

A Component Unit of the Commonwealth of Pennsylvania



PSERS on Point

Pennsylvania Public School Employees' Retirement System Budget Report Highlights

Fiscal Year 2017-2018

February 22, 2017

PSERS Board of Trustees Chairman
Melva S. Vogler

PSERS Executive Director
Glen R. Grell

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Overview

PSERS was established on July 18, 1917, to provide retirement benefits to public school employees of the Commonwealth of Pennsylvania. PSERS' preliminary total plan net assets as of December 31, 2016 were approximately \$51.5 billion.

PSERS has paid out retirement benefits uninterrupted for nearly 100 years--through two World Wars, the Great Depression, and the Great Recession. Today, PSERS provides a secure retirement to over half a million current and retired public school employees.

The plan is funded through three sources:

- Employer contributions
- Member contributions*
- Investment earnings

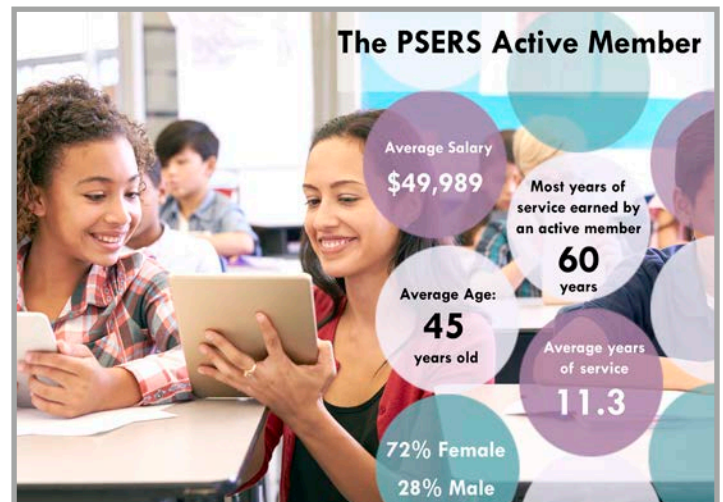
**In 2010, pension reform legislation (Act 120) was passed that put in place "shared investment risk," a unique defined contribution element for new PSERS members. Under Act 120, a new member's contribution rate could increase or decrease by 0.5% every three years based on investment performance.*



PSERS Snapshot

- 20th Largest State-Sponsored Defined Benefit Public Pension Plan
- 225,000 Retired Members
- 257,000 Active Members
- 23,000 Terminated Vested Members
- 781 School Employers
- 322 PSERS Staff

Most members contribute between 7.50% and 10.30% of their pay depending on their class of membership to help fund their own retirement benefit.



PSERS also administers two postemployment healthcare programs, the Premium Assistance Program and the Health Options Program (HOP) for its annuitants.



- PSERS sponsors a group health insurance program called HOP for individuals who are annuitants or survivor annuitants or the spouse or dependents of an annuitant or survivor annuitant. The HOP is funded solely by and for eligible participants. As of December 1, 2016, there are 107,689 HOP participants.
- PSERS provides up to \$100 per month in Premium Assistance to eligible retirees to help cover the cost of their health insurance. As of December 1, 2016, Premium Assistance is offered to 90,180 members.


PSERS Increases Efficiency of Customer Service Operations



- Ongoing Pension Administration System Upgrade** --Through 2016, PSERS continued its multi-year effort to upgrade its entire pension administration system. This technology upgrade helps ensure the viability of PSERS' pension administration system into the future, and it will make future enhancements much easier to implement. Enhancements will provide opportunities for members and employers to conduct transactions for themselves that would have previously required staff intervention. These changes will not only directly increase customer service opportunities, but will also generate financial savings while potentially enabling PSERS to redeploy staff to other critical needs as workloads shift.
- Account Verification Program Expanded** --PSERS expanded its program of reviewing active member accounts at periodic milestones during the member's career to ensure each detail of a member's account is accurately portrayed prior to the member applying for retirement. Nearly 24,000 accounts were reviewed in FY 2015-16.
- Comprehensive Studies Conducted**--PSERS engaged a third party consultant to conduct comprehensive studies of PSERS' disability benefit process, call center operations, and communications structure and efforts. The multiple studies are expected to result in many positive changes for enhanced customer service and operational efficiencies.




Calendar Year 2016 Customer Service Highlights


Answered
183,000
 Member Calls


Responded to
13,800
 Member Emails


Served
6,800
 Members in
 Counseling Sessions

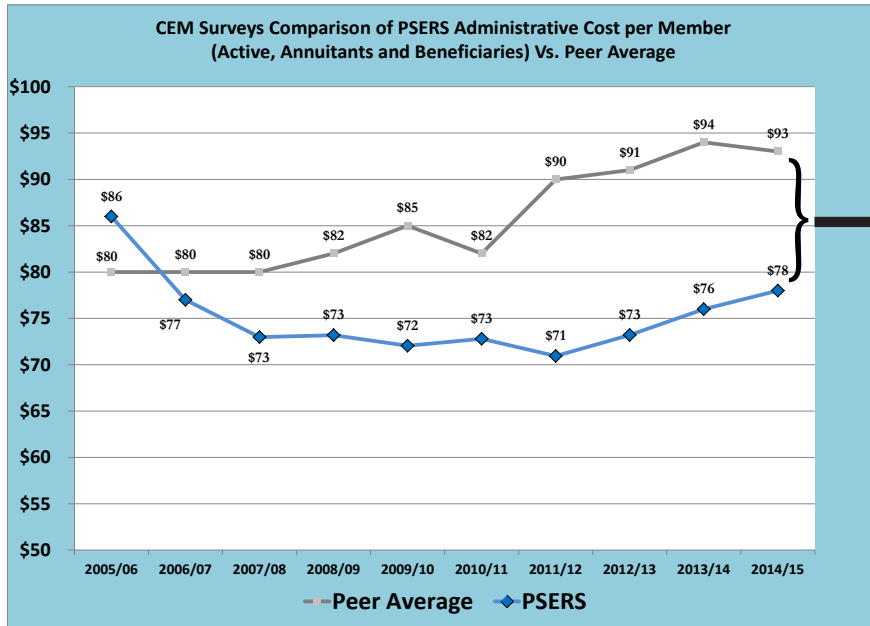

Issued
2.6 Million
 Monthly Benefit
 Payments to Members


Processed
11,300
 Retirement
 Applications


Prepared & Issued
253,000
 1099-R's

PSERS Administrative Costs are Significantly Below Peers

PSERS participates in an independent, international benchmarking survey evaluating its costs and service performance in comparison to other similar public pension funds. PSERS has 29% fewer full-time equivalent staff per member than the peer group average. By running a lean and efficient operation PSERS saves the Commonwealth and school employers approximately \$7.3 million annually in administrative expenses compared to its peers.



