Internal Investigation Report
to the
PSERS Board of Trustees:
Risk Share and Harrisburg Properties

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Introduction

The law firm of Womble Bond Dickinson (US) LLP was engaged by the Board of Trustees of PSERS to conduct:

> A special investigation to review the circumstances that preceded and followed the December 3, 2020 adoption of a resolution by the Board certifying member contribution rates based upon a misstatement of investment performance returns used for the statutory shared-risk calculation. In addition, the special investigation will include the facts and circumstances surrounding the purchase and valuation of the following properties in Harrisburg, PA by PSERS: 1) former Harrisburg Patriot News facilities on Market, Ninth and Tenth Street; 2) the former Department of General Services Building on Market Street; 3) three additional Tenth Street parcels; 4) 1000 Markets Street; and the use in 2019 of $5 Million for these purchases.

Since Spring 2021, Womble Bond Dickinson US (LLP) ("Womble") has been given full, transparent access to PSERS documents and employees. Our work was guided, in part, by the Pennsylvania state statute outlining the fiduciary responsibilities of PSERS—which apply to the board, employees of the board, and its agents as well as other related fiduciary rules and internal policies as follows:

> The members of the board, employees of the board, and agents thereof shall stand in a fiduciary relationship to the members of the system regarding the investments and disbursements of any of the moneys of the fund and shall not profit either directly or indirectly with respect thereto. The board may, when possible and consistent with its fiduciary duties imposed by this subsection or other law, including its obligation to invest and manage the fund for the exclusive benefit of the members of the system, consider whether an investment in any project or business enhances and promotes the general welfare of this Commonwealth and its citizens, including, but not limited to, investments that increase and enhance the employment of Commonwealth residents, encourage the construction and retention of adequate housing and stimulate further investment and economic activity in this Commonwealth.

24 Pa. Con. Stat. § 8521(e).

In the performance of their duties, members of the Board must exercise the 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.

Id. § 8521(a).

PSERS Investment Policy

The PSERS Investment Policy Statement provides that the members of the Board, employees of the Board, and their agents "must act consistent with the duty of prudence as well as the duty of loyalty." Investment Policy Statement of the Commonwealth of Pennsylvania Public School Employees' Retirement Board (2021) at 3.

The Duty of Loyalty

PSERS board members and staff have an "obligation to invest and manage the fund for the exclusive benefit of the members of the system." 24 Pa. Con. Stat. § 8521(e). As trustees, PSERS board members and staff are prohibited from engaging in transactions that involve self-dealing or that create a conflict between their fiduciary duties and personal interest or interest of third parties. *See* Restatement (3d) of Trusts § 78, cmt. b, e (2007).

The Exclusive Benefit Rule

PSERS is also subject to the Internal Revenue Code's Exclusive Benefit Rule, which provides that "[no] part of the corpus or income [may] be . . . used for, or diverted to, purposes other than for the exclusive benefit of [the] employees or their beneficiaries." 26 U.S.C. § 401(a)(2); *see also* 29 U.S.C. 1104(a)(1) (under ERISA, "a fiduciary shall discharge his duties with respect to a plan solely in the interest of the participants and beneficiaries and—(A) for the exclusive purpose of: (i) providing benefits to participants and their beneficiaries; and (ii) defraying reasonable expenses of administering the plan").

The Duty of Prudence

As trustees, PSERS board members and staff must:

> exercise the degree of judgment, skill, and care under 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.

24 Pa. Con. Stat. § 8521(a). ERISA's "prudent man standard of care" likewise provides that a fiduciary must exercise "the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent man acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and with like aims." 29 U.S.C. § 1104 (a)(1)(B).

In determining whether a fiduciary has satisfied their duty of prudence, the focus is on the process and methods in arriving at an investment decision, not at the results. *See Harmon v. FMC Corp.*, 2018 WL 1366621, at *5 (E.D. Pa. Mar. 16, 2018) (citing *In re Unisys Sav. Plan Litig.*, 74 F.3d 420, 434 (3d Cir. 1996); *Pension Benefit Guar. Corp. ex rel. St. Vincent Catholic Med. Ctrs. Ret. Plan v. Morgan Stanley Inv. Mgmt., Inc.*, 712 F.3d 705, 718 (2d Cir. 2013)). As part of the duty of prudence, a trustee may delegate responsibilities to other qualified professionals. Restatement (3d) of Trusts § 80 (2007). The duty of prudence also gives rise to a duty to diversify "so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so." 29 U.S.C. § 1104(a)(1)(C).

The Duty to Monitor

Separate and apart from the duty to exercise prudence in selecting investments at the outset, PSERS board members and staff have a continuing duty to monitor trust investments and remove imprudent ones. *See Tibble v. Edison Int'l*, 575 U.S. 523, 530-31 (2015) (citing the Uniform Prudent Investor Act in the ERISA context).

Scope of Investigation

In total, Womble interviewed over 30 individuals, some on multiple occasions. Interviews were conducted of PSERS staff, Trustees, designees, and third parties. Some of the interviews were conducted solely by Womble, others were conducted in conjunction with the Morgan Lewis team representing PSERS in the parallel DOJ investigation.

Regarding documents, we had access to all documents collected by Morgan Lewis for the DOJ investigation. In addition, we received additional documents through our Audit Committee liaison and some from witnesses directly. We also were given access to a production made by a third party consultant (ACA). In total, we had access to over 1.5 million documents. We also had access to Diligent Board (document software) and received copies of some Board of Trustees meeting recordings.

We did not possess subpoena power therefore; we could not compel participation. A small number of individuals and entities declined to be interviewed. To the extent their information may have impacted our findings, we have noted this herein. Further, we were unable to compel documentation from third parties.

With the permission of the Audit Committee, we also engaged the consulting firm Alvarez and Marsal to assist in our review of Risk Share-related financial data. Alvarez and Marsal has not prepared an independent report, rather it has assisted us in reviewing information and answering directed questions.

The scope of the independent internal investigation was to determine the circumstances that preceded and followed the December 3, 2020 adoption of a resolution by the Board certifying member contribution rates based upon a misstatement of investment performance returns used for the statutory shared-risk calculation as well as the facts and circumstances surrounding the purchase and valuation of the property acquisitions in Harrisburg, PA by PSERS.

***PA Constitutional Mandated Reputational Rights-Simon v. Commonwealth*, 659 A.2d 631 (Pa. Cmwlth. 1995)**

Article I in Pennsylvania's Constitution and subsequent case law require that if a state entity is going to publish anything that might harm the reputation of an individual or entity, then that individual or entity is entitled to know what is going to be published in advance and be able to comment on it for inclusion in the report. Counsel for potentially affected individuals and entities were provided excerpts of our draft report prior to publication and allowed to provide comments. Some comments and corrections were accepted. The full responses received are appended at the end of the report.

Release of the Report of the Internal Investigation

Womble orally briefed the PSERS Board of Trustees of its factual findings at an Executive Session of the Board on January 31, 2022. After the oral presentation, the Board was provided with a copy of this written report and voted to release it to the public.

Harrisburg Property Acquisitions

Beginning in December 2017 and ending in December 2020, PSERS Board approved the purchase of 15 parcels of real estate across the Amtrak railroad tracks from the PSERS headquarters building. Initially, the justifications for the initial purchases were: 1) to alleviate overcrowding and provide additional office space for the expanding investment office and (2) to provide lower cost parking for the employees. However, the strategy for property acquisition changed over a 2-and-a-half-year period as additional real estate was purchased. The strategy and acquisitions were led by Executive Director Glen Grell ("ED Grell"). PSERS staff and the Office of Chief Counsel provided support.

I. Properties Purchased by PSERS in Harrisburg

a. 2017-Patriot News Property (a/k/a 812 Market Street LLC)

At some point near the end of June 2017, ED Grell told us that he saw a commercial realty sign on the Patriot News Building while driving into work. Since PSERS needed additional space due to staff overcrowding in the current headquarters at 5 North 5th Street, he thought the location (separated by the Amtrak tracks) could meet the organization's needs as well as provide lower cost parking for PSERS employees. At that time, employee parking was costing approximately $300,000 a year.

The Patriot News Building was purchased by Twenty Lakes Holding Company on June 23, 2017[1]. This acquisition also included 6 additional lots. While the allocation purchase price was listed as $650,000, that was not accurate because the allocation price was part of a nationwide multiple property acquisition by Twenty Lakes.

L&B Realty ("L&B"), the asset manager for the current headquarters, was contacted in late June to provide information about the Patriot News property and eventually assist in the purchase. ED Grell was working to coordinate with local Realtor about a sale and lease back for the current headquarters, as well. This never occurred.

L&B shared some high level information about the property with PSERS including a property line report indicating a list price for the property of $1.5M. The entire property acquisition consisted of the following: 810 Market Street, 812 Market Street (Patriot News Building), 12 N. 9th Street, 24 N. 10th Street, 26 N. 10th Street, 21 N. 9th Street, and 22 N. 9th Street). Shortly thereafter, L&B also provided market information about another property, the 908 Market property (DGS Building) which was subsequently purchased.

L&B began negotiations with the broker for Twenty Lakes broker and the preliminary sale price was $2M. PSERS counteroffer was $850,000. During the initial negotiations, L&B learned the $650,000 was merely an allocation price and not a reflection of the valuation of the property. Throughout most of the negotiation process, PSERS was not disclosed as the buyer.

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[1] In June 2017, it is unclear whether PSERS staff knew the Patriot News Building had either been recently available for sale or recently sold to Twenty Lakes.

Negotiations with Twenty Lakes were ongoing and the asking price was reduced after L&B reported:

> [T]he CEO of the company has now toured the site and may understand that the site is not Manhattan. Apparently the broker informed them that there is no market for potential tenants of any consequence for the location as it is now. Obviously a renovation would be expensive and with tenancy scarce that should play in our favor.[2]

There were additional comments about the actual commercial value of the property. For example, when ED Grell asked that the realtor sign be removed from the property several months after the sale, the realtor responded, "I really don't get any leads on the building. Let's just say it is a property that probably only has one buyer-the next door neighbor."[3]

After a period of negotiations, a Letter of Intent was executed on September 29, 2017 for $1.6M. The creation of a holding company was discussed to avoid additional transfer taxes. The Board was supposed to be notified of this potential acquisition at the October 5, 2017 board meeting. However, there is no reference in the board book or minutes of the meeting regarding the acquisition of the property. It may have been discussed in the executive session but no board member recalled any briefing about the Patriot News Building purchase prior to the December board meeting.

An agreement of sale was negotiated by the McNees law firm on PSERS behalf. The final Agreement of Sale and an Escrow Agreement were executed on November 7, 2017. No appraisal or other valuation has been located. The $1.6M was placed in an escrow account in mid-October 2017[4]. In the event that the sale was not closed, the funds would be returned to PSERS, less a retention deposit of $50,000 as liquidated damages. The due diligence period was 30 days. L&B informed ED Grell that the due diligence period would expire on December 7, 2017 and suggested an extension be requested. On December 5, 2017, Grell responded "we can ask for a few more days but I wouldn't press too hard. We are going to close in any event".[5] L&B contacted Grell on December 6 seeking approval to allow the due diligence period to expire where the $1.6M would be non-refundable. There is no evidence of a response from anyone at PSERS. The following day, L&B Realty confirms the due diligence period expired and the $1.6M became non-refundable prior to any approval by PSERS Board.[6]

The McNees law firm conducted the due diligence. The properties were zoned in an industrial district and the downtown center district which would impact on zoning approval for the parking lots. In addition, the property was located in a Floodplain Overlay district that would impact development and construction.

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[2] Exhibit 1.
[3] Exhibit 2.
[4] There is no indication that any funds were spent or earmarked for this purchase prior to October 2017.
[5] Exhibit 3.
[6] Exhibit 4.

On December 8, 2017, the Board was informed of the request to purchase the Patriot News Building for use as supplemental office space and parking for PSERS employees. A memo dated December 6, 2017 was provided to the Board by the Investment Office. The Board minutes do not reflect whether the Board was fully informed of the issues raised during the due diligence process (this could have occurred during Executive Session) or that no appraisals had been done. Christopher Craig (Treasury) abstained because he questioned whether it was an operating expense or an investment. The Board approved the acquisition not to exceed $5M and the transaction became collectively known as '812 Market'. The Board resolution deferred the final terms and conditions of the investment to the Investment Office, the Office of Chief Counsel, and the Executive Director.

After the Board vote, a news article ran questioning the purchase price because of the previous $655,000 valuation in the real estate records. A board member contacted ED Grell questioning the sales price. In the email response, ED Grell explained that the purchase price was an allocation by Twenty Lakes from its purchase of numerous properties and had no relationship to the true value. He then goes on to state, "The assessed value of the property is currently around $1.15 million, having been reduced from about $2.5 million in 2010-11, when the Patriot News vacated the buildings. We believe the $1.6 million purchase price represents fair value of the property".[7] PSERS then issued a statement to the media stating, "[T]he $1.6 million purchase price paid by PSERS represents the fair market value for the eight-parcel property." After the acquisition, the preliminary plans shifted from using part of the existing Patriot News site for PSERS office space to full demolition of the building. The building demolition began in October of 2018 and was completed in and around February of 2019. Currently, no other structures have been built on these sites.

b. **2018-Clay Lots and DGS Building**

i. Clay Lots

On August 27, 2018, Bob Clay sent an email to a PSERS facility manager regarding a proposed sale of the parking lots at 23 N. 10th Street, 27 N. 10th Street and 31 N. 10th Street (total of 82 parking spaces) for $450,000. These lots are adjacent to 812 Market Street. ED Grell agreed with the $450,000 price and it became the final sales price and recommendation to the Board. The agreement of sale was executed on December 4, 2018. On December 5, 2018, PSERS Board issued a resolution authorizing an amount not to exceed $1M for the acquisition of the three parking lots. There was one abstention from the Treasurer's designee. No appraisals were done.

ii. DGS Publications Building-908 Market Street

During late summer and into the fall of 2017, discussions commenced at ED Grell's request with a staffer at the Bureau of Real Estate for the PA Department of General Services and the Deputy Secretary of PennDOT, to discuss PSERS potential purchase of the DGS Publications

[7] Exhibit 5.

Building at 908 Market Street.[8] On September 30, 2017, as negotiations progressed, PSERS was told that the DGS staff would vacate the building by March of 2018 but the Capitol Preservation Committee, who occupied part of the building, would not be able to relocate their flag collection until August of 2018. Grell responded that acquiring the DGS parcel "is important to our long term vision for the site, we will have no concerns about DGS continuing to occupy (and own) the publishing building for as long as you require in 2018".[9] Subsequently, Grell met with the Chief of Staff to Governor Wolf and stated that the PA Secretary of Transportation was aware of PSERS interest in the DGS site as long as PSERS remained open to ideas from the City for future development.

On June 7, 2018, DGS contacted ED Grell to obtain the holding company name as this information is necessary for the transfer of the building to PSERS. Legislative approval is also required when one Commonwealth entity purchases real estate from another. ED Grell had to meet with Rep. Metcalfe of the State Government Committee to discuss the transfer of the property for $1. ED Grell was also working with Board Members Senators Browne and Blake to obtain a Senate bill to approve the transaction. The necessary approval was obtained and the required appraisal was completed. The existence of significant remediation costs to the property justified the $1 sales price.

At the December 7, 2018 Board meeting, the Board was presented information on the acquisition of the DGS Building. There was little or no discussion of the valuation of the lots or their future use. The Board authorized the acquisition not to exceed $2M. There was one abstention by the Treasurer's designee.

c. **2019-1000 Market Street and Additional Clay Lots**

i. 1000 Market Street

Shortly after the Patriot News Building vote, ED Grell was contacted by the Executive Director of the Community and Economic Development for the City of Harrisburg regarding the purchase of the PHFA Building at 1000 Market Street as "it would be a great property to have for your overall plans".[10] ED Grell responded that "[t]he value of the 1000 Market in our plans depends in part on whether we can also get control of the DGS Publications Building. We have discussed with … DOT and DGS also seems agreeable."[11] Contact information was then provided. At that time, the property was under demolition. The final negotiated sales price was $200,000 and was approved by the Board on January 17, 2019. There was one abstention on behalf of the Treasurer and one recusal on behalf of the Banking Secretary. No appraisals were done. The purchase closed in July 2019. This property remains a vacant lot.

[8] Exhibit 6.
[9] Exhibit 7.
[10] Exhibit 8.
[11] Exhibit 8.

ii. Additional Clay Lots-829 Market Street and 1001 Market Street (Camcorr, LLC)

ED Grell expressed interest in purchasing the two additional parking lots owned by Robert Clay. In July 2019, he asked for information on these properties.[12] After confirming who owned them, ED Grell reached out to the law firm representing Clay and revealed PSERS interest in purchasing the lots (136 parking spaces). Clay offered the lots for $1.225M. ED Grell and Clay negotiated the terms for these two remaining Clay lots. PSERS already leased 24 parking spaces at the 829 Market Street location and 1001 Market Street has 80 parking spaces. The Board approved the purchase at the October 11, 2019 Board meeting as part of a $5M investment "for the use in the site preparation and development of real property located in Harrisburg, PA as set forth in the confidential recommendation memorandum of Glen Grell dated October 10, 2019". Three Board members opposed the motion: Treasurer Torsella, Secretary Weissmann and Representative Ryan. Eventually, PSERS paid $785,000 for the lots which closed on May 8, 2020. No appraisals were done.

In an interview with an employee of the Investment Office (IO), we learned that none of the properties were vetted or approved through the IO's investment review and approval process even though they are considered investment properties in PSERS financial statements.

