Pennsylvania), two members from the Senate, and two members from the House of Representatives.

The State Treasurer is the custodian of the System's Fund. The retirement plan of the System is a contributory defined benefit plan for which the benefit payments to members and contribution provisions by employers and employees are specified in the Pennsylvania Public School Employees' Retirement Code (Code). Changes in benefit and contribution provisions for the retirement plan must be made by legislation. Pursuant to state law, all legislative bills and amendments proposing to change the System's retirement plan are to be accompanied with an actuarial note prepared by an enrolled pension actuary from the Independent Fiscal Office (IFO) providing an estimate of the cost and actuarial effect of the proposed change.

Table 2 - Membership as of June 30, 2019

Active members:	
Vested	165,775
Nonvested	89,974
Total active members	**255,749**
Inactive members:	
Retirees and beneficiaries currently receiving benefits	237,339
Inactive members and vestees entitled to but not receiving benefits	25,514
Total retirees and other members	**262,853**
Total number of members	**518,602**

Based upon criterion of financial accountability as defined by governmental accounting standards, the System is considered a component unit of the Commonwealth of Pennsylvania financial reporting entity and is included in the Comprehensive Annual Financial Report of the Commonwealth of Pennsylvania.

(B) Pension Plan

i. Pension Benefits

Under the provisions of the 1975 revision of the Code by the Pennsylvania General Assembly, members are eligible for monthly retirement benefits upon reaching (a) age 62 with at least 1 year of credited service; (b) age 60 with 30 or more years of credited service; or (c) 35 or more years of service regardless of age. Act 120 of 2010 (Act 120) preserves the benefits of existing members and introduced benefit reductions for individuals who become new members on or after July 1, 2011 through June 30, 2019. Act 120 created two new membership classes, Membership Class T-E (Class T-E) and Membership Class T-F (Class T-F). To qualify for normal retirement, Class T-E and Class T-F members must work until age 65 with a minimum of 3 years of service or attain a total combination of age and service that is equal to or greater than 92 with a minimum of 35 years of service. The Internal Revenue Code (IRC) limitation on the annual benefits for a defined benefit plan was $225,000 for 2019 and $220,000 for 2018.

Benefits are generally equal to 2% or 2.5%, depending upon membership class, of the member's final average salary (as defined in the Code) multiplied by the number of years of credited service. For members whose membership started prior to July 1, 2011, after completion of five years of service, a member's right to the defined benefits is vested and early retirement benefits may be elected. For Class T-E and Class T-F members, the right to benefits is vested after ten years of service. Active members may purchase credit for various types of school and non-school service on a lump-sum, installment purchase basis, or through an actuarially calculated benefit reduction. Class T-E and Class T-F members must purchase Non-Qualifying Part Time service and most other types of non-school or non-state service credit at full actuarial cost. Class T-E and Class T-F members must purchase credit for Non-Qualifying Part Time service within 365 days of enrollment in the System.

Notes to Financial Statements (continued)

The contribution rates based on qualified member compensation for virtually all members are presented below:

PSERS members whose membership started prior to July 1, 2011:		
Membership Class T-C	Active Members hired before July 22, 1983	5.25%
Membership Class T-C	Active Members hired on or after July 22, 1983	6.25%
Membership Class T-D	Active Members hired before July 22, 1983	6.50%
Membership Class T-D	Active Members hired on or after July 22, 1983	7.50%
PSERS members whose membership started on or after July 1, 2011 (Act 120 members):		
Membership Class T-E*		7.50%
Membership Class T-F**		10.30%

* Shared risk program could cause future contribution rates to fluctuate between 7.5% and 9.5%

** Shared risk program could cause future contribution rates to fluctuate between 10.3% and 12.3%

In addition to regular retirement benefits, the System also provides for disability retirement benefits and death benefits. Participants are eligible for disability retirement benefits after completion of five years of credited service. Such benefits are generally equal to 2% or 2.5%, depending upon membership class, of the member's final average salary (as defined in the Code) multiplied by the number of years of credited service, but not less than one-third of such salary nor greater than the benefit the member would have had at normal retirement age. Members over normal retirement age may apply for disability benefits.

Death benefits are payable upon the death of an active member who has reached age 62 with at least one year of credited service (age 65 with at least three years of credited service for Class T-E and Class T-F members) or who has at least five years of credited service (ten years for Class T-E and Class T-F members). Such benefits are actuarially equivalent to the benefit that would have been effective if the member had retired on the day before death.

Members with credited service in the Commonwealth of Pennsylvania State Employees' Retirement System (SERS) may elect to have that service combined with service in the Public School Employees' Retirement System upon commencement of employment in the public school system. Similarly, a member with credited service in the System may elect to combine such service with SERS upon becoming a member of that system.

All members are fully vested in their individual balance in the Members' Savings Account which is described in Note 3. All non-vested members may receive a refund of their individual balance of member contributions and interest from the Members' Savings Account upon termination of public school employment. Vested members who enrolled prior to July 1, 2011 may elect to receive a return of their accumulated contributions and interest upon their retirement which results in a reduced monthly annuity. Effective with Act 5 which was enacted on June 12, 2017, vested Class T-E and Class T-F members can now withdraw their accumulated contributions and interest from the Members' Savings Account upon their retirement.

ii. Contributions

The contribution policy is set by the Code and requires contributions by active members, employers, and the Commonwealth. The System's funding policy provides for periodic employer and Commonwealth contributions at actuarially determined rates, expressed as a percentage of annual covered payroll, such that they, along with employee contributions and an actuarially determined rate of investment return, are adequate to accumulate assets to pay retirement benefits when due. Level percentage of payroll employer contribution rates are determined using the entry age normal actuarial funding method. This method determines the amount of contributions necessary to (1) fully fund all current costs, (also known as normal cost), which represents the estimated amount necessary to pay for the benefits earned by the employees during the current service year; and (2) liquidate the prior service cost for service earned prior to the current service year and subsequent benefit increases, which represents the amount necessary to fund accrued liabilities over the appropriate amortization periods.

Contribution rates for active members are set by law (redefined with the provisions of Act 9 of 2001 and Act 120) and are dependent upon membership class. The Internal Revenue Code (IRC) limitation on the annual compensation for a defined benefit plan was $280,000 for 2019 and $275,000 for 2018.

Active members who enrolled between July 1, 2001, the effective date of Act 9, and June 30, 2011 are Membership Class T-D (Class T-D). The contribution rates for all members in Class T-D were effective January 1, 2002. For Act 120 members, all new members automatically become Class T-E members. New members, however, have a one-time opportunity to elect Class T-F within 45 days of receiving written notification from PSERS. Failure to elect Class T-F at time of original eligibility will make the member ineligible for Class T-F forever. Act 120 introduced

Notes to Financial Statements (continued)

a shared risk program that could affect Class T-E and Class T-F members' contribution rates in future fiscal years. With the shared risk program Class T-E and Class T-F members benefit when investments of the Fund are doing well and share some of the risk when investments underperform. The member contribution rate will stay within the specified range allotted for Class T-E or Class T-F; but could increase or decrease by 0.5% every three years dependent on investment performance of PSERS. The member contribution rate will never go below the base rate of 7.5% for Class T-E and 10.3% for Class T-F members, or above 9.5% for Class T-E and 12.3% for Class T-F members.

The total contribution rate for the employers and the Commonwealth was 33.43% and 32.57% (32.60% and 31.74% for pension component) of qualified compensation for the years ended June 30, 2019 and 2018, respectively.

Act 120 suppressed the employer contribution rate by using rate caps in future years to keep the rate from rising too high, too fast for budgetary purposes.

The rate caps limit the amount the pension component of the employer contribution rate can increase over the prior year's rate. For FY 2014 and thereafter, the rate can increase no more than 4.5% plus the premium assistance contribution rate.

The rate cap remained at 4.5% until FY 2017 when the actuarially calculated contribution rate exceeded the prior year's rate by less than 4.5%. As a result, the rate caps are no longer in effect. Since the rate caps no longer apply, the employer normal cost is the contribution rate floor.

According to requirements established in Act 29 of 1994, the Commonwealth reimburses school entity employers a portion of the employer contributions paid to the System. All school entity employers are reimbursed by the Commonwealth at least 50% of the total employer contributions based on the total contribution rate. The Commonwealth reimburses certain school entity employers at a rate greater than 50% based on the Commonwealth of Pennsylvania Department of Education's Market Value/Personal Income Aid Ratio and other factors. School entities remit 100% of total employer contributions directly to the System. The Commonwealth remits 50% of the total employer contributions for employers other than school entities directly to the System. All contributions from employers and the Commonwealth are shown as employer contributions on the Statements of Changes in Fiduciary Net Position.

The Commonwealth Share of total employer contributions for FY 2019 was $2.5 billion. The school and non-school entity share of total employer contributions for FY 2019 was $2.1 billion. For FY 2019 total employer contributions received was $4.6 billion.

(C) Postemployment Healthcare Plans

i. Health Insurance Premium Assistance Program

(a) Premium Assistance Benefits

The System provides a Health Insurance Premium Assistance Program (Premium Assistance) for all eligible annuitants who qualify and elect to participate. Under this program, employer contribution rates for Premium Assistance are established to provide reserves in the Health Insurance Account that are sufficient for the payment of Premium Assistance benefits for each succeeding year. Effective January 1, 2002, under the provisions of Act 9 of 2001, participating eligible annuitants are entitled to receive premium assistance payments equal to the lesser of $100 per month or their out-of-pocket monthly health insurance premium. To receive premium assistance, eligible annuitants must have an out-of-pocket premium expense from an approved plan. Plans approved for Premium Assistance are health insurance plans maintained by a Commonwealth School Employer or the PSERS sponsored Health Options Program. As of June 30, 2019, there were no assumed future benefit increases to participating eligible annuitants in the Premium Assistance program. Membership at June 30, 2018, the most recent year for which actual amounts are available, is presented in Table 3.

(b) Contributions

A portion of each employer contribution to the System is set aside for the funding of Premium Assistance. The Premium Assistance contribution rate is set at a level necessary to establish reserves sufficient to provide Premium Assistance payments for all participating eligible members for the subsequent fiscal year. The portion of the total contribution rate for employers used to fund Premium Assistance was 0.83% for the years ended June 30, 2019 and 2018. Members do not contribute to Premium Assistance.

Table 3 - Premium Assistance Membership at June 30, 2019

Retirees and beneficiaries currently receiving benefits	94,119
Inactive members and vestees entitled to but not receiving benefits	452
Total retirees and other inactive members	**94,571**
Total active members	255,749
Total number of members	**350,320**

Notes to Financial Statements (continued)

ii. Health Options Program

The Health Options Program (HOP) is a PSERS-sponsored voluntary health insurance program for the sole benefit of annuitants of PSERS, spouses of annuitants, survivor annuitants and their dependents who participate in HOP. The HOP is funded exclusively by the premiums paid by its participants for the benefit coverage they elect. The PSERS pension fund assets are not available to fund or satisfy obligations of the HOP.

HOP offers several health plans. Participants may select among two self-funded Medicare supplement plans, three Medicare Rx plans, and multiple Medicare Advantage plans for those eligible for Medicare. Participants not eligible for Medicare have a choice between a self-funded high deductible indemnity plan and multiple managed care plans. Medicare Advantage and managed care plans are available to retirees residing in the plan's service area. The Medicare supplements and pre-65 high deductible plan are self-funded and claims are adjudicated by a third party administrator. The Medicare Rx Options and the prescription drug benefit of the pre-65 high deductible plan are also self-funded and claims are adjudicated by a pharmacy benefits manager. The Medicare Advantage and managed care plans are provided by private insurance companies or managed care organizations and benefits are fully insured. HOP also offers dental benefits through a fully insured carrier.

Effective January 1, 2006, PSERS entered into an Employer/Union Entity contract with the Centers for Medicare and Medicaid Services (CMS) to operate a voluntary Medicare Prescription Drug Plan (PDP). The PDP covers over 92,000 participants. CMS provides partial funding of the PDP in the form of monthly per capita payments and reinsurance. An independent actuarial consulting firm sets the rates for the self-funded benefits. The HOP maintains reserves for claims that are Incurred But Not Reported (IBNR) and for claim fluctuation for the self-funded benefit plans. At June 30, 2019 and 2018 PSERS recorded $19,125,000 and $17,880,000, respectively, in IBNR. The IBNR is included in benefits payable.