PSERS Saves \$7.3 Million Annually

PSERS had a 16% lower pension administration cost per member than the average cost of its peer group.

PSERS Budget Summary

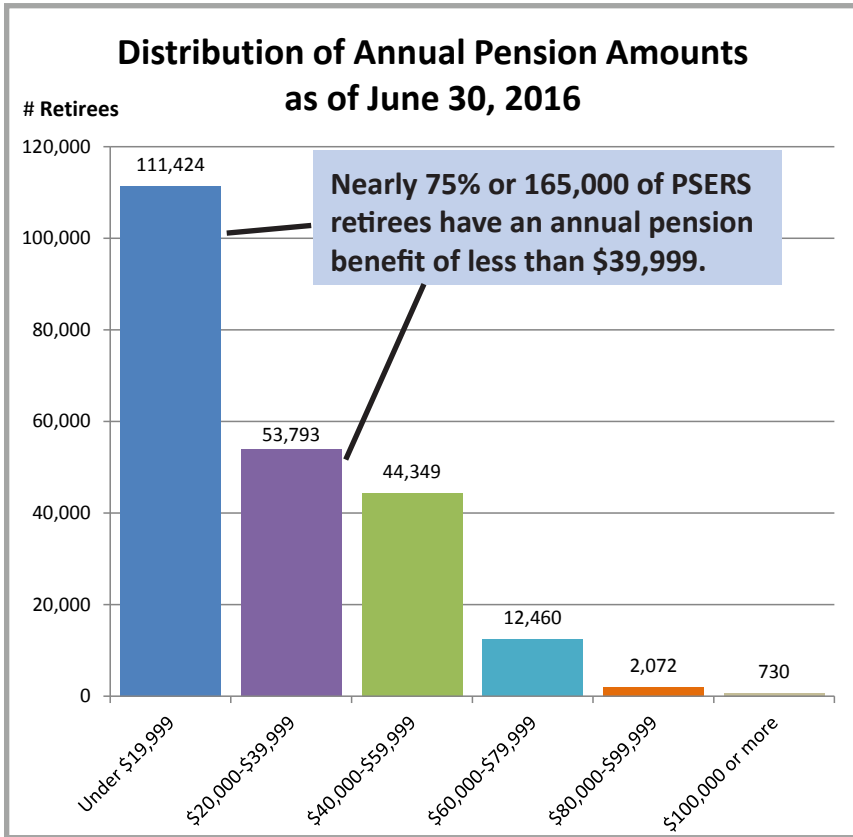
PSERS continues to be prudent in its use of funds and managing its annual budget. The administrative budget is not funded from the Commonwealth's General Fund, rather from the earnings of the Fund itself. PSERS' FY 2017-18 budget submission contains an Administrative budget request of \$45,841,000. PSERS also manages non-appropriated funds that cover expenses for Directed Commissions, Health Insurance Account, Health Options Program, and Investment Related Expenses. PSERS' FY2017-18 budgets, including non-appropriated funds, total \$71,992,000.

<i>Appropriation</i>	<i>PSERS' Budget Submission (000s)</i>
Administrative	\$ 45,841
Directed Commissions	2,000
Health Insurance Account	2,411
Health Options Program	781
Investment-Related	20,959
Total	\$ <u>71,992</u>

PSERS Provides Significant Resources and Technical Assistance for Pension Policy Proposals

Throughout 2016, PSERS staff worked cooperatively with and was actively engaged in providing actuarial data, legislative analyses and related technical information to members of the General Assembly and Executive Branch Officials on a range of pension policy proposals while remaining policy neutral on plan design elements. PSERS incurred over \$320,000 in costs for outside actuarial services from PSERS' actuary solely for numerous legislative pension policy proposals during 2016. PSERS staff also spent hundreds of hours drafting legislation and providing cost data for multiple variations of pension policy proposals. The cost work performed internally by PSERS staff saved over \$100,000 in outside actuarial fees in 2016.

PSERS Members Help Fund Their Own Retirement Benefit



The average PSERS retiree receives a modest pension of \$25,203 on an annual basis, a benefit earned through a lengthy career of 24 years in public education. During their career, members made mandatory contributions to PSERS to help fund their own retirement benefit. Most members contribute between 7.50% and 10.30% of their pay depending on their class of membership to help fund their own retirement benefit. This is in contrast to many non-public (private) pension plans to which members of over 90% of such plans do not contribute. For these plans, the employers bear 100% of the cost of the benefit.*

PSERS' member contribution rate is one of the highest among U.S. public pension plans that participate in Social Security.**



Six-figure pensions are rare. In FY 2015-16 there were approximately 730 retired members receiving an annual benefit over \$100,000 out of a total 225,000 PSERS retirees. These six-figure pension retirees spent an average of 38 years working in their public education careers and contributing to their benefit.

* Based on a query of private plan IRS Form 5500 filings

** According to recent National Association of State Retirement Administrators (NASRA) data, PSERS member contribution rate is the 12th highest member contribution rate among 84 large U.S. public pension plans that participate in Social Security.

