Financial Section

PA State Dog: Great Dane

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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), a component unit of the Commonwealth of Pennsylvania, which comprise the Statements of Fiduciary Net Position as of June 30, 2021 and 2020, and the related Statements 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 audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audits 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, 2021 and 2020, 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.

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 (collectively, the supplementary information), as listed in the table of contents, for the year ended June 30, 2021 are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The 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, 2021 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, 2021.

The Introductory, Actuarial, Investment and Statistical sections, 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 29, 2021

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, 2021 (FY 2021) 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 a Defined Contribution (DC) plan and 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. 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, 2021 and 2020. 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, 2020 to June 30, 2021 and from July 1, 2019 to June 30, 2020. 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 24.58% for FY 2021, 1.12% for the fiscal year ended June 30, 2020 (FY 2020), and 6.66% for the fiscal year ended June 30, 2019 (FY 2019). The return for the ten-year period ended June 30, 2021 was 8.04%, which exceeded the 7.00% actuarial investment rate of return assumption. Unless otherwise noted, all rates of return are net of fees.

- PSERS' total net position increased by an all time high of $13.5 billion from $59.0 billion at June 30, 2020 to $72.5 billion at June 30, 2021. The increase at June 30, 2021 was due mostly to record net investment income plus member and employer contributions exceeding deductions for benefit and administrative expenses The change in total net position from June 30, 2019 to June 30, 2020 was a decrease of $0.1 billion from $59.1 billion at June 30, 2019 to $59.0 billion at June 30, 2020. The decrease at June 30, 2020, was due mostly to deductions for benefit and administrative expenses exceeding net investment income plus member and employer contributions.

- PSERS' Plan fiduciary net position as a percentage of the total pension liability (market value funded ratio) increased from 54.32% at June 30, 2020 to 63.67% at June 30, 2021 due to strong investment returns well above the actuarial investment return assumption. The FY 2021 increase in the market value funded ratio was significant and was one of the largest single year improvements in PSERS history.

- Total employer contributions increased from $4.8 billion in FY 2020 to $4.9 billion in FY 2021. This increase was primarily attributable to a increase in the total employer contribution rate from 34.29% in FY 2020 to 34.51% in FY 2021. The increase in the employer contribution rate was the smallest since FY 2010.

Management's Discussion and Analysis (continued)

- PSERS' employers fully funded the actuarially required contributions from FY 2016 to FY 2021 and these contributions are making a positive difference in PSERS' funding.

- PSERS' total benefit expense increased from $7.4 billion in FY 2020 to $7.6 billion in FY 2021. The average monthly pension benefit and the number of members receiving benefits increased in FY 2021.

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 preserved the benefits of existing members and included a series of actuarial and funding changes to PSERS and benefit reductions for individuals who became 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 using rate collars. 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 34.51% rate in FY 2021. 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 marked a significant milestone in PSERS' contribution history and established a path to full funding. PSERS received the actuarially required contributions from FY 2016 to FY 2021, and the large annual employer contribution rate increases that occurred from FY 2012 to FY 2018 are now complete. Employer contribution rate increases in the future are expected to be in line with inflation.

Analysis of Fiduciary Net Position

(Dollar Amounts in Thousands)

Summary of Fiduciary Net Position	**FY 2021**	Increase (Decrease)	FY 2020	Increase (Decrease)	FY 2019
Assets:					
Receivables	**$ 2,545,918**	$ (48,628)	$ 2,594,546	$ 22,808	$ 2,571,738
Investments	**72,160,784**	14,387,083	57,773,701	45,144	57,728,557
Securities lending collateral pool	**7,862,287**	3,371,050	4,491,237	(27,135)	4,518,372
Capital assets	**17,021**	(2,162)	19,183	(2,162)	21,345
Miscellaneous	**36,715**	13,719	22,996	(2,382)	25,378
Total Assets	**$ 82,622,725**	$ 17,721,062	$ 64,901,663	$ 36,273	$ 64,865,390
Liabilities:					
Payables and other liabilities	**2,227,619**	846,979	1,380,640	168,839	1,211,801
Obligations under securities lending	**7,862,287**	3,371,050	4,491,237	(27,135)	4,518,372
Total Liabilities	**$ 10,089,906**	$ 4,218,029	$ 5,871,877	$ 141,704	$ 5,730,173
Net Position	**$ 72,532,819**	$ 13,503,033	$ 59,029,786	$ (105,431)	$ 59,135,217
Summary of Changes in Fiduciary Net Position					
Additions:					
Contributions	**$ 5,990,637**	$ 113,431	$ 5,877,206	$ 210,814	$ 5,666,392
Commonwealth of Pennsylvania	**—**	—	—	(5,200)	5,200
Participant premiums and CMS	**470,757**	(1,374)	472,131	35,303	436,828
Net investment income	**14,764,412**	13,757,695	1,006,717	(2,628,233)	3,634,950
Total Additions	**$ 21,225,806**	$ 13,869,752	$ 7,356,054	$ (2,387,316)	$ 9,743,370
Deductions:					
Benefit expense	**7,631,376**	260,034	7,371,342	126,460	7,244,882
Administrative expenses	**91,397**	1,254	90,143	(1,855)	91,998
Total Deductions	**$ 7,722,773**	$ 261,288	$ 7,461,485	$ 124,605	$ 7,336,880
Changes in Net Position	**$ 13,503,033**	$ 13,608,464	$ (105,431)	$ (2,511,922)	$ 2,406,490

Management's Discussion and Analysis (continued)

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 six-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 58.1% at June 30, 2019 to 59.2% as of June 30, 2020, the most recent actuarial valuation, due to fully funded employer contributions, favorable demographic experience, and positive investment returns. The actuarial funded ratio improved to 59.2% as of June 30, 2020 after reaching a significant turning point at June 30, 2017 when it fell to 56.3%. After years of decline since the 123.8% peak at June 30, 2000, the funded ratio is now improving and is projected to continue to rise in the future.

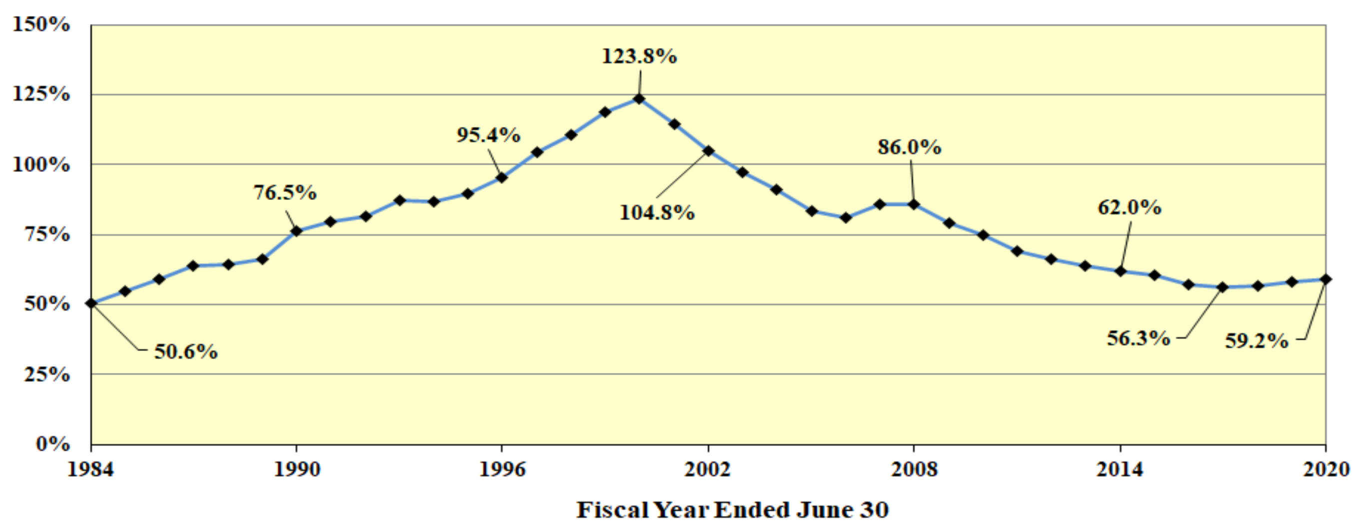
The results of operations for FY 2021 will be reflected in the actuarial valuation for the year ended June 30, 2021. Due to the normal lag time for completion of the actuarial valuation, the resulting funded status will be available at the end of the 2021 calendar year and will be reported in the financial statements for the fiscal year ending June 30, 2022 (FY 22). Based on the investment performance for the ten-year period ended June 30, 2021, which is above the investment rate of return assumption during that time period, due to receiving the full actuarially required contributions and due to PSERS Board adopting new actuarial assumptions for the June 30, 2021 actuarial valuation. The funded ratio at June 30, 2021 is expected to remain flat. 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 54.32% at June 30, 2020 to 63.67% at June 30, 2021 due to investment returns above the actuarial investment return assumption. Unlike the actuarial funded ratio which recognizes the investment performance over 10 years, the market value funded ratio is expected to fluctuate more every year due to the immediate recognition of the fund's fiscal year investment performance. Over the past five years, the longer term trend of the market value funded ratio increased from 50.14% at June 30, 2016 to 63.67% at June 30, 2021 due primarily to PSERS receiving the full actuarially required contributions for all five years and strong positive investment returns. All the ingredients remain in place and a path to full funding has been established.

PSERS' State Accumulation Account improved from $(16.9) billion at June 30, 2020 to $(7.4) billion at June 30, 2021 due to employer contributions at the actuarially required level and investment performance 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 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.

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



Management's Discussion and Analysis (continued)

Fiscal year 2021 will be remembered for the COVID-19 pandemic which dominated the headlines and affected everyone globally. With the advent of vaccines which received emergency approval, the economy transitioned from rolling lockdowns to being close to fully reopened in the U.S. Other headlines during the fiscal year included geo-political tensions between the U.S. and China, and a Brexit deal between the United Kingdom and European Union in the last few days before the New Year 2021 deadline. As a result of easing monetary policies, stimulative fiscal policies, and re-opening of global economies, global equities and global risk markets continued their upward march since the beginning of the fiscal year. With all of the liquidity injected into the markets, especially in the U.S., inflation significantly increased, with the U.S. Core Consumer Price Index (CPI) increasing to 4.5% year-over-year as of June 2021 from 1.2% one year ago. Housing inflation also picked up with the S&P CoreLogic Case-Shiller U.S. National Home Price Index showing home prices increased by 18.5% over the past 12 months ended June 30, 2021, the largest year-over-year increase since the index was created in 1990.

The U.S. economy had some very significant tail winds during the past fiscal year. First, the Federal Reserve continued to run very easy monetary conditions with very low interest rates and continued quantitative easing programs. The Federal Funds target rate range remained unchanged during the fiscal year at 0.00% - 0.25% with a commitment from the Federal Reserve to keep rates at rock bottom until at least 2022. In addition, the Federal Reserve continued to pump liquidity into the economy through its Treasury and MBS Asset Purchase program, injecting $120 billion a month through asset purchases. Second, the federal government approved a $1.9 trillion COVID-19 support package and is considering other fiscal programs, including an infrastructure bill. Finally, as COVID-19 cases moderated and with the deployment of a vaccine, the economy started to re-open and economic activity picked up significantly from being essentially shut down at the onset of the pandemic.

The U.S. economy strongly expanded during the fiscal year as measured by U.S. real Gross Domestic Product (GDP) and the manufacturing Institute of Supply Management (ISM) Purchasing Managers Index (PMI). The U.S. real GDP increased by 12.2% over the course of the past year, and the ISM PMI remained in expansionary territory from 52.6 at June 30, 2020 to a high of 64.7 on March 30, 2021 before falling back to a still strong 60.6 on June 30, 2021. With the economy re-opening, the official unemployment rate fell during the fiscal year from 11.1% at June 30, 2020 to 5.9% at June 30, 2021.

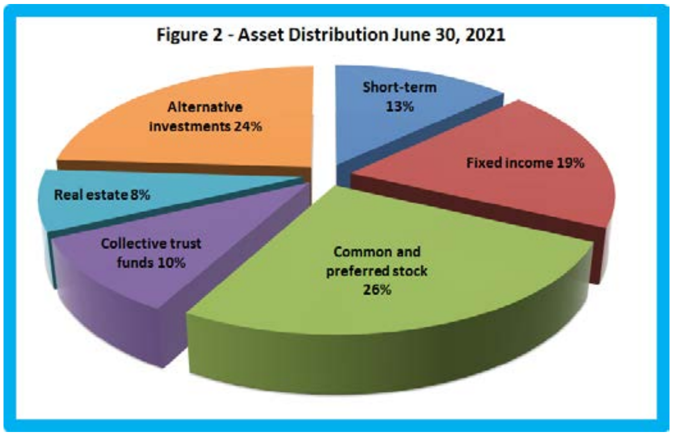
The Euro Area benefited from similar but weaker tail winds as the U.S. during the past fiscal year. Europe's economy did not open as quickly due to stricter lock downs and a slower pace of COVID-19 vaccination rollout. The European Central Bank increased its asset purchase program from €500 billion to €1.85 trillion to support the market and stimulate growth. On the fiscal side, the European Union approved a €2.2 trillion budget and stimulus package which included a €750 billion pandemic relief package to be funded by joint debt. As of the second quarter 2021, the Euro Area had strong year-over-year growth of 13.7%, driven by a re-opening of the economy from COVID-19 restrictions, stimulative monetary policy, and strong fiscal support. The unemployment rate remained stable at 7.7%, the same as a year earlier due to companies receiving financial incentives to maintain employee payroll during the pandemic. Eurozone inflation trends remained stable during the past fiscal year, with Eurozone Core Inflation modestly increasing from 0.8% on an annualized basis in June 2020 to 0.9% in June 2021, continuing well below the European Central Bank (ECB) target of 2.0%. The Euro Area economy expanded this past fiscal year as evidenced by the Markit Eurozone Manufacturing PMI measurement of 63.4 in June 2021 and remained above the expansionary 50 level the entire fiscal year. The ECB continued its policy of very accommodative overnight interest rates.

