Financial Section

SB & COMPANY, LLC
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REPORT OF INDEPENDENT PUBLIC ACCOUNTANTS

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

Report on the Audit of the Financial Statements

Opinions

We have audited the accompanying statement of fiduciary net position of the Commonwealth of Pennsylvania Public School Employees' Retirement System (PSERS), a component unit of the Commonwealth of Pennsylvania, as of June 30, 2023, and the related statement of changes in fiduciary net position for the year then ended, and the related notes to the financial statements, as listed in the table of contents.

In our opinion, the accompanying financial statements present fairly, in all material respects, the fiduciary net position of PSERS, as of June 30, 2023, and the respective change in fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of PSERS and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Other Matter

The financial statements of PSERS as of and for the year ended June 30, 2022 were audited by another auditor who expressed an unmodified opinion on those statements on October 4, 2022.

Responsibilities of Management for the Financial Statements

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

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about PSERS' ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

The Board of Trustees of
Commonwealth of Pennsylvania Public School Employees' Retirement System
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Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal controls relevant to the audit 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 PSERS' internal controls. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about PSERS' ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal controls-related matters that we identified during the audit.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis, schedule of changes in the employer net pension liability, schedule of employer net pension liability, schedule of employer pension contributions, schedule of changes in the employer net OPEB (premium assistance) liability, schedule of employer net OPEB (premium assistance) liability, schedule of employer OPEB (premium assistance) contributions, and schedule of investment returns – pension and OPEB, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

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Supplementary Information

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise PSERS' basic financial statements. The schedule of administrative and investment expenses, summary of investment expenses, and schedule of payments to non-investment consultants are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The accompanying supplementary information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the accompanying supplementary information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

Other Information

Management is responsible for the other information included in the annual report. The other information comprises the introductory, investment, actuarial, and statistical sections, but does not include the basic financial statements and our auditor's report thereon. Our opinions on the basic financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon. In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

SB & Company, LLC

Owings Mills, Maryland
September 29, 2023

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, 2023 (FY 2023) 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, 2023 and 2022. 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, 2022 to June 30, 2023 and from July 1, 2021 to June 30, 2022. 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 other remaining supplementary information 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. This supplementary information is considered useful in understanding and evaluating the financial activities of PSERS.

Financial Highlights

- PSERS' total net position increased $1.6 billion from $71.2 billion at June 30, 2022 to $72.8 billion at June 30, 2023. The increase at June 30, 2023 was due mostly to the combination of additions for net investment income plus member and employer contributions exceeding deductions for benefit and administrative expenses. During the fiscal year, net investment income reflected shifts in the market environment primarily related to rising interest rates, tighter credit markets, and geopolitical uncertainty. PSERS' total net position decreased $1.3 billion from $72.5 billion at June 30, 2021 to $71.2 billion at June 30, 2022. The decrease at June 30, 2022 was due mostly to deductions for benefit, administrative expenses and net investment loss exceeding member and employer contributions.
- PSERS' Plan fiduciary net position as a percentage of the total pension liability (market value funded ratio) increased from 61.34% at June 30, 2022 to 61.85% at June 30, 2023 due to PSERS receiving the full actuarially determined contributions and positive investment returns.
- Total employer contributions increased from $5.1 billion in FY 2022 to $5.4 billion in FY 2023. This increase was primarily attributable to employer payroll growth and a small increase in the total employer contribution rate from 34.94% in FY 2022 to 35.26% in FY 2023.
- PSERS' employers fully funded the actuarially determined contributions from FY 2016 to FY 2023. These contributions continue to make a positive difference in PSERS' longer term funding trends as PSERS Net Pension Liability has declined by approximately 10% from $49.6 billion at June 30, 2016 to $44.5 billion at June 30, 2023.
- PSERS' total benefit expense increased from $7.8 billion in FY 2022 to $8.2 billion in FY 2023. The average monthly pension benefit and the number of members receiving benefits increased in FY 2023.

Management's Discussion and Analysis (continued)

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 increased steadily each year from the 5.64% in effect when Act 120 became law to the 35.26% rate in FY 2023. Prior to Act 120, PSERS' Annual Required Contribution (ARC) percentage of contributions received under Governmental Accounting Standards Board (GASB) standards was 27%. On July 1, 2016, PSERS began receiving 100% of actuarially determined 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 continued to receive the actuarially determined contributions from FY 2016 to FY 2023, 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 or less than inflation.

Analysis of Fiduciary Net Position

(Dollar Amounts in Thousands)

Summary of Fiduciary Net Position	FY 2023	Increase (Decrease)	FY 2022	Increase (Decrease)	FY 2021
Assets:					
Receivables	**$ 2,543,417**	$ 70,937	$ 2,472,480	$ (73,438)	$ 2,545,918
Investments	**71,733,876**	829,140	70,904,736	(1,256,048)	72,160,784
Securities lending collateral pool	**6,147,770**	(3,680,820)	9,828,590	1,966,303	7,862,287
Capital assets	**35,880**	20,994	14,886	(2,135)	17,021
Miscellaneous	**44,883**	13,324	31,559	(5,156)	36,715
Total Assets	**80,505,826**	(2,746,425)	83,252,251	629,526	82,622,725
Liabilities:					
Payables and other liabilities	**1,516,115**	(755,068)	2,271,183	43,564	2,227,619
Obligations under securities lending	**6,147,770**	(3,680,820)	9,828,590	1,966,303	7,862,287
Total Liabilities	**7,663,885**	(4,435,888)	12,099,773	2,009,867	10,089,906
Net Position	**$72,841,941**	$ 1,689,463	$71,152,478	$ (1,380,341)	$72,532,819
Summary of Changes in Fiduciary Net Position					
Additions:					
Contributions	**$ 6,628,323**	$ 320,883	$ 6,307,440	$ 316,803	$ 5,990,637
Participant premiums and CMS	**478,861**	(1,982)	480,843	10,086	470,757
Net investment income (loss)	**2,830,392**	3,112,793	(282,401)	(15,046,813)	14,764,412
Total Additions	**9,937,576**	3,431,694	6,505,882	(14,719,924)	21,225,806
Deductions:					
Benefit expenses	**8,151,007**	356,512	7,794,495	163,119	7,631,376
Administrative expenses	**97,106**	5,378	91,728	331	91,397
Total Deductions	**8,248,113**	361,890	7,886,223	163,450	7,722,773
Changes in Net Position	**1,689,463**	3,069,804	(1,380,341)	(14,883,374)	13,503,033
Balance, Beginning of Year	**71,152,478**	(1,380,341)	72,532,819	13,503,033	59,029,786
Balance, End of Year	**$72,841,941**	$ 1,689,463	$71,152,478	$ (1,380,341)	$72,532,819

Management's Discussion and Analysis (continued)

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 maintained the Act 120 employer contribution payment schedule and expanded shared risk.

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 40-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.

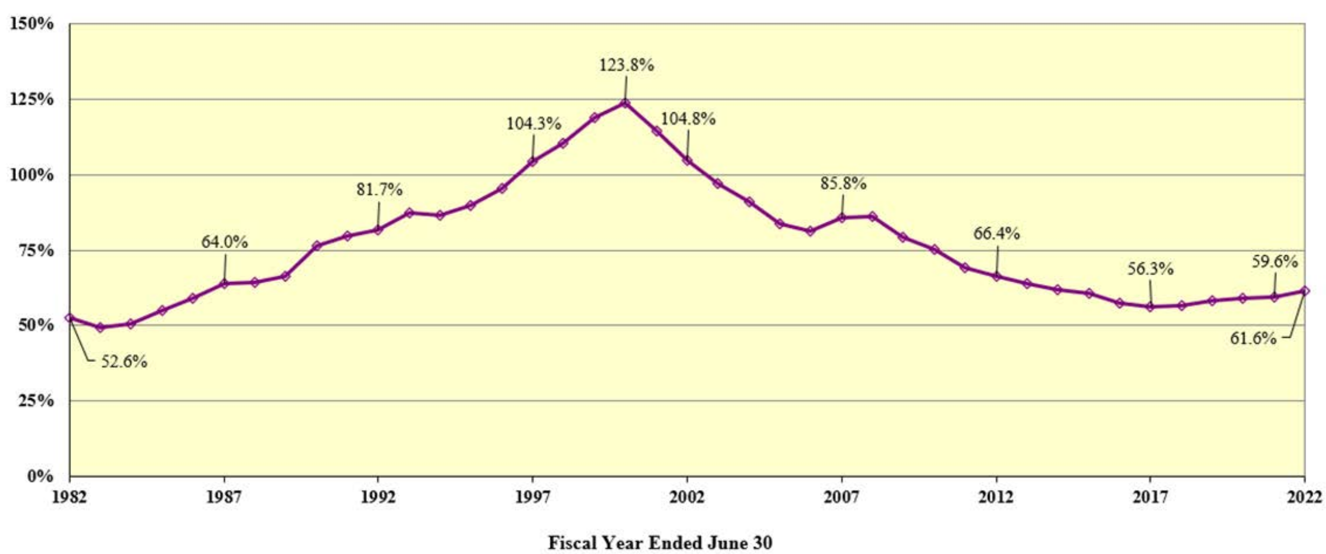
PSERS' funded ratio increased from 59.6% at June 30, 2021 to 61.6% as of June 30, 2022, the most recent actuarial valuation, due to full actuarially determined employer contributions, favorable demographic experience, and positive investment returns. The actuarial funded ratio improved to 61.6% as of June 30, 2022 after reaching a significant turning point at June 30, 2017 when it fell to a low of 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.

FY 2023 operational results will be reflected in the actuarial valuation for the year ended June 30, 2023. Due to the normal lag time for completion of the actuarial valuation, the resulting funded status will be available at the end of the 2023 calendar year and will be reported in the financial statements for the fiscal year ending June 30, 2024 (FY 24). Based on positive investment performance for the ten-year period ended June 30, 2023 and due to receiving the full actuarially determined contributions, the funded ratio at June 30, 2023 is expected to improve.

Under GASB 67, the market value funded ratio, which is referred to as the plan fiduciary net position as a percentage of total pension liability, increased from 61.34% at June 30, 2022 to 61.85% at June 30, 2023 due to PSERS receiving the full actuarially determined contributions and positive investment returns. Unlike the actuarial funded ratio, which recognizes the investment performance over 10 years, the market value funded ratio is expected to fluctuate more year-to-year due to the immediate recognition of the fund's fiscal year investment performance. Over the past seven years, the longer term trend of the market value funded ratio increased from 50.14% at June 30, 2016 to 61.85% at June 30, 2023 due primarily to PSERS receiving the full actuarially determined contributions for all seven years and strong positive investment returns. Based on the current actuarial assumptions, PSERS remains on a path to full funding.

PSERS' State Accumulation Account improved from $(10.5) billion at June 30, 2022 to $(9.2) billion at June 30, 2023 due to employer contributions at the actuarially determined level

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



*2022 is the most recent actuarial valuation available and investment performance that exceeded benefit payments and administrative expenses. Investment earnings and actuarially determined employer contributions will continue to reduce the deficit in this account in the future (See Note 3).

Investments

Portfolio Performance Summary:

PSERS' total investments of $71.7 billion represents an increase of $0.8 billion over the previous fiscal year end amount. Total plan investment performance for FY 2023 was 3.54%. During the fiscal year, performance reflected shifts in the market environment primarily related to rising interest rates, tighter credit markets and geopolitical uncertainty.

Key Market Themes:

PSERS constructs its asset allocation plan balancing the return, risk, and correlation with each asset class as well as the financial objectives of the Fund. A primary element of PSERS' investment philosophy is diversification among various asset classes as an effective method to realize its goals while addressing uncertainty across capital markets from shifting macroeconomic and geopolitical environments. Over the past year, several such shifts emerged, with three themes (rising interest rates, tighter credit markets, and geopolitical uncertainty) having particular significance.

- *Rising Interest Rates* – This fiscal year witnessed a significant shift higher of 350 basis points in the over-night interest rates from 1.50%-1.75% to 5.00%-5.25%. This represents a continuation of rate hikes from last fiscal year as the Federal Reserve seeks to address concerns over higher inflation rates resulting from the fiscal responses to COVID-19 and supply-chain challenges. While inflation concern has subsided somewhat from its highs (core inflation peaked at 6.6% in September 2022, compared to 4.8% as of June 30, 2023), it remains elevated in the face of strong labor markets and buoyant economic activity, making the future of monetary policy direction uncertain. However, the resulting higher rates on cash have implications across the entire PSERS portfolio, most notably on the return for holding cash, the cost for employing leverage, and risk-return value proposition for all other asset classes relative to cash.

- *Tighter Credit Markets* – Partially because of the higher interest rates described above, Silicon Valley Bank collapsed and was taken over in March 2023. This was followed by takeovers of Signature Bank that same weekend and then First Republic in May. The initial market turbulence and concerns about contagion of cash withdrawals in other regional banks was quickly quelled through decisive government action. However, these events highlighted and exacerbated a shift towards tighter credit markets, particularly for Commercial Real Estate (CRE), as regional banks demonstrated a reduced appetite for this long-term debt given the short-term, and potentially uncertain nature of deposits relied on to fund such debt. Lending for office and retail related inventory has been most acutely impacted as employers have proven reluctant to require employees to return to the office following the shift to online working that occurred in response to COVID-19. Fewer employees coming into the traditional office centers has also translated into less foot traffic for traditional retail located in these centers. The implications of tighter credit markets, together with higher interest rates, lower occupancies and less foot traffic presents risk to the equity holders, particularly where the degree of leverage underlying such properties is high and the related maturities are relatively near. However, this disruption among bank lenders, presents opportunity for lenders with longer term capital to be more discerning within sectors of real estate with better outlooks, such as multifamily and industrial use properties.