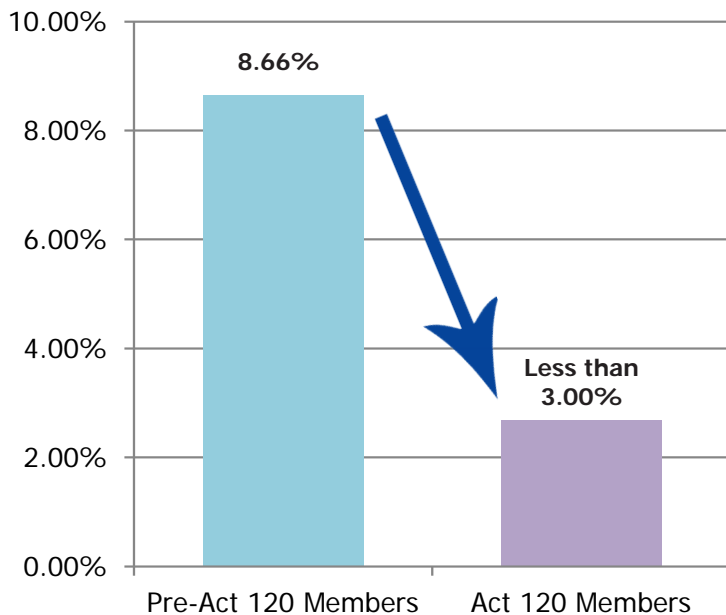
Cost of Current Benefits Earned by Members Continues to Decline

The cost structure of PSERS' new members under Act 120 of 2010 is low and the shared risk provisions shift a portion of the investment risk to new members giving PSERS a defined contribution element. Essentially, Act 120 provides the members with a defined benefit plan, which is both adequate and secure, and provides the employers with a low cost employee pension benefit funded in large part by the members who have also assumed some of the investment risk.

The employer normal cost decreases over time as Act 120 members replace retiring pre-Act 120 members. The employer normal cost (cost of current benefits being earned) of Act 120 members is less than 3% of payroll which is over 65% less than the normal cost for pre-Act 120 members. This represents a significant benefit cost reduction for the employers. As of December 31, 2016 there are over 60,000 Act 120 members and growing.



Employers' Annual Cost of Benefits for Current Service is Decreasing



The cost of current benefits being earned by Act 120 members is less than 3% which is less than 65% of the cost of pre-Act 120 members.

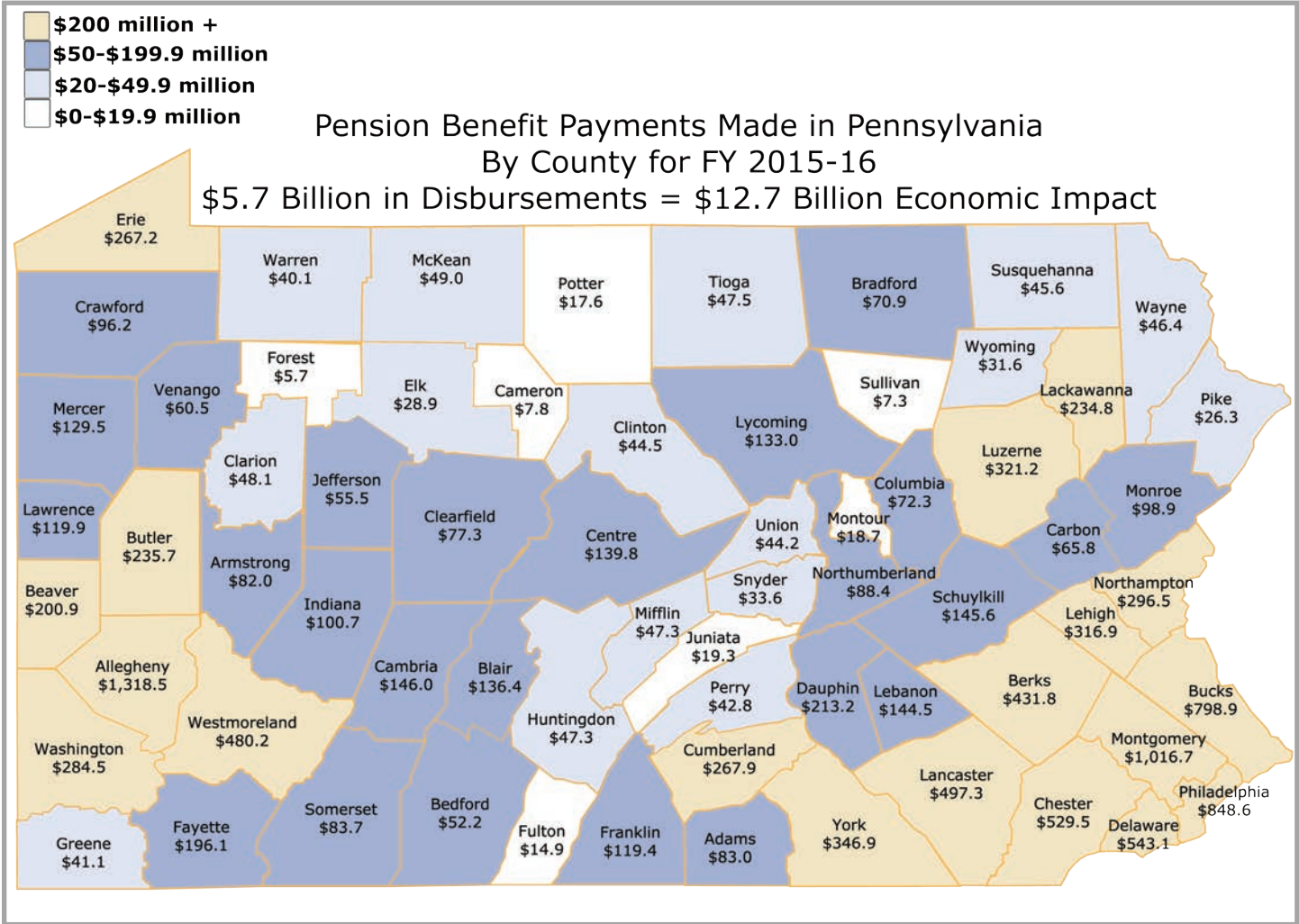
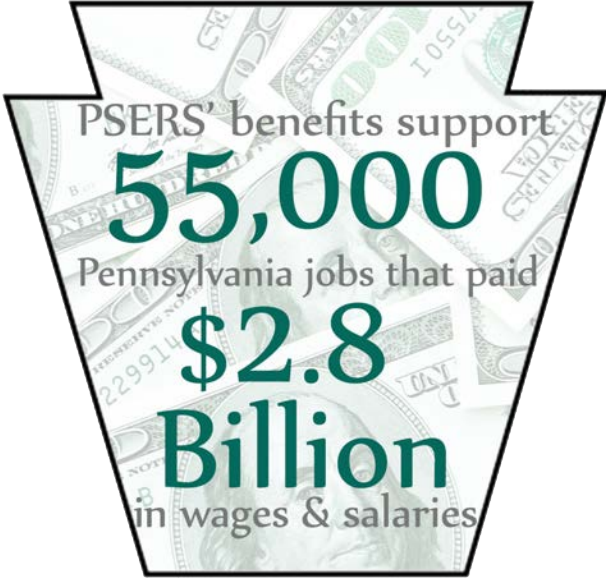
Pennsylvania Public School Employees' Retirement System

Economic Impact to Pennsylvania: \$12.7 Billion

In FY 2015-16, PSERS pension disbursements to retirees totaled approximately \$6.3 billion. Of this amount, approximately 90%, or \$5.7 billion, went directly into Pennsylvania and local economies.