II. Discussions with Other Parties regarding Development of the Harrisburg Properties and Surrounding Area

Beginning in the summer of 2017 and continuing into 2021, ED Grell had discussions with numerous individuals about expansion beyond the Patriot News Building and revitalization of the area near the existing headquarters. These discussions included the Deputy Secretary of PennDOT, the Executive Director of Community and Economic Development for the City of Harrisburg, the Mayor of Harrisburg, and Harrisburg University. For example, on October 13, 2017, the Executive Director of Community and Economic Development for Harrisburg responded to ED Grell after a meeting, "Thank you for sharing your plans for PSERS. I am excited to hear that you would like to partner with the city to revitalize the Train Station area."[13] Subsequently, a meeting with the Mayor was set up for October 25, 2017.

a. PennDOT

Beginning in August 2018 and continuing, PennDOT engaged in discussions with ED Grell regarding potential real estate ventures. The discussions center around the construction of a 250 space parking garage near the transportation center. The plans have evolved over time but have included a parking garage as well as a connector from the garage to the Amtrak train station. These plans were shared with PennDOT Secretary for Multi-Modal and others. PSERS was encouraged to do pro-forma planning on the assumption that PennDOT would provide capital for 250-300 parking spaces. Alexander Building Construction and Forge Development Group were involved in this planning process. To date, nothing has moved beyond initial planning stages.

[12] Exhibit 9.

[13] Exhibit 10.

b. **Harrisburg University (HU)**

It appears that the first meeting with Harrisburg University ("HU") was in March 2018 when ED Grell has a calendar appointment at the University's President's office on the Harrisburg University campus.[14] It is unclear what specifically was discussed but HU wanted to partner with PSERS in the development of the area. For example, text messages between an attorney for the University and ED Grell show meetings beginning in July of 2019 that included the Senior Advisor to the University President. These discussions involved PSERS financing University proposed projects. When asked if PSERS would finance the University's real estate projects, ED Grell responded in July of 2019, "Possibly, if we can make money doing it. And it passes the smell test".[15]

Discussions with HU continued and on October 21, 2019, HU and PSERS entered into a development agreement where PSERS would serve as the developer for a mixed use project with offices, retail, parking, and a multi-purpose e-sports arena with gaming and digital media facilities. The proposal also included a long term lease by the University of PSERS headquarters. Each of the parties would assume their own costs until there was a definitive agreement and the University would pay for the work performed by the architecture firm. Drawings of the project were prepared. Forge Development Group provided some assistance with the project.

At the October 2019 Board Meeting Executive Session, ED Grell presented a PowerPoint that showed the current properties and plans for additional acquisitions. A Master Plan and Development opportunities were also presented. These included a 250 space parking garage for PennDOT, a potential hotel development, as well as an unsuccessful bid to build a building for DGS. In addition, Grell discussed the confidential discussions with Harrisburg University for the multi-purpose e-Sports gaming arena, an entertainment/athletics building, and a regional convention center. The drawings of the proposed facilities were shown. No financials were presented or discussed. Most Board members only remember the e-Sports arena and very little else. The resolution approved was for an investment "not to exceed $5M via its interest in 812 Market, Inc. for the use in site preparation and development of real property located in Harrisburg, PA" as set forth in the ED Grell's confidential memo.

Discussions continued throughout 2019 and into 2021. However, discussions stalled because HU's bond rating was BB and under PSERS investment policy they can be no lower than BBB. HU then scaled back the plans due to costs. In 2021, the University President proposed an urban greenhouse and research facility for the 10th and Market property and it appears that the plans discussed in October 2019 are no longer being pursued. It appears that discussions continued with the University but nothing has been finalized or financed.

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[14] Personnel from Harrisburg University were not interviewed. All information comes from emails and documents.

[15] Exhibit 11.

III. Other Property Related Issues

a. Harrisburg Properties as Investments

Questions were raised why the Harrisburg properties were not included in the real estate valuation reports beginning in 2018. In reviewing the records, the Hamilton Lane reports beginning in Q2 2018 as obtained through the Diligent system show a detailed breakdown for both the 812 Market and the 5 N. 5th Street properties.

b. 812 Market Holding Company and the Establishment of Camcorr, LLC

The Patriot News Building and lots, the first Clay parking lots, the DGS building and 1000 Market are all held under the 812 Market, LLC Holding company with a 501(c)25 tax status. After the October 10, 2019 Board Resolution authorizing the purchase of the additional Clay Lots, an issue arose regarding whether the purchase of these lots with plans for possible development was beyond the scope of the 501(c)(25) designation, therefore perhaps necessitating the creation of another holding company. The Board had not approved the creation of another holding company. When ED Grell was approached with whether creating a new holding company without board approval could occur, he stated he would not go back to the Board and it should be worked out with outside counsel. It was determined that the resolution language "via its interest in 812 Market Inc." coupled with the Clay lots' purchase and sales agreement reference to "812 Market Inc. or its assignee" would not require going back to the Board.[16] Camcorr, LLC was then created for the Clay lots.

c. Potential Conflict of Interest between PMI and 812 Market

The Asset Manager for 5 N. 5th Street is L&B Realty and PMI is the property manager. There currently is no asset manager for 812 Market and PMI is the property manager. PMI is essentially serving as asset manager and is currently negotiating an agreement to become the asset manager. A principal of PMI sits on the board of 812 Market. This creates a possible appearance of a conflict of interest. However, any funds transferred from PSERS to cover the expenses for PMI are very small (covering snow removal and other maintenance needs). After reviewing the financials, the current internal controls are sufficient to overcome any perceived conflict.

[16] Exhibits 12 and 13.

The Risk Share Calculation

I. The Statute

In 2010, the Pennsylvania legislature adopted certain amendments to the Pension Code, which included what is referred to as the "Risk Share" provision. The provision provides:

> The board shall compare the actual investment rate of return, net of fees, to the annual interest rate adopted by the board for the calculation of the normal contribution rate, based on the market value of assets, for the prior ten-year period. If the actual investment rate of return, net of fees, is less than the annual interest rate adopted by the board by an amount of 1% or more, the shared-risk contribution rate of Class T-E and T-F members will increase by .5%. If the actual investment rate of return, net of fees, is equal to or exceeds the annual interest rate adopted by the board, the shared-risk contributions rate of Class T-E and T-F members will decrease by .5%.

The Board previously reviewed the risk share calculation in 2014 and 2017, voting to adopt resolutions 2014-61[17] and 2017-44[18], respectively. In both prior years, the Fund's performance met or exceeded the "hurdle rate," and the Class T-E and T-F members' contribution rates stayed the same.[19]

II. The December 2020 Risk Share Calculation and the Later Error

The PSERS Board met on December 3, 2020. It was presented with the risk share calculation, which was found to exceed the required hurdle. However, in March 2021, the Board was informed that there was an error in the underlying performance data.[20] When the risk-share calculation was redone using the corrected performance data, the hurdle was not cleared and a rate increase was triggered for Class T-E and T-F members. The purposes of our investigation, as set forth in our Engagement Letter, with respect to the Risk Share calculation was "to review the circumstances that preceded and followed the December 3, 2020 adoption of a resolution by the Board certifying member contribution rates based upon a misstatement of investment performance returns used for the statutory shared-risk calculation."

III. Planning for the 2020 Risk Share Process

In our review of the correspondence, and supported by interviews, PSERS Staff and leadership began discussing the 2020 Risk Share process in March 2020—prompted by the significant market fluctuations caused by the onset of the global COVID-19 pandemic.[21] Contemporaneous documentation indicates that in less than thirty-days, the Fund's daily Net Asset Value ("NAV") decreased by four billion dollars. Based on this, management speculated that if

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[17] https://www.psers.pa.gov/About/Board/Resolutions/Pages/2014BoardMeetingResolutions.aspx#61
[18] https://www.psers.pa.gov/About/Board/Resolutions/Pages/2017BoardResolutions.aspx
[19] Member rates will stay the same if the rate of return is between -1% and +1%.
[20] Aon provided the performance data.
[21] Staff shared that but-for the impact of COVID on the markets in March 2020, the risk share calculation would not have run close to the hurdle.

risk share was calculated at that time, it would be triggered. However, three more months remained in the fiscal year.

In June, Staff began preparations for the end of the fiscal year. As a part of this process, CFO Brian Carl contacted PSERS's actuarial consultant, Buck. Buck was asked to calculate the performance rate needed to clear the risk share hurdle that Buck calculated to be 6.36%.[22] We found nothing to suggest that this request was made with an intent to "game" the system, rather it was requested to permit an early understanding of the process and potential outcome.

Buck responded and indicated that the asset returns net of fees for the period 7/1/2019 to 6/30/2020 needed to be in excess of 1.30% to avoid triggering risk share. Based on this, CFO Carl informed Executive Director Glen Grell that performance is "running very close to the hurdle rate needed to keep member contributions from going up so this is going to be touch and go as the fiscal year is closed out." Grell responded, "I want to play it straight and let the chips fall. I know you do too."[23]

We found nothing to indicate that Staff took any actions (or inactions) to not "play it straight." Rather, as will be discussed herein, a series of unfortunate oversights and a lack of transparency from a key consultant led to the Risk Share error.

At this time, in June of 2020, PSERS also asked Aon to perform a similar calculation and Aon reached a different outcome. Upon receipt of this differing rate, CFO Carl asked Buck to examine the reasons for the difference. Buck responded "the difference is the annual rates produced by their quarterly returns are different from the annual rates we show in the risk-sharing section of the valuation report."[24]

[22] Exhibit 14.
[23] Exhibit 15.
[24] Exhibit 14. Buck stated that because of differences in timing and compounding, quarterly rates are more accurate than annual rates and do not necessarily produce the same results. The annual rates shown in the risk-share section of the actuarial valuation report are the annual rates of return reported in PSERS's annual financial reports. Such rates are shown in Column E of the following table.

	A	B	C	D	E
1					
2	**Account: PA Public School Employees' Retirement System - PSERS Total Fund Composite (4444085)**				
3	**Currency: U.S. Dollar**				
4	**Display Currency: U.S. Dollar**				
5					
6	End Date	Periodicity	Net		
7	Jun-2020	Qyarterly	5.5270%	****hypothetical return	
8	Mar-2020	Quarterly	-8.1716%		
9	Dec-2019	Quarterly	2.1146%		Prior annual rates we used
10	Sep-2019	Quarterly	2.0125%		
11	Jun-2019	Quarterly	3.1224%	6.6600%	6.68%
12	Mar-2019	Quarterly	5.1471%		
13	Dec-2018	Quarterly	-2.8352%		
14	Sep-2018	Quarterly	1.2360%		
15	Jun-2018	Quarterly	2.0845%	9.2629%	9.27%
16	Mar-2018	Quarterly	0.1357%		
17	Dec-2017	Quarterly	3.5791%		
18	Sep-2017	Quarterly	3.1934%		
19	Jun-2017	Quarterly	1.6500%	10.1998%	10.14%
20	Mar-2017	Quarterly	3.2591%		
21	Dec-2016	Quarterly	1.2439%		
22	Sep-2016	Quarterly	3.6994%		
23	Jun-2016	Quarterly	3.9904%	1.3349%	1.29%
24	Mar-2016	Quarterly	1.5120%		
25	Dec-2015	Quarterly	-0.0041%		
26	Sep-2015	Quarterly	-4.0011%		
27	Jun-2015	Quarterly	-0.1723%	3.4146%	3.04%
28	Mar-2015	Quarterly	2.8575%		
29	Dec-2014	Quarterly	0.1269%		
30	Sep-2014	Quarterly	0.5875%		
31	Jun-2014	Quarterly	4.2142%	14.8224%	14.91%
32	Mar-2014	Quarterly	3.5889%		
33	Dec-2013	Quarterly	3.3935%		
34	Sep-2013	Quarterly	2.8711%		
35	Jun-2013	Quarterly	-1.1200%	7.9537%	7.96%
36	Mar-2013	Quarterly	3.2900%		
37	Dec-2012	Quarterly	1.8000%		
38	Sep-2012	Quarterly	3.8300%		
39	Jun-2012	Quarterly	0.2000%	3.4353%	3.43%

Staff asked Aon to confirm the quarterly rates it was using and Aon confirmed that it used the rates in its system. Staff asked a follow up question of whether the rates reflected subsequent adjustments to the originally-reported rates. While awaiting a response from Aon, CFO Carl shared the difference between Buck and Aon's calculations with CIO Grossman, noting "As you know, Aon makes subsequent adjustments after returns are published which is causing the difference."[25]

At the end of June, Staff shared a file with Aon showing the quarterly returns being reported by Aon and the returns PSERS previously received for fiscal years 2014-15, 2015-16, and 2016-17: "Of particular interest is the June 2015 quarter which improved by over 33 basis points. Can

[25] Exhibit 16.

you verify for us then that the changes in the quarterly returns for these three years are all due to subsequent adjustments?"

Account: PA Public School Employees' Retirement System - PSERS Total Fund Composite (44440
Currency: U.S. Dollar
Display Currency: U.S. Dollar

End Date	Periodicity	Net	
Jun-2020	Quarterly	5.5270%	****hypothetical return
Mar-2020	Quarterly	-8.1716%	
Dec-2019	Quarterly	2.1146%	
Sep-2019	Quarterly	2.0125%	
Jun-2019	Quarterly	3.1224%	
Mar-2019	Quarterly	5.1471%	
Dec-2018	Quarterly	-2.8352%	
Sep-2018	Quarterly	1.2360%	
Jun-2018	Quarterly	2.0845%	
Mar-2018	Quarterly	0.1357%	
Dec-2017	Quarterly	3.5791%	
Sep-2017	Quarterly	3.1934%	
Jun-2017	Quarterly	1.6500%	1.6528
Mar-2017	Quarterly	3.2591%	3.2514
Dec-2016	Quarterly	1.2439%	1.25
Sep-2016	Quarterly	3.6994%	3.6995
Jun-2016	Quarterly	3.9904%	3.9854
Mar-2016	Quarterly	1.5120%	1.4883
Dec-2015	Quarterly	-0.0041%	-0.0991
Sep-2015	Quarterly	-4.0011%	-3.9243
Jun-2015	Quarterly	-0.1723%	-0.5087
Mar-2015	Quarterly	2.8575%	2.8353
Dec-2014	Quarterly	0.1269%	0.1267
Sep-2014	Quarterly	0.5875%	0.5848
Jun-2014	Quarterly	4.2142%	

Aon did not immediately respond. Twenty days later, PSERS Staff followed up on this issue. Ten more days passed and Aon responded: "Yes, these return differences are the result of retroactive adjustments."[26] We find no further discussion on this point at this time.

IV. August 2020

The Board met on August 7, 2020, in a regularly scheduled meeting. While we have the video recording from this meeting, the audio was not completely recorded, therefore we do not have the ability to hear much of the dialogue. Based on interviews and our review of contemporaneous emails, we understand that during this meeting Representative Ryan asked a representative from Buck a question about the recently-released 2019 Actuarial Valuation Report. He inquired about the difference between the annual CAFR returns as shown on page 10 versus the annual returns being reported at that time in other reports from Aon.[27]

At or around the time this question was asked, CFO Carl sent an email to a PSERS Staff member and asked for a comparison of the Buck report at page 10 and the returns that Aon just reviewed for risk share, and to confirm that the differences resulted from the previously-explained retroactive returns. The PSERS Staff member confirmed this to be the case. Based on this answer, CFO Carl then posed the question to the Staff Member:

[26] Exhibit 17.
[27] See further discussion herein regarding the CAFR.

> What do you think we should be using in Buck's report. Should we show the announced final returns from each year which is what is currently in Buck's return or should we use the backdated returns by Aon?[28]

The Staff Member advised:

> I think we should ask Aon to provide the retroactive returns to Buck to include in their report. Aon's longer term returns moving forward end up including the retroactive adjustment anyway so it is essentially just like 'restating' a previous year's return if that makes sense.[29]

Based on this, PSERS asked Buck to revise page 10 of its Valuation Report to use the return provided in the Aon report because it wanted to reduce potential confusion that may have been caused by having different historical rates of return in the Buck and Aon reports. Buck delivered the revised report on August 7. Per the email communications, we saw no questioning or push back on this directive.

This, however, did not end the discussion at PSERS. CFO Carl continued to discuss this issue with his Staff, expressing his concern that:

> "I wish Aon would not back date returns and I think it is confusing. Once a return period is published it should be closed and any subsequent adjustments should be reflected in subsequent periods just as we do for accounting."[30]

He noted that these issues did not arise under Wilshire. He also directed his Staff to coordinate with the Investment Office as to whether there is another way to handle subsequent adjustments. Notably, CFO Carl also asked a question—one that would be echoed in the reverse in the coming months:

> "What if the Aon performance results in the assessment of risk share contributions to members and then Aon subsequently changes their returns and risk share should not have been triggered?"[31]

Staff then proposed:

> "How much time do we have before we have to make the announcement that risk share contribution has/hasn't been triggered? There may be adequate time for Aon to make all their subsequent adjustments."[32]

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[28] Exhibit 18. Staff has advised that the use of "backdated" in this context was short hand for Aon's restated returns (later referred to as "retroactive adjustments") and should not be viewed as implying anything inappropriate.

[29] Exhibit 18.

[30] Exhibit 19. Carl shared that did not intend to indicate that making retroactive adjustments was incorrect or inappropriate. Instead, he was stating a business preference of avoiding retroactive adjustments where possible. He understood that the Investment Office and Aon has appropriate business reasons for making the retroactive adjustments.

[31] Exhibit 18.

[32] Exhibit 18.