(D) Defined Contribution Plan

On June 12, 2017, Commonwealth of Pennsylvania Act 5 of 2017 was signed into law. This legislation establishes a new hybrid defined benefit/defined contribution (DC) retirement benefit plan applicable to all school employees who become new members of PSERS on July 1, 2019 and thereafter. The three new plan design options under Act 5 include two hybrid plans consisting of defined benefit and defined contribution components and a stand-alone defined contribution plan. A stand-alone defined benefit plan is no longer available to new members after June 30, 2019. The financial statements for FY 2019 & FY 2018 reflect start-up funding and expenses for the DC plan.

2. Summary of Significant Accounting Policies

(A) Basis of Accounting

The financial statements of the System are prepared on the accrual basis of accounting under which expenses are recorded when the liability is incurred, revenues are recorded in the accounting period in which they are earned and become measurable, and investment purchases and sales are recorded as of their trade date. Member and employer contributions are recognized in the period for which employees' salaries are reported. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan.

The accounting and reporting policies of the System conform to accounting principles generally accepted in the United States of America (GAAP). The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of additions and deductions in fiduciary net position during the reporting period. Actual results could differ from those estimates.

(B) Investments

The System's investments are reported at fair value. Fair value is the amount that the System can reasonably expect to receive for an investment in a current sale between a willing buyer and a willing seller, that is, other than in a forced or liquidation sale. See Note 4(B) for the description of the Fair Value of Investments.

Net appreciation (depreciation) is determined by calculating the change in fair value of investments between the beginning of the year and end of the year, less purchases of investments at cost, plus sales of investments at fair value.

Investment purchases and sales are recorded as of the trade date. Interest income is comprised of dividend, interest, and other investment income. Dividend income is recognized on the ex-dividend date. Interest and other investment income is recognized when earned.

Investment expenses consist of investment manager fees and those administrative expenses directly related to the System's investment operations. Investment proceeds receivable generally includes unsettled investment sales. Unsettled investment purchases are included in investment purchases and other payables.

Notes to Financial Statements (continued)

(C) Capital Assets

Capital assets consist primarily of data processing equipment, software, and internally developed computer software recognized as intangible assets. Capital assets are depreciated using the straight-line method over an estimated useful life of five years. Intangible assets are amortized using the straight-line method over an estimated useful life of twenty years for assets purchased prior to July 1, 2012 and up to 10 years for assets purchased after June 30, 2012.

(D) Benefits Payable

Benefits payable identifies the obligations of the System, on an accrual basis, at the end of the fiscal year. It includes the estimated retirement and death benefits payable, federal taxes withheld but not yet due to IRS, premium assistance benefits payable, and the HOP IBNR claims for its participants.

(E) Pensions for Employees of the System

For purposes of measuring the net pension liability, deferred outflows of resources, deferred inflows of resources, and pension expense, information about the fiduciary net position of the Pennsylvania State Employees' Retirement System (SERS) and additions to/deductions from SERS' fiduciary net position have been determined on the same basis as they are reported by SERS. Please refer to Note 8 for additional information regarding SERS. PSERS' net pension liability for its employees to SERS is reported in Other liabilities. Deferred inflows of resources are reported in Other liabilities. Deferred outflows of resources are reported in Miscellaneous assets. Pension expense is reported in administrative expenses and is detailed on the Schedule of Administrative and Investment Expenses Supplementary Schedule.

(F) Postemployment Healthcare Plan for Employees of the System

For purposes of measuring the net OPEB liability, deferred outflows of resources, deferred inflows of resources and OPEB expense, information about the fiduciary net position of the Commonwealth of Pennsylvania Retired Employees Health Program (REHP) and additions to/deductions from REHP fiduciary net position have been determined on the same basis as they are reported by the REHP. Please refer to Note 9 for additional information regarding the REHP. PSERS' net OPEB liability for its employees to the REHP is reported in Other liabilities. Deferred inflows of resources are reported in Other liabilities. Deferred outflows of resources are reported in Miscellaneous assets. OPEB expense is reported in Administrative and Investment Expenses Supplementary Schedule.

(G) Compensated Absences

The System uses the accrual basis of accounting for measuring vacation leave, sick leave, and other compensated absences liabilities. Employees of the System are paid for accumulated vacation leave upon termination or retirement. Retiring employees of the System that meet service, age, or disability requirements are paid between 30% and 100% of sick days available at retirement, up to 161 maximum days paid. At June 30, 2019 and 2018, $5,044,000 and $4,216,000, respectively, were accrued for unused vacation and sick leave for the System's employees and are included in Accounts payable and accrued expenses on the Statements of Fiduciary Net Position.

(H) Participant Premium Advances

Premium advances at June 30, 2019 and 2018 are for HOP premiums related to health care coverage to be provided in July of 2019 and 2018, respectively.

(I) Federal Income Taxes

The Internal Revenue Service (IRS) issued a determination letter dated March 16, 2017 which stated that the plan and its underlying trust qualify under the provisions of Section 501(a) of the IRC and therefore are exempt from federal income taxes.

(J) Risk Management

The System is exposed to various liabilities and risks of loss, including, without limitation, the ordinary risks of investment losses, risks related to theft or destruction of assets, liabilities resulting from injuries to employees, and liabilities resulting from court challenges to fiduciary decisions. As an administrative agency of the Commonwealth of Pennsylvania, the System is accorded sovereign immunity. For claims not shielded by sovereign immunity, the System participates in certain Commonwealth pooled insurance programs and requires asset managers to carry certain insurance coverage for the protection of the System. The System has implemented a self-insurance program for fiduciary and director and officer liability coverage. During the past three fiscal years, insurance settlements did not exceed insurance coverage.

(K) Reclassifications

Certain 2018 amounts have been reclassified in conformity with the 2019 presentation. These reclassifications had no effect on net position restricted for pension benefits or the change in fiduciary net position.

Notes to Financial Statements (continued)

(L) Members Receivables

Members receivables include an amount for members' obligations to the System for the purchase of service credit. Members have a variety of options to remit purchase of service payments:

- Remit a lump sum payment.
- Request an installment plan from one to seven years where the member's employer establishes a payroll deduction process. The member's employer then forwards monthly payments of the withheld amounts to PSERS.
- Accept an actuarial reduction debt through which the amount of the purchase plus accumulated interest will reduce the member's retirement or death benefit.
- Rollover funds from an eligible distribution.

The following is a summary of the members receivables at June 30, 2019 and 2018:

	(Dollar Amounts in Thousands)	
	2019	2018
Pension:		
Member contributions	**$ 74,846**	$ 85,842
Purchase of service	**270,529**	258,807
Other	**4,517**	3,035
Total Members Receivables	**$ 349,892**	$ 347,684

(M) Interfund Transactions and Balances

Interfund transfers of assets take place on a regular recurring basis between Pension, Premium Assistance and Defined Contribution. The transfers occur upon receipt of employer contributions and payment of benefits or expenses. The interfund receivables and payables related to interfund activity are classified under receivables and liabilities on the financial statements.

(N) Change in Accounting Principle

Due to the implementation of GASB Statement No. 75 in FY 2018, the net position restricted for pension, DC and postemployment healthcare benefits was restated by $(80,076,000) as of July 1, 2017. The purpose of the restatement was to record the July 1, 2017 net OPEB liability of $(82,591,000) and the July 1, 2017 deferred outflows of resources for contributions subsequent to the measurement date of $1,900,000 to the Commonwealth of Pennsylvania REHP.

(O) Adoption of New Accounting Standards

GASB Statement No. 83, *Certain Asset Retirement Obligations,* addresses accounting and financial reporting for certain asset retirement obligations, (AROs) and was issued November 2016. This Statement establishes criteria for determining the timing and pattern of recognition of a liability and a corresponding deferred outflow of resources for AROs. Upon examination, it was determined that the System is currently presenting information in accordance with the requirements.

GASB Statement No. 84, *Fiduciary Activities*, improves guidance regarding the identification of fiduciary activities for accounting and financial reporting purposes and how those activities should be reported. GASB 84 was issued January 2017. The System is evaluating GASB 84 and its potential impact to the financial statements.

GASB Statement No. 87, *Leases*, was issued in June 2017, and requires recognition of certain lease assets and liabilities for leases that previously were classified as operating leases and recognized as inflows of resources or outflows of resources based on provisions of the contract. The System is evaluating GASB 87 and its potential impact to the financial statements.

GASB Statement No. 88, *Certain Disclosures Related to Debt, including Direct Borrowings and Direct Placements,* was issued in March 2018. This statement improves information that is disclosed in notes to government financial statements and clarifies which liabilities governments should include in their note disclosures related to debt. Upon examination, it was determined that the System is currently presenting information in accordance with the requirements.

GASB Statement No. 89, *Accounting for Interest Cost Incurred before the End of a Construction Period,* was issued on March 2018. This statement's primary objective is to enhance the relevance and comparability of information about capital assets and the costs of borrowing for a reporting period, and to simplify the accounting for interest costs incurred before the end of a construction period. Upon examination, it was determined that the System is currently presenting information in accordance with the requirements.

GASB Statement No. 90, *Majority Equity Interests*—an amendment of GASB Statements No. 14 and No. 61, was issued August 2018. This statement's primary objectives are to improve the consistency and comparability of reporting a government's majority equity interest in a legally separate organization and to improve the relevance of financial statement information for certain component units. The System is evaluating GASB 90 and its potential impact to the financial statements.

Notes to Financial Statements (continued)

Table 4 - Account Balance

	(Dollar Amounts in Thousands)	
	2019	2018
Pension:		
State Accumulation Account	**$ (15,401,248)**	$ (17,236,211)
Members' Savings Account	**16,839,956**	16,120,538
Annuity Reserve Account	**57,295,176**	57,479,387
	$ 58,733,884	$ 56,363,714
Defined Contribution Plan	**$ 8,956**	$ 6,759
Postemployment Healthcare:		
Health Insurance Account	**$ 125,185**	$ 122,734
Health Insurance Program Account	**$ 267,192**	$ 235,520

3. Description of Accounts

The Code requires the System to maintain the following accounts which represent reserves held for future and current benefit payments as follows and as illustrated in Table 4.

(A) State Accumulation Account

The State Accumulation Account is credited with contributions from the Commonwealth and the employers. Additionally, interest earnings of the System (after crediting the Members' Savings Account with 4% interest and the reserve for retirement with 5.50% statutory interest) are credited to this account. Each year, the necessary amounts, as determined by the actuary for the payment of retirement, disabilities, and death benefits, are transferred from the State Accumulation Account to the Annuity Reserve Account increasing the reserve credit to the 7.25% valuation assumption rate determined by the actuary. All administrative expenses necessary for the operation of the System, except for Premium Assistance, HOP, and Defined Contribution Plan expenses, are paid from the State Accumulation Account.

(B) Members' Savings Account

The Members' Savings Account is credited with all contributions made by active members of the System. Interest is added to the member's individual account at an annual rate of 4%. Upon death or retirement of a member, the accumulated contributions plus interest are transferred to the Annuity Reserve Account for subsequent payment of benefits.

(C) Annuity Reserve Account

The Annuity Reserve Account represents the amounts transferred from the Members' Savings and State Accumulation Accounts, plus additional contributions made by the Commonwealth and employers for the payment of supplemental annuities and cost-of-living increases. All death, disability, and retirement benefits are paid from this account. Annual interest of 5.50% is credited to the Annuity Reserve Account.

(D) School Employees' Defined Contribution Trust (Defined Contribution Plan)

The School Employees' Defined Contribution Trust accumulates DC member and employer contributions, investment earnings and DC plan expenses of the School Employees Defined Contribution Plan. The trust is comprised of individual investment accounts, all assets in those accounts and any assets held that are not allocated to the individual investment accounts. The assets of the plan are held in trust for the exclusive benefit of the participants and their beneficiaries and may be used for payment of fees, costs and expenses related to the administration and investment of the plan and the trust.

(E) Health Insurance Account

The Health Insurance Account is credited with contributions from the employers for Premium Assistance. Effective January 1, 2002, under the provisions of Act 9 of 2001, participating eligible annuitants are entitled to receive premium assistance payments equal to the lesser of $100 per month or their out-of-pocket monthly health insurance premium. The Health Insurance Account pays all administrative expenses necessary to operate the Premium Assistance.