Japan, and Asia in general, did not suffer from a health perspective as much as the western economies from COVID-19. As of the second quarter 2021, Japan's real GDP increased by 1.9% versus -10.1% as of June 2020. 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 as their aggressive actions fighting the COVID-19 virus allowed them to economically recover more quickly. China had strong real GDP growth of 7.9% over the past year, significantly faster than the 3.2% pace for the year ended June 2020.

For FY 2021, PSERS' time-weighted rate of return on investments was 24.58% which was above PSERS' total fund Policy Index of 20.58% 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 $14.8 billion in FY 2021 increased from a net investment income of $1.0 billion in FY 2020, as the FY 2021 return of 24.58% was substantially above the FY 2020 return of 1.12%. FY 2021 investment returns exceeded PSERS 7.00% long term actuarial return assumption. FY 2020 investment returns trailed PSERS 7.25% long term actuarial return assumption.

Management's Discussion and Analysis (continued)



The time-weighted annualized rate of return over the past three- and five-year periods ended June 30, 2021 was 10.35% and 10.10%, respectively. The time-weighted return for the three-year period and five-year period exceeded the total fund Policy Index return by 25 basis points and 71 basis points, respectively. The annualized time-weighted rates of return for the ten- and twenty five-year periods ended June 30, 2021 were 8.04% and 7.70%, respectively.

The asset distribution of PSERS' investment portfolio at June 30, 2021, 2020, and 2019, at fair value, including defined contribution and postemployment healthcare assets, is presented in Figure 2 and Table 1.

FY 2021

- ***Short-term investments*** (cash and cash equivalents) increased by \$3.3 billion from \$6.2 billion at June 30, 2020 to \$9.5 billion June 30, 2021 mainly due to a reallocation of exposure from other asset classes.
- ***Fixed income investments*** increased by \$1.6 billion from \$11.7 billion at June 30, 2020 to \$13.3 billion at June 30, 2021 mainly due to a reallocation of exposure from other asset classes and positive investment performance.
- ***Common and preferred stock investments*** increased by \$7.4 billion from \$11.0 billion at June 30, 2020 to \$18.4 billion at June 30, 2021. Due to a reallocation of exposure from other asset classes and strong investment performance, PSERS common and preferred stock investments significantly increased during FY 2021.
- ***Collective trust funds*** decreased by \$2.5 billion from \$9.9 billion at June 30, 2020 to \$7.4 billion at June 30, 2021 due to the elimination of the risk parity allocation program which was partially offset by positive investment performance.
- ***Real estate investments*** increased by \$0.5 billion from \$5.5 billion at June 30, 2020 to \$6.0 billion at June 30, 2021 due to contributions to new and existing partnerships combined with valuation increases in partnership portfolio holdings which exceeded significant distributions.
- ***Alternative investments*** increased by \$4.2 billion from \$13.4 billion at June 30, 2020 to \$17.6 billion at June 30, 2021 due to contributions to new and existing partnerships combined with valuation increases in partnership portfolio holdings which exceeded significant distributions.

FY 2020

- ***Short-term investments*** (cash and cash equivalents) increased from \$6.0 billion at June 30, 2019 to \$6.2 billion at June 30, 2020 mainly due to a reclassification of assets.
- ***Fixed income investments*** increased by \$3.0 billion from \$8.7 billion at June 30, 2019 to \$11.7 billion at June 30, 2020. Due to a reallocation of exposure from other asset classes, PSERS significantly increased its fixed income investments during FY 2020.
- ***Common and preferred stock investments*** increased by \$1.2 billion from \$9.8 billion at June 30, 2019 to \$11.0 billion at June 30, 2020. Due to a reallocation of exposure from other asset classes, PSERS increased its common and preferred stock investments during FY 2020.
- ***Collective trust funds*** decreased by \$4.4 billion from \$14.3 billion at June 30, 2019 to \$9.9 billion at June 30, classes.

Table 1 - Investment Balances by Asset Class

(Dollar Amount in Thousands)

Asset Class	2021	%	2020	%	2019	%
Short-term	**$ 9,479,700**	**13.1**	$ 6,239,539	10.8	$ 6,027,740	10.4
Fixed income	**13,253,332**	**18.4**	11,719,860	20.3	8,652,870	15.0
Common and preferred stock	**18,437,873**	**25.6**	11,024,133	19.1	9,813,146	17.0
Collective trust funds	**7,377,281**	**10.2**	9,863,496	17.0	14,305,045	24.8
Real estate	**5,986,463**	**8.3**	5,478,122	9.5	5,484,621	9.5
Alternative investments	**17,626,135**	**24.4**	13,448,551	23.3	13,445,135	23.3
Total	**$ 72,160,784**	**100.0**	$ 57,773,701	100.0	$ 57,728,557	100.0

Management's Discussion and Analysis (continued)

2020 mainly due to a reallocation of exposure to other asset classes.

- ◦ ***Real estate investments*** remained consistent at $5.5 billion at June 30, 2019 and June 30, 2020 .
- ◦ ***Alternative investments*** remained consistent at $13.4 billion at June 30, 2019 and June 30, 2020.

Securities Lending

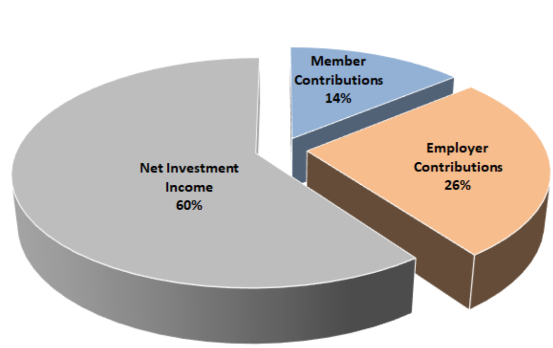
The System's net income from securities lending activities increased from $15.3 million in FY 2020 to $19.8 million in FY 2021. Lending income and expense both decreased significantly as the economy in general moved from a moderate to a lower interest rate environment. The spread increased from FY 2020 to FY 2021 as gross earnings on the borrowers' collateral outpaced the amounts rebated to the borrowers.

Contributions

Employer contributions increased from $4.8 billion in FY 2020 to $4.9 billion in FY 2021 due to a slight increase in the total employer contribution rate from 34.29% in FY 2020 to 34.51% in FY 2021 and growth in employer payroll. Total employer contributions increased from $4.6 billion in FY 2019 to $4.8 billion in FY 2020. This increase was primarily attributable to an increase in the total employer contribution rate from 33.43% in FY 2019 to 34.29% in FY 2020.

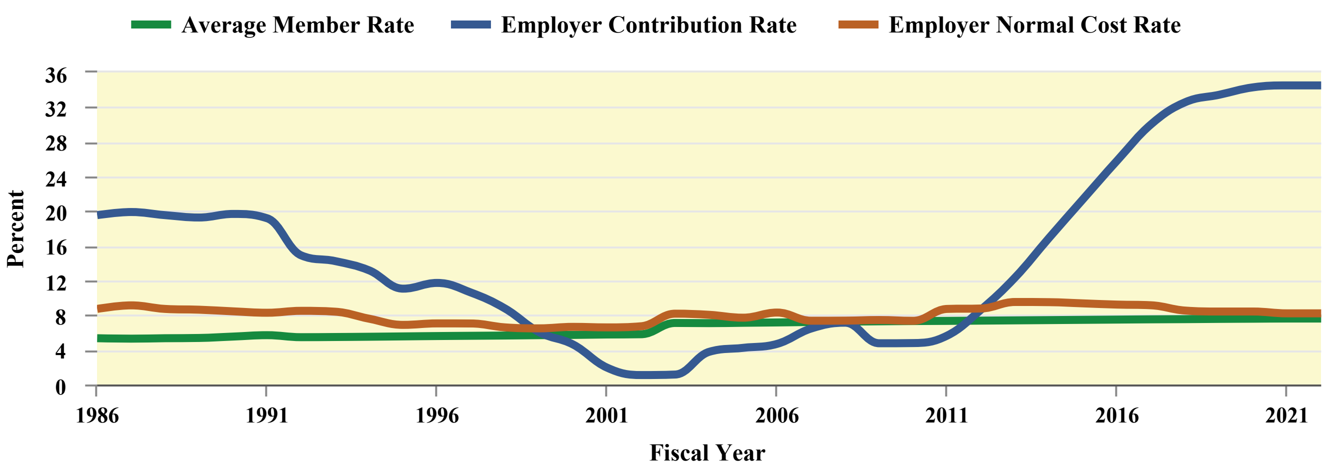
Total member contributions slightly increased from $1.08 billion in FY 2020 to $1.10 billion in FY 2021 and increased from $1.06 billion in FY 2019 to $1.08 billion in FY 2020. The increase in both years was mainly due to an increase in member contributions from active member payroll.

Figure 3 - PSERS' Sources of Funding
Twenty Five-Year History (1997-2021)



As a result of an increase in member purchase of service contributions, active member payroll, and the average member contribution rate from 7.59% in FY 2020 to 7.61% in FY 2021, member contribution receivables increased from $356.4 million at June 30, 2020 to $368.8 million at June 30, 2021. As a result of an increase in member purchase of service contributions, member contribution receivables increased from $352.4 million at June 30, 2019 to $356.4 million at June 30, 2020. The employer contribution receivables remained consistent at $1.4 billion at June 30, 2020 and June 30, 2021. See Figure 4 for a thirty five-year history of PSERS contribution rates.

Figure 4 -Thirty Five-Year History of PSERS' Contribution Rates as a Percent of Payroll*



* Includes Premium Assistance & DC

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 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 2021 was $2.7 billion and for FY 2020 was $2.6 billion. The school and non-school entity share was $2.2 billion in FY 2020 and FY 2021. For FY 2021 total employer contributions were $4.9 billion and for FY 2020 were $4.8 billion.

Investment Income

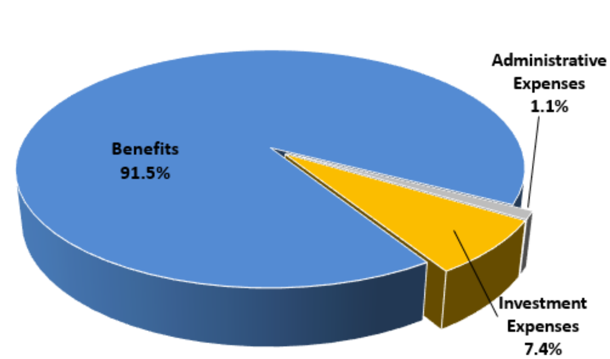
Net investment income increased from $1.0 billion in FY 2020 to $14.8 billion in FY 2021, which is consistent with the increase in the time-weighted investment rate of return from 1.12% for FY 2020 to 24.58% for FY 2021. Net investment income decreased from $3.6 billion in FY 2019 to $1.0 billion in FY 2020, which is consistent with the decrease in the time-weighted investment rate of return from 6.66% for FY 2019 to 1.12% for FY 2020. As depicted in Figure 3, investment earnings provided 60% of PSERS' funding over the past 25 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.

Total PSERS' Benefits and Expenses

The primary source of expense during FY 2021 was for the payment of pension and healthcare benefits approximating $7.6 billion. The breakdown consisted of $7.1 billion for Pension, $1.0 million for Defined Contribution, $113.5 million for Premium Assistance, and $382.5 million for HOP benefits. Figure 5 illustrates the significant portion of expenses attributable to benefit payments.

Total PSERS' benefit expense increased from $7.4 billion in FY 2020 to $7.6 billion in FY 2021. The increase is attributable to an ongoing increase to the average monthly benefit and an increase in pension lump sum rollover payments. Pension benefits payable decreased from $590.8 million at June 30, 2020 to $576.3 million at June 30, 2021. This decrease was mainly attributable to a decrease in pension payments payable. Total PSERS' benefit expense slightly increased from $7.2 billion in FY 2019 to $7.4 billion in FY 2020. 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 $585.0 million at June 30, 2019 compared to $590.8 million at June 30, 2020. The increase is attributable to an increase in pension and death payments payable.

Figure 5 - Total PSERS' Benefits and Expenses
Fiscal Year Ended June 30, 2021



Investment expenses increased by $102.8 million from $515.3 million in FY 2020 to $618.1 million in FY 2021 mainly due to an increase in management fees in collective trust funds of $106 million. The increase in collective trust fund fees is mainly attributable to higher performance fees earned in FY 2021. As a percentage of total benefits and expenses, investment expense increased from 6.5% in FY 2020 to 7.4% in FY 2021.

Management's Discussion and Analysis (continued)

As a percentage of total benefits and expenses, investment expense has decreased from a high of 8.2% in FY 2013 to 7.4% in FY 2021. During this same period net assets increased $23.8 billion from $48.7 billion at June 30, 2012 to $72.5 billion at June 30, 2021.

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 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 $1.3 million from $90.1 million during FY 2020 to $91.4 million during FY 2021. This increase was mainly attributable to an increase in consultant and legal fees. As depicted in Figure 5, administrative expenses represent only 1.1% of total benefits and expenses.

Defined Contribution Plan (DC)

PSERS administers a defined contribution plan. The following paragraphs and summary financial data provide supplementary information to the financial statements which contain the financial position and activities for the defined contribution plan.

Financial Highlights

- Total net position increased by $40.9 million from June 30, 2020 to June 30, 2021. This increase is primarily due to member and employer contributions and investments (additions) exceeding the benefits and administrative expenses (deductions).
- Investments increased from $21.6 million at June 30, 2020 to $62.6 million at June 30, 2021 as the defined contribution plan is relatively new and investments continue to grow at a rapid pace.

Contributions

Total contributions increased from $14.9 million to $34.2 million for the fiscal years ended June 30, 2020 and 2021, respectively. This is due to a significant increase in the number of participants from 16,900 to 29,300 for the fiscal years ended June 30, 2020 and 2021, respectively.

Investment Income

Investment income increased from $655 thousand to $9.3 million for the fiscal years ended June 30, 2020 and 2021, respectively. This is due to the increase in the asset base which results in an increase in investment income.