It was discussed that they could wait until closer to the December board meeting, noting that Aon "really should have all the June values" by then.[33] This conversation amongst PSERS Staff centered around how to improve the process going forward, most immediately, for closing the fiscal year ending June 30, 2020. Keeping the books open longer at that point could only have related to valuations on June 30, 2020, which would not have cured the issue with the adjustments Aon made previously.

V. Treasurer Torsella's Letter and Staff's Response

Following the August 2020 Board meeting, Treasurer Torsella sent a letter to Glen Grell, dated August 12, 2020.[34] A copy of the letter was also sent to Chairman Santa Maria, Representative Ryan, Jason Davis, CIO Grossman, and CFO Carl. It was not shared with the Board in its totality. The letter raised several concerns regarding material differences between the annual investment returns from Buck and the quarterly investment returns calculated by Aon, as questioned during the Board meeting and confirmed by PSERS Staff. The letter asked seven direct questions regarding the policy and practice of changing investment returns and, in particular, highlighted the 37 basis point change in the 2015 returns.

Upon receipt of this letter, a committee of PSERS senior leadership and Staff, and representatives from Aon, began preparing a draft response over a three-week period. Staff reported that they took the letter "very seriously." The final consolidated response, a five page letter, was sent out on September 1, 2020, and included a copy of the Investment Consultant Performance Reporting Policy.[35] This is a staff level policy adopted by Aon and the Investment Office in 2016. It contains, in part, direction on how performance information is to be sourced and reported. Notably, it provides that performance depicted in Quarterly Total Fund Reports are to be considered "official and final." However, it also provides an approval process for when changes should take place. CIO Grossman explained that it was his understanding that such revision "should be rare, believe it is rare," and deferred to his Staff for more details on the process.

The Investment Consultant Performance Reporting Policy

We find the Policy to have some inconsistencies that leave room for interpretation. On one hand, it provides that the Quarterly Total Fund Reports are "official and final." On the other, it permits revisions to NAVs or cash flows after the Quarterly Total Fund Reports are published and leaves significant room for interpretation and discretion on this point:

> "Situations where revisions to NAVs/cash flows occur after finalizing and publishing the quarterly report will be reviewed on a case-by-case basis. The Investment Consultant [Aon] and Staff will work to determine the best way to make adjustments and document them accordingly. If there is no significant materiality to the revisions, the Investment Consultant affects these changes for the period they

[33] Exhibit 19.
[34] Exhibit 20.
[35] Exhibit 21. Staff reports that following transmittal of the response, they received no further questions on this matter.

have occurred with such adjustment being reflected in the next month/quarterly report."

- The Policy does not define "significant materiality."
- The Policy does not define the process if the revision is determined to be of "significant materiality."
- CIO Grossman did not know the materiality threshold for this portion of the policy. He stated that Aon would determine this, but then also acknowledged a 15 basis point threshold for externally managed accounts.
- CIO Grossman did not believe there were ever any adjustments made under this provision that were material.
- CIO Grossman indicated that, to his knowledge, it was his Staff's responsibility to identify any revisions and that Aon would not flag or identify them in the draft reports. Numerous Staff members confirmed this, one describing the review as a "reasonableness review," noting that PSERS does not have the same tools available to it as Aon.

The Response to Treasurer Torsella

The final response was vetted and approved by Jim Grossman and Aon. Aon provided draft portions of the response. Aon would not agree to an interview. We did submit limited written questions—which will be discussed in Section __, *infra*. However, due to the targeted focus of our written questions, we did not get an opportunity to discuss this response with Aon in depth.

Ultimately, in noting the differences in the returns over time, with the table below:

Fiscal Year	Aon 3/31/20	CAFR	Difference
2010	14.58%	14.59%	-0.01%
2011	20.36%	20.37%	-0.01%
2012	3.44%	3.43%	0.01%
2013	7.95%	7.96%	-0.01%
2014	14.82%	14.91%	-0.09%
2015	3.41%	3.04%	0.37%
2016	1.33%	1.29%	0.04%
2017	10.20%	10.14%	0.06%
2018	9.26%	9.27%	-0.01%
2019	6.66%	6.68%	-0.02%

The letter concluded this issue: "(T)hese are adjustments that are made as more data is reported to PSERS. The adjustments are not errors in reporting."[36] As will be discussed below, we now

[36] Exhibit 21.

understand this is incorrect—unknown to Staff at that time, there were errors in Aon's reporting. It is important to note that PSERS Staff report that they relied upon Aon as the Fund's general investment consultant and had no reason to doubt Aon's research and conclusion regarding these explanations.

Regarding the 37 basis point change in 2015, the letter explained:

> Aon has re-reviewed the returns for Fiscal Year 2015 and has verified that the revised returns as reported in the March 31, 2020 report are correct based on the new revised NAVs received for some private market funds after the fiscal year close. A combination of (1) revisions to the market values and cash flows for some Private Credit funds and (2) the opening up of the performance books during the third quarter 2019 report to restructure the composites to reflect the new Investment Policy Statement division of public and private markets resulted in the re-calculation of prior fiscal years. It was the combination of these two changes that led to changes in the performance reported by Aon. The originally reported returns in 2015 were based on the NAVs and cashflows available at the time. The adjustments reflect revised information according to policy.

It is important to understand whether these explanations were correct and to understand *why* Aon and Staff apparently believed that this difference was caused by something *other than* a reporting error. This paragraph pointed to two events as causing the 2015 adjustment but does not explain whether or why the Total Fund returns would change. We investigated these and present our findings below. Both required an investigation into events occurring in 2019.

Revisions to the Market Values and Cash Flows for Some Private Credit Funds

We learned that in 2019 there was a revision to market values and cash flows for the Bain Capital Credit Managed Account, which is part of the Private Credit portfolio. Private Credit funds are managed by the non-traditional side of the Investment Office, but they are reported on a monthly basis with the traditional assets. PSERS Investment Office Staff learned in late summer 2019 that the monthly statements received for this asset contained estimated—not final—market values. These estimates were being used in the monthly reports. Bain then provided quarterly reports that contained the final market values. In some cases, Staff describes the difference between the estimates and the actual final values as "significantly" different. In interviewing PSERS Staff, we understand that Aon used a certain value from the monthly reports that PSERS Staff later learned were not a reported NAV (We did not fact check this issue—as our ultimate conclusion is that the Bain adjustment is not related to the risk share error, as will be discussed below.)

Upon learning of this difference, Aon and PSERS Staff discussed options, including whether the values should be updated and the composites recalculated. PSERS Staff shared these questions with CIO Grossman, who directed that the values should be updated and the composites should be recalculated. These adjustments were made.

We understand that the PSERS Staff who work on the Bain Capital Managed Account were never apprised of the impact that these adjustments had on the composites and they stated that they did not independently review the impact. They also indicated they were never involved in discussions as to whether the 2015 total fund performance was impacted, in part, by the Bain Capital adjustment. Rather, during interviews, PSERS Staff noted that the largest changes to the Bain Capital returns occurred in the performance periods beginning in 2017. Prior to 2017, Staff saw that while there were variations in the interim months, for each quarter, the last month reflected no changes between the estimate and final. Upon reflection, this indicated to Staff that the quarter-end numbers for this pre-2017 time period were correct, despite any movement in the interim monthly estimates.

We asked our consultant to review the Bain adjustments and the overall changes in the performance returns. Their assessment was that the Bain adjustments, on their own, were not enough to cause the 37 basis point difference in 2015. In conclusion:

- Aon inputted historical valuation changes to the Bain Capital Account in 2019.
- These changes were vetted and approved by CIO Grossman.
- The changes also flowed through to the relevant composites.
- The data shows that the most significant adjustment (over $10 million) occurred in the months of July 2016, January 2018, February 2019, and March 2019. The single fiscal year with the largest adjustment was fiscal year 2017-18.
- We find no direct evidence to support the Bain Capital Account having an impact on the fiscal year 2015 return, retroactively.

Restructuring the Composites

The response to Treasurer Torsella set forth a second cause for the change to the Fiscal Year 2015 performance returns: "the opening up of the performance books during the third quarter 2019 report to restructure the composites to reflect the new Investment Policy Statement division of public and private markets resulted in the re-calculation of prior fiscal years."

We learned in interviews—and verified in review of emails and related documentation—that in connection with the new Investment Policy Statement that was reviewed and adopted by the Board,[37] the structure and organization of some of the composites—and related reporting—was adjusted to make the reporting easier to follow. As a part of this restructuring, Aon re-calculated fund returns.

PSERS Staff, including CIO Grossman, consistently agreed that the restructuring of the composites, alone, should not result in any changes to the overall returns. The restructuring, rather, was just a matter of changing how the various funds were grouped into composite "buckets." For example, what was the Real Assets composite, was broken into the Public Real Assets and Private Real Assets composites.

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[37] https://www.psers.pa.gov/About/Board/Resolutions/Pages/2019-Board-Meeting-Resolutions.aspx; *see also* https://www.psers.pa.gov/About/Investment/Documents/Guide/IPS%20(adopted)%20FINAL.pdf

We learned that when producing reports, Aon does not typically "rerun" performance for previous quarters. For example, if a certain return was reported for 2nd quarter 2016, that is the return that would be consistently used for all future reports for the 2nd quarter 2016 time period. However, the report restructuring required Aon to "rerun" historic returns because assets were being grouped into different and, in some cases, new composites.

In reviewing the email collection, we noted that a couple of PSERS Staff members would receive an excel file—"Total Fund Quarterly History"—from Aon on a routine basis. In reviewing the versions of these files transmitted in 2019, the performance change becomes apparent: between June 2019 and December 2019, some historic quarters underwent significant performance changes. This was illustrated for us by our consultant below. Columns A, B, and C list the total performance returns as provided in the Quarterly History files provided on June 30, 2019, September 30, 2019 and December 31, 2020, respectively. Column D calculates the total change, if any, between the June 2019 and December 2020 values. Highlighted in yellow is any change over 2 basis points and light blue highlights indicate no change across all three sources. The red box highlights the single greatest change: the value for 6/30/2015, which changed more than 33 basis points, between the June 30 and September 30 reporting periods.

	Total Fund Returns, Net of Fees - QUARTER			
Reference	[A]	[B]	[C]	[D = C - A]
Date	June 30, 2019 [1]	September 30, 2019 [2]	December 31, 2020 [3]	Jun '19 v Dec '20
12/31/20	n/a	n/a	7.6300%	n/a
09/30/20	n/a	n/a	4.0500%	n/a
06/30/20	n/a	n/a	5.7500%	n/a
03/31/20	n/a	n/a	-8.2100%	n/a
12/31/19	n/a	n/a	2.1100%	n/a
09/30/19	n/a	1.9997%	2.0100%	n/a
06/30/19	3.1534%	3.1231%	3.1100%	-0.0434%
03/31/19	5.0952%	5.1349%	5.1600%	0.0648%
12/31/18	-2.8150%	-2.8264%	-2.8400%	-0.0250%
09/30/18	1.2560%	1.2360%	1.2400%	-0.0160%
06/30/18	2.0841%	2.0845%	2.0900%	0.0059%
03/31/18	0.1356%	0.1357%	0.1400%	0.0044%
12/31/17	3.5809%	3.5791%	3.5800%	-0.0009%
09/30/17	3.1925%	3.1934%	3.1900%	-0.0025%
06/30/17	1.6528%	1.6500%	1.6500%	-0.0028%
03/31/17	3.2514%	3.2591%	3.2600%	0.0086%
12/31/16	1.2500%	1.2439%	1.2400%	-0.0100%
09/30/16	3.6995%	3.6994%	3.7000%	0.0005%
06/30/16	3.9854%	3.9904%	3.9900%	0.0046%
03/31/16	1.4883%	1.5120%	1.5100%	0.0217%
12/31/15	-0.0991%	-0.0041%	0.0000%	0.0991%
09/30/15	-3.9243%	-4.0011%	-4.0000%	-0.0757%
06/30/15	-0.5087%	-0.1723%	-0.1700%	0.3387%
03/31/15	2.8353%	2.8575%	2.8575%	0.0222%
12/31/14	0.1267%	0.1269%	0.1269%	0.0002%
09/30/14	0.5848%	0.5848%	0.5848%	0.0000%
06/30/14	4.2223%	4.2223%	4.2223%	0.0000%
03/31/14	3.6076%	3.6076%	3.6076%	0.0000%

- PSERS Staff did receive, in real time, files that reveal the changes in historic performance.
- The review of historic information was not a part of PSERS' internal review process, as there was no expectation that historic information would change.
- We found no evidence that Aon "flagged" or otherwise notified PSERS of these changes.
- CIO Grossman acknowledged that in August 2020 neither he nor any members of his Staff asked Aon to explain how the reformatting led to composite changes. He stated that PSERS did not have enough knowledge on how Aon's PARis system, which is used for performance reporting, operated. PSERS does not have access to Aon's PARis system.
- CIO Grossman acknowledged that per the Performance Policy, this change should have been reported to PSERS and that a 37 basis point change "feels material."
- ED Grell acknowledged that he could not recall if he ever had a direct exchange with anyone about the 37 basis point change.
- PSERS accepted Aon's August 2020 explanation for the 37 basis point change and we found no further questioning or explanation. Staff reports that it had no reason to doubt Aon's research or representations regarding the 37 basis points.

VI. Fall 2020

At the October 2020 Board meeting, the Board reviewed the June 30, 2020 and 2019 financial statements and received the Independent Auditor's Report from Clifton Larsen Allen. During the CFO Report, there was a summary of the upcoming Risk Share Process, and one of the slide presented advised the Board:

> "As the final investment return is expected to be very close to the benchmark, extra care will be taken by PSERS Staff, Aon, and Buck to 'dot Is and cross Ts."[38]

Staff proceeded to engage a consultant for an independent review of the investment performance. In email correspondence from ED Grell to Vice Chair Ryan, Grell explained "We have already identified the industry leader in this type of work (Adviser Compliance Associates – "ACA") and are working through reference checks as part of due diligence."[39] We learned from interviews that CIO Grossman received the name of ACA from Aon. Based on our review of the materials available and our interview of ACA, we found nothing to suggest any impropriety with this referral. PSERS made a concerted effort to keep ACA's work independent of both Aon and the Investment Office. The PSERS team was led out of the Office of Financial Management. The "hurdle rate" was not shared with ACA.

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[38] Exhibit 22. Buck commented, "The 'final investment return' referenced in the foregoing quote is the nine-year average annual investment return, which had to exceed the rate required in order to avoid statutorily-mandated imposition of risk share contributions. It did appear that the calculated average and the "hurdle rate" were expected to be quite close."

[39] Exhibit 23.

ACA was given until Thanksgiving to complete its review. ACA explained that overall the approach to performance calculation used by PSERS was similar to what it sees with other pensions or endowments. ACA did comment, however, that PSERS's relationship with Aon was "unique." ACA explained that while it is familiar with other entities that outsource performance reporting, it often sees entities such as BNY Melon having this role. Here, Aon had an in-depth involvement with the overall investment process. At the beginning of the engagement, ACA obtained background information on the data sources for reporting. For traditional investments—such as public equities (stocks and bonds)—the data is obtained through BNY. For the non-traditional/alternative investments, PSERS receives the data from the managers and provides it to Aon. When specifically asked about Aon's practice of reopening the books and making adjustments, ACA reported that this practice is not uncommon when there are extenuating circumstances.

The engagement was established to be a review on a sample basis. It is our understanding that ACA was not informed of the concerns raised by some Board members in August 2020. ACA shared with us that it typically uses a sampling approach for this type of review. For PSERS, ACA used a larger-than-normal sample size, at roughly 35% of the total months (normal sample size is 25%). ACA indicated that it selected the 40 months randomly from across the time period, but also ensured that some months were back-to-back. Looking at a single month, ACA checked the end market values and also looked at the cash flows from a single day within each month. For the market values, the PARis-reported market values were compared against BNY data—in other words, ACA looked at the BNY statements and compared this to the outputs from PARis. In doing this review, ACA used a 2.5% tolerance threshold. Cash flows were also compared to BNY Audited Statements. For the assets that are not reported in the BNY statements, ACA requested, and received, supporting documentation from PSERS. This is all memorialized in their December 2020 and March 2021 reports to the Board.

As the December Board Meeting approached, ACA identified two months that it was unable to align with the Aon data. While Aon researched the issue, in light of the pending Board Meeting, PSERS approved ACA engaging in an expanded scope of work to complete its analysis. As discussed in its March report:

> "ACA originally replicated the monthly total fund returns for each of the sampled months and tied those to the PSERS Total Fund Returns spreadsheet. ACA found two errors in calculation testing—the 3/31/2014 return ACA calculated was 5 bps higher and the 10/31/2015 return ACA calculated was 5 bps lower. Because Aon was unable to detail the reason for these differences, ACA went back and replicated all the monthly returns from 7/31/2013 – 6/30/2020. ACA found no errors in the additional testing and the differences in March and October did not impact the since-inception return."[40]

For these "alternative procedures," ACA looked at the PARis report beginning and end cash flows, but reconciling PARis with BNY was not within the scope of this supplemental work.

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[40] Exhibit 24.

VII. The Board Meeting

Buck provided a draft report to CFO Carl in mid-November 2020. It contained the risk share calculation, finding that the geometric average[41] of the time-weighted market rate of return, net of fees, was 6.38%, greater than the "hurdle" of 6.36%. CFO Carl shared this with ED Grell, with the comment "please continue to keep this confidential as the spread … is razor thin so any adjustments by ACA could change the results."[42]

ACA submitted a draft report just before Thanksgiving 2020; its final report depended on the completion of the additional procedures, as discussed above. On Tuesday, December 1, PSERS continued discussions with Aon to get their data problems resolved. Later in the day, ACA was approved to undertake the supplemental review. ACA completed its review the next day, Wednesday, December 2. ACA's final report confirmed the 9-year rate of return was 6.38—the same as calculated by Aon. Staff reports that this gave them confidence in Aon's calculation. The results were shared with ED Grell that afternoon: "Risk share will not be triggered and member contribution rates will stay the same for another three years."[43] We are not aware of any Staff member who had concerns with Aon's calculation before or during the December 2020 meeting.

