Thanks, Steve. If I'm reading you right, you're saying PSERS did poorly in 2008-09 for the same reason it had done well in the immediate preceding years -- it was overweight long equities -- and it was overweight long equities because it was underfunded.

But hasn't the plan been less-funded since 2009, than it was before 2008? So the former strategy was abandoned and reversed?

And you tell us it was the reduction in equity that produced the ensuing poor performance in the PPMAIRC comparison period? And so results were poor, both in the market's equity-decline period 2008-09, and in the market's equity-recovery period 2009-17, because:

PSERS had too much stock when stocks were going down, and not enough stock when stocks were going up?

Also you emphasize that the data on page 215 of the PPMAIRC report indicates a lower standard deviation and therefore lower volatility for PSERS vs other funds. Where is SD indicated on the table, by the numbers (parenthesized) to the right of the two totals (first row)? If SD = radical (variance from the group mean), isn't any low-performing result by definition going to produce a low SD? Sounds like making a virtue of poor performance.

Joe,

Thank you for the follow up questions. These will be the last answers I provide on the commission report. We decline further comment on any data or opinions in the report. If you need additional help, our website offers plenty of documents going back to the early 2000s. See the bottom of this email as a helpful example of what is on our website.

Answer:
I will answer your last paragraph that reads in part, "isn't any low-performing result by definition going to produce a low SD? Sounds like making a virtue of poor performance."

Actually, low performance and low standard deviation don't necessarily go together. In fact, low performance can come about through high standard deviation or low standard deviation or anywhere in between. The same goes for high performance. High performance doesn't necessarily produce high standard deviation, nor does it necessarily produce low standard deviation.

I did not *"emphasize that the data on page 215 of the PPMAIRC report indicates a lower standard deviation"* in my response. I never said anything about that chart and never used the term "standard deviation." The chart does not show standard deviation. The numbers in the parenthesis represent the percentile performance compared to peers at that particular quarter report. In my first response, I explained what the parenthesis meant in similar charts we provided.

All I did was point out that the one sentence on page 215 was false, and there is nothing in the Commission report that leads me to believe that sentence is connected to the chart, either. (More on the page 215 chart is below.)

As I said previously that page 215 sentence is false based on the Wilshire chart I provided that shows PSERS' returns pre-GFC were high compared to peer groups -- not low over 20 years as the authors

claimed. I provided the full Wilshire report in this email for your review. Here's a link to a news release on PSERS' nearly 24% return on the June, 30, 2007 close of the 2006-07 fiscal year.
https://www.psers.pa.gov/About/Investment/Documents/2007-0827%20Press%20Release%20June%202007%20Inv%20Perf%20FINAL.pdf

You will have to ask the authors why they chose that GFC timeframe for their analysis and did not review the publicly available Wilshire report, news release, CAFRS or other public records before writing that sentence.

Answers to your other comments/questions:

Being overweight equities is easy when the market is moving higher year-in, year-out. There is no stress in the allocation, so no need to reevaluate your risk posture.

The stress came during the GFC when the equity markets fell 50% at a time when our negative cash flow was increasing due to policy changes in the early 2000s, increasing benefits and decreasing employer contributions below the actuarially required amounts. As noted in the chart below, our negative cash flow increased from 5% to around 8% in fiscal year 2010. This meant, all things being equal, the net assets of the fund were scheduled to decline by 8% absent investment returns. If we kept a high risk, equity centric portfolio in place and the markets struggled for another two years (say, PSERS lost only 10% of the next two years), our assets would have fallen by 26% from $43 billion to $32 billion and our negative cash flow would have increased to an unsustainable 11.5% while policymakers had no plan at the time to increase employer contributions.

As can been seen, the choice was to "hope" that the markets would rebound or have an investment plan that would prevent a solvency crisis which would have put the fund essentially in liquidation mode absent double-digit market returns on a persistent basis to stabilize it. The Board chose to adjust the portfolio risk to reflect our current situation.