(F) Health Insurance Program Account

The Health Insurance Program Account is credited with premiums from members of the HOP and from CMS. All benefits related to the HOP (premium payments to the insurance companies and self-funded benefits) are paid from this account. The Health Insurance Program Account pays all administrative expenses necessary to operate the HOP.

4. Investments

(A) Summary of Investments

The Board has the responsibility to invest and reinvest available funds of the System in accordance with the guidelines and limitations set forth in the Code and other applicable state law. The Board accomplishes the daily management of the System's investments through investment advisors who act as agents for the System and through internal investment managers.

Notes to Financial Statements (continued)

The Board invests the funds of the System using the Prudent Investor Standard, as articulated in the Code, which means "the exercise of that degree of judgment, skill and care under the circumstances then prevailing which persons of prudence, discretion, and intelligence who are familiar with such matters exercise in the management of their own affairs not in regard to speculation, but in regard to the permanent disposition of the fund, considering the probable income to be derived therefrom as well as the probable safety of their capital." The Board has adopted its investment policy to formally document investment objectives and responsibilities. This policy, as well as applicable state law, establishes guidelines for permissible investments of the System.

(B) Fair Value of Investments

i. Fair Value Levels

PSERS measures and records its investments using fair value measurement guidelines established by generally accepted accounting principles. These guidelines recognize a three-tiered fair value hierarchy as follows:

- **Level 1 inputs:** Level 1 inputs are quoted prices (unadjusted) for identical assets or liabilities in active markets. A quoted price for an identical asset or liability in an active market (e.g., an equity security traded on a major exchange) provides the most reliable fair value measurement and, if available, should be used to measure fair value in that particular market.

- **Level 2 inputs:** Level 2 inputs are prices that are observable either directly or indirectly. Level 2 inputs may include quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable such as interest rates, yield curves, implied volatilities, credit spreads or market-corroborated inputs.

- **Level 3 inputs:** Reporting entities may use unobservable inputs to measure fair value if relevant observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at the measurement date. These unobservable inputs are considered Level 3.

Debt, equity, and derivative instrument securities classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets for those securities. Debt securities classified in Level 2 of the fair value hierarchy are valued using a matrix pricing technique. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices and recently published security specific trading levels. Short-term securities are carried at cost, which approximates fair value, unless they have published market prices or quotations from national securities exchanges or securities pricing services, in which case they are valued at the published market price. Fixed income securities and common and preferred stocks are generally valued based on published market prices and quotations from national securities exchanges or securities pricing services. Securities which are not traded on a national securities exchange are valued by the respective fund manager or other third parties based on similar sales.

For alternative investments, which include private equity, special situation, venture capital and equity real estate investments where no readily ascertainable market value exists, management, in consultation with the general partner and investment advisors, has determined the fair values for the individual investments based upon the partnership's most recent available financial information.

Directly-owned real estate investments are primarily valued based on appraisals performed by independent appraisers and, for properties not appraised, the present value of the projected future net income stream is used. Directly-owned real estate investments are reported net of related debt borrowed against the market value of the property. At both June 30, 2019 and 2018, $132,000,000 in open-ended repurchase agreements were netted against the related property valuation and classified as Level 1. The agreements are payable at an interest rate equivalent to 1 month LIBOR plus 40 basis points and are collateralized by certain fixed income investments of the System.

Derivative instruments classified in Level 1 of the fair value hierarchy are valued using observable exchange, dealer, or broker market pricing.

ii. Investments at Net Asset Value (NAV)

(a) Collective trust fund investments (CTF) consist primarily of domestic and international institutional funds. The fair value of CTF is based on the reported share value of the respective fund. CTF are managed by state chartered banks for which various state banking departments have regulatory oversight and investment advisors for which regulatory agencies such as the Securities and Exchange Commission have regulatory oversight. Investments that are not subject to this oversight are subject to annual independent audits. Redemption frequency for these assets range from monthly, to quarterly, to annual.

Notes to Financial Statements (continued)

At June 30, 2019, the System had the following recurring fair value measurements.

Investments and Derivative Instruments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2019	Level 1	Level 2	Level 3
Pension investments:				
Investments by fair value level				
Short term:				
PSERS Short-Term Investment Fund	**$ 5,521,295**	$ 2,732,041	$ 2,789,254	$ -
Other domestic short-term	**98,669**	79,699	18,970	-
International short-term	**17,598**	13,193	4,405	-
	5,637,562	2,824,933	2,812,629	-
Fixed income:				
Domestic asset-backed and mortgage-backed securities	**493,011**	-	493,011	-
U.S. government and agency obligations	**5,605,208**	5,027,359	577,849	-
Domestic corporate and taxable municipal bonds	**2,286,060**	237,039	2,045,364	3,657
International fixed income	**268,591**	-	268,591	-
	8,652,870	5,264,398	3,384,815	3,657
Common and preferred stock:				
Domestic common and preferred stock	**5,374,971**	5,371,911	3,060	-
International common and preferred stock	**4,438,175**	4,438,175	-	-
	9,813,146	9,810,086	3,060	-
Directly-owned real estate	**654,253**	(132,000)	-	786,253
Total investments by fair value level	**24,757,831**	$ 17,767,417	$ 6,200,504	$ 789,910
Investments measured at the net asset value (NAV)				
Collective trust funds	**14,305,045**			
Equity real estate	**4,830,368**			
Alternative investments:				
Private equity	**6,379,347**			
Special situations	**6,004,654**			
Venture capital	**1,061,134**			
	13,445,135			
Total investments measured at the NAV	**32,580,548**			
Total investments measured at fair value	**$ 57,338,379**			
Investment derivative instruments				
Futures	**$ 31,039**	$ 31,039	$ -	$ -
Total return type swaps	**330,229**	330,229	-	-
Foreign exchange contracts	**(39,666)**	(39,666)	-	-
Total investment derivative instruments	**$ 321,602**	$ 321,602	$ -	$ -

Notes to Financial Statements (continued)

At June 30, 2018, the System had the following recurring fair value measurements.

Investments and Derivative Instruments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2018	Level 1	Level 2	Level 3
Pension investments:				
Investments by fair value level				
Short term:				
PSERS Short-Term Investment Fund	$ 5,584,103	$ 3,024,471	$ 2,559,632	$ -
Other domestic short-term	229,596	84,915	144,681	-
International short-term	24,018	16,677	7,341	-
	5,837,717	3,126,063	2,711,654	-
Fixed income:				
Domestic asset-backed and mortgage-backed securities	1,843,721	-	1,839,471	4,250
U.S. government and agency obligations	1,053,358	1,039,502	13,856	-
Domestic corporate and taxable municipal bonds	1,985,513	297,689	1,687,824	-
International fixed income	353,011	-	353,011	-
	5,235,603	1,337,191	3,894,162	4,250
Common and preferred stock:				
Domestic common and preferred stock	7,159,479	7,159,479	-	-
International common and preferred stock	5,673,188	5,673,157	-	31
	12,832,667	12,832,636	-	31
Directly-owned real estate	602,609	(132,000)	-	734,609
Total investments by fair value level	24,508,596	$ 17,163,890	$ 6,605,816	$ 738,890
Investments measured at the net asset value (NAV)				
Collective trust funds	14,011,193			
Equity real estate	4,436,628			
Alternative investments:				
Private equity	5,950,167			
Special situations	5,607,778			
Venture capital	1,052,030			
	12,609,975			
Total investments measured at the NAV	31,057,796			
Total investments measured at fair value	$ 55,566,392			
Investment derivative instruments				
Futures	$ 20,952	$ 20,952	$ -	$ -
Total return type swaps	(108,341)	(108,341)	-	-
Foreign exchange contracts	68,333	68,333	-	-
Options	43,904	43,904	-	-
Total investment derivative instruments	$ 24,848	$ 24,848	$ -	$ -

At June 30, 2019, the System had the following recurring fair value measurements.

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2019	Level 1	Level 2	Level 3
Premium Assistance investments:				
Investments by fair value level				
Short term:				
PSERS Short-Term Investment Fund	**$ 10,860**	$ 5,374	$ 5,486	$ -
Other domestic short-term	**82,765**	-	82,765	-
Total investments measured at fair value	**$ 93,625**	$ 5,374	$ 88,251	$ -

At June 30, 2018, the System had the following recurring fair value measurements.

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2018	Level 1	Level 2	Level 3
Premium Assistance investments:				
Investments by fair value level				
Short term:				
PSERS Short-Term Investment Fund	$ 5,565	$ 3,014	$ 2,551	$ -
Other domestic short-term	86,140	-	86,140	-
Total investments measured at fair value	$ 91,705	$ 3,014	$ 88,691	$ -

At June 30, 2019, the System had the following recurring fair value measurements.

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2019	Level 1	Level 2	Level 3
Health Options Program investments:				
Investments by fair value level				
Short term:				
PSERS Short-Term Investment Fund	**$ 93,363**	$ 46,198	$ 47,165	$ -
Other domestic short-term	**192,714**	192,714	-	-
Total investments measured at fair value	**$ 286,077**	$ 238,912	$ 47,165	$ -

Notes to Financial Statements (continued)

At June 30, 2018, the System had the following recurring fair value measurements.

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2018	Level 1	Level 2	Level 3
Health Options Program investments:				
Investments by fair value level				
Short term:				
PSERS Short-Term Investment Fund	$ 91,094	$ 49,333	$ 41,761	$ -
Other domestic short-term	146,404	146,404	-	-
Total investments measured at fair value	$ 237,498	$ 195,737	$ 41,761	$ -

At June 30, 2019, the System had the following recurring fair value measurements.

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2019	Level 1	Level 2	Level 3
Defined Contribution investments:				
Investments by fair value level				
Short term:				
PSERS Short-Term Investment Fund	**$ 10,476**	$ 5,184	$ 5,292	$ -
Total investments measured at fair value	**$ 10,476**	$ 5,184	$ 5,292	$ -

At June 30, 2018, the System had the following recurring fair value measurements.

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2018	Level 1	Level 2	Level 3
Defined Contribution investments:				
Investments by fair value level				
Short term:				
PSERS Short-Term Investment Fund	$ 6,735	$ 3,647	$ 3,088	$ -
Total investments measured at fair value	$ 6,735	$ 3,647	$ 3,088	$ -

Notes to Financial Statements (continued)

The valuation method for investments measured at the net asset value (NAV) per share (or its equivalent) at June 30, 2019 and 2018 are presented in the following tables.

Investments measured at the NAV
(Dollar Amounts in Thousands)

	June 30, 2019	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Collective trust funds (a)	**$ 14,305,045**	$ -	see note (a)	0 - 90 Days
Equity real estate (b)	**4,830,368**	2,945,064	see note (b)	see note (b)
Alternative investments:				
Private equity (c)	**6,379,347**	3,105,373	see note (c)	see note (c)
Special situations (d)	**6,004,654**	3,639,565	see note (d)	see note (d)
Venture capital (e)	**1,061,134**	591,118	see note (e)	see note (e)
	13,445,135			
Total investments measured at the NAV	**$ 32,580,548**			

Investments measured at the NAV
(Dollar Amounts in Thousands)

	June 30, 2018	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Collective trust funds (a)	$ 14,011,193	$ -	see note (a)	0 - 90 Days
Equity real estate (b)	4,436,628	2,726,771	see note (b)	see note (b)
Alternative investments:				
Private equity (c)	5,950,167	3,514,005	see note (c)	see note (c)
Special situations (d)	5,607,778	3,175,638	see note (d)	see note (d)
Venture capital (e)	1,052,030	538,517	see note (e)	see note (e)
	12,609,975			
Total investments measured at the NAV	$ 31,057,796			

(b) Equity real estate includes real estate funds that invest primarily in U.S., Latin American, European and Asian commercial real estate. Fund investments can be made across the capital structure of each property venture. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partners' capital. These investments cannot be easily redeemed. Distributions from each fund may be received as: 1) cash flows from operations or 2) return of capital from dispositions. It is expected that the underlying assets of the funds will be liquidated over the next 7 to 12 years.