We understand that the materials related to the Risk Share were posted to Diligent, the Board's meeting materials system, around 5:00 pm on Wednesday, December 2. The Budget/Finance Committee Meeting commenced at 9:00 am the next day, Thursday, December 3.

To support our review of the Board Meeting, in addition to witness interviews, we reviewed the video recording of the meeting and contemporaneous emails exchanged during the meeting.[44] From the review of this information, this timeline was prepared.[45]

- 9:00: Agenda item - Review of Investment Performance for Shared Risk
- 9:52: Question from board member – was the Risk Share calculation made using the CAFR values? CFO Carl responded that he had not run this calculation, but offered to do so.
- 10:00: Agenda item – June 30, 2020 Actuarial Valuation Presentation – Buck
- 10:06: CIO Grossman sent an email to Aon asking it to run the risk share calculation using the CAFR rates. He comments that his calculation showed 6.337%.[46]

[41] Per Buck, this is the geometric average "over the period statutorily prescribed for determining the applicability of the risk-share contributions."
[42] Exhibit 25.
[43] Exhibit 26.
[44] We also reviewed text messages that were provided to Morgan Lewis. None of the provided text messages contained messages from December 3.
[45] The video recording appeared to begin at 9:00 a.m. sharp, therefore our time estimates are built off the recording minute marks, starting at 9:00 a.m. It is possible that some of these references are off by a few minutes, if the recording started a few minutes early or late. This timeline is not intended to be a transcript or a complete representation of the scope of the discussion during the Budget/Finance Committee Meeting, which was robust and lasted two and a half hours.
[46] Exhibit 27.

- 10:10: Aon responded to CIO Grossman's email and confirmed that it reached the same calculation result and that it was "very confident that the 6.38% reported nine year return is an accurate representation of PSERS' investment returns during the period."[47]

- 10:16 CFO Carl and PSERS Staff discuss via email the questions being raised by the Board.[48]

- 10:17: CIO Grossman responded to Aon's email: "[B]ased on the latest and most accurate information, the 6.38% is the correct 9-year number. Just want to be ready if the question comes up again or if someone calculates by hand the returns from the CAFR using sub-optimal information. Brian was right … [in original] our job it [sic] to present the most accurate return, not ignore past adjustments which were necessary to provide the most accurate return information for the decision makers."[49]

- 11:15 Agenda item – Pension Funding and Employer Contribution Rates Presentation – Mr. Carl.

- 11:18 By email, PSERS Staff asked Aon to calculate the return using the original returns. CIO Grossman and CFO Carl are copied on this message.[50] (*Note, by this time, Grossman was aware of the answer.*)

- 11:30 The Budget and Finance Committee adopted the recommendation resolution.

- 11:37 Aon responded to the Staff email request and confirmed 6.337%.[51]

- 12:20 Board entered Executive Session.

- 12:21 ED Grell advised that the vote should not be delayed.

- 12:32 By email, CFO Carl shared the Aon calculated return using the CAFR rates with Grell. His email advised as follows and recommended "holding off" on this issue pending further discussion:[52]

    - 9 year return using the CAFR returns before Aon's subsequent adjustments is 6.34%, which is less than the 6.36% target. As I mentioned during the Board meetings, the historical annual one year CAFR returns are not the returns to be using to calculate the geometric average over nine years due to the time cutoffs we do to complete the CAFR in a timely manner. In my professional opinion the 6.34% figure does not add value but it was requested. Having said that, I am pleased Jim agreed to the procedural changes we made this summer to reduce the potential for future subsequent return adjustments. It is preferred that Aon does not have subsequent adjustments.

[47] Exhibit 27.
[48] Exhibit 28.
[49] Exhibit 27.
[50] Exhibit 28.
[51] Exhibit 29.
[52] Exhibit 30.

- 12:52 Executive Session ended and a lunch break commenced.
- 1:15 The meeting reconvened.
- 1:22 In response to CFO Carl's sharing of the CAFR-calculated rate by email, Grell responded "I resolution passes, leave it alone."[53]
- 1:26 The Board began deliberations on the Actuarial Valuation Resolution, 2020-52.
- 1:40 The Board passed the Resolution.

In sum, at the time the Board adopted the Resolution on Risk Share, ED Grell, CIO Grossman, and CFO Carl were aware that if the calculation was made using the previously-published CAFR returns, the risk share hurdle would not be cleared. This information was not shared with the Board. ED Grell directed CFO Carl to "leave it alone." Based on his interview, Grell indicated that he did not want the 6.34% figure shared because it represented an alternative methodology and that would have put the Board in the position of selecting one methodology and meeting the hurdle or selecting another and missing the hurdle. CIO Grossman, in an interview, recalled that he had a discussion with Grell during the lunch break. He recalled that Grell indicated to not share the number, unless someone asked again. Grell did not recall whether he spoke with anyone about this.

Was the Board required to vote on the Risk Share in early December 2020?

During the December 2020 board meeting, several Board members raised the concern that they received the risk share calculation information the night before the meeting. The discussion during the Board meeting included an explanation of why the Board needed to proceed with a vote on December 3.

We have found no statutory authority establishing a deadline for this calculation. The PSERS Bylaws provide that the Budget/Finance Committee must certify the employer contribution rate and the member shared risk contribution rate "each December," but no specific date is provided.[54] In 2017, shared risk was discussed at the December 8 meeting and in 2014 it was discussed at the December 9 meeting. At one point, Grell cautioned that Board against delaying the vote:

> "In terms of delays, having that shared risk number out there in the public forum would not be a good thing to just let it sit there without action today by having been recommended by the committee and not taking it up to the Board, it would not be a good thing…. What we presented to the Board was the most accurate and double checked triple checked number as it relates to shared risk and the importance employer contribution rate."

[53] Exhibit 30. In interviews, this has been interpreted as "**If** resolution passes…"

[54] By comparison, this same Committee must review and adopt for publication the annual fiscal year financial statements and annual valuation results from the actuary no later than December 31. https://www.psers.pa.gov/About/Board/Documents/Governance%20Manual/Statement%20of%20Organization,%20Bylaws,%20and%20Other%20Procedures.pdf at pp. 15-17.

In a follow up interview, ED Grell was asked about why he did not support a delay. He explained that a certification of employer contribution rates was due to the budget office by a date certain (but he was not aware of the date, but believed that PSERS already had an extension). He also explained that a board member was concerned that any delay could impact school districts and union representatives in upcoming contract negotiations and school district budgets. He finally identified an operational concern for PSERS if risk share was implemented.

Board members' recollection of this issue varied. Several recalled the delay discussion, but not the reason for it, other than Grell was opposed. At least one Board member shared that he thought there was a law regarding the timing of the risk share vote, noting that a school district budget year commences July 1, therefore a month delay would not have been an impact. Others echoed the similar concerns about logistical hurdles to amend the payroll process and the start of union bargaining in January.

While there were various concerns and risks noted, we have been unable to locate any definitive requirement that would have prevented a delay.

What rates were used when the Board certified the shared risk contribution rate in 2014 and 2017?

One frequent question concerned which rates were used for the 2014 and 2017 Risk Share calculations. Here is what we know:

Buck's Board presentation in both years contained a listing of the annual market rates of return for the years at issue. Buck's recollection is that when it needed to source a rate of return, it would go to the CAFR (Comprehensive Annual Financial Report) as a "known source" for the historic rates of return. In 2014 and 2017, Buck was provided with Aon's calculation of the time-weighted rate of return, net of fees, for the three and six year periods, respectively. In other words, Buck was given Aon's *results* of the calculation and incorporated that into its Board presentation.

It is important to clarify that the CAFR includes the annual Report of Independent Auditors, but the entire CAFR is not an "audited" document. Regarding the rate of return, the Management's Discussion and Analysis in the CAFR presents the year's time-weighted rate of return on investments, *as calculated by Aon*. For example, in 2019,[55] it read:

[55] https://www.psers.pa.gov/FPP/Publications/General/Documents/PSERS%20FY2019%20CAFR-Website.pdf at p. 32.

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

Again, here, the rate of return on investments is provided by Aon (previously Wilshire). Moreover, the accompanying Report of the Independent Auditor specifically carves out the rate of return, and other aspects of the Management's Discussion and Analysis, from the scope of its audit work. As explained in the 2019 audit letter[56]:

Other Matters

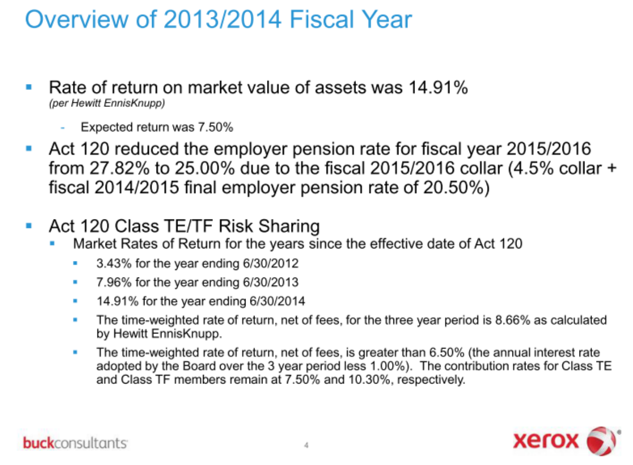
Required Supplementary Information
Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis and the Schedules of Changes in the Employer Net Pension Liability, Employer Net Pension Liability, Employer Pension Contributions, Changes in the Employer Net OPEB (Premium Assistance) Liability, Employer Net OPEB (Premium Assistance) Liability, Employer OPEB (Premium Assistance) Contributions, Investment Returns – Pension and OPEB, and related Notes, as listed in the table of contents, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audits of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

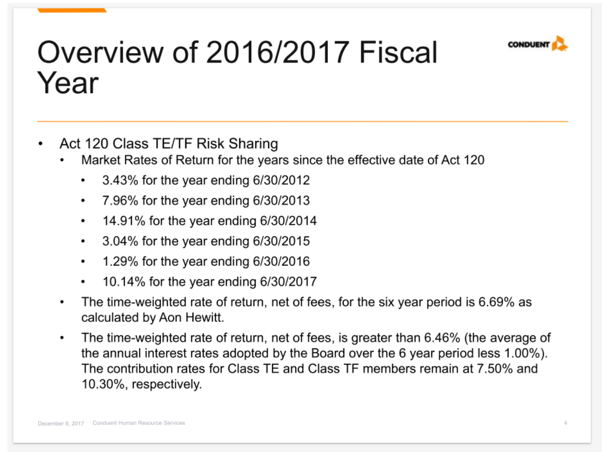
Therefore, it appears that (a) Buck's slide sourced the individual year returns from the CAFR and (b) Buck's slide sourced the period calculation from a then-current Aon 2nd Quarter Performance Report.

We reviewed the meeting materials for the December 2017 Risk Share calculation. The rates used for the calculation do align with the performance rates in the corresponding CAFR reports. However, we are unaware of whether there were any performance adjustments that could have been used in lieu of the CAFR reported performance rates.

[56] https://www.psers.pa.gov/FPP/Publications/General/Documents/PSERS%20FY2019%20CAFR-Website.pdf at p. 31

From the 2014 and 2017 Risk Share presentations:





From the published CAFRs for each identified year:

- 2012 - 3.43%[57]
- 2013 - 7.96% [58]
- 2014 - 14.91%[59]
- 2015 - 3.04%[60]
- 2016 - 1.29%[61]
- 2017 -10.14%[62]

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57 https://www.psers.pa.gov/FPP/Publications/General/Documents/20121206_3InvestmentSection.pdf at p. 6
58 https://www.psers.pa.gov/FPP/Publications/General/Documents/2013Investment.pdf at p. 6
59 https://www.psers.pa.gov/FPP/Publications/General/Documents/2014%20Inv%20CAFR.pdf at p. 8
60 https://www.psers.pa.gov/FPP/Publications/General/Documents/2015%20CAFR%20-%20Investment%20Section.pdf at p. 8
61 https://www.psers.pa.gov/FPP/Publications/General/Documents/2016%20Investment%20Section.pdf at p. 8
62 https://www.psers.pa.gov/FPP/Publications/General/Documents/CAFR2017/2017%20Investment%20Section.pdf at p. 8

From Aon's 2nd Quarter 2014 Performance Report

As of June 30, 2014

Trailing Period Performance

	Performance(%)									
	1 Quarter	2 Quarters	3 Quarters	Year To Date	1 Year	3 Years	5 Years	10 Years	Since Inception	Inception Date
PSERS Total Fund	4.22	7.98	11.67	7.98	14.91	8.66	12.09	7.28	7.04	09/01/1997
Blended Policy (Total Plan)	3.36	6.57	8.84	6.57	12.05	6.14	9.20	5.81	N/A	
Total Public Market Composite	4.88	7.60	10.91	7.60	14.72	7.19	11.64	6.69	7.40	06/01/2002
Blended Policy (Public Market) (Hedged)	4.31	7.43	9.51	7.43	13.48	5.86	9.69	5.70	5.94	
Blended Policy (Public Market) (Unhedged)	4.40	7.65	9.67	7.65	13.64	5.91	9.73	5.72	5.95	
Total Private Market Composite	3.03	8.68	13.05	8.68	15.23	11.30	12.11	10.91	10.13	12/01/1992
Blended Policy (Private Market)	1.59	4.96	7.56	4.96	9.42	6.92	7.59	6.80	N/A	

From Aon's 2nd Quarter 2014 Performance Report

As of June 30, 2017

Trailing Period Performance

	Performance(%)
	Since July 2011
PSERS Total Fund	6.69
Blended Policy (Total Plan)	4.83

This process was repeated in 2020-with one exception, Buck's slide did not use the annual rates of return from the CAFR. Rather, it had been provided the rates of return information from Aon's 2Q Quarterly Investment Review.

From Aon's 2nd Quarter 2020 Performance Report

As of June 30, 2020

Trailing Period Performance

	Performance(%)
	Since July 2011
PSERS Total Fund	6.38
Blended Policy (Total Plan)	6.26

Buck Presentation to Budget & Finance Committee

Shared Risk Determination - July 1, 2021 to June 30, 2024

Act 5 Class T-E/T-F/T-G/T-H Shared Risk

- Market Rates of Return, net of fees, for the nine years since the effective date of Act 120
  - Fiscal year 2011/2012: 3.44%
  - Fiscal year 2012/2013: 7.95%
  - Fiscal year 2013/2014: 14.82%
  - Fiscal year 2014/2015: 3.41%
  - Fiscal year 2015/2016: 1.33%
  - Fiscal year 2016/2017: 10.20%
  - Fiscal year 2017/2018: 9.26%
  - Fiscal year 2018/2019: 6.66%
  - Fiscal year 2019/2020: 1.11%

The geometric average time-weighted rate of return, net of fees, for the nine-year period ending June 30, 2020 is 6.38% per annum, as calculated by Aon

BUCK 8

Buck confirmed that it typically used the CAFR as a "known source" for the rates of return in prior years and that it did not typically source the rates of return from Aon's Quarterly Investment Reviews. However, Buck did not calculate the geometric average, time-weighted rate of return, net of fees, for the nine-year period. Aon performed this calculation.

For the Board's assurance, with the exception of the risk share calculation, Buck reported that it does not use the performance rate of return in any of its actuarial calculation or work.

VIII. PSERS Staff Identify a Performance Discrepancy

The very next day, Friday, December 4, while conducting a routine review of information contained in an Aon draft report and a report from one of PSERS's other consultants, a Staff member identified a discrepancy in the absolute return:

> During my review of the Aon Q3 2020 report, I noticed that the calendar year 2015 performance does not agree to the performance that Aksia is reporting. Aon shows the 2015 return as -0.58% while Aksia shows the return as +3.79%. Aksia provides

their attribution below. Can you please investigate with Aon? Aksia has offered their assistance if we provide the proper contact at Aon.[63]

The question was immediately shared with Aon. A few days later, Staff followed up with Aon and asked the direct question—will this impact the Total Fund? Throughout the month of December 2020, PSERS Staff contacts Aon over a dozen times, seeking a status update and ultimate resolution. Aon either responded that it was still researching the issue, or, in some cases, failed to respond all together. The year ended and starting on January 4, 2021, PSERS Staff resumed checking with Aon for a status update. Finally, on January 7, 2021, Aon provided an updated draft Q3 2020 report. The transmittal of this draft did not address the question of whether the Total Fund was impacted and it did not explain why there was a discrepancy in the Absolute Return for 2015. The next day, PSERS Staff approved the draft report and requested the final version. On January 12, Aon explained that it will provide the final, but "[Aon team lead] had told us she wanted to talk to Jim before we sent it out."[64]

After the release of the 3Q 2020 Total Fund Report, several PSERS Staff members raised questions about some of the returns. As one Staff member explained, she saw a change between the November draft and final January 3Q 2020 report for some of the traditional funds; this was unexpected, as the traditional funds are typically "locked down" by the time of the Flash Reports. CIO Grossman also directed PSERS Staff to review certain portions of the final and draft 3rd Quarter Total Fund Report.[65]

We understand that CIO Grossman spoke with Aon on January 13. In his interview and in subsequent written questions posed to him, CIO Grossman explained that Aon let him know "that a number of historical composite returns had changed. When discussing issues with the composites, my one line of questioning to [Aon] was did it impact the Total Fund performance. She reassured me that the issue was at the composite level, not the Total Fund level. An easier way to think about it, and how I characterized it, was that it was more an issue of misplaced cash flows, or a left pocket/right pockets issue (an allocation of income/cash flows between composites) not a Total Fund performance issue (missing or mischaracterized cash flows)."