According to a study by the National Institute on Retirement Security (NIRS) this spending expands through the economy as the retiree's spending becomes another's income, multiplying the effect of the \$5.7 billion into an economic impact of \$12.7 billion throughout the Commonwealth. Estimates show that the impact of money from PSERS in Pennsylvania includes \$1.5 billion in federal, state and local tax revenues.

Impact of Benefits

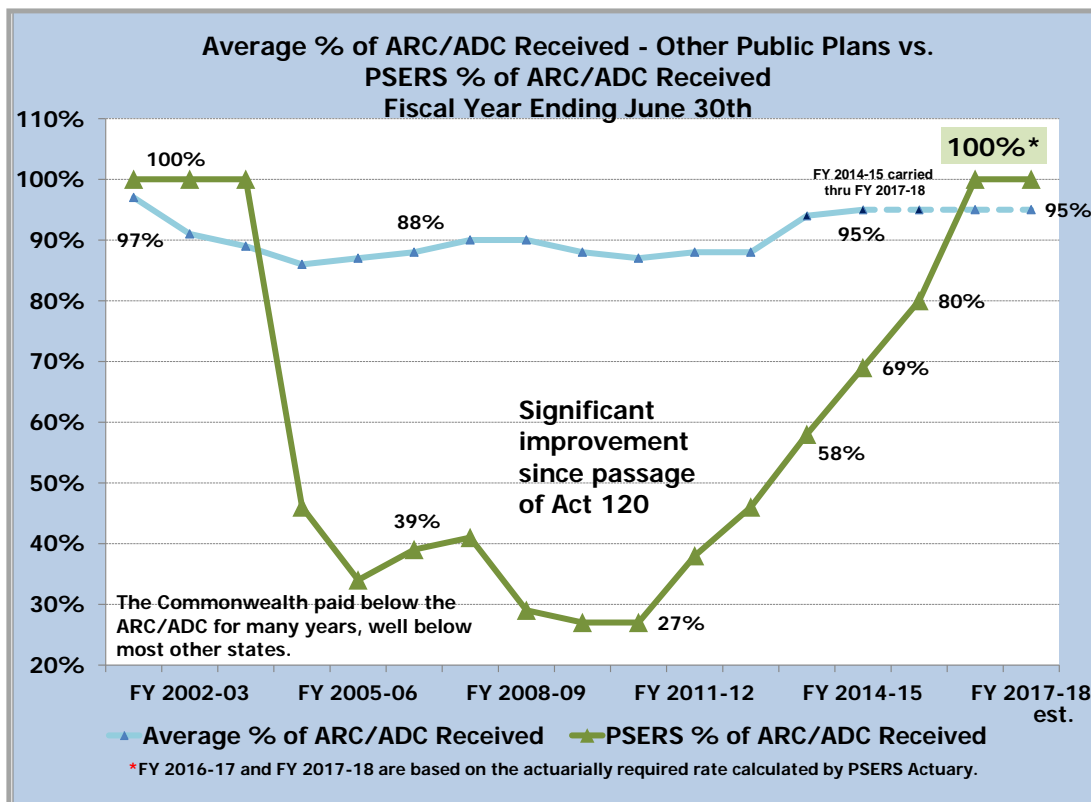


Progress Made Under Act 120

- Dramatic progress has been made toward addressing the annual funding shortfall. Thanks to the General Assembly's enactment of Act 120 pension reform, employer contributions steadily increased in defined increments and for the first time in 15 years, the employer contribution rate (ECR) for the fiscal year that began July 1, 2016, provided 100% of the actuarially required rate based on sound actuarial practices and principles. This progress to bring PSERS slowly back to full funded status has been noted by various bond rating agencies.
- While employer contributions will remain high for many years to pay down the past pension debt already incurred, as a result of the increased employer funding, in less than two years, PSERS' funded ratio is projected to slowly improve. PSERS is now on a path to full funding.
- In addition to reducing new member benefits by over 32%, Act 120 put in place "Shared Investment Risk", which transfers some investment risk to PSERS members. A post-Act 120 member's contribution rate will increase or decrease within a specified range every three years based on PSERS' investment performance, giving PSERS a defined contribution element.
- As noted on page 5, Act 120 also reduced the employers' cost of current benefits being earned.

"Moody's Investors Service has revised the Commonwealth of Pennsylvania's outlook to stable from negative...Further, the Commonwealth is on a solid (though slow) path toward full funding of its pension plans. Favorably, the most difficult phase of pension contribution ramp-ups is now in the rearview mirror, and the magnitude of annual pension contribution increases will be more manageable in the coming years."
 --Moody's August 2016

Act 120 reduced new member benefits by over 32%.