Benefits and Expenses

Overall deductions decreased from $3.2 million to $2.6 million for the fiscal years ended June 30, 2020 and 2021. The overall decrease is due to a decrease in administrative expenses offset by a significant increase in refunds disbursed in FY 2021. The decrease in administrative expenses is primarily due to less start-up costs as incurred in FY 2020 and a decrease in personnel cost in FY 2021.

Management's Discussion and Analysis (continued)

Defined Contribution Plan

Summary of Fiduciary Net Position (Dollar Amounts in Thousands)

Assets:	**FY 2021**	Increase (Decrease)	FY 2020	Increase (Decrease)	FY 2019
Receivables	**$ 669**	$ 208	$ 461	$ 442	$ 19
Investments	**62,645**	41,080	21,565	11,089	10,476
Total Assets	**63,314**	41,288	22,026	11,531	10,495
Liabilities:					
Payables and other liabilities	**1,038**	373	665	(874)	1,539
Total Liabilities	**1,038**	373	665	(874)	1,539
Net Position	**$ 62,276**	$ 40,915	$ 21,361	$ 12,405	$ 8,956

Summary of Changes in Fiduciary Net Position (Dollar Amounts in Thousands)

Additions:	**FY 2021**	Increase (Decrease)	FY 2020	Increase (Decrease)	FY 2019
Contributions	**$ 34,228**	$ 19,299	$ 14,929	$ 14,929	$ —
Commonwealth of Pennsylvania	**—**	—	—	(5,200)	5,200
Net investment income	**9,314**	8,659	655	382	273
Total Additions	**43,542**	27,958	15,584	10,111	5,473
Deductions:					
Benefit expenses	**1,040**	1,028	12	12	—
Administrative expenses	**1,587**	(1,580)	3,167	(109)	3,276
Total Deductions	**2,627**	(552)	3,179	(97)	3,276
Changes in Net Position	**$ 40,915**	$ 28,510	$ 12,405	$ 10,208	$ 2,197

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 $2.1 million in FY 2021 mainly due to net investment income and employer contributions exceeding benefit expense deductions while administrative expenses remained steady. The total net position continues to be sufficient to fund one full year of benefits. The change from June 30, 2019 to June 30, 2020 was an increase of $5.2 million mainly due to net investment income and employer contributions exceeding benefit expense deductions and from a net decrease in administrative expenses. The contribution rate for FY 2021 was 0.82%, a reduction of 0.02% from the contribution rate of 0.84% for FY 2020.
- Investments, net of investment purchases payable, increased to $99.0 million at June 30, 2021 from $93.6 million at June 30, 2020 as Premium Assistance income exceeded expenses, producing more funds for investment.

Contributions

Total employer contributions for Premium Assistance decreased from $117.9 million in FY 2020 to $116.5 million in FY 2021 due to a 2.4% decline in contribution rate change from 0.84% to 0.82% offset by a 1.2% growth in employer payroll.

Investment Income

Total investment income for Premium Assistance decreased from $1.8 million for FY 2020 to $0.3 million for FY 2021 due to lower short-term interest rates.

Benefits and Expenses

Overall deductions for Premium Assistance increased slightly from $114.4 million in FY 2020 to $114.7 million in FY 2021. Administrative costs remained steady while there was a slight 0.23% increase in benefit cost due to the increase in the number of participants receiving benefits.

Health Options Program (HOP)

Financial Highlights

- Total net position increased by $49.5 million in FY 2021 primarily due to total additions exceeding benefits and administrative expenses. The change from June 30, 2020 to June 30, 2021 was a decrease of $4.6 million due to a decrease in total additions and an increase in total benefits and administrative expenses.
- Total receivables decreased slightly from $76.9 million at June 30, 2020 to $76.1 million at June 30, 2021. This is due to a reduction in CMS reinsurance receivables offset by an increase in prescription drug rebates.
- Investments increased from $317.8 million at June 30, 2020 to $365.7 million at June 30, 2021 as HOP income exceeded expenses, producing more funds for investment.
- Total liabilities decreased 3.8% from $74.1 million at June 30, 2020 to $71.3 million at June 30, 2021. The decrease is due to timing of payments for prescription drug claims partially offset by an increase in medical claims payable.

Participant and CMS Premiums

Total Participant and CMS premiums for HOP decreased slightly from $472.1 million for FY 2020 to $470.8 million for FY 2021 from lower CMS reinsurance due to increased prescription drug rebates.

Investment Income

HOP Investment income decreased from $2.5 million for FY 2020 to $0.2 million for FY 2021 due to lower short-term interest rates.

Benefits and Expenses

HOP total deductions increased slightly 0.23% from $420.6 million in FY 2020 to $421.5 million in FY 2021. This is due to an increase in post lockdown medical claims along with dental and vision premium expense offset by an increase in prescription drug rebates. Administrative expenses remained steady.

Management's Discussion and Analysis (continued)

Premium Assistance

Summary of Fiduciary Net Position

(Dollar Amounts in Thousands)

Assets:	FY 2021	Increase (Decrease)	FY 2020	Increase (Decrease)	FY 2019
Receivables	**$ 35,161**	$ (1,778)	$ 36,939	$ 1,125	$ 35,814
Investments	**106,181**	12,565	93,616	(9)	93,625
Miscellaneous	**400**	98	302	(5)	307
Total Assets	**141,742**	10,885	130,857	1,111	129,746
Liabilities:					
Payables and other liabilities	**9,227**	8,787	440	(4,121)	4,561
Total Liabilities	**9,227**	8,787	440	(4,121)	4,561
Net Position	**$ 132,515**	$ 2,098	$ 130,417	$ 5,232	$ 125,185

Summary of Changes in Fiduciary Net Position

(Dollar Amounts in Thousands)

Additions:	FY 2021	Increase (Decrease)	FY 2020	Increase (Decrease)	FY 2019
Contributions	**$ 116,519**	$ (1,388)	$ 117,907	$ 3,078	$ 114,829
Net investment income	**260**	(1,492)	1,752	(561)	2,313
Total Additions	**116,779**	(2,880)	119,659	2,517	117,142
Deductions:					
Benefit expenses	**113,538**	259	113,279	502	112,777
Administrative expenses	**1,143**	(5)	1,148	(766)	1,914
Total Deductions	**114,681**	254	114,427	(264)	114,691
Changes in Net Position	**$ 2,098**	$ (3,134)	$ 5,232	$ 2,781	$ 2,451

Health Options Program

Summary of Fiduciary Net Position

(Dollar Amounts in Thousands)

Assets:	FY 2021	Increase (Decrease)	FY 2020	Increase (Decrease)	FY 2019
Receivables	**$ 76,118**	$ (828)	$ 76,946	$ 22,434	$ 54,512
Investments	**365,725**	47,899	317,826	31,749	286,077
Miscellaneous	**96**	(418)	514	466	48
Total Assets	**441,939**	46,653	395,286	54,649	340,637
Liabilities:					
Payables and other liabilities	**71,263**	(2,802)	74,064	619	73,445
Total Liabilities	**71,263**	(2,802)	74,064	619	73,445
Net Position	**$ 370,676**	$ 49,454	$ 321,222	$ 54,030	$ 267,192

Summary of Changes in Fiduciary Net Position

(Dollar Amounts in Thousands)

Additions:	FY 2021	Increase (Decrease)	FY 2020	Increase (Decrease)	FY 2019
Participant and CMS premiums	**$ 470,757**	$ (1,374)	$ 472,131	$ 35,303	$ 436,828
Net investment income	**214**	(2,250)	2,464	(1,190)	3,654
Total Additions	**470,971**	(3,624)	474,595	34,113	440,482
Deductions:					
Benefit expenses	**382,466**	7,074	381,536	4,459	370,933
Administrative expenses	**39,051**	(6,122)	39,029	7,296	37,877
Total Deductions	**421,517**	952	420,565	11,755	408,810
Changes in Net Position	**$ 49,454**	$ (4,576)	$ 54,030	$ 22,358	$ 31,672

Statements of Fiduciary Net Position
June 30, 2021 and 2020
(Dollar Amounts in Thousands)

	2021				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Assets:					
Receivables:					
Members	$ 366,165	$ 382	$ 2,013	$ 195	$ 368,755
Employers	1,331,419	284	33,111	—	1,364,814
Investment income	459,975	1	37	19	460,032
Investment proceeds	274,186	2	—	—	274,188
CMS Part D and prescriptions	—	—	—	75,904	75,904
Interfund receivable	2,225	—	—	—	2,225
Total Receivables	2,433,970	669	35,161	76,118	2,545,918
Investments, at fair value:					
Short-term	9,000,456	7,338	106,181	365,725	9,479,700
Fixed income	13,253,332	—	—	—	13,253,332
Common and preferred stock	18,437,873	—	—	—	18,437,873
Collective trust funds	7,321,974	55,307	—	—	7,377,281
Real estate	5,986,463	—	—	—	5,986,463
Alternative investments	17,626,135	—	—	—	17,626,135
Total Investments	71,626,233	62,645	106,181	365,725	72,160,784
Securities lending collateral pool	7,862,287	—	—	—	7,862,287
Capital assets (net of accumulated depreciation $40,076)	17,021	—	—	—	17,021
Miscellaneous	36,219	—	400	96	36,715
Total Assets	81,975,730	63,314	141,742	441,939	82,622,725
Liabilities:					
Accounts payable and accrued expenses	188,188	75	339	5,884	194,486
Benefits payable	576,347	—	52	31,275	607,674
HOP participant premium advances	—	—	—	34,068	34,068
Investment purchases and other payables	1,214,614	418	7,192	—	1,222,224
Obligations under securities lending	7,862,287	—	—	—	7,862,287
Interfund payable	—	545	1,644	36	2,225
Other liabilities	166,942	—	—	—	166,942
Total Liabilities	10,008,378	1,038	9,227	71,263	10,089,906
Net position restricted for pension, DC and postemployment healthcare benefits	$ 71,967,352	$ 62,276	$ 132,515	$ 370,676	$ 72,532,819

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

Statements of Fiduciary Net Position
June 30, 2021 and 2020
(Dollar Amounts in Thousands)

	2020				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Assets:					
Receivables:					
Members	$ 353,859	$ 254	$ 2,159	$ 92	$ 356,364
Employers	1,351,731	204	34,030	—	1,385,965
Investment income	479,075	3	59	47	479,184
Investment proceeds	295,153	—	—	—	295,153
CMS Part D and prescriptions	—	—	—	76,807	76,807
Interfund receivable	382	—	691	—	1,073
Total Receivables	2,480,200	461	36,939	76,946	2,594,546
Investments, at fair value:					
Short-term	5,821,164	6,933	93,616	317,826	6,239,539
Fixed income	11,719,860	—	—	—	11,719,860
Common and preferred stock	11,024,133	—	—	—	11,024,133
Collective trust funds	9,848,864	14,632	—	—	9,863,496
Real estate	5,478,122	—	—	—	5,478,122
Alternative investments	13,448,551	—	—	—	13,448,551
Total Investments	57,340,694	21,565	93,616	317,826	57,773,701
Securities lending collateral pool	4,491,237	—	—	—	4,491,237
Capital assets (net of accumulated depreciation $34,515)	19,183	—	—	—	19,183
Miscellaneous	22,180	—	302	514	22,996
Total Assets	64,353,494	22,026	130,857	395,286	64,901,663
Liabilities:					
Accounts payable and accrued expenses	118,133	124	389	2,781	121,427
Benefits payable	590,838	—	51	38,334	629,223
HOP participant premium advances	—	—	—	32,913	32,913
Investment purchases and other payables	440,563	195	—	—	440,758
Obligations under securities lending	4,491,237	—	—	—	4,491,237
Interfund payable	691	346	—	36	1,073
Other liabilities	155,246	—	—	—	155,246
Total Liabilities	5,796,708	665	440	74,064	5,871,877
Net position restricted for pension, DC and postemployment healthcare benefits	$ 58,556,786	$ 21,361	$ 130,417	$ 321,222	$ 59,029,786

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

Statements of Changes in Fiduciary Net Position
Years Ended June 30, 2021 and 2020
(Dollar Amounts in Thousands)

	2021				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Additions:					
Contributions:					
Members	$ 1,080,701	$ 19,282	$ —	$ —	$ 1,099,983
Employers	4,759,189	14,946	116,519	—	4,890,654
Total contributions	5,839,890	34,228	116,519	—	5,990,637
HOP Participant premiums	—	—	—	402,945	402,945
Centers for Medicare & Medicaid Services premiums	—	—	—	67,812	67,812
Investment income:					
From investing activities:					
Net appreciation (depreciation) in fair value of investments	13,940,110	9,394	(417)	—	13,949,087
Short-term	11,710	17	714	250	12,691
Fixed income	294,417	—	—	—	294,417
Common and preferred stock	272,651	—	—	—	272,651
Collective trust funds	913	—	—	—	913
Real estate	267,489	—	—	—	267,489
Alternative investments	565,392	—	—	—	565,392
Total investment activity income	15,352,682	9,411	297	250	15,362,640
Investment expenses	(617,882)	(97)	(37)	(36)	(618,052)
Net income from investing activities	14,734,800	9,314	260	214	14,744,588
From securities lending activities:					
Securities lending income	27,450	—	—	—	27,450
Securities lending expense	(7,626)	—	—	—	(7,626)
Net income from securities lending activities	19,824	—	—	—	19,824
Total net investment income	14,754,624	9,314	260	214	14,764,412
Total Additions	20,594,514	43,542	116,779	470,971	21,225,806
Deductions:					
Benefits	7,107,407	—	113,538	382,466	7,603,411
Refunds of contributions	26,925	1,040	—	—	27,965
Administrative expenses	49,616	1,587	1,143	39,051	91,397
Total Deductions	7,183,948	2,627	114,681	421,517	7,722,773
Net increase (decrease)	13,410,566	40,915	2,098	49,454	13,503,033
Net position restricted for pension, DC and postemployment healthcare benefits:					
Balance, beginning of year	58,556,786	21,361	130,417	321,222	59,029,786
Balance, end of year	$ 71,967,352	$ 62,276	$ 132,515	$ 370,676	$ 72,532,819