(c) Private equity includes U.S. buyout funds and international buyout funds that invest mostly in private companies across a variety of industries (although they may invest in public companies from time to time). The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partners' capital. These investments cannot be easily redeemed. The nature of private equity investments is that distributions are received through the liquidation of the underlying assets of the fund. The expected holding period of a private equity portfolio company is 3 to 7 years.

(d) Special situations includes private investment funds that invest across the fixed income capital structure primarily in North America and Western Europe. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partners' capital. These investments cannot be easily redeemed. Instead, the nature of the investments in this type is that distributions are received through the orderly liquidation of the underlying assets of

Notes to Financial Statements (continued)

the fund throughout the stated term of the fund. It is expected that the underlying assets of the funds will be liquidated over the next 3 to 7 years.

(e) Venture capital includes U.S. based private funds, that finance young, relatively small, rapidly growing companies, typically in either the health care or information technology sectors. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partners' capital. These investments cannot be easily redeemed. The nature of venture capital investments is that distributions are received through the liquidation of the underlying assets of the fund. It is expected that the underlying assets of the funds will be liquidated over the next 5 to 10 years.

(C) Deposit and Investment Risk Disclosures

i. Deposits

Custodial credit risk for deposits is the risk that, in the event of a financial institution failure, the System would not be able to recover the value of the deposits. The Commonwealth's Treasury Department is the custodian of the System's funds. Commonwealth Treasury Department deposits must be held in insured depositories approved by the Commonwealth's Board of Finance and Revenue and must be fully collateralized.

The System, through its third party administrator, maintains certain bank deposits for the operation of its voluntary HOP. These deposits are not required to be collateralized by statute or policy. These deposits totaled $192,714,000 and $146,404,000 at June 30, 2019 and 2018, respectively, and are under the custody of M&T Bank which has an A- rating by Standard and Poor's (S&P) and an A3 rating by Moody's Investor Services (Moody's).

ii. Investment Risks

The System's investments, including derivatives and other similar investments, may be subject to various risks. Among these risks are concentration of credit risk, custodial credit risk, credit risk, interest rate risk, and foreign currency risk. The policies addressing each one of these risks, discussed in more detail below, are contained within the Investment Policy Statement, Objectives, and Guidelines reviewed and approved by the Board. Due to the level of risk associated with certain investments, it is possible that changes in the values of investments may occur in the near term and that such changes could materially affect the amounts reported in the Statements of Fiduciary Net Position.

(a) Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of the System's investment in a single issuer. As of June 30, 2019 and 2018, the System had no single issuer that exceeded 5% of total investments. Investments issued or explicitly guaranteed by the U.S. government and investments in mutual funds, external investment pools, and other pooled investments were excluded.

(b) Custodial Credit Risk

Custodial credit risk for investments is the risk that, in the event of the failure of the counterparty to a transaction, the System would not be able to recover the value of investment or collateral securities that are in the possession of an outside party. In accordance with a contractual relationship between the Commonwealth's Treasury Department and its custodial agent, substantially all investments, where securities are used as evidence of the investment, are held by the custodian in book-entry form in the System's name. Those investments are defined as insured or registered investments for which the securities are held by the System or its agent and, therefore, have a very minimal level of custodial credit risk. The remaining investments, which do not have securities that are used as evidence of the investment, are primarily in collective trust funds and limited partnerships, which include real estate and alternative investments.

(c) Credit Risk

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. The credit risk of a debt instrument is measured by nationally recognized statistical rating organizations (NRSRO) such as Fitch Investor Services (Fitch), Moody's, and S&P. Annually, the Board establishes an asset allocation plan. This plan manages the overall credit risk of the fixed income asset class through a clearly defined long-term asset allocation policy. This policy establishes a long-term target allocation of the fixed income asset class at 36.0% of the investment portfolio. The fixed income target allocation consists of:

- An allocation of 10.0% of the portfolio has been made to the U.S. long treasury and U.S. core plus segment of the fixed income asset class benchmarked to the Barclays Capital U.S. Aggregate Long Treasury Index and the Barclays Capital U.S. Aggregate Index. The U.S. long treasury allocation is composed of primarily long duration U.S. Treasury securities issued by the U.S. government. The U.S. core plus allocation is composed of primarily investment grade, relatively liquid, public domestic bonds with an overall weighted-average NRSRO credit rating of A or better.

Notes to Financial Statements (continued)

For derivatives exposed to credit risk, the table below presents aggregate market value by the least favorable credit rating provided by NRSROs at June 30, 2019 and 2018.

	(Dollar Amounts in Thousands)	
	2019	2018
Quality Rating	**Fair Value**	Fair Value
A	$ **270,551**	$ (156,006)
BBB	**59,678**	47,665
Total Swaps-Total Return	$ **330,229**	$ (108,341)

- An allocation of 10.0% of the portfolio has been made to the high yield segment of the fixed income asset class benchmarked to the Barclays Capital U.S. High Yield Index. The high yield allocation is composed of less liquid public non-investment grade fixed income securities with an overall weighted-average NRSRO credit rating of B- or better.

- An allocation of 15.0% of the portfolio has been made to the Treasury Inflation-Protected Securities (TIPS) segment of the fixed income asset class benchmarked to the Barclays Capital World Government Inflation-Linked Bond Index (Hedged to USD) and composed of primarily government issued TIPS with an overall weighted-average NRSRO credit rating of AA or better. The portfolio manager is permitted to leverage the portfolio using TIPS total return swaps up to 3:1.

- An allocation of 1.0% of the portfolio has been made to the emerging markets fixed income asset class benchmarked to the Barclays Capital EM Local Currency-Government-MV Weighted (Unhedged) -10% Country Cap Index composed of primarily investment grade, relatively liquid non-U.S. public bonds with an overall weighted-average NRSRO credit rating of BB- or better.

PSERS applies leverage opportunistically in implementing its asset allocation policy, providing an additional mechanism to increase expected volatility in order to target higher expected return when warranted. Total Leverage is allocated at (14.0%); Leverage is netted against the System's Cash allocation of 6% for a Net Leverage Allocation of (8%).

- An allocation of 6.0% of the portfolio has been made to cash benchmarked to the Bank of America/Merrill Lynch U.S. Treasury Bill 0-3 Months Index composed of primarily investment grade, relatively liquid U.S. and non-U.S. public bonds with an overall weighted-average NRSRO credit rating of AA or better.

The following table discloses aggregate market value by credit quality rating category. Many securities have ratings from more than one NRSRO and sometimes those ratings differ from one NRSRO to another. The data listed below uses the rating (expressed as S&P equivalent) available from Fitch, Moody's and/or S&P that indicates the lowest credit quality at June 30, 2019 and 2018.

	(Dollar Amounts in Thousands)	
	2019	2018
Quality Rating	**Fair Value**	Fair Value
AAA	**$ 3,485,216**	$ 1,479,225
AA	**1,540,932**	3,558,536
A	**751,820**	1,161,417
BBB	**1,413,528**	1,517,533
BB and Below	**472,903**	394,183
NR*	**6,462,354**	7,152,758
Total Exposed to Credit Risk	**14,126,753**	15,263,652
U.S. Government Guaranteed**	**5,593,605**	1,698,960
Total Fixed Income and Short-Term Investments	**$ 19,720,358**	$ 16,962,612

* Not Rated securities include $5,039,748 and $5,553,354 in collective trust funds and $461,142 and $499,678 in PSERS Short Term Investment Fund assets at June 30, 2019 and 2018, respectively.

** Comprised of U.S. government and agency obligations explicitly guaranteed by the U.S. government and not considered to have credit risk.

(d) Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of a fixed income investment. The System manages its interest rate risk by diversifying the fixed income portfolio and maintaining the fixed income portfolio at a Board-approved effective duration range of the benchmark index.

Duration is a measure of the approximate sensitivity of a bond's value to interest rate changes. The higher the duration, the greater the changes in fair value when interest rates change. For example, a duration of 4.0 would mean that, given a 100-basis point change up/down in rates, a bond's price would move down/up approximately 4.0%. PSERS measures interest rate risk using option-adjusted duration, which recognizes the fact that yield changes may change the expected cash flows due to embedded options.

(e) Foreign Currency Risk

Foreign currency risk is the risk that fluctuations in exchange rates will adversely affect the fair value of an investment. As part of the System's program to manage risk and enhance returns, the System invests in non-U.S. markets. Investment managers in non-U.S. equity and global fixed income may

Notes to Financial Statements (continued)

hedge their non-U.S. foreign currency exposure back to U.S. dollars. In addition, the System partially hedges non-U.S. developed market currency exposure not hedged by the investment managers back to U.S. dollars.

(D) Securities Lending

The System participates in a securities lending program with a third party agent. Under this program, the lending agent loans securities (equities, fixed income, and money market instruments) to independent brokers and dealers in exchange for U.S. dollar cash collateral in an amount not less than 102% of the fair value of any securities loaned. Collateral is marked-to-market daily. If the fair value of the collateral held falls below the minimum guidelines for securities loaned, additional collateral is obtained. The lending agent invests the cash collateral in accordance with reinvestment guidelines approved by the System.

As of June 30, 2019 and 2018, the System had no credit risk exposure to borrowers because the amounts the System owed the borrowers exceeded the amounts the borrowers owed the System. Under the securities lending program, the lending agent provides indemnification to the System if a borrower fails to return borrowed securities (and the collateral is inadequate to replace the loaned securities) or fails to pay income distributions on them. The lending agent also provides indemnification to the System if investment of cash collateral results in investment loss. There were no losses during the fiscal years ended June 30, 2019 and 2018 resulting from a default of the borrowers or the lending agent.

All securities loans can be terminated on demand by either the System or the borrower, although the average term of the loan is one day. There were no term loans at June 30, 2019 and 2018.

Cash collateral is invested in a short-term collateral investment pool that is managed by the lending agent, is segregated from all other clients of the lending agent, and is not subject to custodial credit risk. The System's income from securities lending represents its pro-rata share from participating in the program. The weighted-average maturity of the investments in the pool was one day at June 30, 2019 and 2018. During the fiscal years ended June 30, 2019 and 2018, the mismatch between the maturities of the investments made with cash collateral and the maturities of the securities loans may have posed some interest rate risk to the System. In the event of a default, the lending agent may use the collateral to replace the loaned securities.

As of June 30, 2019, the fair value of loaned securities was $4,430,554,000. The fair value of the associated collateral was $4,518,372,000, all of which was cash. As of June 30, 2018, the fair value of loaned securities was $2,917,358,000. The fair value of the associated collateral was $2,980,119,000, all of which was cash.

5. Derivative and Other Similar Investments

The System enters into a variety of financial contracts, which include options and futures. The System also enters into foreign exchange positions, such as forward and spot contracts to obtain or hedge foreign currency exposure; swap agreements to gain exposure to certain sectors of the

At June 30, 2019 and 2018, the System's fixed income portfolio had the following option-adjusted durations by fixed income sector:

(Dollar Amounts in Thousands)

	2019		2018	
Investment Type	**Option-Adjusted Duration**	**Fair Value**	Option-Adjusted Duration	Fair Value
Domestic asset-backed and mortgage-backed securities	**0.2**	**$ 493,011**	2.2	$ 1,843,721
U.S. government and agency obligations	**12.1**	**5,605,208**	8.1	1,053,358
Domestic corporate and taxable municipal bonds	**1.3**	**2,286,060**	1.3	1,985,513
International fixed income	**0.4**	**268,591**	1.0	353,011
Collective trust funds	**5.7**	**5,039,748**	6.6	5,553,354
PSERS Short-Term Investment Fund	**0.1**	**5,635,993**	0.1	5,687,497
Other Short Term Assets	**0.1**	**391,747**	0.1	486,158
Total	**5.1***	**$ 19,720,358**	3.1*	$ 16,962,612

* Fixed income investment managers enter into futures contracts to adjust the durations of their portfolios as a whole rather than any particular investment type within the portfolio. In total, the futures contracts have adjusted PSERS' total portfolio duration upward by 0.1 at June 30, 2019 and 2018. The total portfolio option-adjusted duration is calculated by weighting each investment type by fair value.