In reviewing contemporaneous emails from January 12 to the 14th, we see confirmation that Staff understood the issue to be impacting composites not Total Fund.

- Email between several PSERS Staff members: "FYI only, Jim found out today that Aon had a performance issue in a few composites (NOT total fund, it is fine) in 2015, and Aon is now working to recalculate and roll forward."[66]

- Email from CFO Carl to OFM Staff: "FYI, there are more issues with Aon's June 30th performance. The total fund numbers are good but some of the composite numbers reported in the CAFR are not right. More info to come. Jim has requested a letter from

63 Exhibit 31.
64 Exhibit 32.
65 Exhibit 33.
66 Exhibit 34.

> Aon to describe the changes. We will need to have ACA review and opine on the Aon letter as it relates to their risk share letter. There should not be an impact but we want to cover our bases…."[67]

Following our interview, we sent further questions to CIO Grossman regarding the January 13 call with Aon. Grossman reported that he reviewed the Schedule of Investable Assets pages from the original draft 3Q 2020 and the final. In doing so, he saw a change to the cash flows for June 2015. He reported that Aon said they would research and follow up. He also stated that he spoke with ED Grell and Grell indicated that it would be appropriate to have ACA review the changes once this issue was resolved according to Aon.

On January 20, PSERS Staff asked Aon when the memo would be completed on the performance matter. On January 31, Aon sent a calendar invitation to Grossman for a call the next day. We do not know what was discussed on that call. Eight days later, PSERS Staff asked Aon if the June and September composite issues were resolved and when would Grossman receive his memo.[68] We cannot find a response in the email collection.

IX. Aon Discloses the Error

CIO Grossman stated that Aon called him on February 17 and informed him that there was an error that impacted the Total Fund performance. He reported that he then informed Grell and Carl. In interviews, Grell and Carl both confirmed that they learned that the error impacted Total Fund in mid-February. This is corroborated by emails. In the evening of February 17, Aon hosted a larger group call. We understand that the call included CIO Grossman and several other PSERS IO and OFM Staff members. Grell was invited to participate in the call but he declined. This error was related to the June 2015 quarter and it impacted the historical returns. This was corroborated in an interview with a PSERS IO Staff member, who recalled that Grossman first learned of the issue impacting the Total Fund while this Staff member was on vacation around President's Day. President's Day was February 15 in 2021.

Aon provided the draft memo to Grossman after the call.

Two days later, on February 17, Aon provided PSERS and ACA with a file containing cash flow data. This file showed the changes between the originally-provided and updated 2Q15 and 3Q15 cashflows.

Aon finalized a memo for distribution to the Board on March 5.[69] A subsequent memo was provided on April 16.[70] In both memos, Aon took responsibility for the error.

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[67] Exhibit 35.
[68] Exhibit 36.

[69] Exhibit 37.
[70] Exhibit 38.

X. Challenging Aon's Explanation

Notably, no one at PSERS could really speak to "what broke" and Aon never identified the funds at issue. In discussing the error with ACA, ACA commented that to its understanding, some cash flows were not recorded and this impacted ending values for two months. When asked about which funds were impacted, ACA Staff stated that while they did not know, they assumed "they were alternative investments … to have an error like this."

The impacted investments were not alternative investments.

When the Aon March 5 letter is reviewed, particularly in light of the August response to Treasurer Torsella and a study of the fund reporting before and after the data is corrected, several inconsistencies come to light.

March 5 Letter: "In the process of reconciling some prior year asset class composites … Aon has become aware of data corruption…. This data corruption impacted a few asset class composites in the public markets…"

This statement is mostly accurate, but understates the extent of the impact of the data corruption. First, recall that PSERS Staff first identified a problem with the Absolute Return composite. Absolute Return is not a part of the "public markets." However, in reviewing the Public Markets data for the 3Q 2020 report issued in January 2021 and the revised 3Q 2020 report issued in June 2021, we see movement across both public and non-public markets. While Aon would not agree to an interview, we were able to submit questions to Aon and receive responses. Aon was asked to identify the specific accounts impacted by the data error. While in its March 5 letter, it characterized the data corruption as impacting a "few asset class composites," Aon later responded to us that "many, if not most, of the accounts sourced from BNY were impacted by the data issue. Indeed, Grossman has now explained that while he never asked Aon to tell him the name of the fund(s) where the clerical error occurred, "it appears that the cash flow errors were systemic due to the data entry error."

To be clear, missing cash flows does not equate to missing cash—this is just a reporting issue. No funds were missing or in jeopardy.

March 5 Letter: "After finalizing the annual 2015 report it appears that an incomplete erroneous upload was made for April 2015 data which overrode the cashflows and Net Asset Values for several accounts …. While the exact timing and nature of this erroneous upload is unclear, Aon has isolated the time for the upload between October 2016 and March 2017."

While it does appear that the data upload error was limited to the April 2015 data, this explanation is still confusing, as Staff reported that it was unusual to be updating data for the public markets over 18-24 months later. Indeed, in our interviews with IO Staff, it became apparent that no one had focused on the fact that the data error impacted mostly the public markets. This surprised many Staff members—as most of the Aon memo—and earlier Torsella response memo—focused on the more complicated and subject to revisions reporting for the non-traditional assets.

March 5 Letter: "This recalculation was related to the restructuring of the performance composites and the revision of historical data for the Bain Managed Account investment due to updated market values and cashflows provided by Bain. By re-calculating the Total Fund Composite to capture all revisions, Aon also unintentionally captured the erroneous data for April 2015…"

As discussed above, with the Fall 2019 restructuring of the performance composites, the change can be seen. However, no one at PSERS noticed this in real-time. No one at Aon appears to have alerted PSERS to these changes (or, perhaps, indeed noted them at all). Likewise, we can confirm that the Bain data was updated in 2019 (albeit PSERS Staff report that the market value changes were not provided by Bain at a later date, rather it was determined that the line item being used in the Bain statement was an estimate, not a proper value for a market value)—however, as these changes did not cause the 37 basis point change for fiscal year 2015.

March 5 Letter: "In August 2020, Aon responded to questions regarding the change in the fiscal year returns … Aon reconfirmed the calculation of the Total Fund returns were correctly calculated based on the NAVS and cashflows reported on the PARis system…"

Here, Aon discussed the work it performed in August 2020 to respond to the questions from Treasurer Torsella. Looking at this explanation now, the key fact here is that in August 2020 Aon only checked the calculation based on the NAVS and cashflows reported on the PARis system. It did not verify that the data imported into PARis was correct: it only checked the calculation using the numbers already in its system. This failure to confirm that the underlying data was correct led to the data error not being discovered at this time and, instead, reaching the incorrect conclusion that the 37 basis point change was caused by revisions to Private Credit and Commodity cash flows and the adjustments to the performance reporting formatting.

In short, in both August 2020 and March 2021, Aon's explanations were accepted at face value. No one at PSERS appeared to question critically the explanations being presented. As previously noted, PSERS Staff do not have access to Aon's PARis system.

Our consultant examined the revised report issued in June 2021. When comparing the various line items, the original data entry error and several other irregularities were noted. Most significantly, when highlights from our consultant's review were shared with some PSERS Staff members, there was general surprise at the significant corrections to the **Public Equity Markets**.

#	Asset Category	Orig. Q2 2020 FY 2015 [1]	Rev. Q2 2020 FY 2015 [2]	Difference
	A. Noted Differences in Investment Returns for Primary Assets			
1	**PSERS Total Fund**	**3.41**	**3.08**	**-0.33**
2	**Total Public Global Equity Composite (hedged)**	**12.11**	**7.75**	**-4.36**
3	**Total US Equity Composite**	**6.26**	**6.53**	**0.27**
4	**Total Non-U.S. Equity Composite (hedged)**	**16.50**	**9.31**	**-7.19**
5	Total Non-U.S. Equity x Emerging Markets Composite (hedged)	20.07	10.53	-9.54
6	Non-US Large/Mid Cap Equity Composite	6.70	-2.65	-9.35
7	Active Non-US Large/Mid Cap Composite	-0.62	-0.58	0.04
8	Baillie Gifford	-0.19	-0.18	0.01
9	Non-US Small Cap Equity Composite	0.57	0.64	0.07
10	**Emerging Markets Equity Composite**	**-26.42**	**0.43**	**26.85**

The data entry error can be seen in the corrections that were made to the above composites and investments—the *original* Q2 2020 reported one value for FY 2015, the *revised* Q2 2020 reported a different value for FY 2015. However, our consultant also uncovered other, additional revisions to the various composites that were not flagged or identified to PSERS. Indeed, when we reviewed these with various members of the PSERS Staff, all reported that this was indeed surprising and not expected. For example, for the Gresham fund, a publicly traded asset in the Commodities composite, there is an 83 basis point change in the Q2 2015 data. Aon later explained to us that this was the result of identifying two cash flows not included in the original calculation.

For the Cerberus Levered Loan Fund II—a part of the Private Credit composite—there was a 17 basis point change in the Q2 2015 data. Aon later explained this was caused by correcting the date reported (April 1st instead of April 10 and 22).

Atlantic Trust—a part of the MLP (Master Limited Partnerships) composite—reflected a 11 basis point change, followed by a 2 basis point change. Aon explained that this was caused by a market value change and then by using the April 1st, not 30th, data. Again, Atlantic Trust is sourced from BNY—therefore this is not related to any of the typical delays associated with those funds that report off of administrative statements.

As yet another example of inconsistent reporting, the Emerging Markets Fixed Income Composite returns for Q2 2015 changed from -8.79 to -9.19 to -8.77. Aon explained that this shows the data entry error and then a change in the date for the April reporting.

Conclusion

This concludes our findings. We found no evidence of any kickbacks or any illegal payments. We found no evidence of theft. We found no evidence of self-dealing. We found no evidence of false statements or misleading statements in financial transactions. We appreciate the opportunity to serve the PSERS Board of Trustees in this matter and stand ready to address any further questions or concerns that this Board may have for us.

January 31, 2022

Womble Bond Dickinson (US) LLP

Claire J. Rauscher

Sarah Motley Stone

Appendix 1

Cited Documents

[Exhibits forthcoming]

Appendix 2

Simon Rights Responses

Attached here are the written responses submitted by certain individuals and entities who were provided the sections of the report in which they are mentioned and who elected to respond, in accordance with their rights under the decision in *Simon v. Commonwealth*, 659 A.2d 631 (Pa. Cmwlth. Ct. 1995). While we have provided these individuals with the opportunity to respond and have attached their responses to this report, the viewpoints expressed in each response are those of the author of that response and are not endorsed by the attorneys who conducted the independent investigation or the PSERS Board of Trustees.

From: Glenn Cline
To: Rauscher, Claire
Subject: RE: PSERS and "Simon Rights"
Date: Monday, January 10, 2022 4:06:24 PM
Attachments: image001.png
image002.png
image003.png
image004.png

EXTERNAL EMAIL: Open Attachments and Links With Caution.

Hi Claire. We have no comments on the draft report.

Glenn Cline
Deputy General Counsel
ACA Group
Mobile: +1 443.416.8447
8401 Colesville Road, Suite 700, Silver Spring, MD, 20910
glenn.cline@acaglobal.com
www.acaglobal.com
Follow us: LinkedIn | Twitter | Subscribe

From: Rauscher, Claire <Claire.Rauscher@wbd-us.com>
Sent: Friday, January 7, 2022 5:06 PM
To: Glenn Cline <Glenn.Cline@acaglobal.com>
Subject: RE: PSERS and "Simon Rights"

[[EXTERNAL EMAIL]]

Glenn-
Thanks so much for getting the NDA back quickly. Attached is a redacted version of the draft interim investigation report that mentions ACA. If there is any response or clarification, kindly send it to me in writing by COB on January 12.
Many thanks and have a good weekend.
Regards,
Claire

From: Glenn Cline <Glenn.Cline@acaglobal.com>
Sent: Friday, January 07, 2022 4:52 PM
To: Rauscher, Claire <Claire.Rauscher@wbd-us.com>
Subject: RE: PSERS and "Simon Rights"

Apologies for the delay. Attached is a signed copy.

WILLKIE FARR & GALLAGHER LLP

Matt D. Basil
300 North LaSalle
Chicago, IL 60654-3406
Tel: 312 728 9020
Fax: 312 728 9199

January 21, 2022

Claire Rauscher
Womble Bond Dickinson (US) LLP
One Wells Fargo Center
Suite 3500
301 South College Street
Charlotte, NC 28202-6037

Re: ***<u>PSERS' Draft Interim Investigative Report</u>***

Dear Ms. Rauscher:

Aon Investments USA, Inc. ("Aon") is in receipt of your January 19, 2022 letter directed to me regarding the heavily redacted excerpts of a draft interim report that Womble Bond Dickinson (US) LLP ("Womble"), on behalf of its client, the Board of Directors of the Pennsylvania Public School Employees' Retirement System ("PSERS"), sent to Aon on January 7, 2022 and for which Womble requested Aon's "response" by January 17, 2022.

On January 17, 2022, I sent you a letter in which Aon stated, among other things, that:

- The draft report excerpts that Womble provided to Aon were heavily redacted and removed from their context in Womble's draft interim report, which Womble did not provide to Aon;

- As a result, it was difficult for Aon to understand what, if any, conclusions the draft interim report purported to reach, or to identify the alleged factual basis for any purported conclusions;

- To the extent Womble's draft interim report purported to reach any conclusions regarding the acts, statements, or omissions of Aon or any current or former Aon employee, or purported to make any allegations of wrongdoing on the part of Aon or any current or former Aon employee, Aon disagrees with Womble's findings and conclusions;

- Aon does not agree that, by providing heavily redacted draft excerpts of its interim report, Womble provided Aon with a meaningful opportunity to review statements made in the draft report with respect to Aon; and

- Aon does not concede or adopt, and reserves all rights to challenge, any and all factual statements and/or conclusions made in the Womble draft interim report or any final Womble report.

For the avoidance of doubt, my January 17, 2022 letter to you served as Aon's response to the redacted, draft report excerpts that Womble provided to Aon on January 7, 2022.

Sincerely,

/s/ Matt D. Basil
Matt D. Basil

Cc: Sarah Motley Stone

WILLKIE FARR & GALLAGHER LLP

Matt D. Basil
300 North LaSalle
Chicago, IL 60654-3406
Tel: 312 728 9020
Fax: 312 728 9199

January 17, 2022

Claire Rauscher
Womble Bond Dickinson (US) LLP
One Wells Fargo Center
Suite 3500
301 South College Street
Charlotte, NC 28202-6037

Re: ***PSERS' Draft Interim Investigative Report***

Dear Ms. Rauscher:

On Friday, January 7, 2022, Womble Bond Dickinson (US) LLP ("Womble"), outside counsel to the Board of Directors of the Pennsylvania Public School Employees' Retirement System ("PSERS"), provided to Willkie Farr & Gallagher, LLP, outside counsel to Aon Investments USA, Inc. ("Aon"), draft excerpts of a report section related to what Womble referred to as the "Risk Share Calculation." The excerpts Womble provided to Aon were heavily redacted and removed from their larger context in Womble's draft interim report, which has not been provided to Aon. As a result, it is difficult for Aon to understand what, if any, conclusions the draft interim report purports to reach, or to identify the alleged factual basis for any such purported conclusions. Womble requested Aon's response to the redacted, draft excerpts by Monday, January 17, 2022.

To the extent Womble's draft interim report purports to reach any conclusions regarding the acts, statements, or omissions of Aon or any current or former Aon employee, or purports to make any allegations of wrongdoing on the part of Aon or any current or former Aon employee, Aon disagrees with Womble's findings and conclusions. Aon also does not agree that, by providing heavily redacted draft excerpts of its interim report, Womble has provided Aon with a meaningful opportunity to review statements made in the draft report with respect to Aon. Aon does not concede or adopt, and reserves all rights to challenge, any and all factual statements and/or conclusions made in the Womble draft interim report or any final Womble report.

Sincerely,

/s/ Matt D. Basil
Matt D. Basil

Cc: Sarah Motley Stone

<u>Buck's Proposed Revision on Page 5 of the Draft Report</u>

Proposed Revision: "Based on this, PSERS asked Buck, via an August 7, 2020 e-mail, to revise page 10 of its Valuation Report to use the return provided in the Aon report. In such e-mail, Mr. Carl represented that Aon's return calculations "include all retroactive adjustments made by Aon."

The CAFR returns are not subject to retroactive adjustment. Buck understood that Aon, as PSERS' investment consultant, was the entity responsible for providing PSERS with investment return calculations and retroactive adjustments thereto and was also the entity responsible for officially calculating the average rate of return figure. Buck also understood that any return calculations provided by Aon would have been both (1) based on up-to-date data sources not otherwise available to Buck; and (2) audited. Unlike Aon's figures, the CAFR returns are not subject to subsequent corrections.

The correspondence from Mr. Carl confirmed that the retroactive adjustments made by Aon produced updated investment returns as compared to the CAFR returns identified in the Valuation Report. Knowing that Aon was the entity responsible for officially calculating the average rate of return figure and Aon based its returns on up-to-date, audited data not otherwise available to Buck via the CAFR report, Buck believed that PSERS directed Buck to use the Aon return calculations because (1) an official number was necessary; (2) Aon's number provided greater accuracy; (3) the greater accuracy of the return number offered further assurance that the calculation resulting from the return number would be accurate; and (4) the average of returns was clearly going to be much closer to the "hurdle" than it was in the risk-sharing calculations performed in prior years, which made it particularly important to use the most accurate return statistics available, which Aon provided.