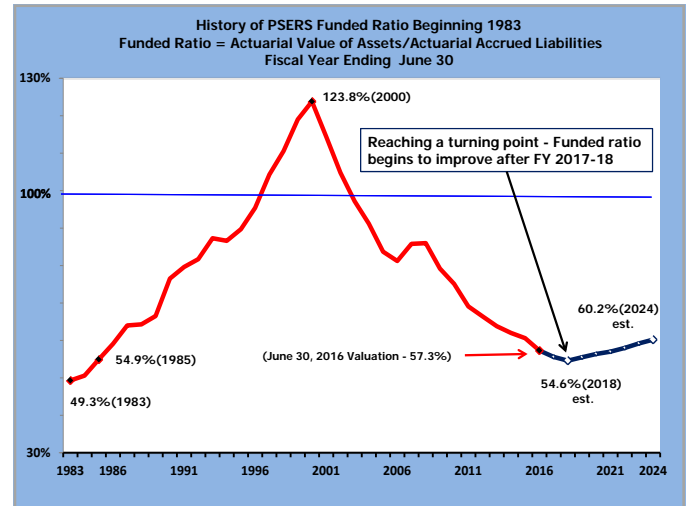


Reaching a Turning Point

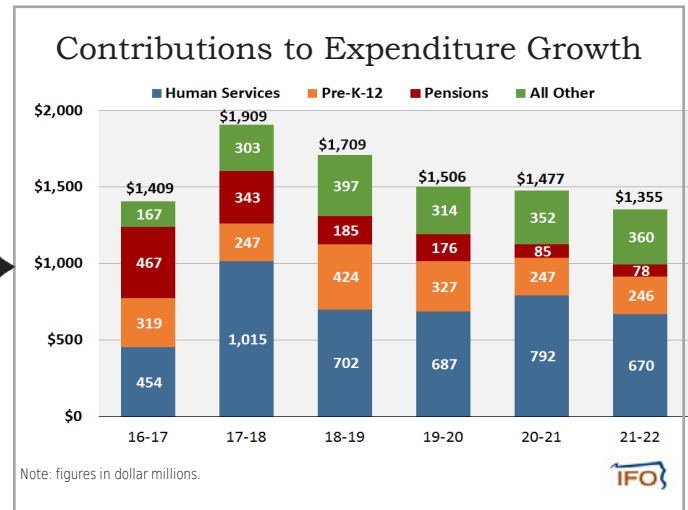
An independent review of PSERS' assets and liabilities is performed annually. As part of this review, the progress toward funding PSERS' pension obligations is measured. This measurement is referred to as the funded ratio or funded status. PSERS is 57.3% funded with an unfunded liability of \$42.7 billion as of June 30, 2016.

The decrease in the funded status since 2000 is the result of several factors including: the unfavorable investment markets from FY 2000-01 to FY 2002-03 and FY 2007-08 to FY 2008-09; funding changes enacted in Act 38 of 2002 and Act 40 of 2003 which resulted in employers underfunding PSERS; benefit enhancements from Act 9 and Act 38; the adoption of new demographic and economics assumptions in FY 2015-16; funding collars in Act 120 which continued the employer underfunding of the system; and, actuarial liability losses.

As a result of legislated contribution increases under Act 120, PSERS is reaching a turning point. In FY 2017-18 PSERS' funded ratio is projected to slowly improve after declining for many years.

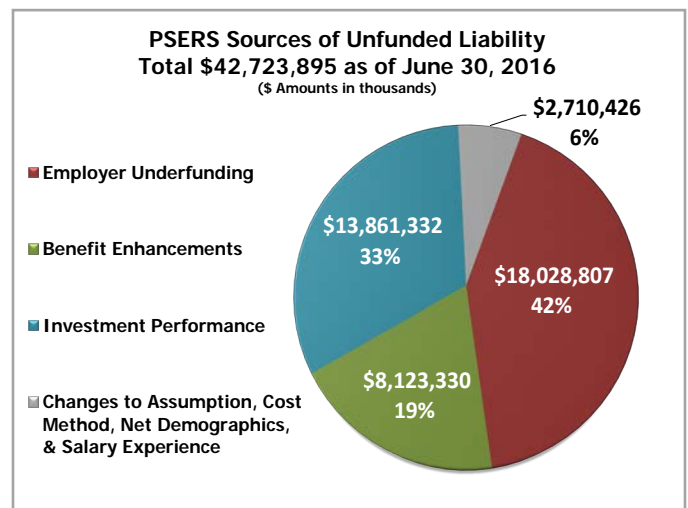


The Pennsylvania Independent Fiscal Office (IFO) has recognized the Commonwealth's progress on its pension funding issues. The IFO noted in its November 15, 2016 presentation that "Pension contribution growth decelerates dramatically after FY 2017-18." Also as shown, after FY 2017-18 pensions are no longer a major cost driver of Commonwealth expenditure growth.