Notes to Financial Statements (continued)

Non-U.S. currency exposures at June 30, 2019 and 2018:

2019

(Dollar Amounts in Thousands)

Currency	Equity	Fixed Income	Alternative Investments & Real Estate	Short-Term*	Currency Hedge	Total Fair Value
Euro	**$ 845,070**	**$ 1,960**	**$ 1,520,488**	**$ 8,750**	**$ (1,598,636)**	**$ 777,632**
British pound sterling	**653,411**	**-**	**253,652**	**2,784**	**(545,783)**	**364,064**
Taiwan new dollar	**127,402**	**-**	**-**	**109**	**-**	**127,511**
South Korean won	**121,498**	**-**	**-**	**(1,667)**	**(95)**	**119,736**
Indian rupee	**99,225**	**-**	**-**	**19**	**-**	**99,244**
South African rand	**64,782**	**13,099**	**-**	**234**	**(55)**	**78,060**
Brazil real	**74,116**	**-**	**-**	**91**	**-**	**74,207**
Hong Kong dollar	**219,613**	**-**	**-**	**332**	**(164,167)**	**55,778**
Mexican peso	**42,800**	**12,769**	**-**	**172**	**-**	**55,741**
Other non-U.S. currencies	**1,818,553**	**93,454**	**7,034**	**32,723**	**(1,984,698)**	**(32,934)**
Total	**$ 4,066,470**	**$ 121,282**	**$ 1,781,174**	**$ 43,547**	**$ (4,293,434)**	**$ 1,719,039**

2018

(Dollar Amounts in Thousands)

Currency	Equity	Fixed Income	Alternative Investments & Real Estate	Short-Term*	Currency Hedge	Total Fair Value
Euro	$ 1,102,053	$ 80,144	$ 1,590,146	$ 6,907	$ (1,951,095)	$ 828,155
British pound sterling	885,533	8,291	209,662	1,158	(786,747)	317,897
South Korean won	161,072	-	-	1,143	107	162,322
Taiwan new dollar	147,945	-	-	438	(83)	148,300
South African rand	84,499	9,956	-	204	(383)	94,276
Indian rupee	70,039	-	-	(32)	-	70,007
Brazil real	54,967	2	-	849	(725)	55,093
Danish krone	126,043	275	-	2,537	(69,691)	59,164
Hong Kong Dollar	251,845	-	-	338	(198,563)	53,620
Other non-U.S. currencies	2,398,858	135,132	7,358	20,525	(2,459,545)	102,328
Total	$ 5,282,854	$ 233,800	$ 1,807,166	$ 34,067	$ (5,466,725)	$ 1,891,162

* Includes investment receivables and payables

At June 30, 2019 and 2018, the System had the following foreign currency exposures for its derivatives (except for foreign exchange contracts which are included in Note 5):

(Dollar Amounts in Thousands)

Currency	**2019** Notional Value	2018 Notional Value
Euro	**$ 167,692**	$ 196,957
Japanese yen	**51,681**	157,013
British pound sterling	**61,898**	73,117
Canadian dollar	**39,205**	46,428
Australian dollar	**64,094**	42,585
Hong Kong dollar	**7,115**	8,604
Total Futures Contracts and Total Return Swaps	**$ 391,685**	$ 524,704

Notes to Financial Statements (continued)

The following table summarizes the System's foreign exchange contracts by currency at June 30, 2019 and 2018:

2019

(Dollar Amounts in Thousands)

Currency	Buys	Unrealized Gain/(Loss)	Sells	Unrealized Gain/ (Loss)
Euro	**$ 17,802**	**$ 101**	**$ 1,616,438**	**$ (20,244)**
Japanese yen	**4,273**	**11**	**773,874**	**(1,621)**
Swiss franc	**55**	**-**	**245,004**	**(3,248)**
Australian dollar	**86**	**-**	**320,883**	**(5,052)**
Swedish krona	**660**	**1**	**87,129**	**(1,431)**
Canadian dollar	**109**	**-**	**388,673**	**(5,924)**
Singapore dollar	**387**	**4**	**48,058**	**(351)**
British pound sterling	**-**	**-**	**547,848**	**(55)**
New Zealand dollar	**-**	**-**	**29,318**	**(775)**
Other non-U.S. currencies	**4,343**	**18**	**263,924**	**(1,100)**
Total	**$ 27,715**	**$ 135**	**$ 4,321,149**	**$ (39,801)**

2018

(Dollar Amounts in Thousands)

Currency	Buys	Unrealized Gain/(Loss)	Sells	Unrealized Gain/ (Loss)
Euro	$ 72,860	$ (24)	$ 2,023,955	$ 15,064
Japanese yen	9,165	(117)	1,095,908	13,532
Swiss franc	9,006	(69)	285,786	1,005
Australian dollar	3,606	(85)	360,830	8,780
Swedish krona	3,111	(92)	118,132	3,051
Canadian dollar	2,623	1	479,328	11,398
Singapore dollar	2,390	(46)	67,055	1,165
Mexican peso	1,373	65	54	-
British pound sterling	772	(6)	787,519	12,232
New Zealand dollar	-	-	23,392	553
Other non-U.S. currencies	4,237	(35)	333,909	1,961
Total	$ 109,143	$ (408)	$ 5,575,868	$ 68,741

Notes to Financial Statements (continued)

equity and fixed income markets; collateralized mortgage obligations (CMOs); other forward contracts; and U.S. Treasury STRIPS. The System is not a dealer, but an end-user of these instruments. The contracts are used primarily to enhance performance and/or reduce the volatility of the portfolio. The System is exposed to credit risk in the event of non-performance by counterparties to financial instruments. The System generally enters into transactions only with high quality institutions. Legal risk is mitigated through selection of executing brokers and review of all documentation. The System is exposed to market risk, the risk that future changes in market conditions may make an instrument less valuable. Exposure to market risk is managed in accordance with risk limits set by senior management, through buying or selling instruments or entering into offsetting positions.

The notional or contractual amounts of derivatives indicate the extent of the System's involvement in the various types and uses of derivative financial instruments and do not measure the System's exposure to credit or market risks and do not necessarily represent amounts exchanged by the parties. The amounts exchanged are determined by reference to the notional amounts and the other terms of the derivatives.

Futures contracts are contracts in which the buyer agrees to purchase and the seller agrees to make delivery of a specific financial instrument at a predetermined date and price. Gains and losses on futures contracts are settled daily based on a notional (underlying) principal value and do not involve an actual transfer of the specific instrument. Futures contracts are standardized and are traded on exchanges. The exchange assumes the risk that a counterparty will not pay and generally requires margin payments to minimize such risk. In addition, the System enters into short sales, sales of securities it does not presently own, to neutralize the market risk of certain equity positions. Initial margin requirements on futures contracts and collateral for short sales are provided by investment securities pledged as collateral and by cash held by various brokers. Although the System has the right to access individual pledged securities, it must maintain the amount pledged by substituting other securities for those accessed. The value of securities pledged and the amount of cash held at June 30, 2019 and 2018 represent a restriction on the amount of assets available at year-end for other purposes.

Option contracts provide the option purchaser with the right, but not the obligation, to buy or sell the underlying security at a set price during a period or at a specified date. The option writer is obligated to buy or sell the underlying security if the option purchaser chooses to exercise the option. The System generally uses exchange listed currency, index, stock, and futures options. In FY 2018, the System purchased over-the-counter put options on the S&P 500 Index. The fair value of these option contracts of $43,904,000 at June 30, 2018 is included in the Statements of Fiduciary Net Position. The options were not exercised and expired worthless during FY 2019.

Foreign exchange contracts involve an agreement to exchange the currency of one country for the currency of another country at an agreed-upon price and settlement date. To reduce the risk of counterparty non-performance, the investment managers generally enter into these contracts with institutions regarded as meeting high standards of credit worthiness. The contracts reported in Table 5 primarily include forwards. The $4,348,864,000 of foreign currency contracts outstanding at June 30, 2019 consist of "buy" contracts, which represent the U.S. dollar equivalents of commitments to purchase foreign currencies of $27,715,000 and "sell" contracts, which represent U.S. dollar equivalents of commitments to sell foreign currencies of $4,321,149,000. The $5,685,011,000 of foreign currency contracts outstanding at June 30, 2018 consist of "buy" contracts of $109,143,000 and "sell" contracts of $5,575,868,000. The unrealized gain/(loss) on contracts of $(39,666,000) and $68,333,000 at June 30, 2019 and 2018, respectively, is included in the Statements of Fiduciary Net Position and represents the fair value of the contracts.

Swap agreements provide for periodic payments at predetermined future dates between parties based on the change in value of securities, indexes, or interest rates referenced to a notional (underlying) principal value. During the years ended June 30, 2019 and 2018, the System entered into total return type swaps. Under the total return type swap arrangements, the System receives the net return of certain equity securities or indexes in exchange for a short-term rate minus a spread or a predetermined fixed charge. The notional values of the swap contracts outstanding of $9,447,923,000 and $7,608,586,000 at June 30, 2019 and 2018, respectively, are presented in Table 5. The receivable (payable) on the total return type swap contracts of $330,229,000 and $(108,341,000) at June 30, 2019 and 2018, respectively, is included in the Statements of Fiduciary Net Position and represents the fair value of the contracts. The contracts have varying maturity dates ranging from August 7, 2019 to May 29, 2020.

The System also invests in mortgage-backed securities (MBS) such as CMOs and MBS forwards to maximize yields. These securities are sensitive to prepayments of mortgages, which may result from a drop in interest rates.

Notes to Financial Statements (continued)

Table 5 - Notional Amounts of Derivatives

The table presented below summarizes the aggregate notional or contractual amounts for the System's derivative financial instruments at June 30, 2019 and 2018.

(Dollar Amounts in Thousands)	**2019**	2018
Futures contracts - long:		
Treasury futures	**$ 1,129,615**	$ 3,003,525
U.S. equity futures	**419,990**	591,676
Non-U.S. equity futures	**391,684**	524,749
Commodity futures	**327,723**	355,009
Non-U.S. bond futures	**132,762**	163,823
Futures contracts - short:		
Treasury futures	**25,594**	39,132
Non- U.S. bond futures	**-**	33,706
Foreign exchange forward and spot contracts, gross	**4,348,864**	5,685,011
Options - puts purchased	**-**	2,132,285
Swaps - total return type	**9,447,923**	7,608,586

The fair values of derivative instruments outstanding at June 30, 2019 and 2018 are classified by type and by the changes in fair value of the derivative instrument in the table below.

(Dollar Amounts in Thousands)

	Change in Fair Value Gain/(Loss) FY 2019		**Fair Value at June 30, 2019**	
Investment Derivative Type	**Classification**	**Amount**	**Classification**	**Amount**
Futures	Investment income	**$ 31,039**	Receivable/(Payable)	**$ 31,039**
Total return type swaps	Investment income	**330,229**	Receivable/(Payable)	**330,229**
Foreign exchange contracts	Investment income	**(39,666)**	Receivable/(Payable)	**(39,666)**
Options	Investment income	**(63,128)**	Investment	**-**
Total		**$ 258,474**		**$ 321,602**

	Change in Fair Value Gain/(Loss) FY 2018		Fair Value at June 30, 2018	
Investment Derivative Type	Classification	Amount	Classification	Amount
Futures	Investment income	$ 20,952	Receivable/(Payable)	$ 20,952
Total return type swaps	Investment income	(108,341)	Receivable/(Payable)	(108,341)
Foreign exchange contracts	Investment income	68,333	Receivable/(Payable)	68,333
Options	Investment income	(19,224)	Investment	43,904
Total		$ (38,280)		$ 24,848

The MBS forwards are subject to credit risk in the event of nonperformance by counterparties. The fair value of CMOs at June 30, 2019 and 2018 is $456,934,000 and $548,512,000, respectively.

The System invests in U.S. Treasury STRIPS which essentially act as zero coupon bonds and are subject to market volatility from a rise or drop in interest rates.

Through certain collective trust funds, the System also indirectly holds various derivative financial instruments. The collective trust funds invest in futures and options thereon; forward foreign currency contracts; options; interest rate, currency, equity, index, and total return swaps; interest-only STRIPS; and CMOs, to enhance the performance and/or reduce the volatility of their portfolios.