So, in short, reducing equity risk was the result of significant negative cash flow due to public policy to underfund the contributions. This can be seen in the return results of both of PA's large pension plans since we both were in the same circumstances and why you don't see it in the peer funds shown. The peer group had a different set of circumstances, which allowed them to take more risk due to a commitment by their plan sponsors to more fully fund their contributions.

Hindsight would tell you that reducing risk (i.e. equity) cost the fund some returns, but that de-risking strategy was necessary to protect the fund's solvency and it also was the unintended consequence of employers not adequately funding the system for years. PSERS and SERS did not receive their actuarially funded employer contribution until Gov. Wolf took office in 2015.
If in 2010 we had a copy of the business section of the Philly Inquirer that told us for certain where the markets were heading in 2012, we certainly would have made a different decision (heck, with tomorrow's paper, we'd have a perfect record!). Boards make decisions based on the facts and circumstances in the present time and not based on hope which is a poor investment strategy.

PSERS Net Shortfall in Cash Flows as a Percentage of Net Assets by Year
($s in 000's)

Fiscal Year-End June 30	Member Contributions	Employer Contributions	Benefit Payments (1)	Net Shortfall	Beginning Fund NAV	Shortfall as of % of Beg. NAV
2000	$ 552,502	$ 390,504	$ 2,227,903	$(1,284,897)	$ 48,911,432	2.63%
2001	$ 579,850	$ 158,193	$ 2,123,526	$(1,385,483)	$ 53,361,722	2.60%
2002	$ 662,561	$ 539	$ 2,731,417	$(2,068,317)	$ 48,096,955	4.30%
2003	$ 752,110	$ 20,831	$ 2,916,251	$(2,143,310)	$ 43,473,249	4.93%
2004	$ 783,691	$ 321,091	$ 3,283,506	$(2,178,724)	$ 42,316,379	5.15%
2005	$ 788,310	$ 431,556	$ 3,666,930	$(2,447,064)	$ 48,339,649	5.06%
2006	$ 827,647	$ 456,878	$ 3,885,450	$(2,600,925)	$ 51,936,397	5.01%
2007	$ 855,322	$ 659,545	$ 4,068,625	$(2,553,758)	$ 57,235,667	4.46%
2008	$ 879,598	$ 753,532	$ 4,682,210	$(3,049,080)	$ 67,340,997	4.53%
2009	$ 911,118	$ 503,227	$ 4,667,613	$(3,253,268)	$ 62,473,426	5.21%
2010	$ 952,047	$ 527,212	$ 4,985,957	$(3,506,698)	$ 42,995,480	8.16%
2011	$ 1,042,707	$ 646,560	$ 5,308,762	$(3,619,495)	$ 45,598,475	7.94%
2012	$ 952,887	$1,004,585	$ 5,682,746	$(3,725,274)	$ 51,199,994	7.28%
2013	$ 991,087	$1,446,402	$ 6,044,246	$(3,606,757)	$ 48,533,796	7.43%
2014	$ 966,926	$1,992,084	$ 6,053,505	$(3,094,495)	$ 49,015,561	6.31%
2015	$ 984,634	$2,596,731	$ 6,220,601	$(2,639,236)	$ 52,980,115	4.98%
2016	$ 989,266	$3,189,510	$ 6,360,325	$(2,181,549)	$ 51,585,521	4.23%
2017	$ 1,013,847	$3,832,773	$ 6,473,579	$(1,626,959)	$ 49,832,060	3.26%
18 Year Totals	**$15,486,110**	**$18,931,753**	**$81,383,152**	**$(46,965,289)**		

(1) Includes benefits, refunds, and net transfers to SERS

The chart on page 215 does not include the risk profile of the fund at the time.