- *Geopolitical Uncertainty* - While Russia's invasion of Ukraine most directly impacted capital markets in the prior fiscal year, the resulting geopolitical uncertainty has influenced how investors frame investment choices across geographic regions. The long-standing theme of globalization based on the economics of comparative advantages, has more recently given way to more pragmatic discussions regarding supply chain resiliency or nearshoring/onshoring of activities that had previously been offshored. This further complicates the assessment of relative value across regional classifications, which were already clouded given differences in sector composition, financial reporting transparency, and basic investor rights across jurisdictions. Accordingly, some investors (including PSERS) have revisited and revised long standing strategic over/underweights to certain geographical regions (e.g., Public U.S. relative to Emerging Market equity allocations). We believe this trend will influence the flow of capital across regional classifications and likely impact relative market valuations over the next three to five years.

Market Performance Summary:

Markets experienced two distinct phases over FY 2023. Concern over declining growth accompanied by high inflation marked the first half through December 2022. For example, while the Nasdaq-100 index ended the half down approximately 4.9%, that performance included a drawdown of over (21.8%) from the fiscal year August high as investors questioned the outlook for growth-oriented companies in the face of rising inflation, high interest rates, and concern that the tightening monetary policy would result in a relatively steep recession. Long U.S. Treasury securities also ended the half down (10.2%). The second half through June 2023, experienced a sharp recovery on both fronts, with the Nasdaq-100 returning almost 39% through the half (ending the full fiscal year up 31.9%) as the outlook for growth improved. Long U.S. Treasury securities also improved 3.7% over the half (ending the full fiscal year down (6.8%)) as inflation expectations moderated and consensus began to build that the Federal Reserve may pull off a relatively softer landing. Real Assets provided little diversification over the period, with the exception of exposure to gold, which held steady returning 0.8% over the first half and then ended the full period up 6.2%. The table below summarizes the relative public market benchmark performance for the fiscal year grouped by three of PSERS' major asset classes.

Indices	FY 22-23
Public Equity	
S&P 500	19.6%
S&P 400	17.6%
S&P 600	9.8%
Nasdaq-100 Index	31.9%
MSCI ACWI x-US IMI Net	12.7%
MSCI Emerging Market IMI	3.2%
Public Fixed Income	
Bloomberg US Aggregate	(0.9%)
Bloomberg US Long Treasury	(6.8%)
PSERS Blended Emerging Markets Bond	7.4%
Bloomberg US Corporate High Yield	9.1%
Bloomberg US TIPS	(1.3%)
Bloomberg World Ex-US ILB Hedged	(6.2%)
Public Real Assets	
FTSE Developed Core 50/50	(1.3%)
Bloomberg Commodity Total Return	(9.6%)
Bloomberg Gold Total Return	6.2%
FTSE EPRA/NAREIT Developed	(4.6%)

- **Public Equities** – confidence in the United States growth is reflected in the 19.6% and 31.9% gains in the return of the S&P 500 and Nasdaq-100 indices over the fiscal year ending June 30, 2023. Much of the relative outperformance for U.S. equities generally (and the Nasdaq more specifically) was experienced during the second half of the fiscal year. Global equities, as measured by MSCI ACWI x-US index, also advanced 12.7%, however, lacked the magnitude of returns experienced domestically.

- **Fixed Income** – the move in short term rates described above drove the entire yield curve higher over the fiscal year. The United States 10-year yield increased 82 basis points over the fiscal year to close at 3.82% yield. While forward looking yields for fixed income assets have improved significantly over the period, the fiscal year-to-year return for the Long Treasury index was (6.8%), underperforming broader markets due primarily to the duration impact associated with rising rates. Credit spreads narrowed fiscal year-to-year as concerns over inflation and a potential recession reduced over this period. Tighter spreads, along with shorter overall duration among credit assets, more generally offset the declines recorded for Long Treasury resulting in returns of (0.9%) and 9.1% for the Bloomberg Aggregate and US Corporate High Yield indices, respectively.

- **Real Assets** – the real assets category includes commodities, REITs, and infrastructure where the underlying value is derived from the price/revenue adjusting nature of the underlying assets, providing longer term resiliency to the impact of rising inflation. However, REITs and infrastructure still exhibit shorter term sensitivity to changes in interest rates. Over the past year, the Bloomberg Commodity Total Return Index, FTSE EPRA/NAREIT Developed Index, and FTSE Developed Core 50/50 Index ,all registered negative returns of (9.6%), (4.6%), and (1.3%), respectively, while the Bloomberg Gold Total Return Index experienced a positive return of 6.2%.

Investment Return Reporting vs. Financial Statement Reporting

The FY 2022 time-weighted investment rate of return was a positive 2.23% in contrast to the FY 2022 net investment (loss) of $(282.4) million. This difference was due to the Pension industry's use of quarter lag reporting for a certain set classes for investment return reporting. For financial statement reporting purposes, nearly all Real estate and Alternative investments were valued based on June 30, 2022 valuations. For investment return reporting, the Real estate and Alternative investments were based on quarter lag valuations as of March 31, 2022. As a result, the financial statements included a net valuation decrease of $(317) million at June 30, 2022 that was not be recognized in the investment returns for FY 2022. In FY 2021, the financial statements included a June 30, 2021 Real estate and Alternative investment valuation increase of $1.9 billion which was not recognized in the investment returns until FY 2022. The combined impact of the FY 2021 and FY 2022 quarter lag valuation adjustments was $2.2 billion. As a result, the FY 2022 investment returns were higher than the net investment loss recognized in the financial statements. This combined impact is the reason why the financial statements have a Net Investment Loss of $(282.4) million and FY 2022 investment returns were a positive 2.23%. These circumstances did not exist in FY 2023 as both net investment income and investment performance were positive.

Table 1 - Investment Balances by Asset Class

	(Dollar Amount in Thousands)					
Asset Class	**2023**	**%**	2022	%	2021	%
Short-term	**$ 6,659,290**	**9.3**	$ 9,420,478	13.3	$ 9,479,700	13.1
Fixed income	**15,658,641**	**21.8**	13,752,793	19.4	13,253,332	18.4
Equity	**21,506,295**	**30.0**	17,136,393	24.2	18,437,873	25.6
Collective trust funds	**2,308,844**	**3.2**	5,571,997	7.9	7,377,281	10.2
Real estate	**7,437,732**	**10.4**	7,122,100	10.0	5,986,463	8.3
Alternative investments	**18,163,074**	**25.3**	17,900,975	25.2	17,626,135	24.4
Total	**$ 71,733,876**	**100.0**	$ 70,904,736	100.0	$ 72,160,784	100.0

The asset distribution of PSERS' investment portfolio at June 30, 2023, including defined contribution and postemployment healthcare assets, is presented in Figure 2 and Table 1. For comparison purposes, the prior two fiscal years are also presented in Table 1.

FY 2023

- ***Short-term investments*** (cash and cash equivalents) decreased by $2.7 billion from $9.4 billion at June 30, 2022 to $6.7 billion June 30, 2023 mainly due to a reallocation of exposure to other asset classes.
- ***Fixed income investments*** increased by $1.9 billion from $13.8 billion at June 30, 2022 to $15.7 billion at June 30, 2023 mainly due to a reallocation of exposure from other asset classes which was offset by negative investment performance.
- ***Equity investments*** increased by $4.4 billion from $17.1 billion at June 30, 2022 to $21.5 billion at June 30, 2023 mainly due to a reallocation of exposure from other asset classes and investment performance.
- ***Collective trust funds*** decreased by $3.3 billion from $5.6 billion at June 30, 2022 to $2.3 billion at June 30, 2023 due to the unwinding of the absolute return program.
- ***Real estate investments*** increased by $0.3 billion from $7.1 billion at June 30, 2022 to $7.4 billion at June 30, 2023 due to contributions to new and existing partnerships combined with valuation increases in partnership portfolio holdings which exceeded significant distributions.
- ***Alternative investments*** increased by $0.3 billion from $17.9 billion at June 30, 2022 to $18.2 billion at June 30, 2023 due to contributions to new and existing partnerships combined with valuation increases in partnership portfolio holdings which exceeded significant distributions.

FY 2022

- ***Short-term investments*** (cash and cash equivalents) slightly decreased by $0.1 billion from $9.5 billion at June 30, 2021 to $9.4 billion June 30, 2022.
- ***Fixed income investments*** increased by $0.5 billion from $13.3 billion at June 30, 2021 to $13.8 billion at June 30, 2022 mainly due to a reallocation of exposure from other asset classes which was offset by negative investment performance.
- ***Equity investments*** decreased by $1.3 billion from $18.4 billion at June 30, 2021 to $17.1 billion at June 30, 2022 mainly due to negative investment performance which was offset by reallocation of exposure from other asset classes.
- ***Collective trust funds*** decreased by $1.8 billion from $7.4 billion at June 30, 2021 to $5.6 billion at June 30, 2022 due to the unwinding of the absolute return program.
- ***Real estate investments*** increased by $1.1 billion from $6.0 billion at June 30, 2021 to $7.1 billion at June 30, 2022 due to contributions to new and existing partnerships combined with valuation increases in partnership portfolio holdings which exceeded significant distributions. After the conclusion of the audit, the Board accepted the appraisals for certain directly-owned properties. The difference between the valuations in the appraisals and the valuations included in the financial statements was determined to be immaterial, so no adjustments were made to the financial statements.
- ***Alternative investments*** increased by $0.3 billion from $17.6 billion at June 30, 2021 to $17.9 billion at June 30, 2022 due to contributions to new and existing partnerships combined with valuation increases in partnership portfolio holdings which exceeded significant distributions.

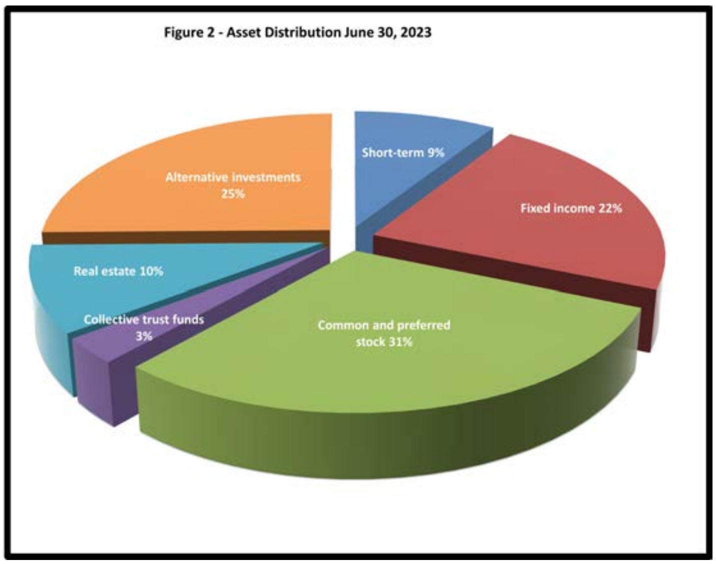
Management's Discussion and Analysis (continued)

Securities Lending

The System's net income from securities lending activities decreased by $2.6 million from $25.7 million in FY 2022 to $23.1 million in FY 2023. The spread earned on net income from securities lending decreased from FY 2022 to FY 2023 as the amounts rebated to the borrowers outpaced gross earnings on the borrower's collateral. Gross lending income and expenses both increased significantly as the economy in general moved to a higher interest rate environment.

Contributions

Employer contributions increased from $5.1 billion in FY 2022 to $5.4 billion in FY 2023. This increase was primarily attributable to employer payroll growth and a small increase in the total employer contribution rate from 34.94% in FY 2022 to 35.26% in FY 2023. Employer contributions increased from $4.9 billion in FY 2021 to $5.1 billion in FY 2022. This increase was primarily attributable to employer payroll growth and a small increase in the total employer contribution rate from 34.51% in FY 2021 to 34.94% in FY 2022.