Note also that in using data provided by others, Buck's actuaries are guided by Actuarial Standard of Practice No. 23, Data Quality, which clearly states that "the accuracy and completeness of data supplied by others are the responsibility of those who supply the data," and that actuaries are not required to perform an audit of data supplied by others. As a practical matter, Buck would not have been able to audit the return statistics provided by Aon as Buck did not have access to the information upon which those statistics were based.

Based on the foregoing, Buck proceeded in accordance with Mr. Carl's instructions and delivered the revised report to Mr. Carl on August 7."

Brian Carl's Response to Excerpts from
Womble Bond Dickinson's Report
<u>to the PSERS Board of Trustees</u>

Introduction and Simon Rights Process:

Brian Carl has been PSERS' CFO since 2008. He has earned a stellar reputation throughout that time, receiving positive performance reviews and promotions throughout his PSERS work. During each of Mr. Carl's 13 years as PSERS CFO, he and his team in the Office of Financial Management have helped PSERS earn awards from the Government Finance Officers' Association for Excellence in Financial Reporting, and his team's work has been verified via clean audit opinions from PSERS' outside auditors. Mr. Carl also maintains a license as Certified Public Accountant earned during his 8 years at KPMG and has an untarnished record with the licensing authority.

Mr. Carl agrees with what appears to be Womble's principal conclusion and clear finding that there exists no evidence of criminal conduct by him or anyone else. Similarly, there is no finding of civil liability for which any PSERS officials or staff could or should be pursued. Instead, Aon admitted responsibility for the erroneous risk share calculation adopted by PSERS in December 2020.

On January 21, 2022, Mr. Carl provided Womble with a detailed redline of its draft report, along with a version of this executive summary, highlighting errors and omissions in the report. Mr. Carl also offered to explain any of those edits to Womble and requested access to all materials, including any Powerpoint slides, exhibits, executive summaries, and question and answer scripts, that Womble intended to provide to the Board during its January 31, 2022 presentation. Finally, Mr. Carl requested permission to attend the presentation. In response, Womble provided Mr. Carl with a revised draft on January 28, 2022, which incorporated some, but not all, of his requested edits. Womble did not re-interview Mr. Carl, provide Mr. Carl with any additional materials, or grant him the requested permission to attend the presentation.

Below Mr. Carl provides additional material that remains pertinent to and omitted from Womble's draft report as of January 28, 2022.

Brian Carl's Role in the 2020 Risk Share Process:

As CFO, Mr. Carl's role in the risk share calculation is limited in the regular course. He engages Buck as the consultant to calculate the risk share hurdle and corresponds with Buck in that regard. He also updates the Board and PSERS Executive Director Glen Grell regarding the risk share calculation. In this specific circumstance, given staffing limitations in the Internal Audit Office, Mr. Carl also volunteered to have his group (the Office of Financial Management) lead the engagement with ACA in its audit of Aon's nine-year performance calculation, but that assignment fell outside the scope of Mr. Carl's typical duties. Mr Carl was able to lead the ACA engagement without conflict as he has no oversight responsibilities for Aon or the investment performance computations completed by them.

As an accountant, Mr. Carl also understands that the inherent nature of restatements, even those properly done, can be a potential source of confusion. As a result, Mr Carl proactively began to explore procedure changes in 2020 that could be implemented to possibly reduce the need for return restatements and improve the risk share process in the future.

June 2020 Recognition of Close Risk Share:

In June 2020, Mr. Carl informed Mr. Grell that the "member risk share performance [was] running very close to the hurdle rate needed to keep member contributions from going up so this is going to be touch and go as the fiscal year is closed out." Mr. Grell responded, "As we have discussed, I want to play it straight and let the chips fall. I know you do too."[1]

Womble correctly reports that there is "nothing to indicate that Staff took any actions (or inactions) to not 'play it straight.'" The Board certified the wrong nine-year return in December solely because Aon made a series of errors, which Aon admitted in March 5, 2021, long before Womble started its investigation.

Mr. Carl Worked Diligently in Responding to Treasurer Torsella's Letter:

At least eight PSERS employees from the Executive Office, Investment Office, and Office of Financial Management, including Mr. Carl, spent three weeks preparing a fulsome response to then-Treasurer Joseph Torsella's August 12, 2020 letter.[2] Aon also reviewed, drafted, edited, and approved the response.[3] Their efforts are documented across some 50 email exchanges.[4]

As part of their efforts, PSERS staff sought to confirm why Aon made retroactive adjustments to previously reported returns. More specifically, PSERS staff asked Aon to confirm that it made retroactive adjustments in response to updated market values, and not because Aon had discovered reporting errors. In turn, [redacted], the Aon partner in charge of Aon's work for PSERS, confirmed that the adjustments reflected updated information, not errors.[5] In fact, [redacted]—not PSERS staff—added two sentences to the response:

> We note that the originally reported returns in 2015 were not in error but were correct based on the NAVs and cashflows available at the time. The adjustments made were to reflect revised information.

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[1] *See* PSERS_00018090.

[2] *See* PSERS_00032339.

[3] *See, e.g.,* PSERS_00059997.

[4] See, e.g., PSERS_00081497, PSERS_00081512, PSERS_00081576, PSERS_00081596, PSERS_00081646, PSERS_00081652, PSERS_00082287.

[5] See PSERS_00059997.

PSERS staff, including Mr. Carl, justifiably relied on Aon's specific representations in responding to Treasurer Torsella's letter. At that point, no PSERS staff had reason to believe that Aon's performance reporting was based on erroneous data.

Neither Treasurer Torsella nor the Board submitted any follow-up questions after receiving the response on September 1, 2020. The logical conclusion drawn by Mr. Carl and others was that Treasurer Torsella and these Board members were satisfied with the response.

October 2020 Board Meeting:

Mr. Carl was transparent with the Board about the fact that the risk share calculation would be close to the hurdle rate, as a result of the investment impact of the COVID-19 pandemic. As Womble correctly notes, Mr. Carl summarized the risk share process and explained: "As the final investment return is expected to be very close to the benchmark, extra care will be taken by PSERS staff, Aon, and Buck to dot I's and cross T's."

ACA's Engagement:

The engagement of an independent performance verification firm to verify Aon's rate of return calculation was discussed with the full board at the October 2020 Board meeting, and members of the Board were actively involved with and updated on the engagement and process. Ultimately, PSERS – with sign off from the Board's fiduciary counsel – hired ACA to confirm Aon's methodologies and independently calculate the rate of return, given the anticipated closeness of the risk share to the hurdle rate. PSERS Staff did not share the risk share hurdle rate with ACA but made ACA aware that the difference between the actual performance and the hurdle rate was close to ensure ACA understood the importance of accuracy in its work.

While Womble's report says that ACA was not informed of the concerns raised by some Board members in August 2020, Womble's report fails to mention that during the October 2020 Board meeting discussion of hiring a performance verification firm, the Board members <u>*did not*</u> raise any concerns about Aon's 37 basis point adjustment in 2015 or any of Aon's retroactive adjustments. In fact, the Board members <u>*did not*</u> raise any concerns about any of those issues following PSERS' Staff and Aon's response to Treasurer Torsella's letter. As a result, PSERS Staff considered those issues resolved and was not aware that some Board members apparently still had concerns about them. ACA's scope of work was designed – again with sign off from the Board's fiduciary counsel – to approach the verification of all of the nine annual performance periods for the risk share equally. Had the Board voiced concerns when the idea of hiring a performance verification firm was finalized in October 2020 or when the ACA scope of work was being developed, PSERS Staff could have asked ACA to research the retroactive adjustments specially.

Moreover, while Womble's report mentions that ACA's supplemental procedures did not include reconciling the AON PARis system to BNY Mellon data, Womble's report fails to mention that ACA <u>*did not*</u> find any differences between the AON PARis system and BNY Mellon data during it regular procedures, so there was no reason to expand the scope of ACA's work in this regard in the supplemental procedures. Instead, the supplemental procedures were designed to test the calculations where ACA did find two minor differences, and those supplemental procedures found no further differences that would warrant additional supplemental procedures.

As Womble's report indicates ACA completed it work prior to the December Board meeting and verified the 6.38% return as calculated by Aon. Due to the compressed timeframe for the ACA engagement, ACA's results were provided to the Board the day before the Board meeting, but ACA was available for and responded to Board member questions regarding its verification work during the December 3, 2020 Budget/Finance Committee meeting.

December 2020 Board Meeting:

At the December 3, 2020 Board meeting, a board member asked, "did we use the performance numbers that were in the Comprehensive Annual Financial Reports ("CAFR") or the revised performance numbers that Aon's done."[6] Mr. Carl replied that the 6.38% return was based on Aon's revised numbers, and not the CAFR figures. The board member then asked if the nine-year return would be different had Aon used the CAFR figures. Mr. Carl replied, "I mean I didn't go back and do it, but I am presuming that they probably would have, but probably not significantly." When asked if Mr. Carl had answered his question, the board member replied, "Yep, yep."

Further into the meeting, another board member questioned the public's ability to use the unadjusted CAFR figures to calculate a different nine-year return. The Board member asked Mr. Carl to explain why Aon's nine-year return is more accurate than the CAFR. Mr. Carl explained that CAFR is based only on information available before its publication, while Aon's then-current nine-year return was "based upon better information that came out after the CAFR [is published]." In other words, the CAFR calculations were outdated.

When Mr. Carl spoke to the Board at this meeting, no one (not PSERS, not Mr. Carl, and not Aon) knew that there had been an error made by Aon in its restated returns. As such, Mr. Carl correctly told the Board as a matter of accounting principles, that restating returns is an accepted practice and that Buck's risk share calculation has always been based on Aon's then-current data, which at the time would have included the restated returns. In other words, the CAFR *was not* an appropriate source of return data after the restatements were made in September 2019.

Moreover, Womble's report omits some very significant and relevant facts that supported Mr. Grell's decision to instruct Mr. Carl not to share the CAFR-based returns if the risk-share resolution passed. Aon is the only source of PSERS' official investment performance – in other words, whether PSERS' investment performance numbers appear in the CAFR, quarterly reports, or otherwise, those numbers are *always* sourced from Aon. After Aon made its retroactive adjustments in the September 30, 2019 quarterly report, the historical CAFR returns became

[6] There is no official transcript of the December 3, 2020 Board meeting. The quotes in this section are instead derived from the meeting's video recording.

based on old, superseded Aon returns that were no longer meaningful. What's more, the CAFR returns had not been subjected to ACA's verification procedures, while the Aon returns used in the December 2020 and April 2021 risk share calculations had been verified by ACA. Providing the CAFR return calculation would have introduced confusion to the Board, who may not have appreciated that those numbers were outdated based on Aon's later work and had not been verified by ACA pursuant to the engagement that had been directed by the Board. Moreover, the CAFR-based return calculation had been requested by only one Board member and was *never* requested by the entire Board as a requirement prior to the Board's approval of the risk share resolution. In this situation, Mr. Grell decided not to share the CAFR-based calculation with the full Board for several justifiable reasons: (1) that calculation was based on old, superseded Aon returns that were no longer meaningful, (2) that calculation had not been verified by ACA as required by the Board, (3) adding a second set of numbers, which was based on old and unaudited data, would have injected confusion into an already complicated process, and (4) that calculation was not requested by the entire Board as a requirement before approving the risk share resolution, which passed with 11 approvals, 0 opposed and 3 abstentions. Mr. Grell's decision was further reinforced when Aon stated it was "very confident" the 6.38% rate of return was correct on the day of the Board meeting.

The Womble report's discussion of the December 2020 Board meeting also overstates Mr. Carl's position on providing the CAFR numbers to the Board. Womble claims Mr. Carl "recommended" that Mr. Grell hold off on providing the calculation. What the source email actually says is that Mr. Carl said: "Perhaps we could hold off sharing the CAFR-based return until we can discuss further." Mr. Carl was looking for a solution to a complex issue, which is something he has done every day for 13 years in his role as PSERS' CFO. To that end, Mr. Carl offered holding off as one of several possible solutions that could "perhaps" have been used. Mr. Carl's email is not a recommendation of a specific course of action.

Clarifying Returns Used Before and After September 30, 2019:

Womble's report does not fully explain the impact of Aon's retroactive adjustments on the utility of the historical CAFR returns as a source for Buck's risk-share calculations in various time periods. As mentioned above, Aon is the only source of PSERS' investment returns. In other words, Aon is the source of returns in the CAFR, so saying Buck sourced returns from the CAFR is the same as saying Buck sourced returns from Aon. When Aon's historical returns changed via its retroactive adjustments in their September 30, 2019 quarterly report, previously published CAFRs were not updated since the retroactive adjustments were not material from a financial reporting perspective. Therefore, the CAFR was no longer a valid source of Aon's then-current returns for use in the risk share calculation by Buck or otherwise. In sum, while the CAFR was one of several appropriate sources of Aon's returns for use in Buck's risk-share calculation prior to Aon's retroactive adjustments because the CAFR reflected then-current Aon data in those time periods, the CAFR *was not* an acceptable source of Aon data for use by Buck *after* Aon's retroactive adjustments, which is why Buck sourced that Aon data directly from Aon's quarterly reports.

Womble’s report includes a page from Buck's 2017 risk share return presentation and correctly points out that the returns do agree with the CAFR. But as noted above, because the 2017 risk share occurred prior to the September 30, 2019 retroactive adjustments, the returns in the CAFR and Aon’s quarterly reports agree. Prior to the September 30, 2019 retroactive adjustments, Buck or others could have, and apparently sometimes did, use the CAFR as one potential source of Aon's returns. But, Buck could just as easily have sourced Aon’s numbers directly from Aon’s quarterly reports in those time periods – in other words, the CAFR was a possible, but not the only, source of Aon’s return numbers prior to the retroactive adjustments. Buck confirms this by specifically referencing Aon – not specifically the CAFR – as the source of risk share returns in the 2014 and 2017 valuation reports, the December 3, 2020 report to the Board, and the 2020 valuation report that included the revised risk share results approved by the Board in April 2021.

In contrast, after the September 30, 2019 retroactive adjustments, Buck could no longer source Aon’s historical returns from the CAFR because those returns had been superseded. Therefore, Buck used Aon’s quarterly reports.

The evidence is overwhelming that Aon has been PSERS’ (and, by extension, Buck’s) only source for investment returns since the risk share was enacted in Act 120 of 2010. Prior to the retroactive adjustments, Aon’s then-current return calculations could have been found in both the CAFR and its quarterly reports. But, after the retroactive adjustments, the only source of Aon’s historical returns was Aon’s quarterly reports. Aon – the source of the data – had replaced its data that had been used in the CAFR with newer data. The CAFR historical returns were outdated and unusable for the risk share calculation.

As a result, in April 2021, well *after* the December 2020 meeting at which a board member requested the CAFR return calculation, the Board used Aon’s revised returns, *not* the CAFR returns, to re-certify the risk share results. As shown by the table below, the CAFR-based returns were different than the Aon returns for each of the nine years in the risk share measurement period for the April 2021 risk share calculation.

Fiscal Year	CAFR Return	Aon’s Revised Risk Share Return	CAFR vs. Revised Return
FY 11/12	3.43%	3.44%	0.01%
FY 12/13	7.96%	7.95%	-0.01%
FY 13/14	14.91%	14.82%	-0.09%
FY 14/15	3.04%	3.08%	0.04%
FY 15/16	1.29%	1.31%	0.02%
FY 16/17	10.14%	10.20%	0.06%
FY 17/18	9.27%	9.26%	-0.01%
FY 18/19	6.68%	6.66%	-0.02%
FY 19/20	1.11%	1.12%	0.01%

The Board correctly used the revised Aon returns in the risk-share calculation. The CAFR was simply not a valid source of returns for use in the April 2021 recertification of the risk share.

Aon's February 17, 2021 Error Disclosure:

There is no evidence suggesting that Mr. Carl or any PSERS staff knew of Aon's error before Aon disclosed its miscalculation on February 17, 2021. The morning after Aon's February 17, 2021 disclosure, Mr. Carl, Jim Grossman, and Mr. Grell met to discuss the issue.[7] Within hours of their meeting, Mr. Carl reengaged ACA to verify Aon's error and its effect on the nine-year return.[8] After the errors were confirmed, Mr. Carl also instructed Buck to redo its analysis based on the corrected data, not the CAFR data. As shown above, if Buck had used the CAFR data, all annual investment performance calculations across the nine-year period at issue would have differed from the final corrected Aon returns used by the Board to recertify the risk share in April 2021, illustrating that CAFR return data is not the correct source.

By way of further context, the Aon error at issue resulted in a 4 basis point, or 0.04%, impact across a $73 billion fund. To accountants like Mr. Carl, that simply is not a material change or even one that is within the margin for error expected from professional accountants. If not for the risk share statute, which is not a requirement of generally-accepted accounting principles, this 0.04% impact would not have been an issue. Moreover, even as to the risk share, the error was caught and corrected before it ever affected a single dollar of retirement system participant money.

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[7] See PSERS_00000108, PSERS_00022861.

[8] See PSERS_00048513.

PIETRAGALLO
PIETRAGALLO GORDON ALFANO
BOSICK & RASPANTI, LLP
ATTORNEYS AT LAW

GLEN GRELL'S RESPONSE TO EXCERPTS FROM WOMBLE BOND DICKINSON (US) LLP'S REPORT TO THE PSERS BOARD OF TRUSTEES[1]

January 21, 2022

Marc S. Raspanti, Esquire
Douglas K. Rosenblum, Esquire
Jeremy E. Abay, Esquire

PIETRAGALLO GORDON ALFANO
BOSICK & RASPANTI, LLP
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Philadelphia, Pennsylvania 19103

Attorneys for Glen Grell, Esquire

[1] Commissioned by Resolution 2021-11 (A/C) and PSERB Resolution 2021-27 (A/C).