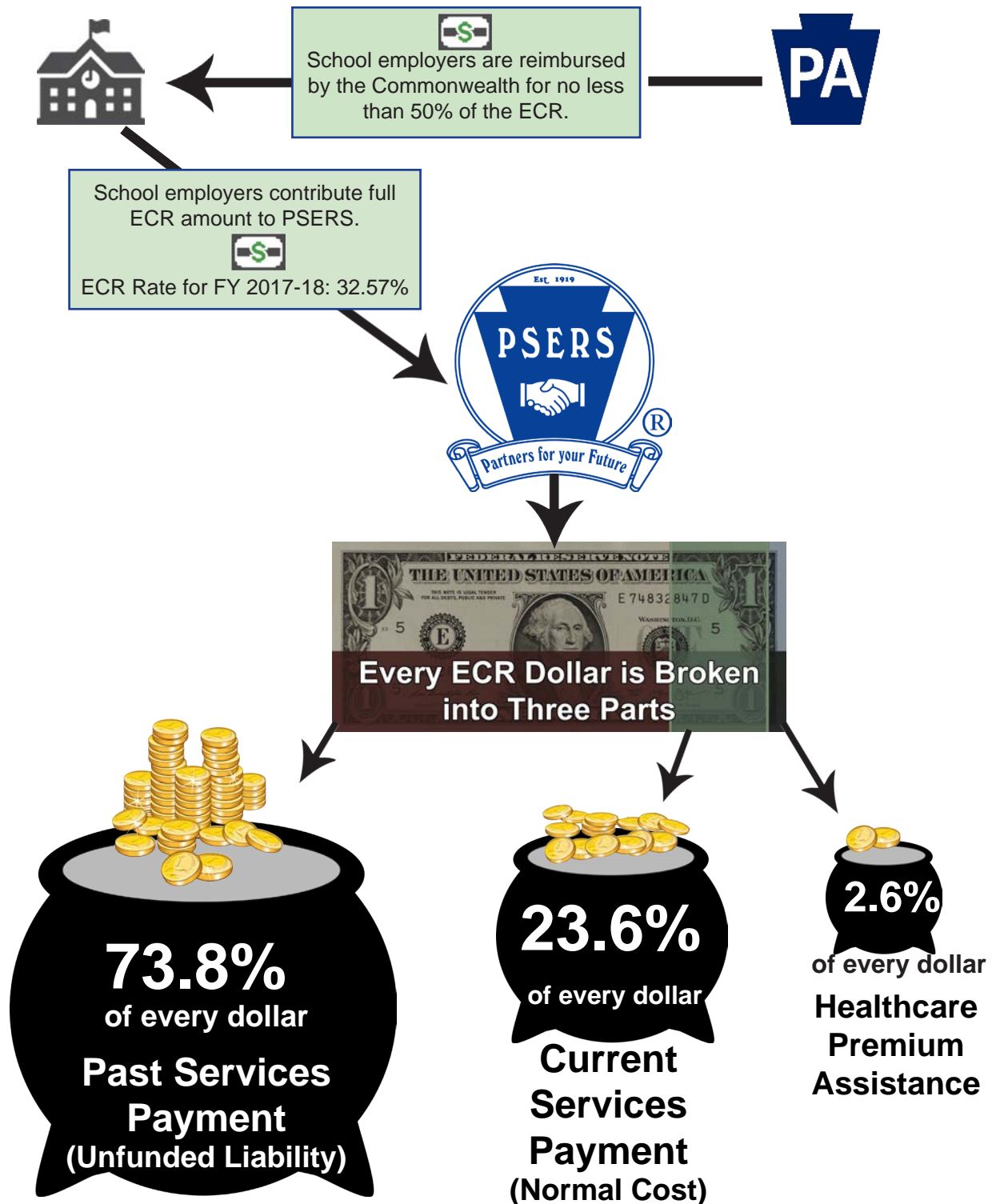
Sources of Unfunded Liability

- Underfunding by the Commonwealth and school employers is the largest source (42%) of the unfunded liability.
- The portion of the liability resulting from investment performance was significantly impacted by the Great Recession of 2008-2009.
- Benefit enhancements includes the impact of Act 9 of 2001, cost of living increases, and early retirement incentives.



Payment for Debt from Past Service is Nearly 75% of the Employer Contribution Rate (ECR)

The graphic below displays the components of PSERS' projected employer contribution rate in FY 2017-18. The majority of the rate, approximately 75%, is for payment of the debt from past service (unfunded liability), and is not due to the payment of the current cost of benefits (employer normal cost) being earned by active members.



Prudently Managing Investment Fees and Expenses



PSERS uses both internal staff and external investment managers to invest its assets. As of June 30, 2016, PSERS employed 34 internal investment staff with a variety of professional credentials including: Chartered Financial Analyst Charterholders, Certified Public Accountants, Masters of Business Administration, Chartered Alternative Investment Analyst, and a Professional Risk Manager.

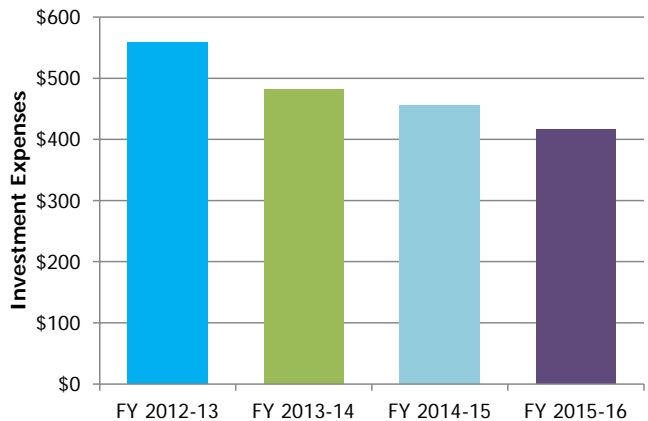
During FY 2016 PSERS increased the amount of asset exposure managed internally from \$16.8 billion, or 30% of PSERS' exposures, to \$19.3 billion, or 35% of the System's exposures. Asset classes such as U.S. equities and infrastructure are entirely managed in-house by PSERS investment staff. Other asset classes such as non U.S. equities, private markets, commodities, real estate, risk parity and master limited partnerships are partly managed in-house by PSERS investment staff.

By bringing more assets in-house, PSERS generates investment management fee savings. When assets are assigned to PSERS' staff, the total costs (e.g., staff salary and benefits, computers and office supplies) are much lower than the largest "very low fee" index mutual fund companies, giving PSERS a significant advantage.

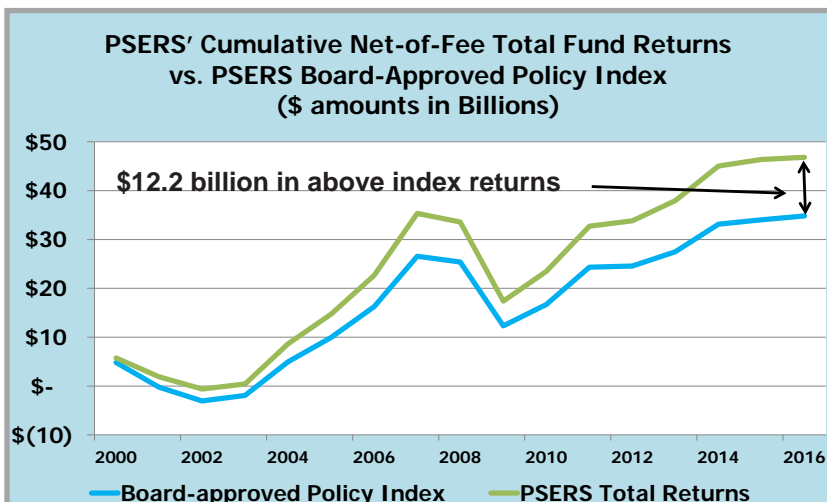
For the third year in a row, PSERS' investment manager fees have declined. PSERS' investment expenses decreased by over \$142 million, from \$558 million in FY 2012-13 to \$416 million in FY 2015-16, which is a reduction of over 25%.



PSERS Investment Expenses Declining (\$ amounts in millions)



Active Management Has Been Very Successful



Due to PSERS' use of active management, PSERS earned \$12.2 billion in excess investment return above the Board-approved passive policy index.