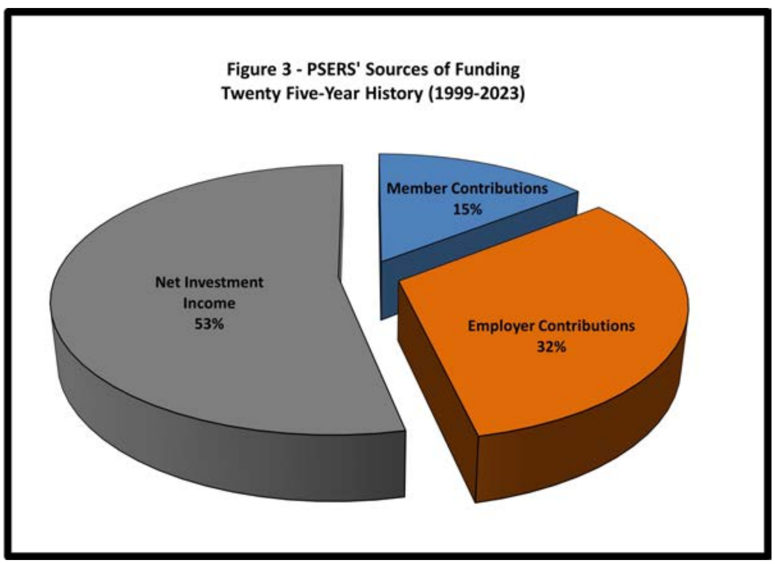


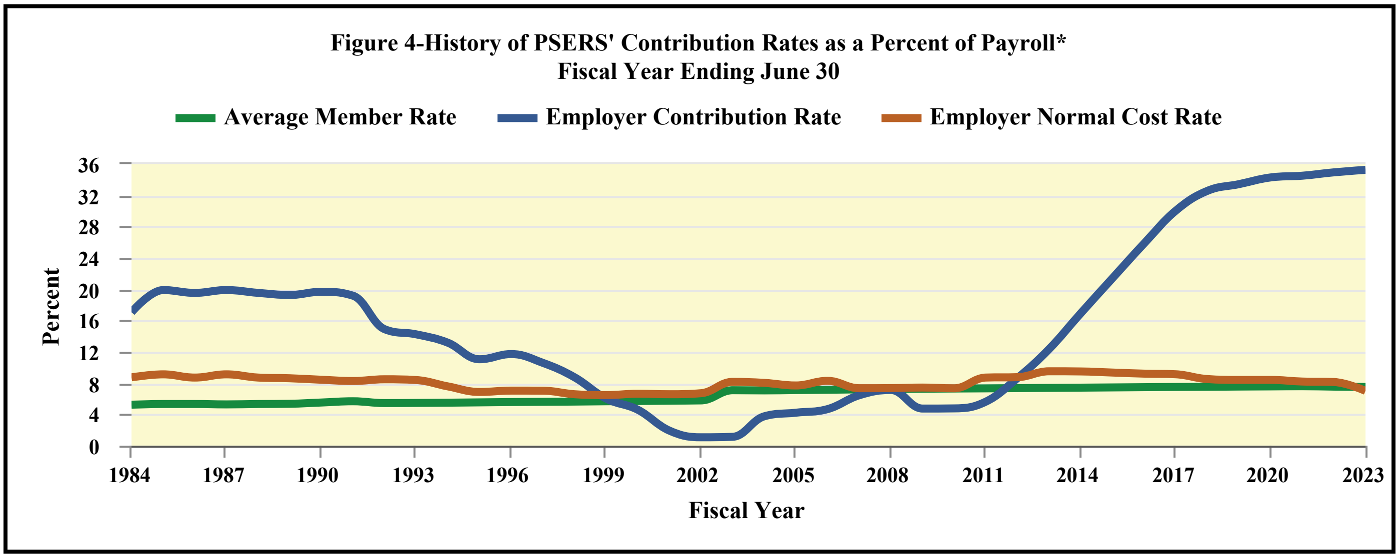
Total member contributions increased from $1.17 billion in FY 2022 to $1.23 billion in FY 2023 mainly due to an increase in member contributions from active member payroll. Total member contributions increased from $1.10 billion in FY 2021 to $1.17 billion in FY 2022 mainly due to an increase in member contributions from active member payroll and an additional $22 million increase due to the member shared risk contribution rate increases.

Member contribution receivables increased from $382.6 million at June 30, 2022 to $407.0 million at June 30, 2023 as a result of active member payroll that was partially offset by a decrease in the average member contribution rate from 7.56% in FY 2022 to 7.52% in FY 2023. Member contribution receivables increased from $368.8 million at June 30, 2021 to $382.6 million at June 30, 2022 as a result of an increase in member purchase of service contributions and active member payroll that was partially offset by a decrease in the average member contribution rate from 7.61% in FY 2021 to 7.56% in FY 2022. The employer contribution receivables remained consistent at $1.4 billion at June 30, 2022 and June 30, 2023. See Figure 4 for a history of PSERS contribution rates.

Commonwealth Share of Employer Contributions

The Commonwealth reimburses all school entity employers (school districts, intermediate units and vocational technical schools) a portion of all employer contributions paid to the System. The Commonwealth reimburses at least 50% of school entities' contributions. The Commonwealth reimbursement rate, however, could be larger based on the school entities' Market Value/Personal Income Aid Ratio,





* Includes Premium Assistance & DC

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 colleges/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 2023 was $3.0 billion and for FY 2022 was $2.8 billion. The school and non-school entity share of total employer contributions for FY 2023 was $2.4 billion and for FY 2022 was $2.3 billion. For FY 2023 total employer contributions were $5.4 billion and for FY 2022 were $5.1 billion.

Investment Income

Net investment income of $2.8 billion in FY 2023 increased from a net investment loss of $(282.4) million in FY 2022 reflecting shifts in the market environment primarily related to rising interest rates, tighter credit markets, and geopolitical uncertainty. As depicted in Figure 3, investment earnings provided 53% 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 2023 was for the payment of pension and healthcare benefits approximating $8.2 billion. The breakdown consisted of $7.6 billion for Pension, $6.0 million for Defined Contribution, $113 million for Premium Assistance, and $451 million for HOP benefits. Figure 5 illustrates the significant portion of expenses attributable to benefit payments.

Total PSERS' benefit expense increased from $7.8 billion in FY 2022 to $8.2 billion in FY 2023. The increase is attributable to an ongoing increase to the average monthly benefit. Pension benefits payable increased from $542.0 million at June 30, 2022 to $656.4 million at June 30, 2023. This increase was mainly attributable to an increase in pension payments payable from a higher number of retirements in the 4th quarter of FY 2023. Total PSERS' benefit expense increased from $7.6 billion in FY 2021 to $7.8 billion in FY 2022. The increase is attributable to an ongoing increase to the average monthly benefit. Pension benefits payable decreased from $576.3 million at June 30, 2021 to $542.0 million at June 30, 2022. The decrease was mainly attributable to a decrease in pension payments payable from a lower number of retirements in the 4th quarter of FY 2022.

Investment expenses decreased by $119.8 million from $525.4 million in FY 2022 to $405.6 million in FY 2023 mainly due to a decrease in management fees in collective trust funds of $99 million. The decrease in collective trust

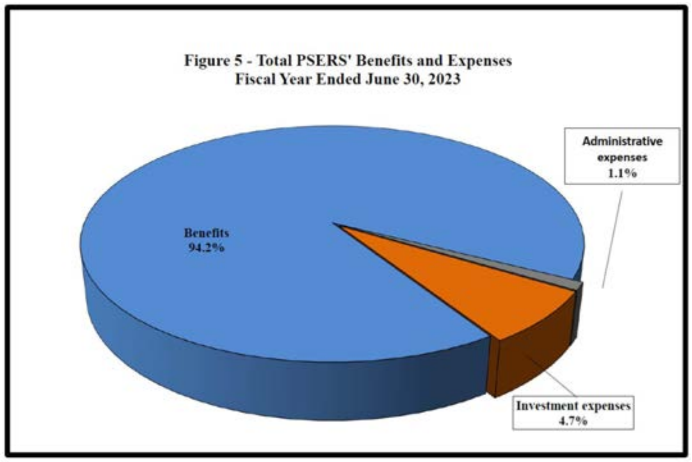
Management's Discussion and Analysis (continued)

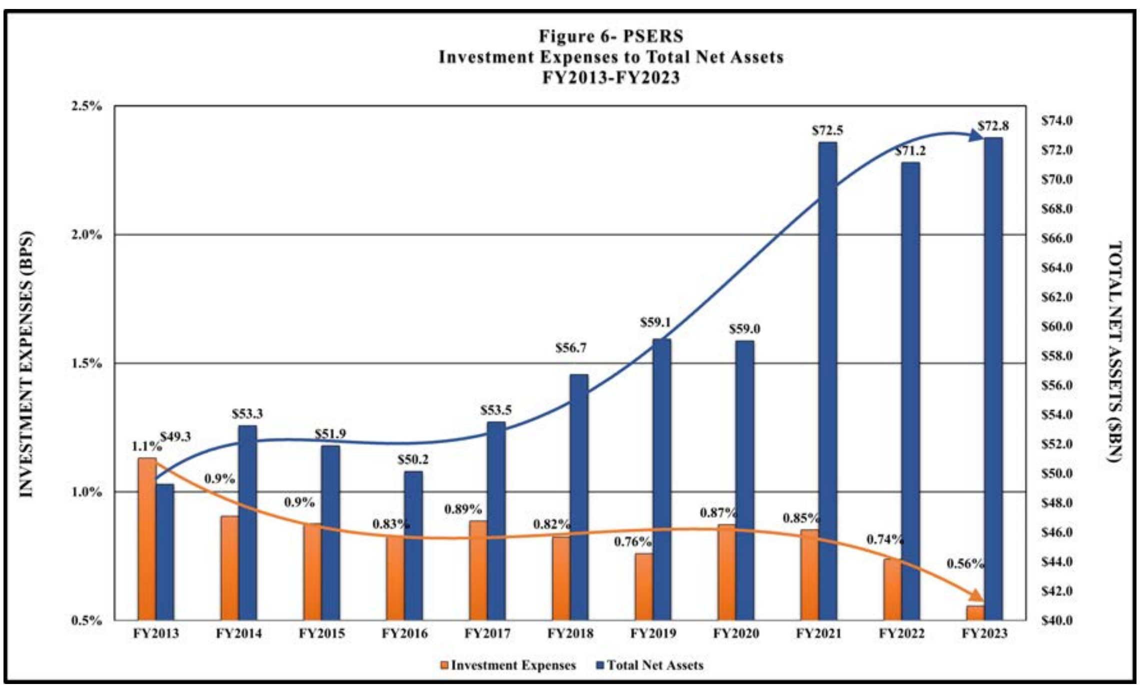
fund fees is mainly attributable to lower performance fees earned in FY 2023 and the reduction of the absolute return program. As a percentage of total benefits and expenses, investment expense decreased from 6.2% in FY 2022 to 4.7% in FY 2023.

As a percentage of total benefits and expenses, investment expense has decreased from a high of 8.2% in FY 2013 to 4.7% in FY 2023. During this same period net assets increased $24.1 billion from $48.7 billion at June 30, 2012 to $72.8 billion at June 30, 2023 as depicted in Figure 6. Correspondingly, investment expenses as a percentage of net assets have also decreased from a high of 1.1% in FY2013 to 0.56% in FY 2023.

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, requests 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 $5.4 million from $91.7 million during FY 2022 to $97.1 million during FY 2023. This increase was mainly attributable to an increase in GASB 68 pension expense, an increase to the OPEB expense, and an increase to Depreciation expense due to GASB 96 implementation. This was partially offset by decreases in Consultant and legal fees, and Equipment and software rental. As depicted in Figure 5, administrative expenses represent 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 that contain the financial position and activities for the defined contribution plan.

Financial Highlights

Total net position increased by $102.9 million from June 30, 2022, to June 30, 2023. This increase is primarily due to participant and employer contributions and investments (additions) exceeding the benefits and administrative expenses (deductions).

Contributions

Total member (participant) contributions increased from $32.9 million to $50.7 million, while total employer contributions increased from $25.4 million to $39.3 million for years ended June 30, 2022, and 2023, respectively. Contributions increased due to an increase in participants from 46,500 on June 30, 2022, to 63,700 on June 30, 2023, resulting in an increase in employee and employer contributions. Additionally, employee contributions increased due to an 83.9% increase in participants with voluntary post tax contributions and 21.4% increase in participants with rollover contributions.

Investment Income (Loss)

Total net investment income (loss) increased from ($15.8) million to $21.5 million for the years ended June 30, 2022 and 2023, respectively. The increase is due to market conditions driven by low unemployment, steady wage growth, consumer confidence, and an artificial-intelligence-fueled tailwind.

Benefits and Expenses

Overall deductions increased from $5.8 million to $8.6 million for the years ended June 30, 2022, and 2023, respectively. Total distributions increased by $2.5 million mostly due to a 48.6% increase in the number of participants receiving distributions. Overall DC administrative expenses increased due to an increase in the total number of participants in the plan offset by a decrease in PSERS personnel cost and OPEB expense.

Defined Contribution Plan

Summary of Fiduciary Net Position	(Dollar Amounts in Thousands)				
Assets:	**FY 2023**	Increase (Decrease)	FY 2022	Increase (Decrease)	FY 2021
Receivables	**$ 934**	$ 333	$ 601	$ (68)	$ 669
Investments	**202,766**	103,128	99,638	36,993	62,645
Total Assets	**203,700**	103,461	100,239	36,925	63,314
Liabilities:					
Payables and other liabilities	**1,819**	551	1,268	230	1,038
Total Liabilities	**1,819**	551	1,268	230	1,038
Net Position	**$ 201,881**	$ 102,910	$ 98,971	$ 36,695	$ 62,276

Summary of Changes in Fiduciary Net Position	(Dollar Amounts in Thousands)				
Additions:	**FY 2023**	Increase (Decrease)	FY 2022	Increase (Decrease)	FY 2021
Contributions	**$ 90,004**	$ 31,705	$ 58,299	$ 24,071	$ 34,228
Net investment income (loss)	**21,534**	37,347	(15,813)	(25,127)	9,314
Total Additions	**111,538**	69,052	42,486	(1,056)	43,542
Deductions:					
Distributions	**6,170**	2,540	3,630	2,590	1,040
Administrative expenses	**2,458**	297	2,161	574	1,587
Total Deductions	**8,628**	2,837	5,791	3,164	2,627
Changes in Net Position	**$ 102,910**	$ 66,215	$ 36,695	$ (4,220)	$ 40,915
Balance, Beginning of Year	**98,971**	36,695	62,276	40,915	21,361
Balance, End of Year	**$ 201,881**	$ 102,910	$ 98,971	$ 36,695	$ 62,276

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 that 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 $5.2 million in FY 2023 mainly due to net investment income and employer contributions exceeding benefit and administrative expenses. The total net position continues to be sufficient to fund one full year of benefits. The employer contribution rate decreased by 6.25% from 0.80% in FY 2022 to 0.75% in FY 2023. The change from June 30, 2021 to June 30, 2022 of a $3.0 million increase was due to net investment income and employer contributions exceeding benefit expense deductions and administrative expenses.
- Net investments increased to $108.4 million at June 30, 2023 from $101.9 million at June 30, 2022.

Contributions

Employer contributions decreased from $117.2 million in FY 2022 to $114.7 million in FY 2023 due to a lower contribution rate (0.80% to 0.75%) partially offset by growth in employer payroll.