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

Statements of Changes in Fiduciary Net Position
Years Ended June 30, 2021 and 2020
(Dollar Amounts in Thousands)

	2020				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Additions:					
Contributions:					
Members	$ 1,067,957	$ 8,343	$ —	$ —	$ 1,076,300
Employers	4,676,413	6,586	117,907	—	4,800,906
Total contributions	5,744,370	14,929	117,907	—	5,877,206
HOP Participant premiums	—	—	—	390,883	390,883
Centers for Medicare & Medicaid Services premiums	—	—	—	81,248	81,248
Investment income:					
From investing activities:					
Net appreciation in fair value of investments	261,316	541	7	—	261,864
Short-term	97,919	144	1,781	2,500	102,344
Fixed income	268,787	—	—	—	268,787
Common and preferred stock	277,635	—	—	—	277,635
Collective trust funds	4,633	—	—	—	4,633
Real estate	219,762	—	—	—	219,762
Alternative investments	371,652	—	—	—	371,652
Total investment activity income	1,501,704	685	1,788	2,500	1,506,677
Investment expenses	(515,160)	(30)	(36)	(36)	(515,262)
Net income from investing activities	986,544	655	1,752	2,464	991,415
From securities lending activities:					
Securities lending income	83,746	—	—	—	83,746
Securities lending expense	(68,444)	—	—	—	(68,444)
Net income from securities lending activities	15,302	—	—	—	15,302
Total net investment income	1,001,846	655	1,752	2,464	1,006,717
Total Additions	6,746,216	15,584	119,659	474,595	7,356,054
Deductions:					
Benefits	6,849,052	—	113,279	381,536	7,343,867
Refunds of contributions	27,463	12	—	—	27,475
Administrative expenses	46,799	3,167	1,148	39,029	90,143
Total Deductions	6,923,314	3,179	114,427	420,565	7,461,485
Net increase (decrease)	(177,098)	12,405	5,232	54,030	(105,431)
Net position restricted for pension, DC and postemployment healthcare benefits:					
Balance, beginning of year	58,733,884	8,956	125,185	267,192	59,135,217
Balance, end of year	$ 58,556,786	$ 21,361	$ 130,417	$ 321,222	$ 59,029,786

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

Notes to Financial Statements
Years Ended June 30, 2021 and 2020

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, 2021, there were 769 participating employers, generally school districts. Membership at June 30, 2020, 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, 2021

Active members:	
Vested	150,586
Nonvested	97,505
Total active members	**248,091**
Inactive members:	
Retirees and beneficiaries currently receiving benefits	242,839
Inactive members and vestees entitled to but not receiving benefits	26,892
Total retirees and other members	**269,731**
Total number of members	**517,822**

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 Annual Comprehensive Financial Report of the Commonwealth of Pennsylvania.

(B) Pension Plan

i. Pension Benefits

(a) Traditional Defined Benefit (DB) Plan

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 $230,000 for 2021 and 2020.

(b) Hybrid DB/DC Benefit

Act 5 of 2017 (Act 5) introduced a hybrid benefit with two membership classes and a separate defined contribution plan for individuals who become new members on or after July 1, 2019. Act 5 created two new hybrid membership classes, Membership Class T-G (Class T-G) and Membership Class T-H (Class T-H) and the separate defined contribution membership class, Membership Class DC (Class DC). To qualify for normal retirement, Class T-G and Class T-H members must work until age 67 with a minimum of 3 years of credited service. Class T-G may also qualify for normal retirement by attaining a total combination of age and service that is equal to or greater than 97 with a minimum of 35 years of credited service.

Notes to Financial Statements (continued)

The normal retirement age, vesting period and final average salary for virtually all members are presented below:

Membership Class	Normal Retirement Age	Pension multiplier	Vesting	Final Average Salary
T-C	Age 62, or Age 60 with 30 years of service, or 35 years of service regardless of age.	2.00%	5 Years	For any 3 years of service
T-D		2.50%	5 Years	For any 3 years of service
T-E	Age 65 with a minimum of three years of service credit, or Any combination of age and service that totals 92 with at least 35 years of credited service.	2.00%	10 Years	For any 3 years of service
T-F		2.50%	10 Years	For any 3 years of service
T-G	Age 67 with a minimum of three years of service credit, or Any combination of age and service that totals 97 with at least 35 years of credited service.	1.25%	10 Years	For any 5 years of service
T-H	Age 67 with a minimum of three years of credited service.	1.00%	10 Years	For any 5 years of service

(c) Benefits Attributable to both the Traditional DB & Hybrid DB/DC

As summarized in the table above, benefits are generally between 1% to 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. A members' right to a defined benefit is vested in 5 to 10 years depending on membership class as summarized in the table above. 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, Class T-F, Class T-G and Class T-H members must purchase Non-Qualifying Part Time service and most other types of non-school or non-state service credit at full actuarial cost. Depending on membership class, members have 1 year or 3 years after enrollment in the system to purchase service for Non-Qualifying Part Time service.

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 between 2% to 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. Depending on membership class, certain minimum disability requirements apply. 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; age 67 with at least three years of credited services for Class T-G and Class T-H members) or who has at least five years of credited service (ten years for Class T-E, Class T-F, Class T-G, and Class T-H 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

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

Member Contribution Rates

Membership Class	Continuous Employment Since	Defined Benefit (DB) Contribution Rate	DC Contribution Rate	Total Contribution Rate
T-C	Prior to July 22, 1983	5.25%	N/A	5.25%
				6.25%
T-C	On or after July 22, 1983	6.25%	N/A	6.25%
T-D	Prior to July 22, 1983	6.50%	N/A	6.50%
T-D	On or after July 22, 1983	7.50%	N/A	7.50%
T-E	On or after July 1, 2011	7.50% base rate with shared risk provision	N/A	7.50%
T-F	On or after July 1, 2011	10.30% base rate with shared risk provision	N/A	10.30%
T-G	On or after July 1, 2019	5.50% base rate with shared risk provision	2.75%	8.25%
T-H	On or after July 1, 2019	4.50% base rate with shared risk provision	3.00%	7.50%
DC	On or after July 1, 2019	N/A	7.50%	7.50%

Notes to Financial Statements (continued)

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 may elect to receive a return of their accumulated contributions and interest from the Members' Savings Account upon their retirement which results in a reduced monthly annuity.

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, Act 120 and Act 5) and are dependent upon membership class. The IRC limitation on the annual compensation for a defined benefit plan was $290,000 for 2021 and $285,000 for 2020.

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 became Class T-E members. New members, however, had 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 made the member ineligible for Class T-F forever. For Act 5 members, all new members automatically become Class T-G members. New members, however, have a one-time opportunity to elect Class T-H or Class DC within 90 days of receiving written notification from PSERS. Failure to elect Class T-H or Class DC at time of original eligibility will make the member ineligible for Class T-H or Class DC forever. Act 120 introduced a shared risk program that could affect Class T-E and Class T-F members' contribution rates in future fiscal years.

Act 5 enhanced the shared risk program for T-E and T-F members and added T-G and T-H members to the program. Under the shared risk program eligible 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 ranges specified in the Shared Risk Program Summary table but can fluctuate by the shared risk increment every three years depending on the investment performance of PSERS.

The investment performance calculations utilized for the member risk share assessment are performed by the System's Investment Evaluator and, consistent with current investment policy, use quarter lagged values for private market investments. For example, for the nine-year measurement period ended June 30, 2020, the investment performance was determined using June 30th valuations for the System's publicly traded investments and March 31st valuations, on a quarter-lag basis, for its private market investments. In the Statements of Fiduciary Net Position, however, all the System's investments are presented at June 30th valuations.

Shared Risk Program Summary

Membership Class	Defined Benefit (DB) Base Rate	Shared Risk Increment	Minimum	Maximum
T-E	7.50%	+/- 0.50%	5.50%	9.50%
T-F	10.30%	+/-0.50%	8.30%	12.30%
T-G	5.50%	+/-0.75%	2.50%	8.50%
T-H	4.50%	+/-0.75%	1.50%	7.50%

Notes to Financial Statements (continued)

The member risk share measurement for the nine-year period ended June 30, 2020 determined that PSERS investment performance did not meet the shared risk target return threshold. Membership Class T-E, Class T-F, Class T-G and Class T-H member defined benefit contribution rates will increase starting on July 1, 2021. The next member risk share measurement is for the ten-year period ended June 30, 2023 and may affect the Class T-E, Class T-F, Class T-G and Class T-H member contributions starting on July 1, 2024.

The total contribution rate for the employers and the Commonwealth was 34.51% and 34.29% (33.51% and 33.36% for pension component) of qualified compensation for the years ended June 30, 2021 and 2020, 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 2021 was $2.7 billion and for FY 2020 was $2.6 billion. The school and non-school entity share of total employer contributions for FY 2021 was $2.2 billion and for FY 2020 was $2.2 billion. For FY 2021 total employer contributions were $4.9 billion and for FY 2020 were $4.8 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, 2021 there were no assumed future benefit increases to participating eligible annuitants in the Premium Assistance program. Membership at June 30, 2020, 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 0.82% for the year ended June 30, 2021 and 0.84% for the year ended June 30, 2020. Members do not contribute to Premium Assistance.

Table 3 - Premium Assistance Membership at June 30, 2021

Retirees and beneficiaries currently receiving benefits	94,003
Inactive members and vestees entitled to but not receiving benefits	672
Total retirees and other inactive members	**94,675**
Total active members	248,091
Total number of members	**342,766**

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.

The 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 program and effective, January 1, 2021 added a new vision plan benefit 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 approximately 96,000 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, 2021 and 2020 PSERS recorded $19,347,000 and $18,447,000, 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 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 benefits 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. The financial statements for FY 2021 and FY 2020 reflect the defined contribution plan activities for the first two years of operations. All new members starting on July 1, 2019 and thereafter participate in the DC plan.

Defined Contribution Plan Membership at June 30, 2021	
Active members	27,787
Inactive members entitled to but not receiving benefits	1,503
Total number of members	**29,290**

PSERS DC Plan is a defined contribution 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).

i. DC Benefits

Under PSERS DC Plan the retirement benefit is based on the amount of contributions in the account and any investment performance less expenses. DC member contributions and employer contributions, and any investment earnings are available for members to withdraw when a member terminates employment or retires. DC account balances can grow based on investment earnings, however DC account balances are not guaranteed against loss in declining investment markets.

Death benefits are payable upon death of an active member. Members who have at least three eligibility points in the DC plan receive participant and employer contributions with any investment gains, while participants with less than three eligibility points in the DC plan receive member contributions and any investment gains. There is no disability benefit with PSERS DC Plan. Each eligibility point is earned the first day a contribution is made to the plan on behalf of a participant in a school year (July 1 – June 30). Only one eligibility point may be credited in a school year.

Members are always 100% vested in their own mandatory before-tax, after-tax, and rollover contributions in the DC plan. Members who have at least three eligibility points become vested and eligible for employer DC contributions made on their behalf. Participants with fewer than three eligibility points are not eligible for the employer contributions.

Class DC participants with 24 1/2 or more eligibility points who have terminated school service, who are Medicare eligible, and who received all or a part of their distributions; and Class DC participants with 15 or more eligibility points who terminate school service on or after attaining age 67, and receive all or a part of their distributions are entitled to receive premium assistance benefits.

Notes to Financial Statements (continued)

ii. DC Contributions

Members hired after July 1, 2019 have a portion of each member and employer contribution to the system set aside for the DC plan. Member and employer rates are set by statute. A member may elect to make additional voluntary post-tax member contributions.

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.

(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 represents 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 the 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

Notes to Financial Statements (continued)

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 expenses and is detailed on the Schedule of 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, 2021 and 2020, $6,736,000 and $5,570,000 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, 2021 and 2020 are for HOP premiums related to health care coverage to be provided in July of 2021 and 2020, respectively.

(I) Federal Income Taxes

PSERS is exempt from federal income taxes under section 501 (a) of the Internal Revenue Code.

(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. In addition the DC plan has its own fiduciary insurance through a third party.

The Health Options Program maintains a reserve equal to approximately 8 to 9 months of self-funded benefits and expenses. Reserves are recommended for all self-insured group health plans to cover the potential for unexpected claim volatility (high amount claim events) and unanticipated economic changes (excessive inflation). Further, The Health Options Program, as a Medicare Supplement Plan has limited exposure to high cost claims which reduces the potential for excess risk. Medicare is the primary payer for most medical claims in the HOP Medical and Value Medical plans, and the Medicare Prescription Drug Program is protected by Medicare Part D Catastrophic coverage. Benefits for members who are not eligible for Medicare are limited to $300,000 per year in medical benefits, and $1,000,000 over a member's lifetime. Medical and Prescription drug benefits provided by Managed Care Organizations are fully insured by those providers. For these reasons, the Health Options Program is sufficiently reserved and reinsurance (stop loss coverage) is not needed or recommended at this time.

(K) Reclassifications

Certain 2020 amounts have been reclassified in conformity with the 2021 presentation. These reclassifications had no effect on net position restricted for pension benefits or the change in fiduciary net position.

Certain collective trust funds, whose underlying holdings were composed primarily of fixed income or common and preferred stock instruments, have been reclassified accordingly on the Statement of Fiduciary Net Position at June 30, 2020 to conform with the June 30, 2021 presentation.

(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.

Notes to Financial Statements (continued)

The following is a summary of members receivables at June 30, 2021 and 2020:

	(Dollar Amounts in Thousands) 2021	2020
Pension:		
Member Contributions	**$ 77,278**	$ 75,827
Purchase of Service	**282,668**	272,643
Other	**6,219**	5,389
Total Member Receivables	**$ 366,165**	$ 353,859

(M) Interfund Transactions and Balances

Interfund transfers of assets take place on a regular recurring basis between Pension, Premium Assistance, HOP 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) Adoption of New Accounting Standards

PSERS reviews the requirements of all new GASB pronouncements and assesses the potential impact to the System. There were no new GASB standards that materially impacted PSERS' financial statements for the fiscal year ended June 30, 2021.

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.