Long-Term Investment Performance Consistently Outperforms

PSERS is a long-term investor and manages the Fund with long-term objectives (i.e., 25 to 30 years) in mind. The System has built a diversified allocation that positions the Fund to earn its return assumption of 7.25% over the long-term although annual fluctuations will occur. PSERS believes the best way to achieve its long-term objectives is to maintain a very diversified portfolio which includes all asset classes available to it, such as equities, fixed income, real assets, risk parity and absolute return.

In the short-term, PSERS expects to go through periods of time when the Fund may not earn its return assumption. This past fiscal year was a challenging return environment for most investors as evidenced by PSERS' one-year investment return.

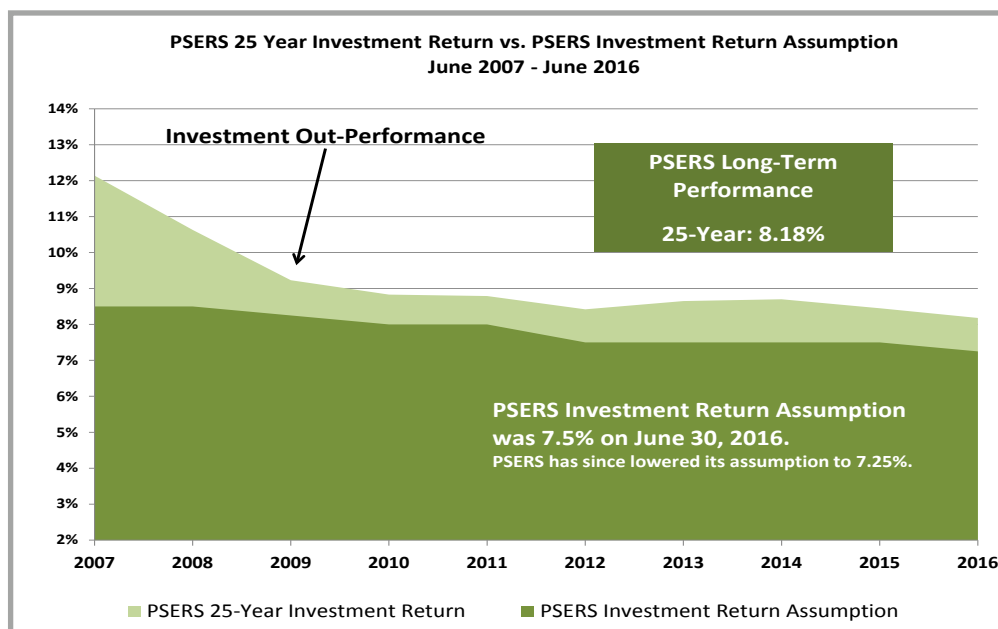
For the period ended June 30, 2016, PSERS posted returns of:

- One-year: 1.29%, added \$474 million in net investment income
- Five-year: 6.01%, added \$14.1 billion in net investment income
- 10-year: 4.94%, added \$24.2 billion in net investment income
- Since Great Recession: 9.16%, added \$29.5 billion in net investment income

Note: Since June 2016, investment markets have improved. For the one-year period ended December 31, 2016, PSERS earned a preliminary, net of fee return of 10.75% and added \$4.9 billion in net investment income.

In any given year, PSERS expects some assets to perform well, such as U.S. long-term treasuries, real estate, and gold did this past fiscal year, and some to not do as well, such as commodities. Over the long run, however, the System expects each of its asset classes to generate a positive return commensurate with the risks taken.

Long-term returns remain above PSERS' return assumption. PSERS posted positive returns of 8.18% for the 25-year and 8.32% for the 30-year period ended June 30, 2016. PSERS' focus remains on maintaining a well-diversified asset allocation that can withstand the volatility in the markets, provide enough liquidity to meet cash flow obligations (primarily monthly benefit payments), and meet PSERS' earnings assumption over the long-term which the Fund has consistently done.



PSERS Maintains a Prudently Diversified Asset Allocation

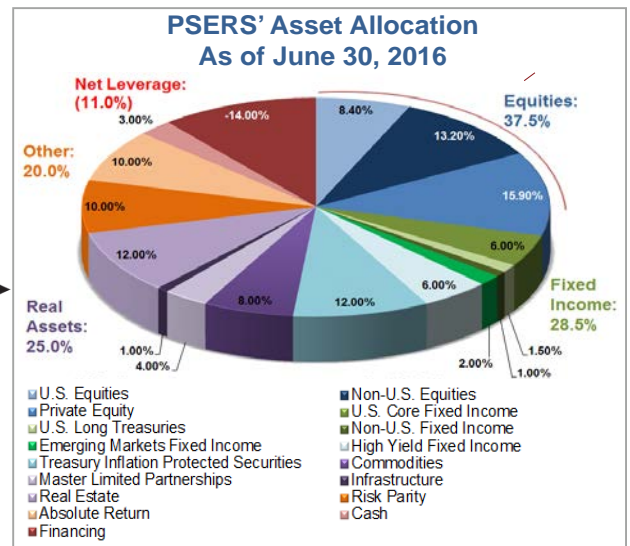
PSERS Board reviews and approves the long-term asset allocation annually taking the following factors into consideration:

• Investment time horizon	• Cash flow
• Demographics	• Funded status
• Actuarial assumptions	• The Board's willingness to take risk
• Employers' financial strength	