INTRODUCTION

This firm represents Glen Grell, Esquire, the former Executive Director of the Pennsylvania Public School Employees' Retirement System ("PSERS"). In March 2021, the PSERS Board of Trustees engaged Womble Bond Dickinson LLP to conduct a special investigation surrounding the circumstances of the misstatement of the nine-year investment performance used for the System's risk share calculation in December 2020. In June 2021, the Board expanded the scope of the Womble firm's engagement to cover the purchase and valuation of certain properties by PSERS in Harrisburg, Pennsylvania. Mr. Grell cooperated fully with this special investigation and made himself available for multiple interviews and any follow-up questions. Mr. Grell provided all information and documents requested of him.

Under Article I of the Pennsylvania Constitution, citizens of the Commonwealth of Pennsylvania enjoy the fundamental right to the protection of their reputation. Mr. Grell has earned his stellar reputation after honorably serving the citizens of Pennsylvania for decades in various roles. Most recently, he held the position of Executive Director of PSERS from May 2015 through December 2021. He has been praised in performance evaluations by the PSERS Board throughout his tenure and by public comments of the Board upon announcement of his retirement. As Mr. Grell retires at the age of 65, he is proud of his service and accomplishments at PSERS as he implemented improvements to make the System more user friendly and navigated an unprecedented global pandemic. Mr. Grell served in an administrative role, supported by experienced investment professionals and myriad consultants retained by the PSERS Board.

Errors by Aon, a well-paid PSERS consultant, and numerous leaks to the media have led to recent scrutiny of the System and several investigations. It is under the reputational provisions of Article I of the Pennsylvania Constitution and related case law—collectively referred to as *Simon* rights—that we requested an advance copy of the Womble firm's report of its special investigation. We also asked the firm to provide all supporting documentation, including, but not limited to, presentation materials, slides, prepared remarks, and executive summaries. We made this request to ensure that the facts of the special investigation are accurately portrayed before public dissemination. This is critical given the misinformation improperly leaked to the media during the investigation. Lastly, we requested to appear in person at any presentation of the Womble firm's findings, conclusions, or recommendations to the Board. This is particularly important in the event the Womble firm intends to respond to off-the-cuff questions posed by Board members during the presentation.

On January 7, 2022, the Womble firm provided us with only two documents. The first was a 21-page narrative on the risk share calculation certified by the PSERS

Board in December 2020. The second was an eight-page narrative about the purchase of certain real estate parcels in Harrisburg, Pennsylvania as authorized by the PSERS Board. As counsel for Mr. Grell, we have received no other written reports, summaries, or slides. We have received no introductions or conclusions associated with these narratives. We have received no presentation materials or demonstratives to be used by the Womble firm in explaining its findings to the PSERS Board. Finally, our request to attend Womble's presentation to the Board has been repeatedly declined. Our absence from any presentation to the Board forecloses any opportunity for us to respond in real time to any questions or comments submitted to the Womble firm by Board members. The instant response is, therefore, limited to the 29 pages of text provided to us—nothing more.

Although no written conclusions have been produced to us, Mr. Grell agrees with Womble's principal conclusion and clear finding that there exists no evidence of criminal conduct by Mr. Grell or anyone else. Similarly, there is no finding of civil liability for which any PSERS officials or staff could or should be pursued. Aon admitted responsibility for the erroneous risk share calculation adopted by PSERS in December 2020 and has since refused to fully cooperate with the System's two investigations. Although Mr. Grell has pushed for Aon to be held accountable, the Board has not taken any action against Aon.

Additionally, all real estate acquisitions reviewed during this investigation were conducted properly and documented properly. Mr. Grell thoroughly briefed the Board on each potential acquisition, the Board approved each transaction, and all expenditures have been documented. The COVID-19 pandemic has, unfortunately, impacted the needs of the System and has stalled development efforts.

On behalf of Mr. Grell, we submit the following points of clarification and supporting documentation for incorporation into the Womble firm's report before its oral or written publication. These points are essential to a complete and accurate understanding of the facts by the PSERS Board and the public. These additions provide critical context. We remain available to answer any questions you might have about this submission.

RESPONSE TO EXCERPTS ON RISK SHARE

While Womble's report on risk share correctly concludes that Aon was responsible for the erroneous nine-year return calculation, the report omits material information and misconstrues certain points, discussed below.

1. After being informed that risk share performance was "running very close to the hurdle rate," Mr. Grell directed PSERS staff to "play it straight."

In June 2020, Chief Financial Officer Brian Carl informed Mr. Grell that the "member risk share performance [was] running very close to the hurdle rate needed to keep member contributions from going up so this is going to be touch and go as the fiscal year is closed out." Mr. Grell responded, "As we have discussed, I want to play it straight and let the chips fall. I know you do too."[2]

To: Carl, Brian[bcarl@pa.gov]
From: Grell, Glen[/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=1343E1E6829E49D395FDB233A0F1E33A-GGRELL]
Sent: Tue 6/9/2020 9:30:03 PM (UTC-04:00)
Subject: Re: Daily Fund NAV *Investment Portfolio* as of 06.08.20 - CONFIDENTIAL

Understood. Thanks. As we have discussed, I want to play it straight and let the chips fall. I know you do too. GRG

Womble correctly reports that there is "nothing to indicate that Staff took any actions (or inactions) to not 'play it straight.'" The Board certified the wrong nine-year return in December solely because the Board's well-paid consultant—Aon—

[2] PSERS_00018090.

made a series of errors. Indeed, Aon admitted full responsibility for the erroneous nine-year performance calculation long before Womble started its investigation.

In its March 5, 2021 letter, Aon admitted that its data had been corrupted by "an [Aon] analyst in uploading NAV and cashflow data from the BNY system into the PARis performance system [that] Aon uses." In other words, Aon failed to confirm that its own data—stored in a system that only Aon has access to—was correct before using that data to calculate the System's nine-year performance in 2020.

AON

PSERS_00000071

March 5, 2021

Mr. James Grossman
PSERS
5 Fifth Street
Harrisburg, PA 17101

Dear Jim:

Subject: **Data Corruption of April 2015 Performance Data**

In the process of reconciling some prior year asset class composites with PSERS investment staff in mid- December 2020, Aon has become aware of data corruption in some sub-composite market values, cashflows and returns for the month of April 2015. This data corruption was due to an error by an analyst in uploading NAV and cashflow data from the BNY system into the PARis performance system Aon uses.

values, cashflows and returns for the month of April 2015. This data corruption was due to an error by an analyst in uploading NAV and cashflow data from the BNY system into the PARis performance system Aon uses.

Unfortunately, due to this error, the FY and CY 2015 returns for several of the asset class composites and Total Plan were inaccurately reported in the June 30, 2020 report.

Conclusion

Aon sincerely regrets the error in the prior reported finalized June 30, 2020 quarterly report.

There is no evidence suggesting that Mr. Grell or any PSERS staff knew of Aon's error before Aon disclosed its miscalculation for the first time on February 17, 2021. It is also inaccurate for Womble to claim that PSERS staff took Aon's work at "face value." Mr. Grell and other PSERS executives recommended an independent third-party review of Aon's nine-year performance calculation, leading the System to retain ACA—an industry leading governance, risk, and compliance advisor.

To preserve the integrity of ACA's review, PSERS staff withheld the hurdle rate from ACA. ACA, not PSERS staff, selected the months to sample. And ACA independently reached the same result as Aon, a nine-year return of 6.38%, solidifying the consensus among PSERS staff that Aon's calculation was correct.

Mr. Grell is not an investment professional or accountant. Throughout this process, both he and the Board justifiably relied on outside experts, including Aon and ACA, and internal experts, including the System's Chief Investment Officer and Chief Financial Officer.[3] It would have been reckless for Mr. Grell and Board

[3] PSERS relies on over 100 investment consultants as well as numerous other consultants, including Buck Global LLC, BluePeak Advisors, LLC, The Segal Company, Courtland Partners, Ernst & Young, McKinsey & Company, Gallagher Benefit Services, Funston, and Verus Advisory.

members to have disregarded the consensus among the System's experts that 6.38% was the correct result.

2. CAFR figures are not a reliable measurement for assessing the fund's performance for risk share.

The System's annual Comprehensive Annual Financial Reports ("CAFR")[4] provide financial, investment, actuarial, and statistical information in a single publication. PSERS publishes its CAFR in November, four months after the fiscal year ends on June 30. The report includes various metrics that together provide a snapshot in time of the fund's overall financial health. One of those metrics is the time-weighted return on the System's investments over the fiscal year. Womble's report generally refers to this metric as the "CAFR returns/rates."

The CAFR figures constitute nothing more than a red herring in this investigation, as they have no place in the risk share calculation. The CAFR figures are calculated by Aon and are neither audited nor adjusted after their publication, even if Aon later updates its data based on new information. In other words, past published CAFR figures can be inaccurate because they may reflect outdated and obsolete information.

[4] Now called the "Annual Comprehensive Financial Report" and abbreviated "ACFR."

For these reasons, Aon itself did not rely on the CAFR figures when assessing the fund's performance during the three-year (2014), six-year (2017), and nine-year (2020) reviews. Thus, it would have been imprudent for Board members to base their certification votes on the CAFR figures.

The fact that the annual returns used to calculate the fund's six-year performance in 2017 matched the published CAFR figures for those six years does not reveal CAFR's reliability. This correlation instead shows that Aon updated its data after 2017. And Aon did indeed make retroactive adjustments in 2019, after the Board voted to allow such adjustments.[5]

3. PSERS staff worked diligently in responding to Treasurer Torsella's letter.

Womble's report understates how much effort went into responding to then-Treasurer Joseph Torsella's August 12, 2020 letter. According to Womble's report, for example, a "small committee" prepared the response. That is not accurate. At least eight PSERS employees from the Executive Office, Investment Office, and Office of Financial Management spent three weeks preparing a fulsome response to

[5] Womble's report discusses these adjustments under "The Response to Treasurer Torsella."

Treasurer Torsella.[6] Aon also reviewed, drafted, edited, and approved the response.[7] Their efforts are documented across some 50 emails.[8]

As part of their efforts, PSERS staff sought to confirm why Aon made retroactive adjustments to previously reported returns. More specifically, PSERS staff asked Aon to confirm that it made retroactive adjustments in response to updated market values, and not because Aon had discovered reporting errors. PSERS staff also inquired into the 37 basis point difference in the 2015 return.

In turn, [redacted], the Aon partner in charge of Aon's work for PSERS, confirmed that the differences resulted from adjustments, and the adjustments reflected updated information, not errors.[9] In fact, [redacted]—not PSERS staff—proposed two sentences in the draft response:

> We note that the originally reported returns in 2015 were not in error but were correct based on the NAVs and cashflows available at the time. The adjustments made were to reflect revised information.

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[6] See PSERS_00032339.

[7] See, e.g., PSERS_00035548, PSERS_00059997, PSERS_00018133, PSERS_00018051, PSERS_00017982.

[8] See, e.g., PSERS_00081497, PSERS_00081512, PSERS_00081576, PSERS_00081596, PSERS_00081646, PSERS_00081652, PSERS_00082287.

[9] See PSERS_00059997.

[redacted] addition was edited and reflected within the final version of the response:

> The use of "errors" is incorrect. As shown above, these are adjustments that are made as more data is reported to PSERS. The adjustments are not errors in reporting.

PSERS staff justifiably relied on Aon's specific representations in responding to Treasurer Torsella's letter. At that point, no PSERS staff had reason to believe that Aon's performance reporting was based on corrupt data. Thus, if the response to Treasurer Torsella incorrectly stated the basis for Aon's retroactive adjustments, the fault lies solely with Aon.

Treasurer Torsella did not submit any follow-up questions after receiving the response on August 12, 2020. Nor did any of the Board members copied on the response. The logical conclusion is that Treasurer Torsella and these Board members were satisfied with the response.

4. The CAFR figures were not relevant to the Board's risk share certification vote on December 3, 2020.

As discussed above, CAFR figures have no place in the calculation of risk share. Aon – the very consultant who calculated the CAFR figures – said they were not reliable for this purpose. Additionally, CFO Brian Carl told Mr. Grell that the use of CAFR for this purpose was not a legitimate methodology.

Treasurer Torsella first raised the topic at the December 3, 2020 meeting by asking, "did we use the performance numbers that were in the CAFR or the revised performance numbers that Aon's done."[10] Brian Carl replied that the 6.38% return was based on Aon's numbers, and not the CAFR figures. Treasurer Torsella then asked if the nine-year return would be different had Aon used the CAFR figures. Mr. Carl replied, "I mean I didn't go back and do it, but I am presuming that they probably would have, but probably not significantly." When asked if Mr. Carl had answered his question, Treasurer Torsella replied, "Yep, yep."

Further into the meeting, Alan Flannigan (designee for Secretary Richard Vague) questioned the public's ability to use the unadjusted CAFR figures to calculate a different nine-year return. Mr. Flannigan asked Mr. Carl to explain why Aon's nine-year return is more accurate than CAFR. Mr. Carl explained that CAFR is based on information available before its publication, while Aon's nine-year return is "based upon better information that came out after the CAFR [is published]."

Mr. Carl then clarified that Aon's reliance on adjusted figures, as opposed to unadjusted CAFR figures, yielded a better result for the nine-year performance return:

> So, two points we did have these in the past, they actually are good things because our performance is better now than what it was at the timing of the CAFR. So the nine-

[10] There is no official transcript of the December 3, 2020 Board meeting. The quotes in this section are instead derived from the meeting's video recording.

> year number is actually better than if you did the CAFR numbers, it's more accurate and to we do understand.

"That's helpful," Mr. Flannigan concluded.

At about 9:52 a.m., Board member Eric DiTullio pivoted back to CAFR:

> So if some weekend warrior, you know, calculator goes out there and use it—the CAFR information, it's available on the site—runs these numbers. What are they going to come up with?

Mr. Carl replied that he "did not do those calculations." Mr. Carl then asked Mr. Grossman if he had "looked at that." Mr. Grossman replied that he had not.

Mr. DiTullio added:

> There seems to be a concern with members of the board that if people do that in the public that, you know, oh my gosh, we should have had risk-sharing—we're opening ourselves up to all these other issues. I don't believe that because I think it comes into play that we did our due diligence, not once, but twice. We have confirmed that this is the correct rate. Risk share is not to be enacted based on that. **So I think we've covered it. [W]e've done our due diligence, *I'm not worried about it.*** I like what you did. I'm glad that you went out for the second set of eyes, so to speak. I think that was really forward thinking in making sure that you're protecting us and making sure that we can do our fiduciary duty properly. I appreciate what you did.

Mr. Carl followed, "We can definitely do that and see what it comes up with. . . . [I]f it would produce a different result, I would say that is the incorrect result . . . for the reasons that I noted with the CAFR, the weaknesses[.]"

While the meeting progressed, Mr. Grossman calculated the nine-year performance rate using the previously published CAFR figures, yielding 6.337%. Mr. Grossman shared this result with [redacted], the Aon partner in charge of Aon's work for PSERS, during the meeting. She quickly responded, "[W]e are very confident that the 6.38% reported nine year return is an accurate representation of PSERS' investment returns during the period."[11]

From: Claire Shaughnessy <claire.shaughnessy@aon.com>
Sent: Thursday, December 3, 2020 10:10 AM
To: Grossman, James <jgrossman@pa.gov>
Subject: [External] Re: 9 Year CAFR Returns

ATTENTION: *This email message is from an external sender. Do not open links or attachments from unknown sources. To report suspicious email, forward the message as an attachment to CWOPA_SPAM@pa.gov.*

I was just checking the calculation using the CAFR reported returns as well. I concur with your calcuation for the nine year return using the CAFR returns.

As you know we are very confident that the adjusted returns are acurate reflecting the revised information we received on the valuation and therfore we are very confident that the 6.38% reported nine year return is an accurate representation of PSERS' investment returns during the period.

received on the valuation and therfore we are very confident that the 6.38% reported nine year return is an accurate representation of PSERS' investment returns during the period.

Mr. Carl forwarded the CAFR calculation to Mr. Grell after the Budget/Finance Committee portion of the December 2020 meeting ended. Mr. Carl cautioned, "In my professional opinion the 6.34% figure does not add value[.]" He thought it would be inappropriate to use outdated and obsolete data, especially

[11] PSERS_00035421.

because prior Aon returns were retroactively adjusted so the CAFR returns no longer reflected the most updated figures.

Since there was an apparent consensus that the CAFR returns were less reliable, Mr. Grell told Mr. Carl to "leave it alone." Additionally, Mr. Grell did not want to put his "thumb on the scale" by providing the Board with an illegitimate and inappropriate methodology.

From: Carl, Brian <bcarl@pa.gov>
Sent: Thursday, December 3, 2020 12:32:33 PM
To: Grell, Glen <ggrell@pa.gov>
Subject: Budget/Finance Follow-ups

PSERS_00032319

Hi Glen

Aon quickly calculated the impact of the two requests made during the Shared Risk discussion.