Investment Income

Total investment income for Premium Assistance increased substantially to $4.5 million for FY 2023 vs. $0.3 million for FY 2022. This is due to increased short-term interest rates.

Benefits and Expenses

Premium Assistance total deductions decreased slightly from $114.5 million in FY 2022 to $114.0 million in FY 2023. Administrative costs were higher by $259 thousand due to increases in personnel costs and pension expense while premium assistance benefit payments decreased slightly from $113.7 for FY 2022 to $112.9 million in FY 2023.

Health Options Program (HOP)

Financial Highlights

- Total net position decreased by $2.8 million in FY 2023 due to total deductions slightly outpacing total additions.
- Total receivables decreased from $64.4 million at June 30, 2022 to $47.4 million at June 30, 2023. This is due to a reduction in CMS reinsurance receivables and an increase in timely CMS receipts resulting in a reduced year-end receivable.
- Total net position increased from June 30, 2021 to June 30, 2022 by $19.1 million due to increases in participant premiums and CMS receipts which exceeded benefits and administrative expenses.
- Investments increased from $394.6 million at June 30, 2022 to $420.9 million at June 30, 2023 as CMS receipts were more timely, producing more funds for investment and lowering receivables.
- Total liabilities increased from $69.3 million at June 30, 2022 to $81.4 million at June 30, 2023. The increase is due to higher prescription drug and medical claims payable and $6.2 million for receipts in CMS Premium Advances received June 30, 2023 for July 2023.

Participant and CMS Premiums

Total Participant and CMS premiums for HOP decreased slightly from $480.8 million for FY 2022 to $478.9 million for FY 2023 due to a decrease in CMS revenue from prior year adjustments. These were partially offset by an increase in member premiums of $3.8 million.

Investment Income

Net investment income grew substantially from $0.3 million for FY 2022 to $9.1 million in FY 2023 due to increased short-term interest rates.

Benefits and Expenses

HOP total deductions increased by 6.2% from $462.1 million in FY 2022 to $490.7 million in FY 2023. This is due to increases in medical claim costs, net prescription costs and administrative costs.

Premium Assistance

Summary of Fiduciary Net Position

(Dollar Amounts in Thousands)

Assets:	**FY 2023**	Increase (Decrease)	FY 2022	Increase (Decrease)	FY 2021
Receivables	**$ 32,951**	$ (1,222)	$ 34,173	$ (988)	$ 35,161
Investments	**108,367**	6,460	101,907	(4,274)	106,181
Miscellaneous	**—**	—	—	(400)	400
Total Assets	**141,318**	5,238	136,080	(5,662)	141,742
Liabilities:					
Payables and other liabilities	**602**	(2)	604	(8,623)	9,227
Total Liabilities	**602**	(2)	604	(8,623)	9,227
Net Position	**$ 140,716**	$ 5,240	$ 135,476	$ 2,961	$ 132,515

Summary of Changes in Fiduciary Net Position

(Dollar Amounts in Thousands)

Additions:	**FY 2023**	Increase (Decrease)	FY 2022	Increase (Decrease)	FY 2021
Contributions	**$ 114,721**	$ (2,457)	$ 117,178	$ 659	$ 116,519
Net investment income	**4,474**	4,158	316	56	260
Total Additions	**119,195**	1,701	117,494	715	116,779
Deductions:					
Benefit expenses	**112,870**	(837)	113,707	169	113,538
Administrative expenses	**1,085**	259	826	(317)	1,143
Total Deductions	**113,955**	(578)	114,533	(148)	114,681
Changes in Net Position	**$ 5,240**	$ 2,279	$ 2,961	$ 863	$ 2,098
Balance, Beginning of Year	**$ 135,476**	2,961	132,515	2,098	130,417
Balance, End of Year	**$ 140,716**	$ 5,240	$ 135,476	$ 2,961	$ 132,515

Health Options Program

Summary of Fiduciary Net Position

(Dollar Amounts in Thousands)

Assets:	**FY 2023**	Increase (Decrease)	FY 2022	Increase (Decrease)	FY 2021
Receivables	**$ 47,385**	$ (16,990)	$ 64,375	$ (11,743)	$ 76,118
Investments	**420,880**	26,262	394,618	28,893	365,725
Miscellaneous	**170**	34	136	40	96
Total Assets	**468,435**	9,306	459,129	17,190	441,939
Liabilities:					
Payables and other liabilities	**81,421**	12,081	69,340	(2,802)	71,263
Total Liabilities	**81,421**	12,081	69,340	(2,802)	71,263
Net Position	**$ 387,014**	$ (2,775)	$ 389,789	$ 19,113	$ 370,676

Summary of Changes in Fiduciary Net Position

(Dollar Amounts in Thousands)

Additions:	**FY 2023**	Increase (Decrease)	FY 2022	Increase (Decrease)	FY 2021
Participant and CMS premiums	**$ 478,861**	$ (1,982)	$ 480,843	$ 10,086	$ 470,757
Net investment income	**9,088**	8,742	346	132	214
Total Additions	**487,949**	6,760	481,189	10,218	470,971
Deductions:					
Benefit expenses	**450,984**	28,198	422,786	40,320	382,466
Administrative expenses	**39,740**	450	39,290	239	39,051
Total Deductions	**490,724**	28,648	462,076	40,559	421,517
Changes in Net Position	**$ (2,775)**	$ (21,888)	$ 19,113	$ (30,341)	$ 49,454
Balance, Beginning of Year	**$ 389,789**	19,113	370,676	49,454	321,222
Balance, End of Year	**$ 387,014**	$ (2,775)	$ 389,789	$ 19,113	$ 370,676

Statements of Fiduciary Net Position
June 30, 2023 and 2022
(Dollar Amounts in Thousands)

	2023				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Assets:					
Receivables:					
Members	$ 404,819	$ 509	$ 1,541	$ 133	$ 407,002
Employers	1,418,716	399	30,880	—	1,449,995
Investment income	335,907	26	530	1,178	337,641
Investment proceeds	301,559	—	—	—	301,559
CMS Part D and prescriptions	—	—	—	46,074	46,074
Interfund receivable	1,146	—	—	—	1,146
Total Receivables	2,462,147	934	32,951	47,385	2,543,417
Investments, at fair value:					
Short-term	6,118,812	11,231	108,367	420,880	6,659,290
Fixed income	15,658,641	—	—	—	15,658,641
Equity	21,506,295	—	—	—	21,506,295
Collective trust funds	2,117,309	191,535	—	—	2,308,844
Real estate	7,437,732	—	—	—	7,437,732
Alternative investments	18,163,074	—	—	—	18,163,074
Total Investments	71,001,863	202,766	108,367	420,880	71,733,876
Securities lending collateral pool	6,147,770	—	—	—	6,147,770
Capital assets (net of accumulated depreciation $45,847)	35,880	—	—	—	35,880
Miscellaneous	44,713	—	—	170	44,883
Total Assets	79,692,373	203,700	141,318	468,435	80,505,826
Liabilities:					
Accounts payable and accrued expenses	96,521	203	205	1,829	98,758
Benefits payable	656,401	—	78	38,456	694,935
HOP participant premium advances	—	—	—	40,884	40,884
Investment purchases and other payables	490,388	1,041	—	—	491,429
Obligations under securities lending	6,147,770	—	—	—	6,147,770
Interfund payable	—	575	319	252	1,146
Other liabilities	188,963	—	—	—	188,963
Total Liabilities	7,580,043	1,819	602	81,421	7,663,885
Net position restricted for pension, DC and postemployment healthcare benefits	$ 72,112,330	$ 201,881	$ 140,716	$ 387,014	$ 72,841,941

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

Statements of Fiduciary Net Position
June 30, 2023 and 2022
(Dollar Amounts in Thousands)

	2022				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Assets:					
Receivables:					
Members	$ 380,534	$ 340	$ 1,628	$ 123	$ 382,625
Employers	1,382,281	256	32,476	—	1,415,013
Investment income	200,975	5	69	110	201,159
Investment proceeds	408,568	—	—	—	408,568
CMS Part D and prescriptions	—	—	—	64,142	64,142
Interfund receivable	973	—	—	—	973
Total Receivables	2,373,331	601	34,173	64,375	2,472,480
Investments, at fair value:					
Short-term	8,915,210	8,743	101,907	394,618	9,420,478
Fixed income	13,752,793	—	—	—	13,752,793
Equity	17,136,393	—	—	—	17,136,393
Collective trust funds	5,481,102	90,895	—	—	5,571,997
Real estate	7,122,100	—	—	—	7,122,100
Alternative investments	17,900,975	—	—	—	17,900,975
Total Investments	70,308,573	99,638	101,907	394,618	70,904,736
Securities lending collateral pool	9,828,590	—	—	—	9,828,590
Capital assets (net of accumulated depreciation $42,983)	14,886	—	—	—	14,886
Miscellaneous	31,423	—	—	136	31,559
Total Assets	82,556,803	100,239	136,080	459,129	83,252,251
Liabilities:					
Accounts payable and accrued expenses	147,812	99	213	1,247	149,371
Benefits payable	541,983	—	60	33,902	575,945
HOP participant premium advances	—	—	—	34,157	34,157
Investment purchases and other payables	1,357,940	561	—	—	1,358,501
Obligations under securities lending	9,828,590	—	—	—	9,828,590
Interfund payable	—	608	331	34	973
Other liabilities	152,236	—	—	—	152,236
Total Liabilities	12,028,561	1,268	604	69,340	12,099,773
Net position restricted for pension, DC and postemployment healthcare benefits	$ 70,528,242	$ 98,971	$ 135,476	$ 389,789	$ 71,152,478

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

Statements of Changes in Fiduciary Net Position
Years Ended June 30, 2023 and 2022
(Dollar Amounts in Thousands)

	2023				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Additions:					
Contributions:					
Members	$ 1,174,580	$ 50,676	$ —	$ —	$ 1,225,256
Employers	5,249,018	39,328	114,721	—	5,403,067
Total contributions	6,423,598	90,004	114,721	—	6,628,323
HOP Participant premiums	—	—	—	413,136	413,136
Centers for Medicare & Medicaid Services premiums	—	—	—	65,725	65,725
Investment income:					
From investing activities:					
Net appreciation in fair value of investments	1,315,367	21,437	—	—	1,336,804
Short-term	262,890	214	4,513	9,122	276,739
Fixed income	663,883	—	—	—	663,883
Equity	445,086	—	—	—	445,086
Collective trust funds	823	158	—	—	981
Real estate	188,922	—	—	—	188,922
Alternative investments	300,455	—	—	—	300,455
Total investment activity income	3,177,426	21,809	4,513	9,122	3,212,870
Investment expenses	(405,217)	(275)	(39)	(34)	(405,565)
Net income from investing activities	2,772,209	21,534	4,474	9,088	2,807,305
From securities lending activities:					
Securities lending income	402,300	—	—	—	402,300
Securities lending expense	(379,213)	—	—	—	(379,213)
Net income from securities lending activities	23,087	—	—	—	23,087
Total net investment income	2,795,296	21,534	4,474	9,088	2,830,392
Total Additions	9,218,894	111,538	119,195	487,949	9,937,576
Deductions:					
Benefits	7,537,873	—	112,870	450,984	8,101,727
Refunds of contributions	43,110	—	—	—	43,110
Distributions	—	6,170	—	—	6,170
Administrative expenses	53,823	2,458	1,085	39,740	97,106
Total Deductions	7,634,806	8,628	113,955	490,724	8,248,113
Net increase (decrease)	1,584,088	102,910	5,240	(2,775)	1,689,463
Net position restricted for pension, DC and postemployment healthcare benefits:					
Balance, beginning of year	70,528,242	98,971	135,476	389,789	71,152,478
Balance, end of year	$ 72,112,330	$ 201,881	$ 140,716	$ 387,014	$ 72,841,941

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

Statements of Changes in Fiduciary Net Position
Years Ended June 30, 2023 and 2022
(Dollar Amounts in Thousands)

	2022				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Additions:					
Contributions:					
Members	$ 1,134,051	$ 32,875	$ —	$ —	$ 1,166,926
Employers	4,997,912	25,424	117,178	—	5,140,514
Total contributions	6,131,963	58,299	117,178	—	6,307,440
HOP Participant premiums	—	—	—	409,361	409,361
Centers for Medicare & Medicaid Services premiums	—	—	—	71,482	71,482
Investment income:					
From investing activities:					
Net appreciation (depreciation) in fair value of investments	(1,765,123)	(15,682)	(345)	—	(1,781,150)
Short-term	22,295	19	694	377	23,385
Fixed income	556,068	—	—	—	556,068
Equity	416,326	—	—	—	416,326
Collective trust funds	472	5	—	—	477
Real estate	455,027	—	—	—	455,027
Alternative investments	547,142	—	—	—	547,142
Total investment activity income	232,207	(15,658)	349	377	217,275
Investment expenses	(525,171)	(155)	(33)	(31)	(525,390)
Net income (loss) from investing activities	(292,964)	(15,813)	316	346	(308,115)
From securities lending activities:					
Securities lending income	54,711	—	—	—	54,711
Securities lending expense	(28,997)	—	—	—	(28,997)
Net income from securities lending activities	25,714	—	—	—	25,714
Total net investment income (loss)	(267,250)	(15,813)	316	346	(282,401)
Total Additions	5,864,713	42,486	117,494	481,189	6,505,882
Deductions:					
Benefits	7,217,812	—	113,707	422,786	7,754,305
Refunds of contributions	36,560	—	—	—	36,560
Distributions	—	3,630	—	—	3,630
Administrative expenses	49,451	2,161	826	39,290	91,728
Total Deductions	7,303,823	5,791	114,533	462,076	7,886,223
Net increase (decrease)	(1,439,110)	36,695	2,961	19,113	(1,380,341)
Net position restricted for pension, DC and postemployment healthcare benefits:					
Balance, beginning of year	71,967,352	62,276	132,515	370,677	72,532,820
Balance, end of year	$ 70,528,242	$ 98,971	$ 135,476	$ 389,789	$ 71,152,478

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

Notes to Financial Statements
Years Ended June 30, 2023 and 2022

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, 2023, there were 764 participating employers, generally school districts. Membership at June 30, 2023, 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. The IFO's actuarial note must be published prior to a second vote on pension-related legislation in the House or Senate.