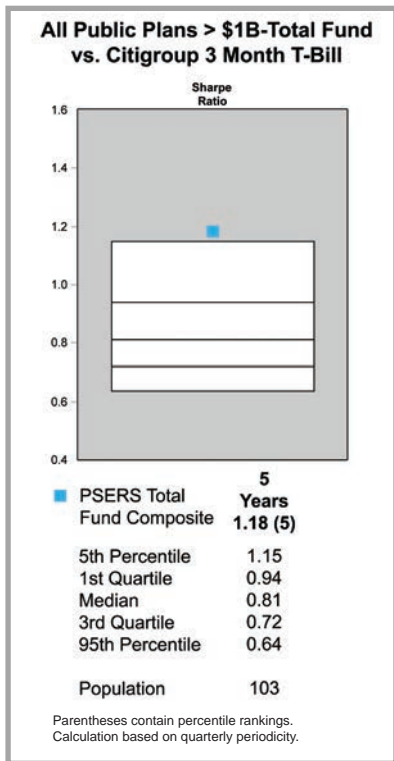
PSERS Board is heavily focused on PSERS risk profile, including liquidity risk. While there are other allocations which could achieve our long-term return objective of 7.25%, PSERS is focused on achieving that return with as little risk as possible. Excess risk taking by being overly concentrated in one asset class or similar asset classes can have damaging effects on a fund with large cash outflows such as PSERS. Over the past 15 years, PSERS paid out \$42.7 billion more in benefits than it has received in member and employer contributions (negative cash flow). During this period,

annual negative cash flow has ranged from \$2.1 billion to \$3.7 billion, or between 4.2% and 8.2% of net assets. While negative cash flow has improved significantly since the implementation of Act 120, negative cash flows are expected to continue into the foreseeable future. This negative cash flow continues to necessitate a larger liquidity position and a lower risk profile than a pension plan with a better cash flow profile.

PSERS' Asset Allocation is well-diversified into numerous asset classes.



For the 5 year period ended June 30, 2016, PSERS ranked in the top decile (higher risk-adjusted returns) for the Sharpe Ratio* as calculated by PSERS general investment consultant, Aon Hewitt.



**The Sharpe Ratio is a measurement that is used to calculate the risk-adjusted return of an investment. A higher Sharpe Ratio is more positive and means that an investor is earning more return per unit of investment risk they are taking.*

PSERS Maintains a High Level of Financial and Actuarial Governance

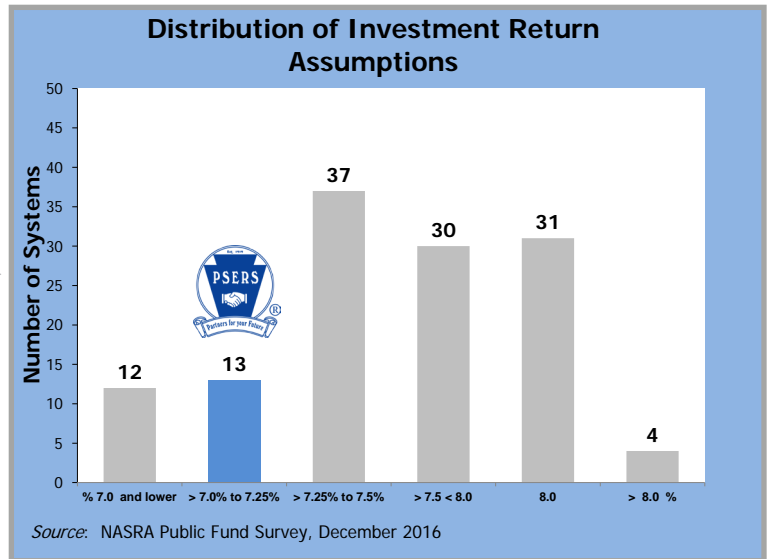
Actuarial Governance - Five Year Experience Study Results

According to the Retirement Code, every five years PSERS Board reviews the results of an experience study prepared by PSERS' actuary. The experience study includes an in-depth look at the mortality, service and compensation experience and compares the results to PSERS' assumptions. The Board reviews the actuary's recommendations and may adopt and change PSERS' demographic and economic assumptions as necessary. Reviewing assumptions is an important task for PSERS' Board. An assumption that is significantly wrong in either direction could have an unfair cost distribution on generations of taxpayers and school employers.

The revised demographic assumptions include new mortality, retirement, and withdrawal assumptions and updated option factors to match the new mortality tables. The Board approved the following assumptions:

- Reducing the salary growth from 5.50% to 5.00%;
- Reducing inflation from 3.00% to 2.75%;
- Reducing the investment rate of return from 7.50% to 7.25% and,
- New mortality, retirement, and withdrawal factors.

PSERS reduced its return assumption to 7.25% in June 2016.
A 7.25% return assumption places PSERS among the most conservative funds in the public pension universe.

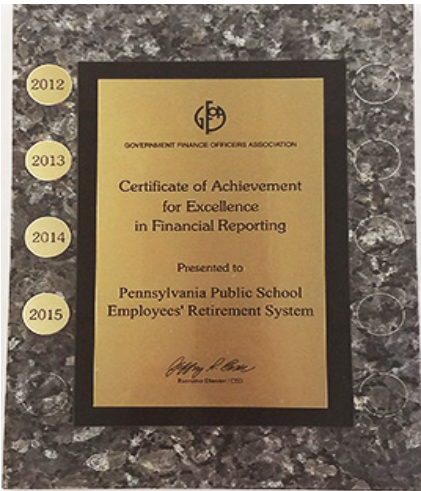


Financial Governance and Disclosure

PSERS is considered a component unit of the Commonwealth of Pennsylvania as defined by the Governmental Accounting Standards Board. An annual audit of the System by an independent certified public accounting firm is required by the Retirement Code. PSERS has received an unmodified opinion as evidenced in the Report of Independent Public Accountants in the Financial Section of the Comprehensive Annual Financial Report which is available on PSERS' website www.psers.state.pa.us. An unmodified opinion means that PSERS' financial statements fairly present, in all material respects, its financial condition. In addition, no significant findings were noted during the audit and therefore, a management letter was not issued. This is the seventh consecutive year that a management letter was not issued and is reflective of the hard work and dedication of PSERS' staff to continue to improve the internal controls, operations, and efficiency of the System.



Awards Received During the Past Fiscal Year



Government Finance Officers Association of the United States and Canada Certificate of Achievement for Excellence in Financial Reporting: The Certificate of Achievement awarded by the GFOA is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government financial reports. PSERS has received a Certificate of Achievement for 33 consecutive years.

Public Pension Coordinating Council Public Pension Standards Award: This award is in recognition of meeting professional standards for plan design and administration as set forth in the Public Pension Standards.

Institutional Investor Asset Management Industry Award: This award is in recognition of the most outstanding and innovative Corporate and Public Plan sponsors and Endowments and Foundations in North America.

PSERS Board of Trustees as of February 2017

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