On page 6 of our first email response to you, we provided an Aon slide, "PSERS Total Fund – Risk Statistics," that showed the 5-year standard deviation of the Fund. It shows that for the 5 years ended June 30, 2017 PSERS' standard deviation of returns was 4.25, or in the 88th percentile (1st percentile = highest risk; 100th percentile = lowest risk). Our Sharpe Ratio, which measures the risk-adjusted return of the portfolio, was 1.67, or in the 38th percentile. This says we earned more returns for each unit of risk taken than the median which earned 1.60. The amount of risk taken by a pension fund should be dictated by that fund's circumstances, not the "peer universe." Otherwise, we wouldn't do asset/liability studies, we'd do asset/peer studies and allow the peer group to dictate the level of risk, not the liability stream and cash flow profile of the pension system that we're trying to fund. It would be like an individual investor mapping the risk of their portfolio to their neighbor's portfolio. Why would you do that? Your portfolio should have a risk tolerance equivalent to your willingness and ability to take risk, not what your neighbor John is doing.

The process to get to our asset allocation and risk profile was well thought out by the Board, staff, and its investment consultant to meet the specific needs of the Fund based on its cash flows, liabilities, and risk tolerance at the time it was established based on those current circumstances. Once PSERS got beyond the GFC, the total returns have been solid and the risk-adjusted returns have been strong. Our annualized total returns since July 1, 2009 have been 8.5% through September 30, 2020, well in excess of our actuarial assumed rate of return. I'm not quite sure what is wrong with that.

Additional information

know it can be daunting to visual all this "asset allocation" talk through the years. So here is a way you can see the allocation over the years and build your own spreadsheet to track it:

As I said in my last email, pension funds should not make drastic changes one-year-to the next in asset allocation because it takes time to implement. Changes are made gradually. Also, for your knowledge, the Investment Policy Statement establishes both a percent and ranges for each asset allocation.

1. Go to psers.pa.gov
2. Clink Investment Program link
3. PSERS Asset Allocation and Performance (second blue box on right.)
4. Click second link you see: PSERS detailed asset allocation - Overview of the Investment Portfolio as of June 30, 2020.
    a. See pages 1, 2, 3 for charts and graphs on asset allocation for that year.
5. You can do the same thing for prior years by clicking "archived investment information" on the Investment page. (last blue box on the right)
6. Click on any year you want and search for the same "Overview" link. The allocation is not going to change from March or June of any year. Or you can just click the links I provided:
    a. PSERS detailed asset allocation - Overview of the Investment Portfolio as of June 30, 2019
    b. PSERS detailed asset allocation - Overview of the Investment Portfolio as of June 30, 2018
    c. PSERS detailed asset allocation - Overview of the Investment Portfolio as of June 30, 2017
    d. PSERS detailed asset allocation - Overview of the Investment Portfolio as of June 30, 2016
    e. PSERS detailed asset allocation - Overview of the Investment Portfolio as of June 30, 2015
    f. An Overview of the Investment Program as of June 30, 2014
    g. An Overview of the Investment Program as of June 30, 2013
    h. An Overview of the Investment Program as of June 30, 2012
    i. An Overview of the Investment Program as of June 30, 2011
    j. An Overview of the Investment Program as of June 30, 2010
    k. An overview of PSERS' investment program as of June 30, 2009
    l. An overview of PSERS' investment program as of June 30, 2009
    m. An overview of PSERS' investment program as of June 30, 2008
    n. An overview of PSERS' investment program as of June 30, 2007
    o. An overview of PSERS' investment program as of June 30, 2006
    p. An overview of PSERS' investment program as of June 30, 2005
7. You can also find the same asset allocation material in our annual CAFRs. To find those, go to Financial Publications link and click CAFRs.
    a. Do a search for "asset allocation" until you get to this page: "Comparison of Actual Portfolio Distribution to Asset Allocation Plan As of June 30, XXXX." You'll be able to see the policy % for each asset allocation and the actual allocation for that reporting period.