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.

Table 2 - Membership as of June 30, 2023

Active members:	
Vested	143,021
Nonvested	107,799
Total active members	**250,820**
Inactive members:	
Retirees and beneficiaries currently receiving benefits	249,724
Inactive members and vestees entitled to but not receiving benefits	26,776
Total retirees and other members	**276,500**
Total number of members	**527,320**

(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 became 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 $265,000 for 2023 and $245,000 for 2022.

(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.

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. Members are eligible for disability retirement benefits after completion of five years of credited service.

Such benefits are generally between 33.33% to 40% of the member's final average salary, depending upon membership class. 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 or who has at least five years of credited service for Class T-C and Class T-D members; 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 10 years of credited service 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 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 annual compensation for a defined benefit plan was limited to a salary of $330,000 for 2023 and $305,000 for 2022.

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 shared risk for Class T-E and Class T-F members. Act 5 enhanced shared risk for T-E and T-F members and added T-G and T-H members. Under shared risk 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 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 General Investment Consultant 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 as of June 30, 2020, however, the System's investments are presented at June 30th valuations in accordance with the investment fair value policy as described in Note 4(B).

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%
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	N/A	Prior to 7/1/21: 7.50% After 7/1/21: 8.00%
T-F	On or after July 1, 2011	10.30% base rate	N/A	Prior to 7/1/21: 10.30% After 7/1/21: 10.80%
T-G	On or after July 1, 2019	5.50% base rate	2.75%	Prior to 7/1/21: 8.25% After 7/1/21: 9.00%
T-H	On or after July 1, 2019	4.50% base rate	3.00%	Prior to 7/1/21: 7.50% After 7/1/21: 8.25%
DC	On or after July 1, 2019	N/A	7.50%	7.50%

Shared Risk 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%

The most recent 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. As a result, membership Class T-E, Class T-F, Class T-G and Class T-H member defined benefit contribution rates increased starting on July 1, 2021. The Member Contribution Rates table shows the risk share impact to each class's contribution rate. The next member risk share measurement is for the ten-year period ending June 30, 2023 and may affect membership Classes T-E, T-F, T-G and T-H member contributions starting on July 1, 2024.

The total contribution rate for the employers and the Commonwealth was 35.26% and 34.94% (34.31% and 33.99% for pension component) of qualified compensation for the years ended June 30, 2023 and 2022, respectively.

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 2023 was $3.0 billion and for FY 2022 was $2.8 billion. The school and non-school entity share of total employer contributions for FY 2023 was $2.4 billion and for FY 2022 was $2.3 billion. For FY 2023 total employer contributions were $5.4 billion and for FY 2022 were $5.1 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, 2023 there were no assumed future benefit increases to participating eligible annuitants in the Premium Assistance program. Membership at June 30, 2023, 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 0.75% for the year ended June 30, 2023 and 0.80% for the year ended June 30, 2022. Members do not contribute to Premium Assistance.

Table 3 - Premium Assistance Membership at June 30, 2023

Retirees and beneficiaries currently receiving benefits	93,199
Inactive members and vestees entitled to but not receiving benefits	629
Total retirees and other inactive members	**93,828**
Total active members	250,820
Total number of members	**344,648**

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 a fitness program and a dental and vision option through fully insured carriers.

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 97,000 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, 2023 and 2022 PSERS recorded $23,092,600 and 20,312,400, 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 2023 and FY 2022 reflect the defined contribution plan activities for the third and fourth 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, 2023	
Active members	59,861
Inactive members entitled to but not receiving distributions	3,804
Total number of members	**63,665**

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 participants are always 100% vested in their own mandatory before-tax, after-tax, and rollover contributions in the DC plan. DC participants 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 to receive the employer contributions. 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 DC participant. DC participants 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 participants 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 DC participant in a school year (July 1 – June 30). Only one eligibility point may be credited in a school year.

Class DC participants with 24.5 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.

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

PSERS maintains three categories of capital assets: tangible capital assets, intangible capital assets and intangible right-to-use assets.

Tangible capital assets consist primarily of data processing equipment and software. Internally developed computer software is recognized as intangible capital assets. Capital assets are depreciated using the straight-line method over an estimated useful life of five years.

Intangible Right to Use Assets		
Costs		**(Dollar Amount in thousands)**
Balances as of June 30, 2022	$	34,564
Balances as of June 30, 2023	$	34,564
Accumulated Depreciation and Amortization		
Balances as of June 30, 2022		
Depreciation and Amortization Expense	$	(11,253)
Balances June 30, 2023		(11,253)
Net Right to Use Assets June 30, 2023	**$**	**23,311**

Intangible capital 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.

Intangible right-to-use leases are recorded at net present value of lease payments. Intangible right-to-use lease assets and related liabilities are recorded at the commencement date of the related contract. Lease liabilities, included in Other Liabilities on the Statement of Fiduciary Net Position, are measured at the present value of expected payments over the contract term. Lease assets are amortized over the shorter of the term of the contract or the useful life of the underlying assets. Interest expense is recognized over the contract term.

Intangible right-to-use Subscription-Based Information Technology Arrangements (SBITA) are recorded under GASB Statement No. 96, Subscription-Based Information Technology Arrangements. Intangible right-to-use SBITA assets and related liabilities are recorded at the commencement date of the related contract. SBITA liabilities, included in Other Liabilities on the Statement of Fiduciary Net Position, are measured at the present value of expected payments over the contract term. SBITA assets are amortized over the shorter of the term of the contract or the useful life of the underlying assets. Interest expense is recognized over the contract term.

(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 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, 2023 and 2022, $6,810,000 and $6,420,000, 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, 2023 and 2022 are for HOP premiums related to health care coverage to be provided in July of 2023 and 2022, 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 11 to 12 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 2022 amounts have been reclassified in conformity with the 2023 presentation. These reclassifications had no effect on net position restricted for pension benefits or the change in fiduciary net position.

(L) Members Receivables

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

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

The following is a summary of member receivables at June 30, 2023 and 2022:

	(Dollar Amounts in Thousands)	
	2023	2022
Pension:		
Member Contributions	**$ 88,253**	$ 78,895
Purchase of Service	**305,797**	294,228
Other	**10,769**	7,411
Total Pension	**$ 404,819**	$ 380,534
Defined Contribution Plan	**$ 509**	$ 340
Postemployment Healthcare:		
Premium Assistance	**$ 1,541**	$ 1,628
Health Options Program	**133**	123

(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. Two new GASB standards were implemented in the fiscal year ended June 30, 2023: GASB Statement No. 87, Leases, and GASB Statement No. 96, Subscription-Based Information Technology Arrangements.

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.

Table 4 - Account Balance

	(Dollar Amounts in Thousands)	
	2023	**2022**
Pension:		
State Accumulation Account	**$ (9,242,681)**	$ (10,504,636)
Members' Savings Account	**19,188,548**	18,802,945
Annuity Reserve Account	**62,166,463**	62,229,933
	$ 72,112,330	$ 70,528,242
Defined Contribution Plan	**$ 201,881**	$ 98,971
Postemployment Healthcare:		
Health Insurance Account	**$ 140,716**	$ 135,476
Health Insurance Program Account	**$ 387,014**	$ 389,789

(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 7.00% 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 participants and employer contributions, investment earnings and DC plan expenses of the School Employees' Defined Contribution Plan. The trust is comprised of individual investment accounts, all assets in those accounts and any assets held that are not allocated to the individual investment accounts. The assets of the plan are held in trust for the exclusive benefit of the participants and their beneficiaries and may be used for payment of fees, costs and expenses related to the administration and investment of the plan and the trust.

(E) Health Insurance Account

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

(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, 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 equities 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), PSERS' 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.

Private equity, equity real estate, private credit, private infrastructure, and absolute return are generally organized as limited partnerships. The fair value of investments that are 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, 2023 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, which include estimates of fair values, are audited by independent certified public accounting firms. 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, 2023, reported net asset value.

Directly-owned real estate investments are valued based upon the June 30th financial statements completed by the asset manager. The directly-owned real estate investments are appraised annually by an independent third-party appraiser as of calendar year-end unless subject to a waiver as approved by the Deputy CIO or CIO. Properties not appraised are internally valued by the asset manager at fair market value. Certain properties acquired with no appraisal are held at cost. Directly-owned real estate investments are reported net of related debt borrowed against the market value of the property. The $136,235,000 of mortgage financings that were netted against the related property valuations and classified as Level 1 in FY 2022 were paid in full during FY 2023.

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 consist primarily of domestic and international institutional funds. The fair value of CTF is based on the reported share value of the respective fund by the fund administrator. CTF are managed by 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 asset 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 seven to 12 years.

(c) Private equity includes limited partnerships that invest 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 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 values 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 seek 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. With the most recently approved strategic asset allocation, the absolute return portfolio is in liquidation. While many of the investments can be redeemed within 12 months of June 30, 2023, there are investments that include restrictions that do not allow for redemption during the next 12 months and could take as long as seven years to be fully liquidated.

(g) DC Collective trust fund investments (DC-CTF) consist primarily of domestic and international institutional 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 $324,187,000 and $300,204,000 at June 30, 2023 and 2022, respectively, and are under the custody of M&T Bank which has an A- rating by Standard and Poor's (S&P) and an A1 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.

At June 30, 2023, 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		
	2023	Level 1	Level 2	Level 3
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	**$ 4,834,819**	$ 2,986,284	$ 1,848,535	$ —
Other domestic short-term	**1,259,656**	1,150,294	109,362	—
International short-term	**24,337**	9,946	14,391	—
	6,118,812	4,146,524	1,972,288	—
Fixed:				
Domestic asset-backed and mortgage-backed securities	**579,899**	—	579,899	—
U.S. government and agency obligations	**10,993,228**	10,987,314	5,914	—
Domestic corporate and taxable municipal bonds	**1,494,012**	538,188	955,824	—
International fixed income	**289,365**	—	289,365	—
	13,356,504	11,525,502	1,831,002	—
Equity:				
Domestic equity	**11,753,219**	11,753,219	—	—
International equity	**7,604,593**	7,604,593	—	—
	19,357,812	19,357,812	—	—
Directly-owned real estate	**1,496,700**	—	—	1,496,700
Total investments by fair value level	**40,329,828**	$ 35,029,838	$ 3,803,290	$ 1,496,700
Investments measured at the net asset value (NAV)				
Collective trust funds - Fixed Income	**2,302,137**			
Collective trust funds - Equity	**2,148,483**			
Collective trust funds - Other	**2,117,309**			
Equity real estate	**4,258,716**			
Private Infrastructure	**1,682,316**			
Alternative investments:				
Private equity	**12,789,319**			
Private credit	**5,175,199**			
Absolute return	**198,556**			
	18,163,074			
Total investments measured at the NAV	**30,672,035**			
Total investments measured at fair value	**$ 71,001,863**			
Investment derivative instruments				
Futures	**$ 43,857**	$ 43,857	$ —	$ —
Total return type swaps	**(85,897)**	(85,897)	—	—
Foreign exchange contracts	**33,865**	33,865	—	—
Options	**2,291**	2,291	—	—
Total investment derivative instruments	**$ (5,884)**	$ (5,884)	$ —	$ —

At June 30, 2022, 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		
	2022	Level 1	Level 2	Level 3
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	$ 8,145,521	$ 6,876,768	$ 1,268,753	$ —
Other domestic short-term	755,232	751,519	3,713	—
International short-term	14,457	11,770	2,687	—
	8,915,210	7,640,057	1,275,153	—
Fixed income:				
Domestic asset-backed and mortgage-backed securities	603,577	—	603,577	—
U.S. government and agency obligations	10,513,307	10,505,354	7,953	—
Domestic corporate and taxable municipal bonds	766,260	—	766,260	—
International fixed income	255,118	21,253	233,865	—
	12,138,262	10,526,607	1,611,655	—
Equity:				
Domestic equity	8,217,398	8,217,398	—	—
International equity	7,256,999	7,256,996	—	3
	15,474,397	15,474,394	—	3
Directly-owned real estate	1,721,215	(136,235)	—	1,857,450
Total investments by fair value level	38,249,084	$ 33,504,823	$ 2,886,808	$ 1,857,453
Investments measured at the net asset value (NAV)				
Collective trust funds - Fixed Income	1,614,531			
Collective trust funds - Equity	1,661,996			
Collective trust funds - Other	5,481,102			
Equity real estate	4,281,128			
Private Infrastructure	1,119,757			
Alternative investments:				
Private equity	12,459,390			
Private credit	5,257,782			
Absolute return	183,803			
	17,900,975			
Total investments measured at the NAV	32,059,489			
Total investments measured at fair value	$ 70,308,573			
Investment derivative instruments				
Futures	$ 64,144	$ 64,144	$ —	$ —
Total return type swaps	(859,392)	(859,392)	—	—
Foreign exchange contracts	10,685	10,685	—	—
Options	3,213	3,213	—	—
Total investment derivative instruments	$ (781,350)	$ (781,350)	$ —	$ —

The valuation method for investments measured at the net asset value (NAV) per share (or its equivalent) at June 30, 2023 and 2022 are presented in the following tables.