Table 4 - Account Balance

	(Dollar Amounts in Thousands) **2021**	**2020**
Pension:		
State Accumulation Account	**$ (7,398,176)**	$ (16,908,097)
Members' Savings Account	**18,156,350**	17,558,412
Annuity Reserve Account	**61,209,178**	57,906,471
	$ 71,967,352	$ 58,556,786
Defined Contribution Plan	**$ 62,276**	$ 21,361
Postemployment Healthcare:		
Health Insurance Account	**$ 132,515**	$ 130,417
Health Insurance Program Account	**$ 370,676**	$ 321,222

Notes to Financial Statements (continued)

(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.

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 Collective trust fund investments (CTF), management in consultation with investment advisors has determined the fair value based upon the reported share value of the respective fund. The reported share value of the fund is based upon each respective fund's administrator statement.

Alternative investments, which include private equity, equity real estate, private credit, and private infrastructure, are generally organized as limited partnerships. The fair value of investments that are

Notes to Financial Statements (continued)

organized as limited partnerships, and has no readily available daily fair value, has been determined by using the net asset value per share (or its equivalent) of PSERS' ownership interest in partners' capital. These net asset values are based on the individual investor's June 30, 2021 capital account balance reported at fair value by the general partner of the respective limited partnership, or the most recently available reporting period, adjusted for subsequent contributions, distributions, management fees, changes in values of foreign currency, and published market prices for certain securities.

The limited partnerships' annual financial statements are audited by independent auditors, which produce estimates of fair values. When estimating fair values, it is possible that these estimates could change in the near-term, or upon the sale of the assets, resulting in valuations that could differ from the June 30, 2021, reported net asset value.

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 June 30, 2021 and 2020, $132,000,000 of open-ended repurchase agreements were netted against the related property valuation and classified as Level 1. The agreements were payable at an interest rate equivalent to one month LIBOR plus 40 basis points until February 2021 when the interest rate was changed to one month LIBOR plus 25 basis points. The agreements are collateralized by certain fixed income investments of the System. At June 30, 2021, $136,235,000 of mortgage financings were netted against the related property valuations and classified as Level 1. Three mortgage loans totaling $102,000,000 have monthly interest-only payments at a fixed interest rate of 1.70% with all principal due at March 1, 2026. A fourth mortgage loan at June 30, 2021 and 2020 of $34,235,000 has monthly interest-only payments at a fixed interest rate of 3.97% with all principal due at March 1, 2026.

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.

(b) Equity real estate generally consists of real estate limited partnerships. These investments are across multiple assets types such as industrial, multi-family, office, retail, hotels, agriculture (permanent crops), and other real estate related assets.

The equity real estate investments utilize core, value-added, and opportunistic strategies. Core real estate strategies are expected to deliver a significant percentage of their return from income and should demonstrate lower volatility than opportunistic and value-added strategies due to lower leverage, higher levels of occupancy, and asset location in primary markets. Value-added real estate strategies typically have near-term leasing, repositioning, and /or renovation risk. Value-added strategies are expected to have modest initial operating revenues with potential for substantial income growth and will likely encounter greater volatility than core strategies, but lower volatility than opportunistic strategies. Opportunistic real estate strategies typically have significant development, lease-up, financial restructuring, and/or liquidity risk with little or no initial operating income. Opportunistic real estate strategies typically utilize higher levels of leverage, are expected to achieve most of its return from future capital gains, and are likely to encounter greater volatility than core and value-added strategies. The fair value of the equity real estate investments has 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 equity real estate investments will be liquidated over the next 7 to 12 years.

(c) Private equity includes limited partnerships that investment in private companies and utilize buyout, growth equity, and venture capital strategies. Buyout funds acquire shares of a private company in an attempt to gain a controlling interest. Venture capital funds invest in young, relatively small, rapidly growing companies, typically in either the health care or

Notes to Financial Statements (continued)

information technology sectors. Growth equity funds are in between venture capital and buyouts in that they tend to have positive revenue growth and earnings at times, but don't have the leverage that is typical in a buyout investment. 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 private equity is that distributions are received through the orderly liquidation of the underlying assets of 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 10 years in a typical private equity fund.

(d) Private credit includes limited partnerships and open-ended funds that invest in all types of credit which is not traditional investment grade government or corporate debt. Private credit strategies include direct lending, mezzanine lending, distressed and special situations, specialty finance, structured credit, real estate credit, and real assets credit. Direct lending is focused on providing senior secured loans to middle-market businesses. Mezzanine is primarily focused on providing subordinated debt capital to private businesses. Distressed and special situations is focused on issuing loans to companies undergoing financial or operational challenges or purchasing publicly listed, stressed securities. Specialty finance is a set of niche lending strategies that provide financing to consumers, small businesses, and other borrowers. Structured credit is a set of strategies that target investments in securitized debt obligations, such as collateralized loan obligations and collateralized debt obligations. Real estate credit is focused on commercial real estate collateral or residential mortgage origination. Real assets credit is focused on providing debt capital to companies operating within the real asset space with loans typically secured by real assets. 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 3 to 5 years.

(e) Private infrastructure investments generally consist of limited partnership vehicles which invest in private companies and assets that provide essential services to the economy, including regulated assets, contracted energy assets, and transportation assets with high barriers to entry and stable and predictable long-term cash flows. Regulated assets generally include electricity transmission and distribution facilities, gas distribution systems, pipelines, water distribution, and wastewater collection and processing facilities. Contracted energy assets generally include renewable and conventional generation, pipelines, and storage. Transportation assets generally include toll roads, bridges and tunnels, airports, seaports, parking facilities, and rail lines. The fair value of the private infrastructure investments has 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 infrastructure investment 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 infrastructure investments will be liquidated over the next 7 to 12 years.

(f) Absolute return includes investments that are private investment funds that seek to produce absolute returns generally using event-driven, tactical trading, and relative value strategies. Event-driven funds seeks to gain an advantage from pricing inefficiencies that may occur before or after a corporate action or related event, such as a merger, spinoff, earnings call, bankruptcy, or restructuring. Tactical trading funds invest their holdings in indexes, commodities, interest rate instruments, and currencies as a result of relative value or directional forecasts from a systematic or discretionary approach. Relative value strategies use a range of fixed income arbitrage, insurance linked, long-short credit, and/or quantitative strategies that seek to take advantage of price differentials. The fair values of the investments in this type have been determined using the NAV per share of the investments. Approximately 90% of these investments can be redeemed from one to 12 months as of June 30, 2021. The remaining investments include restrictions that do not allow redemption during the next 12 months and are expected take as long as 7 years to be liquidated.

(g) DC Collective trust fund investments (DC-CTF) consist primarily of domestic and international institutional

Notes to Financial Statements (continued)

funds. The fair value of DC-CTF is based on the reported share value of the respective fund. DC-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.

(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 deposit and investment policies of the Treasury Department are governed by Sections 301, 301.1, and 505 of the Pennsylvania Fiscal Code (Act of 1929, P.L. 343), and Section 321.1 of the Pennsylvania Administrative Code (Act of 1929, P.L. 177, No. 175).

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 $270,382,000 and $222,761,000 at June 30, 2021 and 2020, respectively, and are under the custody of M&T Bank which has an A rating by Standard and Poor's (S&P) and an Aa3 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.

Notes to Financial Statements (continued)

At June 30, 2021, the System had the following recurring fair value measurements in the Pension Plan.

Pension Investments

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

		Fair Value Measurements Using		
	2021	Level 1	Level 2	Level 3
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	**$ 8,548,497**	$ $ 7,216,976	$ 1,331,521	$ —
Other domestic short-term	**421,723**	409,030	12,693	—
International short-term	**30,236**	10,409	19,827	—
	9,000,456	7,636,415	1,364,041	—
Fixed income				
Domestic asset-backed and mortgage-backed securities	**3,973,150**	3,231,680	741,470	—
U.S. government and agency obligations	**5,883,322**	5,875,720	7,602	—
Domestic corporate and taxable municipal bonds	**783,904**	—	783,904	—
International fixed income	**264,200**	—	264,200	—
	10,904,576	9,107,400	1,797,176	—
Common and preferred stock:				
Domestic common and preferred stock	**9,350,519**	9,336,155	14,364	—
International common and preferred stock	**7,239,623**	7,239,618	—	5
	16,590,142	16,575,773	14,364	498,179
Directly-owned real estate	**1,224,906**	(232,000)	—	1,456,906
Total investments by fair value level	**37,720,080**	$ 32,681,059	$ $ 3,184,973	$ $ 1,741,164
Investments measured at the net asset value (NAV)				
Collective trust funds - Fixed Income	**2,348,756**			
Collective trust funds Common and preferred stock	**1,847,731**			
Collective trust funds	**7,321,974**			
Equity real estate	**4,229,593**			
Infrastructure	**531,964**			
Alternative investments:				
Private equity	**12,206,056**			
Private credit	**5,285,350**			
Absolute return	**134,729**			
	17,626,135			
Total investments measured at the NAV	**33,906,153**			
Total investments measured at fair value	**$ 71,626,233**			
Investment derivative instruments				
Futures	**$ 75,247**	$ 75,247	$ —	$ —
Total return type swaps	**(65,756)**	(65,756)	—	—
Foreign exchange contracts	**45,319**	45,319	—	—
Options	**$ 5,693**	$ 5,693		
Total investment derivative instruments	**$ 60,503**	$ 60,503	$ —	$ —

Notes to Financial Statements (continued)

At June 30, 2020, the System had the following recurring fair value measurements in the Pension Plan.

Pension Investments

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

		Fair Value Measurements Using		
	2020	Level 1	Level 2	Level 3
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	$ 5,713,063	$ 4,053,978	$ 1,659,085	$ —
Other domestic short-term	96,239	58,851	37,388	—
International short-term	11,862	7,151	4,711	—
	5,821,164	4,119,980	1,701,184	—
Fixed income				
Domestic asset-backed and mortgage-backed securities	1,460,459	—	1,460,459	—
U.S. government and agency obligations	3,128,446	1,819,633	1,308,813	—
Domestic corporate and taxable municipal bonds	4,851,309	3,668,826	1,182,483	
International fixed income	234,983	—	234,983	—
	9,675,197	5,488,459	4,186,738	—
Common and preferred stock:				
Domestic common and preferred stock	4,782,678	4,761,657	21,021	—
International common and preferred stock	4,974,091	4,974,091	—	—
	9,756,769	9,735,748	21,021	—
Directly-owned real estate	1,110,985	(132,000)	—	1,242,985
Total investments by fair value level	26,364,115	$ 19,212,187	$ 5,908,943	$ 1,242,985
Investments measured at the net asset value (NAV)				
Collective trust funds - Fixed Income	2,044,663			
Collective trust funds Common and preferred stock	1,267,364			
Collective trust funds	9,848,864			
Equity real estate	3,967,139			
Infrastructure	399,998			
Alternative investments:				
Private equity	8,621,023			
Private credit	4,588,664			
Absolute return	238,864			
	13,448,551			
Total investments measured at the NAV	30,976,579			
Total investments measured at fair value	$ 57,340,694			
Investment derivative instruments				
Futures	$ 57,950	$ 57,950	$ —	$ —
Total return type swaps	254,293	254,293	—	—
Foreign exchange contracts	(14,708)	(14,708)	—	—
Total investment derivative instruments	$ 297,535	$ 297,535	$ —	$ —

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, 2021 and 2020 are presented in the following tables.

Pension Investments

Fair Value of Investments

Investments measured at the NAV
(Dollar Amounts in Thousands)

	2021			
	Fair Value	**Unfunded Commitments**	**Redemption Frequency**	**Redemption Notice Period**
Collective trust funds - Fixed Income	**$ 2,348,756**	$ —	see note (a)	0-90 days
Collective trust funds Common and preferred stock	**1,847,731**	—	see note (a)	0-90 days
Collective trust funds	**7,321,974**	—	see note (a)	0-90 days
Equity real estate (b)	**4,229,593**	2,220,783	see note (b)	see note (b)
Infrastructure (e)	**531,964**	943,655	see note (e)	see note (e)
Alternative investments:				
Private equity (c)	**12,206,056**	5,552,444	see note (c)	see note (c)
Private credit (d)	**5,285,350**	2,902,087	see note (d)	see note (d)
Absolute return (f)	**134,729**	490,069	see note (f)	see note (f)
	17,626,135			
Total investments measured at the NAV	**$ 33,906,153**			

Pension Investments

Fair Value of Investments

Investments measured at the NAV
(Dollar Amounts in Thousands)

	2020			
	Fair Value	**Unfunded Commitments**	**Redemption Frequency**	**Redemption Notice Period**
Collective trust funds - Fixed Income	$ 2,044,663	$ —	see note (a)	0-90 days
Collective trust funds Common and preferred stock	1,267,364	—	see note (a)	0-90 days
Collective trust funds	9,848,864	—	see note (a)	0-90 days
Equity real estate (b)	3,967,139	2,219,005	see note (b)	see note (b)
Infrastructure (e)	399,998	585,296		
Alternative investments:				
Private equity (c)	8,621,023	5,587,386	see note (c)	see note (c)
Private credit (d)	4,588,664	3,298,351	see note (d)	see note (d)
Absolute return (f)	238,864	446,499	see note (f)	see note (f)
	13,448,551			
Total investments measured at the NAV	$ 30,976,579			

Notes to Financial Statements (continued)

At June 30, 2021, the System had the following recurring fair value measurements in the Premium Assistance Program.

Premium Assistance Investments

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2021	**Level 1**	**Level 2**	**Level 3**
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	**$ 84,064**	$ 70,970	$ 13,094	$ —
Other domestic short-term	**22,117**	—	22,117	—
Total investments measured at fair value	**$ 106,181**	$ 70,970	$ 35,211	$ —

At June 30, 2020, the System had the following recurring fair value measurements in the Premium Assistance Program.

Premium Assistance Investments

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2020	Level 1	Level 2	Level 3
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	$ 46,133	$ 32,736	$ 13,397	$ —
Other domestic short-term	47,483	—	47,483	—
Total investments measured at fair value	$ 93,616	$ 32,736	$ 60,880	$ —

Notes to Financial Statements (continued)

At June 30, 2021, the System had the following recurring fair value measurements in the Health Options Program.