6. Net Pension Liability of Participating Employers

The components of the net pension liability of the participating employers at June 30, 2019 were as follows:

(Dollar amounts in thousands)

Total pension liability	$	105,516,492
Less: Plan fiduciary net position		58,733,884
Employer net pension liability	$	46,782,608
Plan fiduciary net position as a percentage of the total pension liability		55.66%

Actuarial Assumptions

The total pension liability at June 30, 2019 was determined by rolling forward the System's total pension liability at June 30, 2018 to June 30, 2019 using the following actuarial assumptions, applied to all periods included in the measurement:

- Actuarial cost method - Entry Age Normal - level % of pay.
- Investment return - 7.25%, includes inflation at 2.75%.
- Salary growth - Effective average of 5.00%, comprised of inflation of 2.75% and 2.25% for real wage growth and for merit or seniority increases.
- Mortality rates were based on the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale.

Investments

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 returns, net of pension plan investment expense 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.

The pension plan's policy in regard to the allocation of invested plan assets is established and may be amended by the Board. Plan assets are managed with a long-term objective of achieving and maintaining a fully funded status for the benefits provided through the pension.

For the year ended June 30, 2019, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 6.58%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested. Table 6 shows the Board's adopted asset allocation policy and best estimates of geometric real rates of return for each major asset class at June 30, 2019.

Discount Rate

The discount rate used to measure the total pension liability was 7.25%. The projection of cash flows used to determine the discount rate assumed that contributions from plan members will be made at the current contribution rate and that contributions from employers will be made at contractually required rates, actuarially determined. Based on those assumptions, the pension plan'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.

Table 6 - Pension Asset Allocation

Pension - Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Global public equity	20.0%	5.6%
Fixed income	36.0%	1.9%
Commodities	8.0%	2.7%
Absolute return	10.0%	3.4%
Risk parity	10.0%	4.1%
Infrastructure/MLPs	8.0%	5.5%
Real estate	10.0%	4.1%
Alternative investments	15.0%	7.4%
Cash	3.0%	0.3%
Financing (LIBOR)	(20.0%)	0.7%
	100.0%	

Notes to Financial Statements (continued)

Sensitivity of the Net Pension Liability

Table 7 presents the net pension liability, calculated using the discount rate of 7.25%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage point lower (6.25%) or 1-percentage point higher (8.25%) than the current rate:

Table 7 - Sensitivity of the Net Pension Liability
(Dollar amounts in thousands)

	1% Decrease	Current Discount Rate	1% Increase
	6.25%	7.25%	8.25%
Net pension liability	$ 58,272,877	$ 46,782,608	$ 37,053,172

7. Net Other Postemployment Benefits (OPEB) Liability of Participating Employers

The components of the net OPEB liability of the participating employers at June 30, 2019 for the Premium Assistance Program were as follows:

(Dollar amounts in thousands)

Total OPEB liability	$	2,252,027
Less: Plan fiduciary net position		125,185
Employer net OPEB liability	$	2,126,842
Plan fiduciary net position as a percentage of the total OPEB liability		5.56%

Postemployment Healthcare Plans

PSERS provides a Health Insurance Premium Assistance program funded by employer contributions which makes up the OPEB liability.

HOP is a PSERS sponsored voluntary health insurance program funded exclusively by the premiums paid by its participants for benefit coverage they elect. The HOP is not part of the OPEB liability.

Change in Actuarial Assumptions

The following change in assumption was used in the measurement of the Total OPEB Liability beginning June 30, 2019. The Investment Rate of Return was adjusted from 2.98% to 2.79% which represents the S&P 20 Year Municipal Bond Rate.

Actuarial Assumptions

The total OPEB liability at June 30, 2019 was determined by rolling forward the System's total OPEB liability at June 30, 2018 to June 30, 2019 using the following actuarial assumptions, applied to all periods included in the measurement:

- Actuarial cost method - Entry Age Normal - level % of pay.
- Investment return - 2.79% - S&P 20 Year Municipal Bond Rate.
- Salary growth - Effective average of 5.00%, comprised of inflation of 2.75% and 2.25% for real wage growth and for merit or seniority increases.
- Premium Assistance reimbursement is capped at $1,200 per year.
- Assumed Healthcare cost trends were applied to retirees with less than $1,200 in premium assistance per year.
- Mortality rates were based on the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale.

Investments

The Board has the responsibility to invest and reinvest available funds of the System in accordance with the guidelines and limitations set forth in the Code and other applicable state law. The Board accomplishes the daily management of the System's investments through investment advisors who act as agents for the System and through internal investment managers. Investments consist primarily of short term assets designed to protect the principal of plan assets. Table 8 reflects the Fund's OPEB asset allocation policy and best estimates of geometric real rates of return for each asset class at June 30, 2019.

Under the program, employer contribution rates for Premium Assistance are established to provide reserves in the Health Insurance Account that are sufficient for the payment of Premium Assistance benefits for each succeeding year.

For the year ended June 30, 2019, the annual money-weighted rate of return on OPEB plan investments, net of OPEB plan investment expense, was 2.68%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Notes to Financial Statements (continued)

Table 8 - OPEB Asset Allocation		
OPEB - Asset Class	**Target Allocation**	**Long-Term Expected Real Rate of Return**
Cash	13.2%	0.2%
US Core Fixed Income	83.1%	1.0%
Non-U.S. Developed Fixed	3.7%	0.0%
	100.0%	

Discount Rate

The discount rate used to measure the total OPEB liability was 2.79%. The Health Insurance Premium Assistance Program is funded by employer contributions. Under the plan's funding method, the OPEB plan's fiduciary net position was not projected to be sufficient to meet projected future benefit payments. Therefore, the plan is considered a "pay-as-you-go" plan and a discount rate of 2.79%, which represents the S&P 20 year Municipal Bond Rate at June 30, 2019, was applied to all projected benefit payments to measure the total OPEB liability.

Sensitivity of the Net OPEB Liability

Table 9 presents the net OPEB liability, calculated using the discount rate of 2.79%, as well as what the net OPEB liability would be if it were calculated using a discount rate that is 1-percentage point lower (1.79%) or 1-percentage point higher (3.79%) than the current rate:

Table 9 - Sensitivity of the Net OPEB Liability (Dollar amounts in thousands)			
	1% Decrease 1.79%	**Current Discount Rate** 2.79%	**1% Increase** 3.79%
Net OPEB liability	$ 2,422,936	$ 2,126,842	$ 1,881,454

Healthcare Cost Trend Rates

Healthcare cost trends were applied to retirees with less than $1,200 in Premium Assistance per year. Premium Assistance is capped at a maximum of $1,200 per year. At June 30, 2018, there were 92,516 members receiving the maximum amount allowed of $1,200 in Premium Assistance per year and their Premium Assistance benefits are not subject to future healthcare cost increases. At June 30, 2018, there were 884 members receiving less than the maximum amount allowed of $1,200 per year. The actual number of retirees receiving less than the $1,200 per year cap is a small percentage of the total population and has a minimal impact from Healthcare Cost Trends, as depicted in Table 10, which discloses the effect of a 1% increase or decrease in the rate.

Table 10 - Sensitivity of the Net OPEB Liability to Change in Healthcare Cost Trend Rates (Dollar amounts in thousands)			
	1% Decrease	**Current Trend Rate**	**1% Increase**
Net OPEB liability	$ 2,126,515	$ 2,126,842	$ 2,127,106

8. Pension Plan for Employees of the System

(A) SERS' Plan Description

As an employer, the System contributes to SERS, a cost-sharing multiple-employer defined benefit pension plan established by the Commonwealth to provide pension benefits for employees of state government and certain independent agencies. SERS is a component unit of the Commonwealth and is included in the Commonwealth's financial report as a pension trust fund.

Membership in SERS is mandatory for most state employees. SERS provides retirement, death, and disability benefits. Article II of the Commonwealth's Constitution assigns the authority to establish and amend the benefit provision of the plan to the General Assembly.

(B) SERS' Benefits Provided to Employees of the System

SERS member retirement benefits are generally determined by taking years of credited service times final average salary times 1.0%, 1.25%, 2% or 2.5%, depending on date of hire. The normal retirement age ranges from 50 - 65, depending on the membership class. According to the State Employees' Retirement Code (SERC), all obligations of SERS will be assumed by the Commonwealth should SERS terminate.

(C) Contributions to SERS

The contribution requirements of SERS plan members is mandated by Commonwealth statute. The member contribution rate for the majority of SERS' members is 6.25%. At December 31, 2018 and 2017 the blended employer contribution rates were 33.43% and 30.04%, respectively. Contributions to SERS from PSERS were $7.8 million for the year ended June 30, 2019.

(D) Proportionate Share of Pension Liabilities, Pension Expense, and Deferred Inflows of Resources and Deferred Outflows of Resources

At June 30, 2019, PSERS reported a liability of $78.2 million and $60.2 million at June 30, 2018, for its proportionate share of the net pension liability for

Notes to Financial Statements (continued)

the SERS plan in Other liabilities on the Statement of Fiduciary Net Position. The net pension liability was measured at December 31, 2018 and 2017, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation at December 31, 2018 and 2017. PSERS' proportion of the net pension liability was calculated utilizing a projected-contribution method. At December 31, 2018, PSERS' proportion was 0.37527829 percent and 0.34849162 percent at December 31, 2017.

PSERS recognized total pension expense of $13.1 million in FY 2019 on the Statement of Changes in Fiduciary Net Position. Of the $13.1 million of pension expense, $7.8 million was reflected in administrative expenses and $5.3 million was reflected in investment expenses. Deferred inflows of resources of $1.3 million and $4.3 million at June 30, 2019, and June 30, 2018, respectively, are reported in Other liabilities on the Statement of Fiduciary Net Position. Deferred outflows of resources of $22.2 million and $12.4 million at June 30, 2019, and June 30, 2018, respectively, are reported in Miscellaneous assets. Of the $22.2 million of deferred outflows of resources at June 30, 2019, PSERS recorded $4.2 million for contributions subsequent to the measurement date which will be recognized as a reduction of the net pension liability in the year ending June 30, 2020. Other amounts reported as deferred outflows of resources and deferred inflows of resources will be recognized in pension expense as follows:

Year Ending June 30:	(Dollar amounts in thousands)
2020	5,854
2021	3,946
2022	2,776
2023	3,743
Thereafter	291

(E) SERS' Pension Plan Fiduciary Net Position

Detailed information about SERS' fiduciary net position is available in SERS' Comprehensive Annual Financial Report which can be found on SERS' website at www.SERS.pa.gov.

9. Postemployment Healthcare Plan for Employees of the System

(A) REHP Plan Description

As an employer, the System participates in the Commonwealth's REHP. The REHP is a single employer plan and provides certain healthcare benefits to qualifying individuals meeting specified age and/or service requirements. The Commonwealth's Office of Administration (OA), in its sole discretion, determines available REHP benefits on an ongoing basis. The Pennsylvania Employees Benefit Trust Fund (PEBTF) is a third-party administrator for the REHP under the provisions of an Administration Agreement between OA and PEBTF.

(B) OPEB Benefits Provided to Employees of the System

The Commonwealth sponsors the REHP for eligible retirees and their dependents to receive subsidized health coverage for the retiree's lifetime. The REHP is provided as part of collective bargaining agreements with most Commonwealth labor unions. All policy decisions, types and levels of benefits for the REHP fall under the purview of the Commonwealth's Executive Board and the Secretary of Administration.

(C) Contributions to the REHP

Employer costs for retiree healthcare benefits are charged as a component of payroll expenditures, on a 'pay as you go' basis. All employing agencies contributed $300 per biweekly pay period for the first six months of the year and $288 per biweekly pay period for the next six months of the year, for each current REHP eligible active employee during fiscal year ended June 30, 2019 to the REHP Trust. PSERS' contributions to the REHP for FY 2019 were $2.4 million. Plan members who retired after June 30, 2005 contribute to the plan based on a percentage of their final annual gross base salary at the time of retirement. Plan member contribution rates vary based on their REHP enrollment date.

(D) Proportionate Share of OPEB Liabilities, OPEB Expense and Deferred Inflows of Resources and Deferred Outflows of Resources

At June 30, 2019, PSERS reported a liability of $56.4 million and $76.3 million at June 30, 2018 for its proportionate share of net OPEB liability for the REHP plan in Other Liabilities on the Statement of Fiduciary Net Position. The current liability portion of the net OPEB liability is $2.3 million. The net OPEB liability was measured at June 30, 2018, and the total OPEB liability used to calculate the net OPEB liability was determined by an actuarial valuation at June 30, 2018. Since the REHP has insufficient assets to meet next year's projected benefit payments, the discount rate used to measure the total OPEB liability is based on the 20-year tax-exempt general obligation municipal bond index rate which was 3.857% on June 30, 2019.