Pension Investments

Fair Value of Investments

Investments measured at the NAV
(Dollar Amounts in Thousands)

	2023			
	Fair Value	**Unfunded Commitments**	**Redemption Frequency**	**Redemption Notice Period**
Collective trust funds - Fixed Income (a)	**$ 2,302,137**	$ —	see note (a)	see note (a)
Collective trust funds - Equity (a)	**2,148,483**	—	see note (a)	see note (a)
Collective trust funds - Other (a)	**2,117,309**	—	see note (a)	see note (a)
Equity real estate (b)	**4,258,716**	2,508,928	see note (b)	see note (b)
Private Infrastructure (e)	**1,682,316**	1,276,473	see note (e)	see note (e)
Alternative investments:				
Private equity (c)	**12,789,319**	3,777,403	see note (c)	see note (c)
Private credit (d)	**5,175,199**	3,083,132	see note (d)	see note (d)
Absolute return (f)	**198,556**	207,733	see note (f)	see note (f)
	18,163,074			
Total investments measured at the NAV	**$ 30,672,035**			

Pension Investments

Fair Value of Investments

Investments measured at the NAV
(Dollar Amounts in Thousands)

	2022			
	Fair Value	**Unfunded Commitments**	**Redemption Frequency**	**Redemption Notice Period**
Collective trust funds - Fixed Income (a)	$ 1,661,996	$ —	see note (a)	see note (a)
Collective trust funds - Equity (a)	1,614,531	—	see note (a)	see note (a)
Collective trust funds - Other (a)	5,481,102	—	see note (a)	see note (a)
Equity real estate (b)	4,281,128	2,268,595	see note (b)	see note (b)
Private Infrastructure (e)	1,119,757	1,323,421	see note (e)	see note (e)
Alternative investments:				
Private equity (c)	12,459,390	4,440,134	see note (c)	see note (c)
Private credit (d)	5,257,782	3,271,248	see note (d)	see note (d)
Absolute return (f)	183,803	325,740	see note (f)	see note (f)
	17,900,975			
Total investments measured at the NAV	$ 32,059,489			

At June 30, 2023, 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		
	2023	**Level 1**	**Level 2**	**Level 3**
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	**$ 108,367**	$ 66,934	$ 41,433	$ —
Total investments measured at fair value	**$ 108,367**	$ 66,934	$ 41,433	$ —

At June 30, 2022, 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		
	2022	Level 1	Level 2	Level 3
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	$ 101,799	$ 85,943	$ 15,856	$ —
Other domestic short-term	108	—	108	—
Total investments measured at fair value	$ 101,907	$ 85,943	$ 15,964	$ —

At June 30, 2023, 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		
	2023	**Level 1**	**Level 2**	**Level 3**
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	**$ 96,693**	$ 59,724	$ 36,969	$ —
Other domestic short-term	**324,187**	324,187	—	—
Total investments measured at fair value	**$ 420,880**	$ 383,911	$ 36,969	$ —

At June 30, 2022, 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		
	2022	Level 1	Level 2	Level 3
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	$ 94,414	$ 79,708	$ 14,706	$ —
Other domestic short-term	300,204	300,204	—	—
Total investments measured at fair value	$ 394,618	$ 379,912	$ 14,706	$ —

At June 30, 2023, 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		
	2023	**Level 1**	**Level 2**	**Level 3**
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	**$ 4,843**	**$ 2,991**	**$ 1,852**	**$ —**
Other domestic short-term	**6,388**	**6,388**	**—**	**—**
Total investments by fair value level	**11,231**	**9,379**	**1,852**	$ —
Investments measured at the net asset value (NAV)				
Collective trust funds	**191,535**			
Total investments measured at the NAV	**191,535**			
Total investments measured at fair value	**$ 202,766**			

At June 30, 2022, 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		
	2022	Level 1	Level 2	Level 3
Investments by fair value level				
PSERS Short-Term Investment Fund	$ 5,301	$ 4,475	$ 826	$ —
Other domestic short-term	3,442	3,442	—	—
Total investments by fair value level	8,743	$ 7,917	$ 826	$ —
Investments measured at the net asset value (NAV)				
Collective trust funds	90,895			
Total investments measured at the NAV	90,895			
Total investments measured at fair value	$ 99,638			

The valuation method for investments measured at the net asset value (NAV) per share (or its equivalent) at June 30, 2023 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)

	2023			
	Fair Value	**Commitments**	**Redemption Frequency**	**Redemption Notice Period**
Collective trust funds (g)	**$ 191,535**	$ —	see note (g)	see note (g)
Total investments measured at the NAV	**$ 191,535**			

The valuation method for investments measured at the net asset value (NAV) per share (or its equivalent) at June 30, 2022 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)

	2022			
	Fair Value	**Commitments**	**Redemption Frequency**	**Redemption Notice Period**
Collective trust funds (g)	$ 90,895	$ —	see note (g)	see note (g)
Total investments measured at the NAV	$ 90,895			

The following table discloses aggregate market value for the System's Short-term and Fixed Income assets 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, 2023 and 2022.

	(Dollar Amounts in Thousands)	
	2023	2022
Quality Rating	**Fair Value**	Fair Value
AAA	**$ 541,764**	$ 4,113,419
AA	**3,204,630**	2,712,774
A	**791,723**	875,885
BBB	**312,250**	802,534
BB and Below	**881,233**	365,691
NR*	**5,427,923**	3,629,077
Total Exposed to Credit Risk	**11,159,523**	12,499,380
U.S. Government Guaranteed**	**11,158,408**	10,673,891
Total Fixed Income and Short-Term Investments	**$ 22,317,931**	$ 23,173,271

*Not Rated securities include $828,136 and $1,614,531 in collective trust funds and $1,171,432 and $724,869 in PSERS Short-Term Investment Fund assets at June 30, 2023 and 2022 respectively.

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

***nationally recognized statistical rating organizations (NRSRO)

At June 30, 2023 and 2022, the System's fixed income portfolio had the following option-adjusted durations by fixed income sector:

	(Dollar Amounts in Thousands)			
	2023		**2022**	
Investment Type	**Option-Adjusted Duration**	**Fair Value**	Option-Adjusted Duration	Fair Value
Domestic asset-backed and mortgage-backed securities	**0.2**	**$ 579,899**	1.0	$ 3,898,511
U.S. government and agency obligations	**11.1**	**10,993,228**	11.5	7,218,373
Domestic corporate and taxable municipal bonds	**0.5**	**1,494,012**	3.0	766,260
International fixed income	**1.9**	**289,365**	2.0	255,118
Collective trust funds*	**10.1**	**2,302,137**	4.1	1,614,531
PSERS Short-Term Investment Fund	**0.1**	**5,044,722**	0.1	8,347,035
Other Short-Term Assets	**0.1**	**1,614,568**	0.1	1,073,443
Total	**6.6****	**$ 22,317,931**	**4.2****	$ 23,173,271

* 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, 2023 and 2022. The total portfolio option adjusted duration is calculated by weighting each investment type by fair value.

(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, 2023 and 2022, 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 33.0% of the investment portfolio. The fixed income target allocation consists of:

- An allocation of 10.0% of the portfolio has been made to the investment grade segment of the fixed income asset class benchmarked to the Bloomberg U.S. Aggregate Bond TR Index (2.0%) and the Bloomberg U.S. Long Treasury TR Index (8.0%). Within this segment, the U.S. long treasury allocation (8.0%) is composed of primarily long duration U.S. Treasury securities issued by the U.S. government. The U.S. core fixed allocation (2.0%) 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 6.0% of the portfolio has been made to the private fixed income segment of the fixed income asset class benchmarked to the Morningstar LSTA U.S. Leveraged Loan TR 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 11.0% of the portfolio has been made to the inflation protected securities segment of the fixed income asset class benchmarked to the Bloomberg U.S. Government Inflation-Linked Bond All Maturities TR Index (10.0%) and the Bloomberg World Government ex U.S. Inflation-Linked Bond All Maturities TR Index (Hedged to USD) (1.0%). Within this segment, the U.S. inflation protected allocation (10.0%) 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 3:1. The Non-U.S. inflation protected allocation (1.0%) is composed primarily of non-U.S. government related securities tied to inflationary measures.

- An allocation of 6.0% of the portfolio has been made to the credit-related segment of the fixed income asset class with 4.0% benchmarked to the Bloomberg U.S. Corporate High Yield Bond Index and 2.0% benchmarked to the JP Morgan EMD Aggregate Total Return Index.

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, 2023 and 2022.

	(Dollar Amounts in Thousands)	
	2023	2022
Quality Rating	**Fair Value**	Fair Value
A	**$ (85,897)**	$ (859,392)
Total Swaps - Total Return	**$ (85,897)**	$ (859,392)

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 (10.5%); Leverage is netted against the System's Cash allocation of 3.0% for a Net Leverage Allocation of (7.5%).

- An allocation of 3.0% of the portfolio has been made to cash benchmarked to the ICE BofAML 0-3 Month U.S. Treasury Bill Index composed of primarily investment grade, relatively liquid 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, 2023 and 2022 resulting from a default of the borrowers or the lending agent.

All securities loans can be terminated on demand by either the System or the borrower, although the average term of the loan is one day. There were no term loans as of June 30, 2023 and 2022.

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, 2023 and 2022. During the fiscal years ended June 30, 2023 and 2022 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, 2023, the fair value of loaned securities was $6,021,858,000. The fair value of the associated collateral was $6,147,770,000, all of which was cash. As of June 30, 2022, the fair value of loaned securities was $9,665,650,000. The fair value of the associated collateral was $9,828,590,000, all of which was cash.

Non-U.S. currency exposures at June 30, 2023 and 2022:

2023**

(Dollar Amounts in Thousands)

Currency	Equity	Fixed Income	Alternative Investments & Real Estate	Short-Term*	Currency Hedge	Total Fair Value
Japanese yen	**$ 1,110,755**	**$ 5,389**	**$ 69,674**	**$ 1,880**	**$ (816,392)**	**$ 371,306**
British pound sterling	**821,241**	**—**	**411,382**	**(2,331)**	**(868,736)**	**361,556**
Euro	**1,721,140**	**43,767**	**1,342,955**	**15,791**	**(2,873,229)**	**250,424**
Taiwan new dollar	**203,295**	**—**	**—**	**557**	**(254)**	**203,598**
Indian rupee	**189,367**	**—**	**—**	**483**	**—**	**189,850**
Canadian dollar	**848,246**	**—**	**—**	**6,088**	**(700,736)**	**153,598**
Swiss franc	**397,407**	**—**	**—**	**5,690**	**(293,153)**	**109,944**
Danish krone	**155,910**	**—**	**—**	**2,421**	**(62,991)**	**95,340**
Hong Kong dollar	**262,260**	**—**	**—**	**1,445**	**(177,068)**	**86,637**
Other non-U.S. currencies	**1,270,939**	**106,455**	**—**	**19,930**	**(974,046)**	**423,278**
Total	**$ 6,980,560**	**$ 155,611**	**$ 1,824,011**	**$ 51,954**	**$ (6,766,605)**	**$ 2,245,531**

2022**

(Dollar Amounts in Thousands)

Currency	Equity	Fixed Income	Alternative Investments & Real Estate	Short-Term*	Currency Hedge	Total Fair Value
British pound sterling	$ 770,689	$ —	$ 445,900	$ 647	$ (864,720)	$ 352,516
Japanese yen	906,040	6,721	48,436	4,539	(762,005)	203,731
Taiwan new dollar	182,810	—	—	44	—	182,854
Indian rupee	152,569	—	—	167	—	152,736
South Korean won	74,696	—	—	762	—	75,458
Danish krone	125,349	—	—	1,724	(52,060)	75,013
Hong Kong dollar	300,984	—	—	72	(226,963)	74,093
Swiss Franc	340,126	—	—	4,821	(274,238)	70,709
Euro	1,386,868	12,800	1,317,232	15,378	(2,817,021)	(84,743)
Other non-U.S. currencies	1,766,449	91,824	—	8,154	(1,695,102)	171,325
Total	**$ 6,006,580**	**$ 111,345**	**$ 1,811,568**	**$ 36,308**	**$ (6,692,109)**	**$ 1,273,692**

* Includes investment receivables and payables

**PSERS increased currency hedge ratios during FY 2022. To determine the level of currency risk, the currency hedge program uses a country of risk method. This table is prepared using currency risk based on investments held in a foreign currency.

The following table summarizes the System's foreign exchange contracts by currency at June 30, 2023 and 2022:

2023
(Dollar Amounts in Thousands)

Currency	**Buys**	**Unrealized Gain/(Loss)**	**Sells**	**Unrealized Gain/(Loss)**
Euro	**$ 6,678**	**$ —**	**$ 2,879,907**	**$ 4,531**
Japanese yen	**7,669**	**—**	**824,061**	**15,979**
Swiss franc	**662**	**—**	**296,058**	**(557)**
Australian dollar	**802**	**(1)**	**606,391**	**9,651**
Swedish krona	**1,159**	**(2)**	**93,133**	**365**
Canadian dollar	**684**	**1**	**698,213**	**28**
Singapore dollar	**—**	**—**	**75,325**	**558**
Hong Kong dollar	**—**	**—**	**177,068**	**192**
British pound sterling	**—**	**—**	**872,569**	**1,426**
New Zealand dollar	**—**	**—**	**160,594**	**920**
Other non-U.S. currencies	**6,722**	**21**	**104,418**	**753**
Total	**$ 24,376**	**$ 19**	**$ 6,787,737**	**$ 33,846**

2022
(Dollar Amounts in Thousands)

Currency	Buys	Unrealized Gain/(Loss)	Sells	Unrealized Gain/(Loss)
Euro	$ 14,520	$ 1	$ 2,831,541	$ 13,554
Japanese yen	599	2	762,604	(1,682)
Swiss franc	805	—	275,043	(2,860)
Australian dollar	1,769	—	595,482	1,532
Swedish krona	1,637	—	103,818	1,010
Canadian dollar	5,128	(2)	745,074	(4,737)
Singapore dollar	—	—	77,518	124
Hong Kong dollar	—	—	226,963	(30)
British pound sterling	—	—	865,528	2,767
New Zealand dollar	—	—	137,152	808
Other non-U.S. currencies	2,995	(9)	98,839	207
Total	$ 27,453	$ (8)	$ 6,719,562	$ 10,693

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, 2023 and 2022 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, equities, and futures options. In FY2023 and FY2022, the System purchased over-the-counter put options on the S&P 500 Index. The fair value of these option contracts of $2,291,000 and $3,213,000 at June 30, 2023 and 2022, respectively, is included in the Statements of Fiduciary Net Position.