Health Options Program Investments

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2021	**Level 1**	**Level 2**	**Level 3**
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	**$ 95,343**	$ 80,492	$ 14,851	$ —
Other domestic short-term	**270,382**	270,382	—	—
Total investments measured at fair value	**$ 365,725**	$ 350,874	$ 14,851	$ —

At June 30, 2020, the System had the following recurring fair value measurements in the Health Options Program.

Health Options Program Investments

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2020	Level 1	Level 2	Level 3
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	$ 95,065	$ 67,458	$ 27,607	$ —
Other domestic short-term	222,761	222,761	—	—
Total investments measured at fair value	$ 317,826	$ 290,219	$ 27,607	$ —

Notes to Financial Statements (continued)

At June 30, 2021, the System had the following recurring fair value measurements in the DC Plan.

Defined Contribution Plan Investments

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2021	**Level 1**	**Level 2**	**Level 3**
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	**$ 6,081**	$ 5,134	$ 947	$ —
Other domestic short-term	**1,257**	1,257	—	—
Total investments by fair value level	**7,338**	$ 6,391	$ 947	$ —
Investments measured at the net asset value (NAV)				
Collective trust funds	**55,307**			
Total investments measured at the NAV	**55,307**			
Total investments measured at fair value	**$ 62,645**			

At June 30, 2020, the System had the following recurring fair value measurements in the DC Plan.

Defined Contribution Plan Investments

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2020	Level 1	Level 2	Level 3
Investments by fair value level				
PSERS Short-Term Investment Fund	$ 6,716	$ 4,766	$ 1,950	$ —
Other domestic short-term	217	217	—	—
Total investments by fair value level	6,933	$ 4,983	$ 1,950	$ —
Investments measured at the net asset value (NAV)				
Collective trust funds	14,632			
Total investments measured at the NAV	14,632			
Total investments measured at fair value	$ 21,565			

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, 2021 is presented in the following table.

Defined Contribution Plan Investments

Fair Value of Investments

Defined Contribution Plan investments measured at the NAV
(Dollar Amounts in Thousands)

	2021			
	Fair Value	**Commitments**	**Redemption Frequency**	**Redemption Notice Period**
Collective trust funds (f)	**$ 55,307**	$ —	see note (g)	0-90 days
Total investments measured at the NAV	**$ 55,307**			

The valuation method for investments measured at the net asset value (NAV) per share (or its equivalent) at June 30, 2020 is presented in the following table.

Defined Contribution Plan Investments

Fair Value of Investments

Defined Contribution Plan investments measured at the NAV
(Dollar Amounts in Thousands)

	2020			
	Fair Value	**Commitments**	**Redemption Frequency**	**Redemption Notice Period**
Collective trust funds (f)	**$ 14,632**	$ —	see note (g)	0-90 days
Total investments measured at the NAV	$ 14,632			

Notes to Financial Statements (continued)

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, 2021 and 2020.

	(Dollar Amounts in Thousands)	
	2021	2020
Quality Rating	**Fair Value**	Fair Value
AAA	**$ 7,681,352**	$ 3,157,130
AA	**716,912**	2,033,336
A	**172,808**	694,795
BBB	**283,592**	737,629
BB and Below	**125,558**	494,959
NR*	**4,405,935**	4,334,326
Total Exposed to Credit Risk	**13,386,157**	11,452,175
US Government Guaranteed**	**9,346,875**	6,507,224
Total Fixed Income and Short-Term Investments	**$ 22,733,032**	$ 17,959,399

*Not Rated securities include $2,351,042 and $2,044,663 in collective trust funds and $205,340 and $1,102,725 in PSERS Short-Term Investment Fund assets at June 30, 2021 and 2020 respectively.

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

Notes to Financial Statements (continued)

(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, 2021 and 2020, 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 35.0% of the investment portfolio. The fixed income target allocation consists of:

- An allocation of 8.0% of the portfolio has been made to the investment grade segment of the fixed income asset class benchmarked to the Bloomberg Barclays U.S. Aggregate Bond TR Index (1%) and the Bloomberg Barclays U.S. Long Treasury TR Index (7%). Within this segment, the U.S. long treasury allocation (7.0%) is composed of primarily long duration U.S. Treasury securities issued by the U.S. government. The U.S. core fixed allocation (1.0%) is composed of primarily investment grade, relatively liquid, public domestic and government-related bonds with an overall weighted-average NRSRO credit rating of A or better.
- An allocation of 8.0% of the portfolio has been made to the private fixed income segment of the fixed income asset class benchmarked to the S&P LSTA Leveraged Loan Index plus 200 basis points. The private fixed income allocation is composed of primarily investments in limited partnerships focusing on direct lending, mezzanine, distressed and special situations, specialty finance and structured credit strategies.
- An allocation of 15.0% of the portfolio has been made to the inflation protected securities segment of the fixed income asset class benchmarked to the Bloomberg Barclays US Government Inflation-Linked Bond All Maturities Index and the Bloomberg Barclays World Government ex US Inflation-Linked Bond All Maturities TR Index (Hedged to USD). Within this segment, the US inflation protected allocation (12.0%) is composed of primarily government issued Treasury Inflation Protected Securities (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 2:1. The Non-US inflation protected allocation (3.0%) is composed primarily of non-US government related securities tied to inflationary measures.
- An allocation of 4.0% of the portfolio has been made to the credit related segment of the fixed income asset class with 2.0% benchmarked to the Bloomberg Barclays US Corporate High Yield Bond Index and 2.0% benchmarked to the JP Morgan GBI-EM Broad Diversified Index (34.0%), JP Morgan EMBI Global Diversified Index (33.0%), and the Intercontinental Exchange (ICE) Bank of America/Merrill Lynch EM Corporate Plus Index (Hedged to USD) (33.0%).

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, 2021 and 2020.

	(Dollar Amounts in Thousands)	
	2021	2020
Quality Rating	**Fair Value**	Fair Value
A	**$ (72,139)**	$ 187,359
BBB	**6,383**	66,934
Total Swaps - Total Return	**$ (65,756)**	$ 254,293

Notes to Financial Statements (continued)

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 (13.0%); Leverage is netted against the System's Cash allocation of 3% for a Net Leverage Allocation of (10%).

- An allocation of 3.0% of the portfolio has been made to cash benchmarked to the ICE 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.

(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 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.

The System minimizes its credit risk exposure by requiring borrowers to provide collateralization in excess of 100% of the fair value of the securities loaned. 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, 2021 and 2020 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

At June 30, 2021 and 2020, the System's fixed income portfolio had the following option-adjusted durations by fixed income sector:

(Dollar Amounts in Thousands)

	2021		2020	
Investment Type	**Option-Adjusted Duration**	**Fair Value**	Option-Adjusted Duration	Fair Value
Domestic asset-backed and mortgage-backed securities	**1.3**	**$ 3,973,149**	1.0	$ 1,460,459
U.S. government and agency obligations	**14.0**	**5,883,323**	6.7	3,128,446
Domestic corporate and taxable municipal bonds	**3.3**	**781,618**	13.2	4,851,308
International fixed income	**2.6**	**264,200**	2.2	234,983
Collective trust funds*	**3.6**	**2,351,042**	3.1	2,044,663
PSERS Short-Term Investment Fund	**0.1**	**8,733,986**	0.1	5,860,977
Other Short-Term Assets	**0.1**	**745,714**	0.1	378,563
Total	**4.4****	**$ 22,733,032**	5.2 **	$ 17,959,399

* Represents funds holding fixed income assets.

** 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, 2021 and 2020. 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, 2021 and 2020:

2021

(Dollar Amounts in Thousands)

Currency	Equity	Fixed Income	Alternative Investments & Real Estate	Short-Term*	Currency Hedge	Total Fair Value
Euro	**$ 1,448,747**	**$ 7,121**	**$ 1,445,636**	**$ 13,735**	**$ (1,785,403)**	**$ 1,129,836**
British pound sterling	**879,659**	**—**	**345,573**	**4,331**	**(423,288)**	**806,275**
Japanese yen	**1,159,064**	**10,306**	**27,258**	**7,681**	**(589,265)**	**615,044**
Taiwan new dollar	**307,935**	**—**	**—**	**1,763**	**—**	**309,698**
Indian rupee	**227,084**	**—**	**—**	**3,274**	**—**	**230,358**
South Korean won	**171,849**	**—**	**—**	**472**	**426**	**172,747**
Hong Kong dollar	**370,175**	**—**	**—**	**(1,738)**	**(209,740)**	**158,697**
Danish krone	**173,959**	**—**	**—**	**4,025**	**(28,670)**	**149,314**
Swedish krona	**209,181**	**—**	**—**	**355**	**(89,765)**	**119,771**
Other non-U.S. currencies	**1,532,182**	**89,793**	**7,430**	**25,019**	**(1,377,550)**	**276,874**
Total	**$ 6,479,835**	**$ 107,220**	**$ 1,825,897**	**$ 58,917**	**$ (4,503,255)**	**$ 3,968,614**

2020

(Dollar Amounts in Thousands)

Currency	Equity	Fixed Income	Alternative Investments & Real Estate	Short-Term*	Currency Hedge	Total Fair Value
Euro	$ 906,217	$ 2,736	$ 1,271,920	$ 10,176	$ (1,133,942)	$ 1,057,107
British pound sterling	579,707	—	370,813	1,722	(482,623)	469,619
Taiwan new dollar	178,654	—	—	54	—	178,708
Hong Kong dollar	284,314	—	—	1,552	(145,464)	140,402
South Korean won	110,125	—	—	180	143	110,448
Indian rupee	109,836	—	—	178	—	110,014
Canadian dollar	472,314	—	—	2,431	(372,535)	102,210
Japanese yen	897,488	10,070	—	10,648	(816,316)	101,890
Danish krone	128,474	—	—	3,801	(56,188)	76,087
Other non-U.S. currencies	968,703	103,812	6,627	10,534	(814,011)	275,665
Total	**$ 4,635,832**	**$ 116,618**	**$ 1,649,360**	**$ 41,276**	**$ (3,820,936)**	**$ 2,622,150**

* Includes investment receivables and payables

At June 30, 2021 and 2020, the System had the following foreign currency exposures for its derivatives (except for foreign exchange contracts which are included in Note 5). All of the exposures at June 30, 2020 were associated with the System's risk parity allocation program which was eliminated in FY 2021.

(Dollar Amounts in Thousands)

Currency	**2021** Notional Value	2020 Notional Value
Euro	**$ —**	$ 132,887
Japanese yen	—	98,521
British pound sterling	—	58,260
Canadian dollar	—	42,676
Australian dollar	—	32,453
Hong Kong dollar	—	—
Total Futures Contracts	**$ —**	$ 364,797

Notes to Financial Statements (continued)

The following table summarizes the System's foreign exchange contracts by currency at June 30, 2021 and 2020:

2021
(Dollar Amounts in Thousands)

Currency	Buys	Unrealized Gain/(Loss)	Sells	Unrealized Gain/(Loss)
Euro	**$ 49,100**	**$ 3**	**$ 1,834,502**	**$ 28,998**
Japanese yen	**4,416**	**(19)**	**593,680**	**5,286**
Swiss franc	**6**	**—**	**166,931**	**1,362**
Australian dollar	**2,746**	**1**	**495,617**	**1,948**
Swedish krona	**133**	**—**	**89,898**	**1,119**
Canadian dollar	**236**	**—**	**536,711**	**1,227**
Singapore dollar	**315**	**(6)**	**59,328**	**377**
Mexican peso	**16,836**	**10**	**440,124**	**4,698**
British pound sterling	**109**	**(4)**	**93,081**	**36**
New Zealand dollar	**1,878**	**—**	**211,618**	**44**
Other non-US currencies	**1,044**	**—**	**58,165**	**239**
Total	**$ 76,819**	**$ (15)**	**$ 4,579,655**	**$ 45,334**

2020
(Dollar Amounts in Thousands)

Currency	Buys	Unrealized Gain/(Loss)	Sells	Unrealized Gain/(Loss)
Euro	$ 1,708	$ —	$ 1,135,651	$ (8,823)
Japanese yen	36	—	816,351	6,854
Swiss franc	293	1	258,315	(863)
Australian dollar	446	2	326,408	(6,911)
Swedish krona	—	—	98,550	(1,362)
Canadian dollar	1,125	(3)	373,660	(1,941)
Singapore dollar	13	—	52,093	(247)
Mexican peso	38	—	32	—
British pound sterling	—	—	482,940	82
New Zealand dollar	—	—	37,291	(1,282)
Other non-U.S. currencies	785	(3)	244,090	(212)
Total	$ 4,444	$ (3)	$ 3,825,381	$ (14,705)

Notes to Financial Statements (continued)

the loan is one day. There were no term loans as of June 30, 2021 and 2020.

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 the earnings from the cash collateral provided by the borrower less a fee paid to the third party agent minus a negotiated rebate of a portion of the earnings on the cash collateral. The weighted-average maturity of the investments in the pool was one day at June 30, 2021 and 2020. During the fiscal years ended June 30, 2021 and 2020 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, 2021, the fair value of loaned securities was $7,734,304,000. The fair value of the associated collateral was $7,862,287,000, all of which was cash. As of June 30, 2020, the fair value of loaned securities was $4,406,850,000. The fair value of the associated collateral was $4,491,237,000, 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 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, 2021 and 2020 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 2021, the System purchased over-the-counter put options on the S&P 500 Index. The fair value of these option contracts, $5,693,000 at June 30, 2021, is included in the Statement of Fiduciary Net Position. The System held no option positions at June 30, 2020.

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 $4,656,474,000 of foreign currency contracts outstanding at June 30, 2021 consist of "buy" contracts, which represent the U.S. dollar equivalents of commitments to purchase foreign currencies of $76,819,000 and "sell" contracts, which represent U.S. dollar equivalents of commitments to sell foreign currencies of $4,579,655,000. The $3,829,825,000 of foreign currency contracts outstanding at June 30, 2020 consist of "buy" contracts of $4,444,000 and "sell" contracts of $3,825,381,000. The unrealized gain (loss) on contracts of $45,319,000 and $(14,708,000) at June 30, 2021 and 2020, respectively, is

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, 2021 and 2020.