Notes to Financial Statements (continued)

PSERS' proportion of the net OPEB liability was calculated utilizing a contribution method. At June 30, 2018, PSERS' proportion was 0.383876 percent and at June 30, 2017 PSERS' proportion was 0.387675 percent.

REHP had a decrease in Total OPEB Liability of approximately $5.3 billion. The primary cause was due to actual experience over the past year that was significantly different than expected. This experience gain was caused primarily by decreases or lower than expected increases in claims costs due to favorable self-insured claims experience, higher than expected Employer Group Waiver Plan subsidies, higher than expected CVS/SilverScript formulary rebates, and lower than expected increases in fully-insured rates. This positive experience change was the primary cause for the decrease to OPEB expense.

PSERS recognized total OPEB expense of $(0.58) million in FY 2019 on the Statement of Changes in Fiduciary Net Position. Of the $(0.58) million of OPEB revenue, $(0.49) million was reflected in administrative expenses and $(0.09) million was reflected in investment expenses. Deferred outflows of resources of $2.8 million and $1.9 million at June 30, 2019 and June 30, 2018, respectively are reported in Miscellaneous assets. Of the $2.8 million of deferred outflows at June 30, 2019, PSERS recorded $2.4 million for contributions subsequent to the measurement date which will be recognized as a reduction of the net OPEB liability in the year ending June 30, 2020. Deferred inflows of resources of $24.0 million and $7.0 million at June 30, 2019 and June 30, 2018, respectively are reported in Other liabilities on the Statement of Fiduciary Net Position and will be recognized in OPEB expense as follows:

Year Ending June 30:	(Dollar amounts in thousands)
2020	(5,386)
2021	(5,385)
2022	(5,385)
2023	(4,944)
Thereafter	(2,924)

(E) REHP Plan Fiduciary Net Position

Detailed information about the REHP fiduciary net position is available in the Commonwealth's Comprehensive Annual Financial Report which can be found at www.budget.pa.gov.

10. Litigation and Contingencies

The System is subject to various threatened and pending lawsuits. These lawsuits include issues related to benefit calculations and eligibility. It is the opinion of management that the ultimate liability arising from such threatened and pending litigation will not have a material effect on the financial position of the System. The System is exposed to various other liabilities and risks related to fiduciary responsibilities of directors and officers.

11. Commitments

At June 30, 2019, PSERS had commitments for the future purchase of investments in alternative investments of $7.3 billion and real estate of $2.9 billion.

Required Supplementary Information

Schedule 1
Schedule of Changes in the Employer Net Pension Liability
(Unaudited – See Accompanying Auditor's Report)
(Dollar Amounts in Thousands)

	2019	2018	2017	2016	2015	2014
Total pension liability						
Service cost	**$ 1,921,417**	$ 1,890,906	$ 1,873,844	$ 1,932,401	$ 1,926,539	$ 2,139,037
Interest	**7,465,228**	7,334,484	7,110,987	7,028,292	6,857,497	6,523,484
Changes of benefit terms	**-**	-	(449)	-	-	-
Differences between expected and actual experience	**(1,477,660)**	(745,306)	644,051	(348,429)	(223,437)	-
Changes of assumptions	**-**	-	-	2,236,118	-	-
Benefit payments	**(6,761,172)**	(6,655,146)	(6,473,579)	(6,360,325)	(6,220,601)	(6,053,505)
Net change in total pension liability	**1,147,813**	1,824,938	3,154,854	4,488,057	2,339,998	2,609,016
Total pension liability -beginning	**104,368,679**	102,543,741	99,388,887	94,900,830	92,560,832	89,951,816
Total pension liability - ending (a)	**$ 105,516,492**	$ 104,368,679	$ 102,543,741	$ 99,388,887	$ 94,900,830	$ 92,560,832
Plan fiduciary net position						
Contributions - employer	**$ 4,487,520**	$ 4,249,611	$ 3,832,773	$ 3,189,510	$ 2,596,731	$ 1,992,084
Contributions - member	**1,064,043**	1,026,375	1,013,847	989,266	984,634	966,926
Net investment income	**3,628,710**	4,714,158	4,995,362	473,206	1,328,516	7,097,761
Benefit payments	**(6,761,172)**	(6,655,146)	(6,473,579)	(6,360,325)	(6,220,601)	(6,053,505)
Administrative expense	**(48,931)**	(46,544)	(45,127)	(45,118)	(42,331)	(38,712)
Net Change in plan fiduciary net position	**2,370,170**	3,288,454	3,323,276	(1,753,461)	(1,353,051)	3,964,554
Plan fiduciary net position - beginning	**56,363,714**	53,155,336	49,832,060	51,585,521	52,980,115	49,015,561
Effect of change in accounting principle	**-**	(80,076)	-	-	(41,543)	-
Plan fiduciary net position - beginning restated	**-**	53,075,260	-	-	52,938,572	-
Plan fiduciary net position - ending (b)	**$ 58,733,884**	$ 56,363,714	$ 53,155,336	$ 49,832,060	$ 51,585,521	$ 52,980,115
Employer net pension liability - ending (a)-(b)	**$ 46,782,608**	$ 48,004,965	$ 49,388,405	$ 49,556,827	$ 43,315,309	$ 39,580,717

Required Supplementary Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditor's report and notes to the required supplementary information.

Required Supplementary Information

Schedule 2
Schedule of Employer Net Pension Liability
(Unaudited – See Accompanying Auditor's Report)
(Dollar Amounts in Thousands)

	2019	2018	2017	2016	2015	2014
Total pension liability	**$ 105,516,492**	$ 104,368,679	$ 102,543,741	$ 99,388,887	$ 94,900,830	$ 92,560,832
Less: Plan fiduciary net position	**58,733,884**	56,363,714	53,155,336	49,832,060	51,585,521	52,980,115
Employer net pension liability	**$ 46,782,608**	$ 48,004,965	$ 49,388,405	$ 49,556,827	$ 43,315,309	$ 39,580,717
Plan fiduciary net position as a percentage of the total pension liability	**55.66%**	54.00%	51.84%	50.14%	54.36%	57.24%
Covered payroll	**$ 13,791,197**	$ 13,466,526	$ 13,313,900	$ 12,951,077	$ 12,866,473	$ 12,760,785
Employer net pension liability as a percentage of covered payroll	**339.22%**	356.48%	370.95%	382.65%	336.65%	310.17%

Schedule 3
Schedule of Employer Pension Contributions
(Unaudited – See Accompanying Auditor's Report)
(Dollar Amounts in Thousands)

	Pension					
	2019	2018	2017	2016	2015	2014
Actuarially determined contribution	**$ 4,478,236**	$ 4,243,328	$ 3,824,908	$ 3,540,304	$ 3,289,615	$ 2,965,715
Contributions in relation to the actuarially determined contribution[(1) (2)]	**4,478,236**	4,243,328	3,824,908	3,181,438	2,582,114	1,992,084
Contribution deficiency	**$ -**	$ -	$ -	$ 358,866	$ 707,501	$ 973,631
Covered payroll	**$ 13,791,197**	$ 13,466,526	$ 13,313,900	$ 12,951,077	$ 12,866,473	$ 12,760,785
Contributions as a percentage of covered payroll	**32.47%**	31.51%	28.73%	24.57%	20.07%	15.61%

(1) Amounts for 2015-2019 exclude purchase of service contributions.

(2) Same as contractually required contributions.

Required Supplementary Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditor's report and notes to the required supplementary information.

Required Supplementary Information

Schedule 4
Schedule of Changes in the Employer Net OPEB (Premium Assistance) Liability
(Unaudited – See Accompanying Auditor's Report)
(Dollar Amounts in Thousands)

	2019	2018	2017
Total OPEB liability			
Service cost	**$ 40,201**	$ 37,809	$ 42,038
Interest	**65,319**	67,091	61,404
Differences between expected and actual experience	**1,435**	15,019	-
Changes of assumptions	**50,166**	38,456	(110,610)
Benefit payments	**(112,777)**	(111,847)	(110,229)
Net change in total OPEB liability	**44,344**	46,528	(117,397)
Total OPEB liability - beginning	**2,207,683**	2,161,155	2,278,552
Total OPEB liability - ending (a)	**$ 2,252,027**	$ 2,207,683	$ 2,161,155
Plan fiduciary net position			
Contributions - employer	**$ 114,829**	$ 111,986	$ 110,985
Net investment income	**2,313**	1,455	663
Benefit payments	**(112,777)**	(111,847)	(110,229)
Administrative expense	**(1,914)**	(2,603)	(2,239)
Net Change in plan fiduciary net position	**2,451**	(1,009)	(820)
Plan fiduciary net position - beginning	**122,734**	123,743	124,563
Plan fiduciary net position - ending (b)	**$ 125,185**	$ 122,734	$ 123,743
Employer net OPEB liability - ending (a) - (b)	**$ 2,126,842**	$ 2,084,949	$ 2,037,412

Required Supplementary Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditor's report and notes to the required supplementary information.

Required Supplementary Information

Schedule 5
Schedule of Employer Net OPEB (Premium Assistance) Liability
(Unaudited – See Accompanying Auditor's Report)
(Dollar Amounts in Thousands)

	2019	2018	2017	2016
Total OPEB liability	**$ 2,252,027**	$ 2,207,683	$ 2,161,155	$ 2,278,552
Less: Plan fiduciary net position	**125,185**	122,734	123,743	124,563
Employer net OPEB liability	**$ 2,126,842**	$ 2,084,949	$ 2,037,412	$ 2,153,989
Plan fiduciary net position as a percentage of the total OPEB liability	**5.56%**	5.56%	5.73%	5.47%
Covered payroll	**$ 13,791,197**	$ 13,466,526	$ 13,313,900	$ 12,951,077
Employer net OPEB liability as a percentage of covered payroll	**15.42%**	15.48%	15.30%	16.63%

Schedule 6
Schedule of Employer OPEB (Premium Assistance) Contributions
(Unaudited – See Accompanying Auditor's Report)
(Dollar Amounts in Thousands)

	OPEB			
	2019	2018	2017	2016
Actuarially determined contribution	**$ 139,484**	$ 134,607	$ 125,694	$ 129,494
Contributions in relation to the actuarially determined contribution[(1)(2)]	**114,571**	111,724	110,558	112,557
Contribution deficiency	**$ 24,913**	$ 22,883	$ 15,136	$ 16,937
Covered payroll	**$ 13,791,197**	$ 13,466,526	$ 13,313,900	$ 12,951,077
Contributions as a percentage of covered payroll	**0.83%**	0.83%	0.83%	0.87%

(1) Amounts exclude purchase of service contributions.

(2) Same as contractually required contributions.

Required Supplementary Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditor's report and notes to the required supplementary information.

Required Supplementary Information

Schedule 7
Schedule of Investment Returns - Pension and OPEB
(Unaudited – See Accompanying Auditor's Report)

	2019	2018	2017	2016	2015	2014
Annual money-weighted rate of return, net of investment expense- Pension	**6.58%**	9.30%	10.15%	1.11%	3.08%	14.98%
Annual money-weighted rate of return, net of investment expense- OPEB	**2.68%**	1.63%	0.90%	0.65%	0.30%	-

Required Supplementary Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditor's report and notes to the required supplementary information.

Notes to Required Supplementary Information for the Years Ended June 30, 2014 thru June 30, 2019

Pension

Changes in benefit terms
With the passage of Act 5 on June 12, 2017, class T-E & T-F members are now permitted to elect a lump sum payment of member contributions upon retirement.

Changes in assumptions used in measurement of the Total Pension Liability beginning June 30, 2017, beginning June 30, 2018 & beginning June 30, 2019
None.

Changes in assumptions used in measurement of the Total Pension Liability beginning June 30, 2016
The Investment Rate of Return was adjusted from 7.50% to 7.25%. The inflation assumption was decreased from 3.00% to 2.75%.