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 $6,812,113,000 of foreign currency contracts outstanding at June 30, 2023 consist of "buy" contracts, which represent the U.S. dollar equivalents of commitments to purchase foreign currencies of $24,376,000 and "sell" contracts, which represent U.S. dollar equivalents of commitments to sell foreign currencies of $6,787,737,000. The $6,747,015,000 of foreign currency contracts outstanding at June 30, 2022 consist of "buy" contracts of $27,453,000 and "sell" contracts of $6,719,562,000. The unrealized gain on contracts of $33,865,000 and $10,685,000 at June 30, 2023 and 2022, respectively, is included in the Statements of Fiduciary Net Position and represents the fair value of the contracts.

Swap agreements provide for periodic payments at predetermined future dates between parties based on the change in value of underlying securities, indexes, or interest rates. During the year ended June 30, 2023 and 2022, the System entered into total return type swaps. Under the total return type swap arrangements, the System receives the net return of certain equity securities or indexes in exchange for a short-term rate minus a spread or a predetermined fixed charge. The payable on the total return type swap contracts of $(85,897,000) and $(859,392,000) at June 30, 2023 and 2022, 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 31, 2023 to June 28, 2024.

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, 2023 and 2022.		
	(Dollar Amounts in Thousands)	
	2023	2022
Futures contracts - long:		
Treasury futures	**$ 234,651**	$ 250,321
U.S. equity futures	**258,299**	200,465
Non-U.S. equity futures	**—**	185,605
Commodity futures	**443,132**	502,872
Futures contracts - short:		
Treasury futures	**—**	5,402
Foreign exchange forward and spot contracts, gross	**6,812,113**	6,747,015
Options - puts purchased	**4,325,000**	918,350
Swaps - total return type	**9,873,910**	12,187,253

The fair values of derivative instruments outstanding at June 30, 2023 and 2022 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 2023		**Fair Value at June 30, 2023**	
Investment Derivative Type	**Classification**	**Amount**	**Classification**	**Amount**
Futures	Investment income	**$ 43,857**	Receivable/(Payable)	**$ 43,857**
Total return type swaps	Investment income	**(85,897)**	Receivable/(Payable)	**(85,897)**
Foreign exchange contracts	Investment income	**33,865**	Receivable/(Payable)	**33,865**
Options	Investment income	**(4,939)**	Investment	**2,291**
Total		**$ (13,114)**		**$ (5,884)**

	Change in Fair Value Gain/(Loss) FY 2022		Fair Value at June 30, 2022	
Investment Derivative Type	Classification	Amount	Classification	Amount
Futures	Investment income	$ 64,144	Receivable/(Payable)	$ 64,144
Total return type swaps	Investment income	(859,392)	Receivable/(Payable)	(859,392)
Foreign exchange contracts	Investment income	10,685	Receivable/(Payable)	10,685
Options	Investment income	(1,890)	Investment	3,213
Total		$ (786,453)		$ (781,350)

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, 2023 and 2022 is $128,344,000 and $116,279,000, 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 hedge funds, the System also indirectly holds various derivative financial instruments. The hedge 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, 2023 were as follows:

(Dollar amounts in thousands)

Total pension liability	$ 116,598,710
Less: Plan fiduciary net position	72,112,330
Employer net pension liability	$ 44,486,380
Plan fiduciary net position as a percentage of the total pension liability	61.85%

Actuarial Assumptions

The total pension liability at June 30, 2023 was determined by rolling forward the System's total pension liability at June 30, 2022 to June 30, 2023 using the following actuarial assumptions, which are applied to all periods included in the measurement:

- Actuarial cost method - Entry Age Normal - level % of pay.
- Investment return - 7.00%, includes inflation at 2.50%.
- 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 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, 2023 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, 2023, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 3.54%. 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, 2023.

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	30.0 %	5.2 %
Private equity	12.0 %	7.9 %
Fixed income	33.0 %	3.2 %
Commodities	7.5 %	2.7 %
Infrastructure/MLPs	10.0 %	5.4 %
Real estate	11.0 %	5.7 %
Absolute Return	4.0 %	4.1 %
Cash	3.0 %	1.2 %
Leverage	(10.5)%	1.2 %
	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	$57,666,613	$44,486,380	$33,366,207

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, 2023 were as follows:

(Dollar amounts in thousands)

Total OPEB liability	$1,949,942
Less: Plan fiduciary net position	140,716
Employer net OPEB liability	$1,809,226
Plan fiduciary net position as a percentage of the total OPEB liability	7.22%

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, 2023. The Investment Rate of Return was adjusted from 4.09% to 4.13% which represents the S&P 20-Year Municipal Bond Rate.

Actuarial Assumptions

The total OPEB liability at June 30, 2023 was determined by rolling forward the System's total OPEB liability at June 30, 2022 to June 30, 2023 using the following actuarial assumptions, which are applied to all periods included in the measurement:

- Actuarial cost method - Entry Age Normal - level % of pay.
- Investment return - 4.13% - 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 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.

- 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, 2023 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, 2023.

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, 2023, the annual money-weighted rate of return on OPEB plan investments, net of OPEB plan investment expense, was 4.36%. 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 4.13%. 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 4.13%, which represents the S&P 20-year Municipal Bond Rate at June 30, 2023 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	100.0%	1.2%
	100.0%	

Sensitivity of the Net OPEB Liability

Table 9 presents the net OPEB liability, calculated using the discount rate of 4.13%, as well as what the net OPEB liability would be if it were calculated using a discount rate that is 1-percentage point lower 3.13% or 1-percentage point higher 5.13% than the current rate:

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

	1% Decrease	Current Discount Rate	1% Increase
	3.13%	4.13%	5.13%
Net OPEB liability	$ 2,045,542	$ 1,809,226	$ 1,611,414

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, 2023, there were 92,677 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, 2023, there were 522 members receiving less than the maximum amount allowed of $1,200 per year. The actual number of retirees receiving less than the $1,200 per year cap is a small percentage of the total population and has a minimal impact from Healthcare Cost Trends, as depicted in Table 10, which discloses the effect of a 1% increase or decrease in the rate.

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

	1% Decrease	Current Discount Rate	1% Increase
Net OPEB liability	$ 1,809,056	$ 1,809,226	$ 1,809,363

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, 2022 and 2021 the blended employer contribution rates were 27.64% and 26.94%, respectively. Contributions to SERS from PSERS were $9.8 million for the year ended June 30, 2023.

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

At June 30, 2023, PSERS reported a liability of $97.3 million and $61.1 million at June 30, 2022, 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, 2022 and 2021, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation at December 31, 2022 and 2021. PSERS' proportion of the net pension liability was calculated utilizing a projected-contribution method. At December 31, 2022, PSERS' proportion was 0.42564084 percent and 0.41907639 percent at December 31, 2021.

PSERS recognized total pension expense of $15.0 million in FY 2023 is included in the Statement of Changes in Fiduciary Net Position. Of the $15.0 million of pension expense, $8.5 million was reflected in Pension administrative expenses, $0.6 million in Postemployment Healthcare, $0.1 million in Defined Contribution and $5.8 million was reflected in Investment Expenses. Deferred inflows of resources of $944,000 and $18.8 million at June 30, 2023, and June 30, 2022, respectively, are reported in Other liabilities on the Statement of Fiduciary Net Position. Deferred outflows of resources of $30.8 million and $17.7 million at June 30, 2023, and June 30, 2022, respectively, are reported in Miscellaneous assets. Of the $30.8 million of deferred outflows of resources at June 30, 2023, PSERS recorded $5.4 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, 2024. Other amounts reported as deferred outflows of resources and deferred inflows of resources will be recognized in pension expense as follows:

Years Ending June 30:	(Dollar amounts in thousands)
2024	$ 8,695
2025	4,873
2026	6,738
2027	5,529
Thereafter	7,948

(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.

9. Postemployment Healthcare Plan for Employees of the System

(A) REHP Plan Description

As an employer, the System participates in the Commonwealth's REHP (Retired Employees Health Program). 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 $120 per biweekly pay period for each current REHP eligible active employee during fiscal year ended June 30, 2023 to the REHP Trust. PSERS' contributions to the REHP for FY 2023 were $1.1 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, 2023, PSERS reported a liability of $44.7 million and $43.9 million at June 30, 2022 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 $1.1 million. The net OPEB liability was measured at June 30, 2022, and the total OPEB liability used to calculate the net OPEB liability was determined by an actuarial valuation at June 30, 2022. 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 4.67% on June 30, 2023. PSERS' proportion of the net OPEB liability was calculated utilizing a contribution method. At June 30, 2022, PSERS' proportion was 0.453418 percent and at June 30, 2021 PSERS' proportion was 0.429416 percent.

REHP had a decrease in Total OPEB Liability of approximately $0.4 billion. The primary cause was due to changes in actuarial assumptions driven by an increase in the discount rate from 3.63% to 4.67%.

PSERS recognized total OPEB expense of $(6.2) million in FY 2023 is included in the Statement of Changes in Fiduciary Net Position. Of the $(6.2) million of OPEB expense, $(4.7) million was reflected in Pension administrative expenses, $(0.01) million in Postemployment Healthcare, $(0.01) million in Defined Contribution and $(1.3) million was reflected in Investment Expenses. Deferred outflows of resources of $13.9 million and $13.7 million at June 30, 2023 and June 30, 2022, respectively, are reported in Miscellaneous assets. Of the $13.9 million of deferred outflows at June 30, 2023, PSERS recorded $0.5 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, 2024. Deferred inflows of resources of $21.6 million and $28.4 million at June 30, 2023 and June 30, 2022, respectively, are reported in Other liabilities on the Statement of Fiduciary Net Position and will be recognized in OPEB expense as follows:

Years Ending June 30:	(Dollar amounts in thousands)
2024	$ (6,011)
2025	(1,771)
2026	169
2027	(547)
Thereafter	173

(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.

In 2021, the System received subpoenas from the Department of Justice ("DOJ") and the Securities and Exchange Commission ("SEC") 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' Board retained outside counsel to conduct an independent internal investigation of the shared risk calculation and the purchase and valuation of certain directly held properties. The independent internal investigation concluded in January 2022 with no findings of wrongdoing. In August 2022, PSERS was informed by the DOJ that it has closed its investigation of PSERS with no criminal or civil charges. PSERS continues to cooperate fully with the SEC investigation which is ongoing.

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 Independent Public Accountant's Report
(Dollar Amounts in Thousands)

	2023	2022	2021	2020	2019
Total pension liability					
Service cost	**$ 1,822,768**	$ 1,826,693	$ 1,963,645	$ 1,949,427	$ 1,921,417
Interest	**7,915,834**	7,789,946	7,703,465	7,546,367	7,465,228
Changes of benefit terms	**—**	—	—	—	—
Differences between expected and actual experience	**(545,873)**	(399,385)	40,322	(339,969)	(1,477,660)
Changes of assumptions	**—**	—	2,655,180	—	—
Benefit payments	**(7,580,983)**	(7,254,372)	(7,134,332)	(6,876,515)	(6,761,172)
Net change in total pension liability	**1,611,746**	1,962,882	5,228,280	2,279,310	1,147,813
Total pension liability - beginning	**114,986,964**	113,024,082	107,795,802	105,516,492	104,368,679
Total pension liability - ending (a)	**116,598,710**	114,986,964	113,024,082	107,795,802	105,516,492
Plan fiduciary net position					
Contributions - employer	**5,249,018**	4,997,912	4,759,189	4,676,413	4,487,520
Contributions - member	**1,174,580**	1,134,051	1,080,701	1,067,957	1,064,043
Net investment income	**2,795,296**	(267,250)	14,754,624	1,001,846	3,628,710
Benefit payments	**(7,580,983)**	(7,254,372)	(7,134,332)	(6,876,515)	(6,761,172)
Administrative expense	**(53,823)**	(49,451)	(49,616)	(46,799)	(48,931)
Net Change in plan fiduciary net position	**1,584,088**	(1,439,110)	13,410,566	(177,098)	2,370,170
Plan fiduciary net position - beginning	**70,528,242**	71,967,352	58,556,786	58,733,884	56,363,714
Effect of change in accounting principle	**—**	—	—	—	—
Plan fiduciary net position - beginning restated	**70,528,242**	71,967,352	58,556,786	58,733,884	56,363,714
Plan fiduciary net position - ending (b)	**$ 72,112,330**	$ 70,528,242	$ 71,967,352	$ 58,556,786	$ 58,733,884
Employer net pension liability - ending (a)-(b)	**$ 44,486,380**	$ 44,458,722	$ 41,056,730	$ 49,239,016	$ 46,782,608

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

Required Supplementary Information

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

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

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 Independent Public Accountant's Report
(Dollar Amounts in Thousands)