	(Dollar Amounts in Thousands) 2021	2020
Futures contracts - long:		
Treasury futures	**$ 320,823**	$ 665,985
U.S. equity futures	**182,480**	431,701
Non-U.S. equity futures	**—**	364,797
Commodity futures	**400,014**	271,210
Futures contracts - short:		
Treasury futures	**37,271**	88,272
Non-U.S. equity futures	**—**	32,989
U.S. equity futures	**—**	43,417
Foreign exchange forward and spot contracts, gross	**4,656,474**	3,829,825
Options - puts purchased	**4,880,200**	—
Swaps - total return type	**15,432,197**	10,631,655

The fair values of derivative instruments outstanding at June 30, 2021 and 2020 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 2021		**Fair Value at June 30, 2021**	
Investment Derivative Type	**Classification**	**Amount**	**Classification**	**Amount**
Futures	Investment income	**$ 75,247**	Receivable/(Payable)	**$ 75,247**
Total return type swaps	Investment income	**(65,756)**	Receivable/(Payable)	**(65,756)**
Foreign exchange contracts	Investment income	**45,319**	Receivable/(Payable)	**45,319**
Options	Investment income	**$ (10,473)**	Receivable/(Payable)	**$ 5,693**
Total		**$ 44,337**		**$ 60,503**

	Change in Fair Value Gain/(Loss) FY 2020		Fair Value at June 30, 2020	
Investment Derivative Type	Classification	Amount	Classification	Amount
Futures	Investment income	$ 57,950	Receivable/(Payable)	$ 57,950
Total return type swaps	Investment income	254,293	Receivable/(Payable)	254,293
Foreign exchange contracts	Investment income	(14,708)	Receivable/(Payable)	(14,708)
Options	Investment income	—	Investment	—
Total		$ 297,535		$ 297,535

Notes to Financial Statements (continued)

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 underlying securities, indexes, or interest rates. During the year ended June 30, 2021 and 2020, the System entered into total return type swaps. Under the total return type swap arrangements, the System receives the net return of certain securities or indexes in exchange for a short-term rate minus a spread or a predetermined fixed charge. The receivable (payable) on the total return type swap contracts of $(65,756,000) and $254,293,000 at June 30, 2021 and 2020, 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 July 30, 2021 to July 5, 2022.

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. The MBS forwards are subject to credit risk in the event of nonperformance by counterparties. The fair value of CMOs at June 30, 2021 and 2020 is $172,285,000 and $519,436,000, 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, 2021 were as follows:

(Dollar amounts in thousands)

Total pension liability	$ 113,024,082
Less: Plan fiduciary net position	71,967,352
Employer net pension liability	$ 41,056,730
Plan fiduciary net position as a percentage of the total pension liability	63.67%

Actuarial Assumptions

The total pension liability at June 30, 2021 was determined by rolling forward the System's total pension liability at June 30, 2020 to June 30, 2021 using the following actuarial assumptions, applied to all periods included in the measurement:

- Actuarial cost method - Entry Age Normal - level % of pay.
- Investment return - 7.00%, includes inflation at 2.75%.
- Salary growth - Effective average of 4.50%, comprised of inflation of 2.50% and 2.00% for real wage growth and for merit or seniority increases.
- Payroll growth assumption decreased from 3.50% to 3.25%.
- Mortality rates were modified from the RP-2014 Mortality Tables for Males and Females to a blended table based on 50% PubT-2010 Employee (Total Teacher dataset) and 50% PubG-2010 (Total General Employees data), adjusted to reflect PSERS' experience and projected using a modified version MP-2020.
- PSERS Board approved new actuarial assumptions effective for the June 30, 2021 actuarial valuation. The new assumptions were used to calculate the net pension liability at June 30, 2021 and are reflected above.

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, 2021, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 24.57%. 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, 2021.

Notes to Financial Statements (continued)

Discount Rate

The discount rate used to measure the total pension liability was 7.00%. 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 the projected future benefit payments of current plan members to determine the total pension liability. 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	27.0%	5.2%
Private equity	12.0%	7.3%
Fixed income	35.0%	1.8%
Commodities	10.0%	2.0%
Absolute return	8.0%	3.1%
Infrastructure/MLPs	8.0%	5.1%
Real estate	10.0%	4.7%
Cash	3.0%	0.1%
Leverage	-13.0%	0.1%
	100.0%	

Sensitivity of the Net Pension Liability

Table 7 presents the net pension liability, calculated using the discount rate of 7.00%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage point lower (6.00%) or 1-percentage point higher (8.00%) than the current rate:

Table 7 - Sensitivity of the Net Pension Liability

(Dollar amounts in thousands)

	1% Decrease	Current Discount Rate	1% Increase
	6.00%	7.00%	8.00%
Net pension liability	$53,888,457	$41,056,730	$30,232,534

For additional information on the total pension liability, net pension liability, plan fiduciary net position as a percentage of the total pension liability, actuarial assumptions, and money weighted returns please refer to the multiple year Required Supplementary Information Schedule 1, Schedule 2, Schedule 3, Schedule 7 and Notes to Required Supplementary Information.

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

The components of the net OPEB liability of the participating employers at June 30, 2021 were as follows:

(Dollar amounts in thousands)

Total OPEB liability	$2,502,598
Less: Plan fiduciary net position	132,515
Employer net OPEB liability	$2,370,083
Plan fiduciary net position as a percentage of the total OPEB liability	5.30%

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, 2021. The Investment Rate of Return was adjusted from 2.66% to 2.18% which represents the S&P 20 Year Municipal Bond Rate.

Actuarial Assumptions

The total OPEB liability at June 30, 2021 was determined by rolling forward the System's total OPEB liability at June 30, 2020 to June 30, 2021 using the following actuarial assumptions, applied to all periods included in the measurement:

- Actuarial cost method - Entry Age Normal - level % of pay.
- Investment return - 2.18% - S&P 20 Year Municipal Bond Rate.
- Salary growth - Effective average of 4.50%, comprised of inflation of 2.50% and 2.00% for real wage growth and for merit or seniority increases.
- Payroll growth assumption decreased from 3.50% to 3.25%.
- 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.

Notes to Financial Statements (continued)

- Mortality rates were modified from the RP-2014 Mortality Tables for Males and Females to a blended table based on 50% PubT-2010 Employee (Total Teacher dataset) and 50% PubG-2010 (Total General Employees data), adjusted to reflect PSERS' experience and projected using a modified version MP-2020.
- PSERS Board approved new actuarial assumptions effective for the June 30, 2021 actuarial valuation. The new assumptions were used to calculate the net pension liability at June 30, 2021 and are reflected above.

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, 2021.

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, 2021, the annual money-weighted rate of return on OPEB plan investments, net of OPEB plan investment expense, was 0.31%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Discount Rate

The discount rate used to measure the total OPEB liability was 2.18%. 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 2.18%, which represents the S&P 20 year Municipal Bond Rate at June 30, 2021 was applied to all projected benefit payments to measure the total OPEB liability.

Table 8 - OPEB Asset Allocation

OPEB - Asset Class	Target Allocation	Long Term Expected Real Rate of Return
Cash	79.8%	0.1%
US Core Fixed Income	17.5%	0.7%
Non-U.S. Developed Fixed	2.7%	(0.3%)
	100.0%	

Sensitivity of the Net OPEB Liability

Table 9 presents the net OPEB liability, calculated using the discount rate of 2.18%, as well as what the net OPEB liability would be if it were calculated using a discount rate that is 1-percentage point lower (1.18%) or 1-percentage point higher (3.18%) than the current rate:

Table 9 - Sensitivity of the Net OPEB Liability
(Dollar amounts in thousands)

	1% Decrease	Current Discount Rate	1% Increase
	1.18%	2.18%	3.18%
Net OPEB liability	$ 2,719,966	$ 2,370,083	$ 2,081,902

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, 2021, there were 93,392 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, 2021, there were 611 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.

Notes to Financial Statements (continued)

Table 10 - Sensitivity of the Net OPEB Liability to Change in Healthcare Cost Trend Rates
(Dollar amounts in thousands)

	1% Decrease	Current Discount Rate	1% Increase
Net OPEB liability	$ 2,369,814	$ 2,370,083	$ 2,370,295

For additional information on the total OPEB liability, net OPEB liability, plan fiduciary net position as a percentage of the total OPEB liability, actuarial assumptions, and money weighted returns please refer to the multiple year Required Supplementary Information Schedule 4, Schedule 5, Schedule 6, Schedule 7 and Notes to Required Supplementary Information.

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, 2020 and 2019 the blended employer contribution rates were 27.03% and 25.01%, respectively. Contributions to SERS from PSERS were $9.0 million for the year ended June 30, 2021.

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

At June 30, 2021, PSERS reported a liability of $77.5 million and $70.2 million at June 30, 2020, for its proportionate share of the net pension liability for the SERS plan in Other liabilities on the Statement of Fiduciary Net Position. The net pension liability was measured at December 31, 2020 and 2019, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation at December 31, 2020 and 2019. PSERS' proportion of the net pension liability was calculated utilizing a projected-contribution method. At December 31, 2020, PSERS' proportion was 0.42345499 percent and 0.38625897 percent at December 31, 2019.

PSERS recognized total pension expense of $12.5 million in FY 2021 on the Statement of Changes in Fiduciary Net Position. Of the $12.5 million of pension expense, $7.5 million was reflected in administrative expenses, $0.5 million in Postemployment Healthcare, $0.2 million in defined contributions and $4.3 million was reflected in investment expenses. Deferred inflows of resources of $10.2 million and $5.6 million at June 30, 2021, and June 30, 2020, respectively, are reported in Other liabilities on the Statement of Fiduciary Net Position. Deferred outflows of resources of $22.9 million and $14.6 million at June 30, 2021, and June 30, 2020, respectively, are reported in Miscellaneous assets. Of the $22.9 million of deferred outflows of resources at June 30, 2021, PSERS recorded $5.1 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, 2022. 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)
2022	3,849
2023	2,598
2024	3,758
2025	(47)
Thereafter	2,418

(E) SERS' Pension Plan Fiduciary Net Position

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

Notes to Financial Statements (continued)

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 $230 per biweekly pay period until January 2021 and $0 from January 2021 through June 2021, for each current REHP eligible active employee during fiscal year ended June 30, 2021 to the REHP Trust. PSERS' contributions to the REHP for FY 2021 were $1.0 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, 2021, PSERS reported a liability of $50.9 million and $42.1 million at June 30, 2020 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 $2.0 million. The net OPEB liability was measured at June 30, 2020, and the total OPEB liability used to calculate the net OPEB liability was determined by an actuarial valuation at June 30, 2020. 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 2.21% on June 30, 2021. PSERS' proportion of the net OPEB liability was calculated utilizing a contribution method. At June 30, 2020, PSERS' proportion was 0.41302 percent and at June 30, 2019 PSERS' proportion was 0.404694 percent.

REHP had a increase in Total OPEB Liability of approximately $2.0 billion. The primary cause was due to changes in actuarial assumptions driven by a decrease in the discount rate from 3.50% to 2.21%.

PSERS recognized total OPEB expense of $(3.9) million in FY 2021 on the Statement of Changes in Fiduciary Net Position. Of the $(3.9) million of OPEB expense, $(3.2) million was reflected in administrative expenses, $(0.2) million in Postemployment Healthcare, $0.2 million in defined contributions and $(0.7) million was reflected in investment expenses. Deferred outflows of resources of $13.3 million and $4.8 million at June 30, 2021 and June 30, 2020, respectively are reported in Miscellaneous assets. Of the $13.3 million of deferred outflows at June 30, 2021, PSERS recorded $2.0 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, 2022. Deferred inflows of resources of $28.4 million and $37.2 million at June 30, 2021 and June 30, 2020, 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)
2022	(6,938)
2023	(6,465)
2024	(4,251)
2025	(479)
Thereafter	1,067

(E) REHP Plan Fiduciary Net Position

Detailed information about the REHP fiduciary net position is available in the Commonwealth's Annual Comprehensive 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. The System is also exposed to various other liabilities and risks related to fiduciary responsibilities of directors and officers.

Notes to Financial Statements (continued)

In 2021, the System received subpoenas from various federal agencies regarding the certification of the shared risk member contribution rate in December 2020, as well as the purchase and valuation of certain directly held properties. PSERS is cooperating fully with the federal investigations and the PSERS Board has retained outside counsel to conduct an independent internal investigation of the shared risk calculation and the purchase and valuation of certain directly held properties. PSERS expects to incur legal costs and other expenses in connection with responding to the federal investigations and from conducting its own internal investigation.

It is the opinion of management that the ultimate liability arising from such threatened, pending litigation and investigations will not have a material effect on the financial position of the System.