Salary growth changed from an effective average of 5.50%, which was comprised of inflation of 3.00%, real wage growth and for merit or seniority increases of 2.50%, to an effective average of 5.00%, comprised of inflation of 2.75% and 2.25% for real wage growth and for merit or seniority increases.

Mortality rates were modified from the RP-2000 Combined Healthy Annuitant Tables (male and female) with age set back 3 years for both males and females to the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale. For disabled annuitants the RP-2000 Combined Disabled Tables (male and female) with age set back 7 years for males and 3 years for females to the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale.

Method and assumptions used in calculations of actuarially determined contributions
The actuarially determined contributions are calculated as of the June 30 preceding the fiscal year in which contributions are made. That is, the contribution calculated as of the June 30, 2018 actuarial valuation will be made during the fiscal year ending June 30, 2020. The following actuarial methods and assumptions were used to determine contribution rates reported in that schedule:

- Investment return - 7.25%, includes inflation at 2.75% and the real rate of return 4.50%.
- Salary growth - Effective average of 5.00%, which reflects an allowance for inflation of 2.75%, real wage growth and merit or seniority of 2.25%.
- Benefit payments - no postretirement benefit increases assumed in the future.
- Mortality rates were based on the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale.

10-year reporting requirements
Required Supplementary Schedules 1-3 and 7, as related to pensions, are intended to show information for 10 years. Additional years will be displayed as they become available.

The Accounting Valuation
The GASB 67 accounting valuation can be found on PSERS' website at www.psers.pa.gov.

Notes to Required Supplementary Information for the Years Ended June 30, 2014 thru June 30, 2019

OPEB

Changes in benefit terms
None.

Changes in assumptions used in measurement of the Total OPEB Liability beginning June 30, 2019
The Discount Rate decreased from 2.98% to 2.79%.

Changes in assumptions used in measurement of the Total OPEB Liability beginning June 30, 2018
The Discount Rate decreased from 3.13% to 2.98%.

Changes in assumptions used in measurement of the Total OPEB Liability beginning June 30, 2017
The Discount Rate increased from 2.71% to 3.13%.

Changes in assumptions used in measurement of the Total OPEB Liability beginning June 30, 2016
Salary growth changed from an effective average of 5.50%, which was comprised of inflation of 3.00%, real wage growth and for merit or seniority increases of 2.50%, to an effective average of 5.00%, comprised of inflation of 2.75% and 2.25% for real wage growth and for merit or seniority increases.

Mortality rates were modified from the RP-2000 Combined Healthy Annuitant Tables (male and female) with age set back 3 years for both males and females to the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale. For disabled annuitants the RP-2000 Combined Disabled Tables (male and female) with age set back 7 years for males and 3 years for females to the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale.

Method and assumptions used in calculations of actuarially determined contributions
The actuarially determined contributions are calculated as of the June 30 preceding the fiscal year in which contributions are made. That is, the contribution calculated as of the June 30, 2018 actuarial valuation will be made during the fiscal year ending June 30, 2020. The following actuarial methods and assumptions were used to determine contribution rates reported in that schedule:

- Investment return - 2.79% - 20 year S&P Municipal Bond Rate.
- Salary growth - Effective average of 5.00%, which reflects an allowance for inflation of 2.75%, real wage growth and merit or seniority of 2.25%.
- Benefit payments - no postretirement benefit increases assumed in the future.
- Mortality rates were based on the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale.
- Assumed Healthcare cost trends were applied to retirees with less than $1,200 in premium assistance per year.

10-year reporting requirements
Required Supplementary Schedules 4-7, as related to OPEB, are intended to show information for 10 years. Additional years will be displayed as they become available.

The Accounting Valuation
The GASB 74 accounting valuation can be found on PSERS' website at www.psers.pa.gov.

Supplementary Schedule 1
Schedule of Administrative and Investment Expenses
Year Ended June 30, 2019
(Dollar Amounts in Thousands)

	Administrative Expenses				
	Pension	**Defined Contribution**	**Post-employment Healthcare (1)**	**Investment Expenses (2)**	**Total**
Personnel costs:					
Salaries and wages	$ 15,732	$ 492	$ 1,431	$ 7,944	**$ 25,599**
Employee benefits	11,403	276	1,269	4,497	**17,445**
Total personnel costs	27,135	768	2,700	12,441	**43,044**
Operating costs:					
Investment managers' fees	-	-	-	425,353	**425,353**
Custodian fees	-	-	-	2,518	**2,518**
Specialized services	139	-	849	886	**1,874**
Third party administrator	-	1,380	31,307	-	**32,687**
Fitness program administrator	-	-	8,477	-	**8,477**
Healthcare project management	-	-	3,571	-	**3,571**
Rental of real estate, electricity	1,957	-	167	245	**2,369**
Consultant and legal fees	1,484	370	280	4,351	**6,485**
Treasury and other Commonwealth services	1,729	-	-	194	**1,923**
Postage	884	-	-	-	**884**
Contracted maintenance and repair services	4,051	-	-	8	**4,059**
Printing and office supplies	265	-	-	5	**270**
Rental of equipment and software	5,293	646	-	-	**5,939**
Travel and training	217	5	5	49	**276**
Telecommunications	546	-	-	79	**625**
Equipment (non-capital assets)	882	-	-	110	**992**
Subscriptions	308	-	-	1,843	**2,151**
Miscellaneous expenses	557	1	-	358	**916**
Total operating costs	18,312	2,402	44,656	435,999	**501,369**
Other charges:					
Depreciation	2,675	-	-	-	**2,675**
Total Administrative and Investment Expenses Before Pension & OPEB Expense	48,122	3,170	47,356	448,440	**547,088**
Pension expense (3)	3,153	94	228	1,850	**5,325**
OPEB expense (4)	(2,344)	12	(155)	(466)	**(2,953)**
Total Administrative and Investment Expenses	$ 48,931	$ 3,276	$ 47,429	$ 449,824	**$ 549,460**

(1) Administrative expenses for Postemployment Healthcare includes $1,914 related to Premium Assistance and $45,515 related to Health Options Program for the fiscal year ended June 30, 2019.

(2) Includes investment expenses of $28 related to Postemployment Healthcare Premium Assistance and $28 related to Health Options Program for the fiscal year ended June 30, 2019 and does not include $4,184 in capitalized broker commissions for the fiscal year ended June 30, 2019.

(3) Total GASB 68 pension expense is $13.1 million and is reflected under Employee benefits and Pension expense. Employer contributions of $7.8 million are included as Employee benefits under Personnel costs and $5.3 million is reflected as Pension expense.

(4) Total GASB 75 OPEB expense is $(0.6) million and is reflected under Employee benefits and OPEB expense. Employer contributions of $2.4 million are included as Employee benefits under Personnel costs and $(3.0) million is reflected as OPEB expense.

Supplementary Schedule 2
Summary of Investment Expenses*
Year Ended June 30, 2019
(Dollar Amounts in Thousands)

	Investment Management			
	Base	**Performance**	**Other Expenses**	**Total**
External management:				
Domestic equity	$ 1,527	$ 1,561	$ -	**$ 3,088**
International equity	20,479	15,947	-	**36,426**
Fixed income	99,924	1,414	-	**101,338**
Real estate	47,659	-	-	**47,659**
Alternative investments	96,024	-	-	**96,024**
Absolute return	85,095	16,623	-	**101,718**
Commodities	7,312	-	-	**7,312**
Infrastructure	2,382	-	-	**2,382**
Master limited partnership	8,145	-	-	**8,145**
Risk parity	16,414	4,847	-	**21,261**
Total external management	384,961	40,392	-	**425,353**
Total internal management	-	-	17,602	**17,602**
Total investment management	384,961	40,392	17,602	**442,955**
Custodian fees	-	-	2,518	**2,518**
Consultant and legal fees	-	-	4,351	**4,351**
Total investment expenses	$ 384,961	$ 40,392	$ 24,471	**$ 449,824**

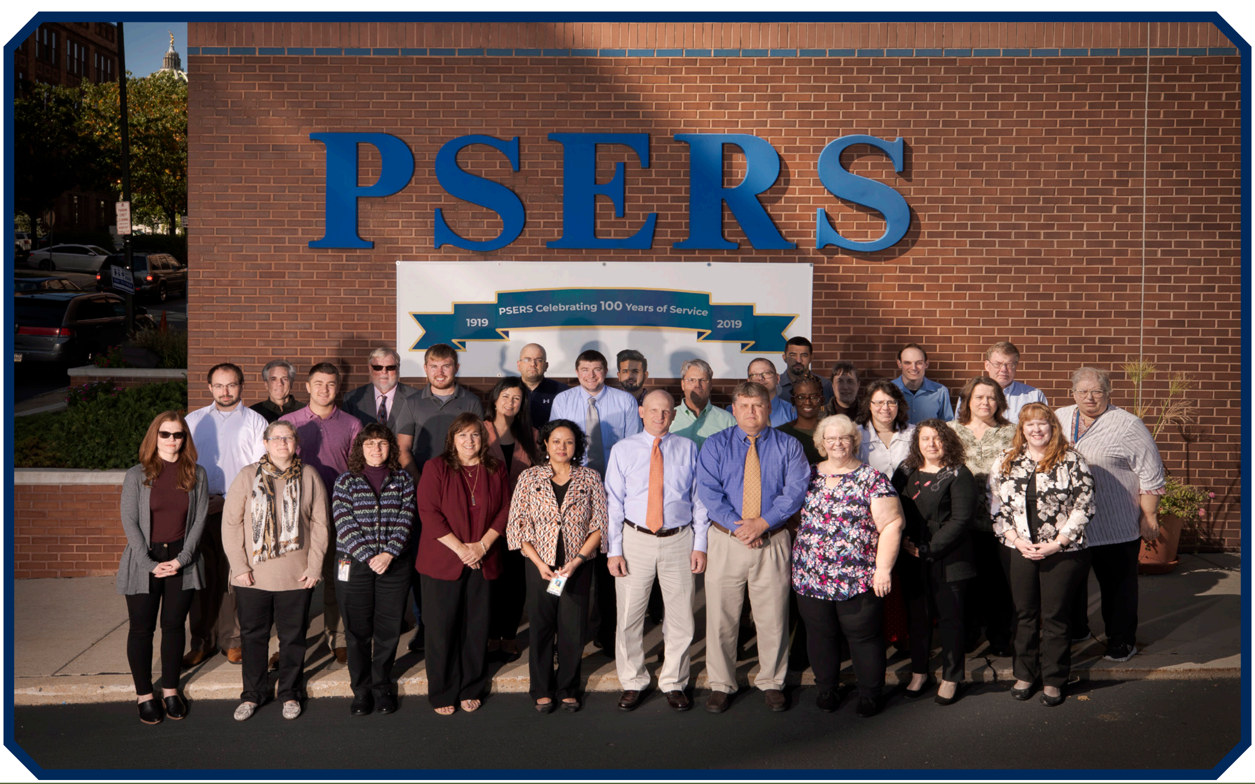
* External investment management fees classified on an asset allocation basis.

Supplementary Schedule 3
Schedule of Payments to Non-Investment Consultants
Year Ended June 30, 2019
(Dollar Amounts Greater than $100,000)

Consultant	Fees	Services Provided
Coresource, Inc.	$ 31,307,090	Postemployment healthcare benefits administration and claims adjudication
ViTech Systems Group, Inc.	6,290,000	Pension administration system services
Optum RX, Inc.	5,681,861	Administration of postemployment healthcare benefits and prescription drug plan
The Segal Company	3,571,134	Actuarial services and consulting for HOP and prescription drug plan
Voya Holdings, Inc.	1,380,000	Defined Contribution Plan investment services and benefits administration
BluePeak Advisors LLC	1,263,817	Pharmacy benefit consulting services
Tivity Health	838,823	Administration of the Silver Sneakers Fitness Program
OST, Inc.	489,423	Information technology, training, testing and consulting services
Buck Global LLC	225,758	Pension benefit actuarial services
Gartner, Inc.	161,400	Information technology consulting services
Charles W. Cammack Associates	133,332	Defined Contributions Plan consulting services
CliftonLarsonAllen LLP	112,450	Financial audit of pension system, defined contribution plan and postemployment healthcare programs

Past Staff Photo

Current Staff-Office of Financial Management



Current Staff-Bureau of Communications and Counseling

Current Staff-Bureau of Administration