	2023	2022	2021	2020	2019
Total pension liability	**$116,598,710**	$114,986,964	$113,024,082	$107,795,802	$105,516,492
Less: Plan fiduciary net position	**72,112,330**	70,528,242	71,967,352	58,556,786	58,733,884
Employer Net Pension liability	**$ 44,486,380**	$ 44,458,722	$ 41,056,730	$ 49,239,016	$ 46,782,608
Plan fiduciary net position as a percentage of the total pension liability	**61.85%**	61.34%	63.67%	54.32%	55.66%
Covered Payroll	**$15,320,427**	$ 14,704,344	$ 14,176,097	$ 14,036,006	$ 13,791,197
Employer net pension liability as a percentage of covered payroll	**290.37%**	302.35%	289.62%	350.81%	339.22%

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

	2018	2017	2016	2015	2014
Total pension liability	$104,368,679	$102,543,741	$ 99,388,887	$ 94,900,830	$ 92,560,832
Less: Plan fiduciary net position	56,363,714	53,155,336	49,832,060	51,585,521	52,980,115
Employer Net Pension liability	$ 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	54.00%	51.84%	50.14%	54.36%	57.24%
Covered Payroll	$ 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	356.48%	370.95%	382.65%	336.65%	310.17%

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

Required Supplementary Information

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

	2023	2022	2021	2020	2019
Actuarially determined contribution	**$ 5,237,092**	$ 4,985,571	$ 4,752,338	$ 4,671,931	$ 4,478,236
Contributions in relation to the actuarially determined contribution (1)(2)	**5,237,092**	4,985,571	4,752,338	4,671,931	4,478,236
Contribution deficiency	$ —	$ —	$ —	$ —	$ —
Covered payroll	**$ 15,320,427**	$14,704,344	$14,176,097	$14,036,006	$13,791,197
Contributions as a percentage of covered payroll	**34.18%**	33.91%	33.52%	33.29%	32.47%

Schedule 3
Schedule of Employer Pension Contributions
Unaudited – See Accompanying Independent Public Accountant's Report (continued)
(Dollar Amounts in Thousands)

	2018	2017	2016	2015	2014
Actuarially determined contribution	$ 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)	4,243,328	3,824,908	3,181,438	2,582,114	1,992,084
Contribution deficiency	$ —	$ —	$ 358,866	$ 707,501	$ 973,631
Covered payroll	$13,466,526	$13,313,900	$12,951,077	$12,866,473	$12,760,785
Contributions as a percentage of covered payroll	31.51%	28.73%	24.57%	20.07%	15.61%

(1) Amounts for 2015-2023 exclude purchase of service contributions.
(2) Same as contractually required contributions.

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 Independent Public Accountant's Report
(Dollar Amounts in Thousands)

Total OPEB liability	**2023**	2022	2021	2020	2019	2018	2017
Service cost	**$ 27,596**	$ 47,563	$ 44,699	$ 42,643	$ 40,201	$ 37,809	$ 42,038
Interest	**79,672**	54,361	60,632	62,452	65,319	67,091	61,404
Differences between expected and actual experience	**(12,047)**	(11,835)	7,272	11,987	1,435	15,019	—
Changes of assumptions	**(8,656)**	(502,733)	212,419	35,284	50,166	38,456	(110,610)
Benefit payments	**(112,870)**	(113,707)	(113,538)	(113,279)	(112,777)	(111,847)	(110,229)
Net change in total OPEB liability	**(26,305)**	(526,351)	211,484	39,087	44,344	46,528	(117,397)
Total OPEB liability - beginning	**1,976,247**	2,502,598	2,291,114	2,252,027	2,207,683	2,161,155	2,278,552
Total OPEB liability - ending (a)	**$ 1,949,942**	$ 1,976,247	$ 2,502.598	$ 2,291,114	$ 2,252,027	$ 2,207,683	$ 2,161,155
Plan fiduciary net position							
Contributions - employer	**$ 114,721**	$ 117,178	$ 116,519	$ 117,907	$ 114,829	$ 111,986	$ 110,985
Net investment income	**4,474**	316	260	1,752	2,313	1,455	663
Benefit payments	**(112,870)**	(113,707)	(113,538)	(113,279)	(112,777)	(111,847)	(110,229)
Administrative expense	**(1,085)**	(826)	(1,143)	(1,148)	(1,914)	(2,602)	(2,239)
Net Change in plan fiduciary net position	**5,240**	2,961	2,098	5,232	2,451	(1,008)	(820)
Plan fiduciary net position - beginning	**135,476**	132,515	130,417	125,185	122,735	123,743	124,563
Plan fiduciary net position - ending (b)	**$ 140,716**	$ 135,476	$ 132,515	$ 130,417	$ 125,185	$ 122,735	$ 123,743
Employer net OPEB liability - ending (a) - (b)	**$ 1,809,226**	$ 1,840,771	$ 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 Independent Public Accountant's Report
(Dollar Amounts in Thousands)

	2023	2022	2021	2020
Total OPEB Liability	**$1,949,942**	$ 1,976,247	$ 2,502,598	$ 2,291,114
Less: Plan fiduciary net position	**140,716**	135,476	132,515	130,417
Employer Net OPEB Liability	**$1,809,226**	$ 1,840,771	$ 2,370,083	$ 2,160,697
Plan fiduciary net position as a percentage of the total OPEB liability	**7.22 %**	6.86%	5.30%	5.69%
Covered Payroll	**$15,320,427**	$ 14,704,344	$ 14,176,097	$ 14,036,006
Employer net OPEB liability as a percentage of covered payroll	**11.81 %**	12.52%	16.72%	15.39%

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

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.

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

	2023	**2022**	2021	2020
Actuarially determined contribution	**$ 119,084**	**$ 147,312**	$ 133,971	$ 138,776
Contributions in relation to the actuarially determined contribution (1)(2)	**114,358**	**116,773**	116,365	117,723
Contribution deficiency	**$ 4,726**	**$ 30,539**	$ 17,606	$ 21,053
Covered payroll	**$15,320,427**	**$14,704,344**	$ 14,176,097	$ 14,036,006
Contributions as a percentage of covered payroll	**0.75%**	**0.79%**	0.82%	0.84%

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

(1) Amounts exclude purchase of service contributions.
(2) Same as contractually required contributions.

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

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

Required Supplementary Information

Schedule 7
Schedule of Investment Returns - Pension and OPEB
Unaudited – See Accompanying Independent Public Accountant's Report

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Annual money-weighted rate of return, net of investment expense- Pension	3.54%	2.40%	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	4.36%	0.35%	0.31%	1.97%	2.68%	1.63%	0.90%	0.65%	0.30%	-

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, 2023

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, 2022, and June 30, 2023
None.

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, 2022 actuarial valuation will be made during the fiscal year ending June 30, 2024. 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, 2023 (continued)

Pension

- Investment return - 7.00%, includes inflation at 2.50% and the real rate of return 4.50%.
- Salary growth - Effective average of 4.50%, which reflects an allowance for inflation of 2.50%, real wage growth and merit or seniority of 2.00%.
- Benefit payments - no postretirement benefit increases assumed in the future.
- 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.

Changes in assumptions used in measurement of the Total Pension Liability beginning June 30, 2014, and June 30, 2015
None.

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, 2014 actuarial valuation will be made during the fiscal year ended June 30, 2016. The following actuarial methods and assumptions were used to determine contribution rates reported in that schedule:

- Investment return - 7.50%, includes inflation at 3.00%
- Salary increases - Effective average of 5.50%, which reflects an allowance for inflation of 3.00%, real wage growth of 1%, and merit or seniority increases of 1.50%
- Benefit payments - no postretirement benefit increases assumed in the future
- Multiple decrement tables - mortality, vesting, retirement age, and withdrawal estimates are based upon tables
- provided by the actuary

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, 2016 thru June 30, 2023

OPEB

Changes in benefit terms
None.

Changes in assumptions used in measurement of the Total OPEB Liability beginning June 30, 2023
The Discount Rate increased from 4.09% to 4.13%.

Changes in assumptions used in measurement of the Total OPEB Liability beginning June 30, 2022
The Discount Rate increased from 2.18% to 4.09%.

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.

Notes to Required Supplementary Information for the Years Ended June 30, 2016 thru June 30, 2023 (continued)

OPEB

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, 2022 actuarial valuation will be made during the fiscal year ending June 30, 2024. The following actuarial methods and assumptions were used to determine contribution rates reported in that schedule:

- Investment return - 4.13% - 20-year S&P Municipal Bond Rate.
- Salary growth - Effective average of 4.50%, which reflects an allowance for inflation of 2.50%, real wage growth and merit or seniority of 2.00%.
- Benefit payments - no postretirement benefit increases assumed in the future.
- 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.
- 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, 2023
(Dollar Amounts in Thousands)

	Administrative Expenses				
	Pension	Defined Contribution	Postemployment Healthcare (1)	Investment Expenses (2)	Total
Personnel costs:					
Salaries and wages	$ 18,725	$ 323	$ 1,251	$ 11,490	**$ 31,789**
Employee benefits	12,197	207	769	5,284	**18,457**
Total personnel costs	30,922	530	2,020	16,774	**50,246**
Operating costs:					
Investment managers' fees	—	—	—	368,514	**368,514**
Custodian fees	—	—	—	2,503	**2,503**
Specialized services	316	1,865	96	543	**2,820**
Investment Services	—	—	—	1,964	**1,964**
Third-party administrator	—	—	32,514	—	**32,514**
Fitness program administrator	—	—	856	—	**856**
Healthcare project management	—	—	3,448	—	**3,448**
Real estate rental, electricity	1,706	—	268	276	**2,250**
Consultant and legal fees	4,278	85	1,097	5,551	**11,011**
Treasury and other Commonwealth services	1,880	—	—	192	**2,072**
Postage	685	—	105	—	**790**
Contracted maintenance and repair services	3,421	—	—	387	**3,808**
Printing and office supplies	290	—	16	—	**306**
Equipment and software rental	714	—	—	—	**714**
Travel and training	191	1	91	55	**338**
Telecommunications	371	—	29	91	**491**
Equipment (non-capital assets)	639	—	—	—	**639**
Subscriptions	35	—	—	1,008	**1,043**
Miscellaneous	1,424	23	96	1,635	**3,178**
Total operating costs	15,950	1,974	38,616	382,719	**439,259**
Other charges:					
Depreciation	8,749	—	—	5,398	**14,147**
Total Administrative and Investment Expenses Before Pension, OPEB Expense	55,621	2,504	40,636	404,891	**503,652**
Pension expense (3)	2,944	51	208	1,998	**5,201**
OPEB expense (4)	(4,742)	(97)	(19)	(1,324)	**(6,182)**
Total Administrative and Investment Expenses	$ 53,823	$ 2,458	$ 40,825	$ 405,565	**$ 502,671**

(1) Administrative expenses for Postemployment Healthcare includes $1,085 related to Premium Assistance and $39,740 related to Health Options Program for the fiscal year ended June 30, 2023.

(2) Includes investment expenses of $39 related to Postemployment Healthcare Premium Assistance, $34 related to Health Options Program and $275 for DC for the fiscal year ended June 30, 2023 and does not include $2,570 in capitalized broker commissions for the fiscal year ended June 30, 2023.

(3) Total GASB 68 pension expense is $15.0 million and is reflected under Employee benefits and Pension expense. Employer contributions of $9.8 million are included as Employee benefits under Personnel costs and $5.2 million is reflected as Pension expense.

(4) Total GASB 75 OPEB expense is $(5.4) million and is reflected under Employee benefits and OPEB expense. Employer contributions of $0.8 million are included as Employee benefits under Personnel costs and $(6.2) million is reflected as OPEB expense.

Supplementary Schedule 2
Summary of Investment Expenses*
Year Ended June 30, 2023
(Dollar Amounts in Thousands)

	Investment Management			
	Base	Performance	Other Expenses	Total
External management:				
International equity	$ 21,245	$ 5,498	$ —	**$ 26,743**
Fixed income	22,687	5,300	—	**27,987**
Real estate	48,381	—	—	**48,381**
Alternative investments	107,516	—	—	**107,516**
Absolute return	41,353	30,146	—	**71,499**
Commodities	6,162	—	—	**6,162**
Infrastructure	16,328	—	—	**16,328**
Private credit	60,252	—	—	**60,252**
Tail Risk Mitigation	3,372	—	—	**3,372**
Defined Contribution	274	—	—	**274**
Total external management	327,570	40,944	—	**368,514**
Total internal management	—	—	28,997	**28,997**
Total investment management	327,570	40,944	28,997	**397,511**
Custodian fees	—	—	2,503	**2,503**
Consultant and legal fees	—	—	5,551	**5,551**
Total investment expenses	$ 327,570	$ 40,944	$ 37,051	**$ 405,565**

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

Supplementary Schedule 3
Schedule of Payments to Non-Investment Consultants
Year Ended June 30, 2023
(Dollar Amounts Greater than $100,000)

Non-Investment Consultants	Fees	Services Provided
Trustmark Health Benefits, Inc.	$ 32,509,092	Postemployment Healthcare benefits Administration and claims adjudication
Optum Rx, Inc.	7,151,332	Administration of post employment healthcare benefits and prescription drug plan
Vitech Systems Group, Inc.	5,769,000	Pension administration system services
The Segal Company, Inc.	3,536,660	Actuarial services and consulting for HOP and prescription drug plan
Gallagher Benefit Services, Inc.	1,097,220	Pharmacy benefit consulting services
OST Inc.	914,928	Information technology, training, testing, and consulting services
Tivity Health	856,383	Administration of the Silver Sneakers Fitness program
Buck Global, LLC	303,207	Pension benefit actuarial services
CliftonLarsonAllen, LLP	145,300	Financial audit of pension system, defined contribution plan and postemployment healthcare programs
Hudepohl & Associates, Inc.	106,933	Executive recruiting services
Cheiron, Inc.	105,000	Pension actuarial consulting