Required Supplementary Information

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

	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability								
Service cost	**$ 1,963,645**	$ 1,949,427	$ 1,921,417	$ 1,890,906	$ 1,873,844	$ 1,932,401	$ 1,926,539	$ 2,139,037
Interest	**7,703,465**	7,546,367	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	**40,322**	(339,969)	(1,477,660)	(745,306)	644,051	(348,429)	(223,437)	—
Changes of assumptions	**2,655,180**	—	—	—	—	2,236,118	—	—
Benefit payments	**(7,134,332)**	(6,876,515)	(6,761,172)	(6,655,146)	(6,473,579)	(6,360,325)	(6,220,601)	(6,053,505)
Net change in total pension liability	**5,228,280**	2,279,310	1,147,813	1,824,938	3,154,854	4,488,057	2,339,998	2,609,016
Total pension liability - beginning	**107,795,802**	105,516,492	104,368,679	102,543,741	99,388,887	94,900,830	92,560,832	89,951,816
Total pension liability - ending (a)	**$113,024,082**	$107,795,802	$105,516,492	$104,368,679	$102,543,741	$99,388,887	$94,900,830	$92,560,832
Plan fiduciary net position								
Contributions - employer	**4,759,189**	4,676,413	4,487,520	4,249,611	3,832,773	3,189,510	2,596,731	1,992,084
Contributions - member	**1,080,701**	1,067,957	1,064,043	1,026,375	1,013,847	989,266	984,634	966,926
Net investment income	**14,754,624**	1,001,846	3,628,710	4,714,158	4,995,362	473,206	1,328,516	7,097,761
Benefit payments	**(7,134,332)**	(6,876,515)	(6,761,172)	(6,655,146)	(6,473,579)	(6,360,325)	(6,220,601)	(6,053,505)
Administrative expense	**(49,616)**	(46,799)	(48,931)	(46,544)	(45,127)	(45,118)	(42,331)	(38,712)
Net Change in plan fiduciary net position	**13,410,566**	(177,098)	2,370,170	3,288,454	3,323,276	(1,753,461)	(1,353,051)	3,964,554
Plan fiduciary net position - beginning	**58,556,786**	58,733,884	56,363,714	53,155,336	49,832,060	51,585,521	52,980,115	49,015,561
Effect of change in accounting principle	**—**	—	—	(80,076)	—	—	(41,543)	—
Plan fiduciary net position - beginning restated	**58,556,786**	58,733,884	56,363,714	53,075,260	49,832,060	51,585,521	52,938,572	49,015,561
Plan fiduciary net position - ending (b)	**$ 71,967,352**	$58,556,786	$58,733,884	$56,363,714	$53,155,336	$49,832,060	$51,585,521.(	52,980,115
Employer net pension liability -ending (a)-(b)	**$ 41,056,730**	$49,239,016	$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)

	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability	**$113,024,082**	$107,795,802	$105,516,492	$104,368,679	$102,543,741	$ 99,388,887	$ 94,900,830	$ 92,560,832
Less: Plan fiduciary net position	**71,967,352**	58,556,786	58,733,884	56,363,714	53,155,336	49,832,060	51,585,521	52,980,115
Employer Net Pension liability	**$ 41,056,730**	$ 49,239,016	$ 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	**63.67%**	54.32%	55.66%	54.00%	51.84%	50.14%	54.36%	57.24%
Covered Payroll	**$ 14,176,097**	$ 14,036,006	$ 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	**289.62%**	350.81%	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)

	2021	2020	2019	2018	2017	2016	2015	2014
Actuarially determined contribution	**$ 4,752,338**	$ 4,671,931	$ 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)	**4,752,338**	4,671,931	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	**$14,176,097**	$14,036,006	$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	**33.52%**	33.29%	32.47%	31.51%	28.73%	24.57%	20.07%	15.61%

(1) Amounts for 2015-2021 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)

Total OPEB liability	**2021**	2020	2019	2018	2017
Service cost	**$ 44,699**	$ 42,643	$ 40,201	$ 37,809	$ 42,038
Interest	**60,632**	62,452	65,319	67,091	61,404
Differences between expected and actual experience	**7,272**	11,987	1,435	15,019	—
Changes of assumptions	**212,419**	35,284	50,166	38,456	(110,610)
Benefit payments	**(113,538)**	(113,279)	(112,777)	(111,847)	(110,229)
Net change in total OPEB liability	**211,484**	39,087	44,344	46,528	(117,397)
Total OPEB liability - beginning	**2,291,114**	2,252,027	2,207,683	2,161,155	2,278,552
Total OPEB liability - ending (a)	**$ 2,502,598**	$ 2,291,114	$ 2,252,027	$ 2,207,683	$ 2,161,155
Plan fiduciary net position					
Contributions - employer	**$ 116,519**	$ 117,907	$ 114,829	$ 111,986	$ 110,985
Net investment income	**260**	1,752	2,313	1,455	663
Benefit payments	**(113,538)**	(113,279)	(112,777)	(111,847)	(110,229)
Administrative expense	**(1,143)**	(1,148)	(1,914)	(2,602)	(2,239)
Net Change in plan fiduciary net position	**2,098**	5,232	2,451	(1,008)	(820)
Plan fiduciary net position - beginning	**130,417**	125,185	122,734	123,743	124,563
Plan fiduciary net position - ending (b)	**$ 132,515**	$ 130,417	$ 125,185	$ 122,735	$ 123,743
Employer net OPEB liability - ending (a) - (b)	**$ 2,370,083**	$ 2,160,697	$ 2,126,842	$ 2,084,948	$ 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)

	2021	2020	2019	2018	2017	2016
Total OPEB Liability	**$ 2,502,598**	$ 2,291,114	$ 2,252,027	$ 2,207,683	$ 2,161,155	$ 2,278,552
Less: Plan fiduciary net position	**132,515**	130,417	125,185	122,734	123,743	124,563
Employer Net OPEB Liability	**$ 2,370,083**	$ 2,160,697	$ 2,126,842	$ 2,084,949	$ 2,037,412	$ 2,153,989
Plan fiduciary net position as a percentage of the total OPEB liability	**5.30%**	5.69%	5.56%	5.56%	5.73%	5.47%
Covered Payroll	**$ 14,176.097**	$ 14,036,006	$ 13,791,197	$ 13,466,526	$ 13,313,900	$ 12,951,077
Employer net OPEB liability as a percentage of covered payroll	**16.72%**	15.39%	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)

	2021	2020	2019	2018	2017	2016
Actuarially determined contribution	**$ 133,971**	$ 138,776	$ 139,484	$ 134,607	$ 125,694	$ 129,494
Contributions in relation to the actuarially determined contribution(1)(2)	**116,365**	117,723	114,571	111,724	110,558	112,557
Contribution deficiency	**$ 17,606**	$ 21,053	$ 24,913	$ 22,883	$ 15,136	$ 16,937
Covered payroll	**$ 14,176,097**	$ 14,036,006	$ 13,791,197	$ 13,466,526	$ 13,313,900	$ 12,951,077
Contributions as a percentage of covered payroll	**0.82%**	0.84%	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)

	2021	2020	2019	2018	2017	2016	2015	2014
Annual money-weighted rate of return, net of investment expense- Pension	24.57%	1.14%	6.58%	9.30%	10.15%	1.11%	3.08%	14.98%
Annual money-weighted rate of return, net of investment expense- OPEB	0.31%	1.97%	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, 2021

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, 2021
The Discount Rate decreased from 7.25% to 7.00%. The inflation assumption was decreased from 2.75% to 2.50%. Payroll growth assumption decreased from 3.50% to 3.25%.

Salary growth changed from an effective average of 5.00%, which was comprised of inflation of 2.75%, real wage growth and for merit or seniority increases of 2.25%, to an effective average of 4.50%, comprised of inflation of 2.50% and 2.00% for real wage growth and for merit or seniority increases.

Mortality rates were modified from the RP-2014 Mortality Tables for Males and Females to a blended table based on 50% PubT-2010 Employee (Total Teacher dataset) and 50% PubG-2010 (Total General Employees data), adjusted to reflect PSERS' experience and projected using a modified version MP-2020.

For disabled annuitants the rates were modified from the RP-2014 Mortality Tables for Males and Females to Pub-2010 Disability Mortality Non-Safety Headcount Weighted table, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2020.

Changes in assumptions used in measurement of the Total Pension Liability beginning June 30, 2017, beginning June 30, 2018, beginning June 30, 2019 & beginning June 30, 2020
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, 2020 actuarial valuation will be made during the fiscal year ending June 30, 2022. The following actuarial methods and assumptions were used to determine contribution rates reported in that schedule:

- Investment return - 7.25%, includes inflation at 2.50% 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.

Notes to Required Supplementary Information for the Years Ended June 30, 2014 thru June 30, 2021 (continued)

Pension

- 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, 2021

OPEB

Changes in benefit terms
None.

Changes in assumptions used in measurement of the Total OPEB Liability beginning June 30, 2021
The Discount Rate decreased from 2.66% to 2.18%.The inflation assumption was decreased from 2.75% to 2.50%. Payroll growth assumption decrease from 3.50% to 3.25%.

Salary growth changed from an effective average of 5.00%, which was comprised of inflation of 2.75%, real wage growth and for merit or seniority increases of 2.25%, to an effective average of 4.50%, comprised of inflation of 2.50% and 2.00% for real wage growth and for merit or seniority increases.

Mortality rates were modified from the RP-2014 Mortality Tables for Males and Females to a blended table based on 50% PubT-2010 Employee (Total Teacher dataset) and 50% PubG-2010 (Total General Employees data), adjusted to reflect PSERS' experience and projected using a modified version MP-2020.

For disabled annuitants the rates were modified from the RP-2014 Mortality Tables for Males and Females to Pub-2010 Disability Mortality Non-Safety Headcount Weighted table, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2020.

Changes in assumptions used in measurement of the Total OPEB Liability beginning June 30, 2020
The Discount Rate decreased from 2.79% to 2.66%.

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, 2020 actuarial valuation will be made during the fiscal year ending June 30, 2022. The following actuarial methods and assumptions were used to determine contribution rates reported in that schedule:

Notes to Required Supplementary Information for the Years Ended June 30, 2014 thru June 30, 2021 (continued)

OPEB

- Investment return - 2.18% - 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, 2021
(Dollar Amounts in Thousands)

	Administrative Expenses				
	Pension	**Defined Contributions**	**Postemployment Healthcare (1)**	**Investment Expenses (2)**	**Total**
Personnel costs:					
Salaries and wages	$ 17,466	$ 285	$ 1,196	$ 10,184	**$ 29,131**
Employee benefits	12,173	178	765	4,721	**17,837**
Total personnel costs	29,639	463	1,961	14,905	**46,968**
Operating costs:					
Investment managers' fees	—	—	—	584,523	**584,523**
Custodian fees	—	—	—	2,496	**2,496**
Specialized services	76	782	—	1,400	**2,258**
Investment Systems	—	—	—	5,344	**5,344**
Investment Services	—	—	—	2,280	**2,280**
Third party administrator	—	—	32,288	—	**32,288**
Fitness program administrator	—	—	834	—	**834**
Healthcare project management	—	—	3,543	—	**3,543**
Real estate rental, electricity	2,003	—	242	256	**2,501**
Consultant and legal fees	4,213	122	1,079	4,626	**10,040**
Treasury and other Commonwealth services	1,700	—	—	175	**1,875**
Postage	629	—	113	—	**742**
Contracted maintenance and repair services	3,690	—		187	**3,877**
Printing and office supplies	233	—	19	1	**253**
Equipment and software rental	4,846	—		—	**4,846**
Travel and training	63	—	122	8	**193**
Telecommunications	401	—	29	93	**523**
Equipment (non-capital assets)	358	—	—	19	**377**
Subscriptions	315	—	—	1,649	**1,964**
Miscellaneous	939	19	149	157	**1,264**
Total operating costs	19,466	923	38,418	603,214	662,021
Other charges:					
Depreciation	2,812	—	—	—	**2,812**
Total Administrative and Investment Expenses Before Pension & OPEB Expense	51,917	1,386	40,379	618,119	**711,801**
Pension expense (3)	2,390	55	110	1,006	**3,561**
OPEB expense (4)	(4,691)	146	(295)	(1,073)	**(5,913)**
					—
Total Administrative and Investment Expenses	$ 49,616	$ 1,587	$ 40,194	$ 618,052	**$ 709,449**

(1) Administrative expenses for Postemployment Healthcare includes $1,143 related to Premium Assistance and $39,050 related to Health Options Program for the fiscal year ended June 30, 2021.

(2) Includes investment expenses of $37 related to Postemployment Healthcare Premium Assistance, $36 related to Health Options Program and $97 for DC for the fiscal year ended June 30, 2021 and does not include $4,632 in capitalized broker commissions for the fiscal year ended June 30, 2021.

(3) Total GASB 68 pension expense is $12.5 million and is reflected under Employee benefits and Pension expense. Employer contributions of $9.0 million are included as Employee benefits under Personnel costs and $3.5 million is reflected as Pension expense.

(4) Total GASB 75 OPEB expense is $(3.9) million and is reflected under Employee benefits and OPEB expense. Employer contributions of $2.0 million are included as Employee benefits under Personnel costs and $(5.9) million is reflected as OPEB expense.

Supplementary Schedule 2
Summary of Investment Expenses*
Year Ended June 30, 2021
(Dollar Amounts in Thousands)

	Investment Management			
	Base	**Performance**	**Other Expenses**	**Total**
External management:				
Domestic equity	$ 558	$ 2,500	$ —	**$ 3,058**
International equity	26,486	66,575	—	**93,061**
Fixed income	35,364	27,304	—	**62,668**
Real estate	51,618	—	—	**51,618**
Alternative investments	101,569	—	—	**101,569**
Absolute return	88,798	91,523	—	**180,321**
Commodities	11,534	11,062	—	**22,596**
Infrastructure	5,052	—	—	**5,052**
Master limited partnership	786	1,686	—	**2,472**
Risk parity	4,021		—	**4,021**
Private credit	57,990			**57,990**
Defined Contribution	97	—	—	**97**
Total external management	383,873	200,650	—	**584,523**
Total internal management	—	—	26,407	**26,407**
Total investment management	383,873	200,650	26,407	**610,930**
Custodian fees	—	—	2,496	**2,496**
Consultant and legal fees	—	—	4,626	**4,626**
Total investment expenses	$ 383,873	$ 200,650	$ 33,529	**$ 618,052**

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

Supplementary Schedule 3
Schedule of Payments to Non-Investment Consultants
Year Ended June 30, 2021
(Dollar Amounts Greater than $100,000)

Non-Investment Consultants	Fees	Services Provided
Trustmark Health Benefits	$ 32,810,296	Postemployment Healthcare benefits administration and claims adjudication
Optum RX, Inc	6,146,201	Administration of post employment healthcare benefits and prescription drug plan
Vitech Systems Group, Inc.	5,300,000	Pension administration system services
The Segal Company, Inc.	3,543,649	Actuarial services and consulting for HOP and prescription drug plan
Gallagher Benefit Services, Inc.	1,079,577	Pharmacy benefit consulting services
Tivity Health	833,901	Administration of the Silver Sneakers Fitness program
OST Inc.	594,119	Information technology, training, testing and consulting services
Funston Advisory Services LLC	400,000	Board governance consulting services
Buck Global, LLC	318,983	Pension benefit actuarial services


PA State
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