1. Dollar impact of 2bps of return over 9 years - Estimate of $85 million
2. 9 year return using the CAFR returns before Aon's subsequent adjustments is 6.34% , which is less than the 6.36% target. As I mentioned during the Board meetings, the historical annual one year CAFR returns are not the returns to be using to calculate the geometric average over nine years due to the time cutoffs we do to complete the CAFR in a timely manner. In my professional opinion the 6.34% figure does not add value but it was requested. Having said that, I am pleased Jim agreed to the procedural changes we made this summer to reduce the potential for future subsequent return adjustments. It is preferred that Aon does not have

9 year return using the CAFR returns before Aon's subsequent adjustments is 6.34% , which is less than the 6.36% target. As I mentioned during the Board meetings, the historical annual one year CAFR returns are not the returns to be using to calculate the geometric average over nine years due to the time cutoffs we do to complete the CAFR in a timely manner. In my professional opinion the 6.34% figure does not add value but it

5. *Mr. Grell was one of many who felt it necessary to move forward with the risk share vote on December 3, 2020.*

Mr. Grell, the Board Chair, and outside Fiduciary Counsel to the Board all opined that the risk share vote needed to proceed when it did. Womble points out that Grell "cautioned the Board against delaying the [risk share] vote" on December 3, 2020. To be clear, PSERS bylaws required the Budget/Finance

Committee to certify the employer and member contribution rates in December.[12] Womble does not consider if it would have even been possible to reconvene the Board for a second meeting in December, during the holiday season and while COVID-19 was raging.

In any event, Womble omits that most Board members shared Mr. Grell's opinion, which is why the vote proceeded. In fact, Chairman Christopher Santa Maria expressed the same reservations as Mr. Grell:

> So that the information is now there and available and reliable and defendable as we head into a collective bargaining season in January when employee's unions and employers are going to have to negotiate contracts and they it certainly would have been a factor in contract negotiations if employees would have had to start paying more to PSERS, so getting an answer to that question was an important deadline and I'm glad we met the deadline and I'm glad we met it in a way that that we can verify and defend it so. Well done everybody. And that's all I wanted to say.

Representative Frank Ryan, who wanted more time to review the employer contribution rate, had also stated that he was "very comfortable" with Aon's calculation:

> The first part of the issue of the, excuse me the calculation about the shared risk, that's a very specific arithmetic calculation, it's been separately opined on by ACA, we went through a difficult due diligence process, I had an

[12] See PSERS Statement of Organization, Bylaws, and Other Procedures § 4.2.

> extensive amount of time to review that and feel very comfortable that the shared risk should not kick in.

6. When Mr. Grell declined to participate in the February 17, 2021 call with Aon, he had yet to be informed of Aon's error.

PSERS learned of Aon's error for the first time on February 17, 2021. Womble's report contends that Mr. Grell was aware of Aon's error when he declined to participate in a call between Aon and Mr. Grossman on February 17, 2021. Womble suggests that Mr. Grell deliberately avoided the call. Womble is incorrect on this point, and Womble's position conflicts with the timeline of events on February 17, 2021.

[redacted], on behalf of Aon, sent an e-mail invitation for a call at 6:00 PM to Mr. Grossman. [redacted] e-mail did not disclose the purpose of the call. Mr. Grossman then forwarded the e-mail invitation to Mr. Grell as a courtesy.[13] Mr. Grell declined to participate in the call at 5:39 PM. [redacted] sent a draft memo on Aon's error to Mr. Grossman at 5:57 PM, just three minutes before the call. That was the first time Aon disclosed its error in writing. Mr. Grossman forwarded the draft memo to Mr. Grell at 6:14 PM. In sum, Mr. Grell had yet to be informed of Aon's error when he declined to participate in the call between Mr. Grossman and Aon at 5:39 PM on February 17, 2021.

[13] See PSERS_00081624.

7. *Once Aon disclosed its errors, PSERS staff worked quickly to confirm its materiality so that risk share would be implemented on time.*

As discussed above, Aon first disclosed its error to PSERS on February 17, 2021. The following morning, Mr. Carl, Mr. Grossman, and Mr. Grell met to discuss the issue.[14] Instead of taking Aon at face value, they decided that the purported error and its potential impact on the nine-year return had to be verified, both internally and by ACA. Within hours of their meeting, Mr. Carl reengaged ACA to verify Aon's error and its effect on the nine-year return.[15] At the same time, Mr. Grell planned for possible risk-share implementation.

After ACA initially confirmed Aon's error, Mr. Grell emailed Chairman SantaMaria, Representative Ryan, and Suzanne Dugan (PSERS outside Fiduciary Counsel) to schedule a call for the following evening—March 3, 2021. Mr. Grell's email indicated that there was a "problem regarding Aon's work" that would "likely result in the termination of our relationship with Aon[.] Mr. Grell concluded, "we should react promptly." Aon and ACA also participated in the call.

[14] See PSERS_00000108, PSERS_00022861.

[15] See PSERS_00048513.

From: Grell, Glen <ggrell@pa.gov>
Sent: Tuesday, March 2, 2021 2:04 PM
To: Grossman, James <jgrossman@pa.gov>; Carl, Brian <bcarl@pa.gov>
Cc: [redacted]
Subject: Briefing with Board Leadership Re: Aon issues

PSERS_00032302

I sent the following message to Chris, Frank and Suzanne regarding a call for Wednesday from 6-7 PM:

Chris/Frank;
I need to make you aware of a problem regarding Aon's work as General Investment Consultant to the Board/IO. It is a manageable problem and does not involve the loss of any Agency funds, nor concerns about fraud or mismanagement. However, in my view, it will likely result in the termination of our relationship with Aon, and we should react promptly.
I would like to brief the two of you, as Chair and Vice-Chair, with Suzanne participating. I know Chris and I have a call with Funston this Wednesday (tomorrow) from 5-6. I was hopeful we might piggy-back a second meeting/call from 6-7 Wednesday. I would have representatives from Aon for a portion of the call (to explain what occurred), as well as Jim Grossman, Brian Carl, Jennifer Mills, Jackie Lutz and me on the call to explain what we have discovered and to present several options for consideration by the Board. This may not be ripe for action by Friday, but I feel the need to make the 3 three of you aware of the issue.
I hate to impose on you right before 2 days of Board activity, but I need for you to be aware and to get your thoughts on next steps.

Please let me know if you can be available and we will go from there. If that time is not possible, please let me know what might work.

I ha
acc

Chris/Frank;
I need to make you aware of a problem regarding Aon's work as General Investment Consultant to the Board/IO. It is a manageable problem and does not involve the loss of any Agency funds, nor concerns about fraud or mismanagement. However, in my view, it will likely result in the termination of our relationship with Aon, and we should react promptly.

Mr. Grell briefed the entire Board on March 5, 2021. That same day, Aon formally acknowledged its error in a letter to Mr. Grossman. ACA also provided a letter confirming Aon's error on March 5, 2021. Both letters were attached to Mr. Grell's March 5, 2021 memorandum to the Board.[16] Additionally, Mr. Grell provided a second briefing and memorandum to the Board on March 12, 2021.

8. Mr. Grell worked to coordinate an independent investigation into the risk share error by outside counsel.

Mr. Grell advocated for, and helped to coordinate, a full investigation into the risk share error. During his March 5, 2021 briefing to the Board, Mr. Grell discussed

[16] See PSERS_00000066.

the need for an investigation by outside counsel to review "matters pertaining to the work of PSERS management, PSERS Board, Aon, ACA and other parties in the determination of the actual 9-year investment return[.]" Mr. Grell's March 12, 2021 memorandum updated the Board on the System's potential engagement of outside counsel.

PSERS_00000081

MEMORANDUM

PSERS

DATE:	March 12, 2021
TO:	PSERS Board of Trustees
FROM:	Glen R. Grell, Executive Director
SUBJECT:	Follow-up from March 5, 2021 Executive Session

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2) Coordinate with Suzanne Dugan, Fiduciary Counsel, to be prepared to engage a law firm to be selected by the Board to conduct review of matters pertaining to the work of PSERS management, PSERS Board, Aon, ACA and other parties in the determination of the actual 9-year investment return and the "shared risk" calculation at the December Board Meeting, as well as subsequent events which revealed a data corruption in April 2015 which when adjusted, calls into question the investment performance previously reported and the employee contribution rate certified by the Board.

9. Mr. Grell urged the Board to terminate its relationship with Aon.

To the best of our knowledge, Aon has refused to fully cooperate in Womble's investigation despite admitting fault. Yet the Board has not taken any action against Aon. The Board's inaction towards Aon stands in stark contrast to the recommendations made by Mr. Grell.

Mr. Grell's March 5, 2021 memorandum to the Board explained, "The contractual standard of care is a 'prudent expert' and the contract further acknowledges Aon as a 'fiduciary' to PSERS. The current contract allows for termination for cause and termination for convenience[.]”[17] Mr. Grell recommended, as one option, “Terminate the contract immediately for cause or convenience or seek remedies under the contract.”

Mr. Grell again recommended terminating Aon in his March 12, 2021 memorandum to the Board. In fact, his second memorandum included a draft press release to coincide with Aon’s termination, shown below. Mr. Grell also urged the Board to consider a “[c]ontract action against Aon.” Thus far, the Board has not taken any action against Aon.

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[17] PSERS_00000069.

DRAFT #3 Aon Termination

March 12, 2021

For more Information Contact

PSERS BOARD TERMINATES ITS RELATIONSHIP WITH AON CONSULTING
Consultant error leads to termination of contract with PSERS

HARRISBURG – During Friday's Special Board meeting, the Pennsylvania Public School Employees' Retirement System (PSERS) Board of Trustees voted unanimously to terminate its contract with Aon Consulting, PSERS general investment consultant, after an investment return error was discovered. Aon was hired by PSERS in 2014 as its general investment consultant.

Aon's contract is terminated (immediately???) (on ######, 2021????). PSERS expects to issue a Request for Proposal (RFP) in the coming weeks for a new general investment consultant.

The termination decision came after the Board learned last week that Aon had made an error in older investment return performance and that error could cause the Board to recertify its employee contribution rates and issue new higher contribution rates for roughly 108,000 members hired after 2011 and 2019.

Aon identified a 4-basis points (0.04%) discrepancy as being caused by "human error" when one of its analysts wrongly uploaded net asset values and cashflow data from the Commonwealth's custodial bank to Aon's reporting system. Aon is currently reviewing and verifying all cash flow data from 2015 to current to determine the complete impact of the error.

While the error appears minor, it could have a very material impact on the Fund because it could push PSERS 9-year investment return below the risk share hurdle rate and trigger shared risk for the next three fiscal years (July 1, 2021 to June 20, 2024) for certain membership classes.

In addition, PSERS Board hired a law firm ##### to conduct an independent review of documents and actions surrounding the recent December 2020 certification of the employee contribution rates. Upon completion of its review, the law firm will report back to the Board with its results. PSERS Board then will meet to determine the next steps with regards to shared risk and the employee rate, and any potential legal action that could result due to the error, and any recommendations for improvements to prevent or detect similar errors in the future.

PSERS Chair Chris SantaMaria commented, "No one person or one firm is infallible, and we appreciate Aon's candidness and openness in taking responsibility in owning up to this error they attributed to incorrectly uploading data four to five years ago. But the fact remains, the PSERS Board of Trustees needs to have trust in the data it receives from its consultants. Our trust is now broken because Aon allowed this error to go unnoticed for so long despite having several opportunities to catch it before the

<u>RESPONSE TO EXCERPTS ON HARRISBURG PROPERTIES</u>

Every one of the property acquisitions and expenditures mentioned in this investigation was approved by the PSERS Board after presentation of voluminous supporting documentation. These were legitimate, arms-length transactions accomplished using experienced real estate counsel for the benefit of PSERS and no other entities or individuals. The development of these properties has stalled due to the COVID-19 pandemic.

Womble did not find any evidence of wrongdoing, bribery, or kickbacks related to the Harrisburg property acquisitions. Indeed, there is no such evidence. Womble's report on the Harrisburg properties does, however, suffer from a lack of context and detail on the property needs of PSERS at the time and the superior diligence performed on the transactions. These issues are addressed below.

1. It is well-documented that PSERS acquired the Harrisburg properties to satisfy a pressing need for additional office space and parking before the pandemic.

Starting in 2017, PSERS began to expand its complement of internal investment managers to reduce its reliance on external managers and outside consultants. Twenty staff positions were added in 2017 and 2018, causing the existing PSERS headquarters to approach capacity. As a temporary solution, PSERS converted training and storage rooms into workspaces.

PSERS also suffered from a lack of safe and affordable parking spaces for its growing staff. There were only 75 on-site spaces for 300 employees. PSERS had to pay approximately $250,000 per year to rent additional spaces in remote locations.

As the Executive Director at the time, Mr. Grell was responsible for solving these space constraints and parking challenges. He, therefore, led efforts to acquire properties near PSERS' headquarters. Although development of these properties has stalled due to the COVID-19 pandemic, PSERS now owns valuable contiguous parcels along Market Street, proximate to downtown Harrisburg.[18]

Red *Border = PSERS Headquarters*
Blue *Border = Acquired Properties*

[18] For example, the parking surface lots referenced in Womble's report came with grandfathered and transferrable parking licenses.

2. ***The diligence period for 812 Market Street ending the midnight before the Board voted to approve the acquisition is at most a process issue.***

After Mr. Grell identified 812 Market Street as a potential solution, he immediately engaged the Investment Office ("IO") and Office of Chief Counsel ("OCC") to conduct due diligence. In turn, [redacted] engaged [redacted] and his firm, L&B Realty Advisors, to research and advise PSERS on potentially acquiring the property. McNees Wallace & Nurick LLC, experienced outside counsel based in Harrisburg and on the Governor's approved counsel list, was retained to represent PSERS in the transaction.

PSERS also engaged Independence Environmental Consulting, LLC to conduct an environmental study.

By the time the diligence period ended on December 7, 2017, PSERS staff and their outside consultants had conducted the due diligence necessary to move forward with the 812 Market Street deal.[19] The vote to approve the acquisition occurred a mere eight hours after the expiration of the diligence period. Additionally, Mr. Grell spoke with lawyers from the Office of Chief Counsel and then-Board Chair Mel Vogler days before the acquisition vote. No one recommended extending the diligence period.

After talking to Ms. Vogler about the potential acquisition, Mr. Grell was also confident that the resolution to acquire 812 Market Street would easily pass.[20] Ms. Vogler served as a member of the PSERS Board for 25 years—10 of those years as its Chair. As the Board Chair, she worked closely with Mr. Grell. And Mr. Grell was right. The Board approved the acquisition with just one abstention.

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[19] The memorandum to the Board about the acquisition is dated December 6, 2017, though the date that the memorandum was posted to Diligent is unknown.

[20] PSERS_00081626 (discussing the Board's approval).

3. The decision to acquire parking lots using Camcorr LLC rather than 812 Market, Inc. did not require additional Board approval.

Using Camcorr LLC to acquire parking lots provided the greatest protection possible for PSERS, and experienced in-house counsel opined that Board approval was not required.

Womble's report states, "When ED Grell was approached with whether creating a new holding company without board approval could occur, he stated he would not go back to the Board and it should be worked out with outside counsel." But Mr. Grell was not asked if creating a new holding company required Board approval. Privileged [redacted]"

Privileged [redacted]

[redacted].

Additionally, this exchange occurred in April 2020. At that time, PSERS staff and Board members were adjusting to remote work. The issue of whether to use 812 Market, Inc. or Camcorr LLC to acquire the lots did not warrant reengaging the Board, Privileged [redacted].

4. Mr. Grell provided detailed briefing to the Board for each potential acquisition.

For each property acquisition, Mr. Grell provided detailed briefing and updates to the Board. These briefings occurred in executive session (closed meetings) with the Board pursuant to 65 Pa.C.S.A. § 708. Mr. Grell's reports included full transparency into his meetings with government officials.[21]

Mr. Grell also included updates on his discussions with Harrisburg University about joint development opportunities, as shown in the following slides from Mr. Grell's presentation to the Board on October 10, 2019.[22] PSERS did not reach any agreements with Harrisburg University, except to keep their discussions confidential.

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[21] See, e.g., PSERS_00012286

[22] PSERS_00082172.

812 Market Street

Next Steps:

- Adopt Resolution
- Proceed to closing
- Parking approvals from City
- Parking and security improvements
- Property and Condition Report – evaluation of potential uses
- Continue collaboration with DOT and City

Confidential

812 Market Street

- Purchase Agreement – Former Patriot News HQ
- 8 contiguous parcels
- 2 Buildings – Office/Warehouse 91,000 square feet
  - Annex Building 11,250 square feet
- Over 100 parking spaces
- Price - $1.6 M plus closing costs
- Targeted revitalization corridor for city
  - Market/Cameron
  - Paxton Creek Flood Control Project
  - Transit-oriented development near train station
- High priority project(s) with City/County/Administration support
- Meetings with DGS, DOT, Governor's Chief-of-Staff, Mayor Papenfuse
- Due Diligence completed
  - Phase 1 Environmental
  - Hazardous Materials Survey of Buildings
  - Title Search Report
  - Property and Condition Inspection
  - Zoning Analysis
  - Also reviewed seller's due diligence

Confidential

Confidential/Harrisburg Univ. Discussions

- **Multi-purpose arena with related uses**
- **e-Sports Gaming Arena**
- **Digital Media and Gaming Development Curriculum**
- **Entertainment/Athletics**
- **Regional Convention Center**

PSERS

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5. *Many Board members were consistently absent for the Harrisburg property acquisition votes.*

According to Womble's report, many Board members could not recall being briefed about certain aspects of the Harrisburg property acquisitions. To be clear, no one disputes that PSERS staff briefed the Board on every acquisition. The inability of some Board members to recall this briefing is understandably attributable to their absenteeism, as reflected in the meeting minutes and shown below.

Property	Meeting Date / Resolution	Vote Result	Board Members Not Present Per Meeting Minutes
812 Market	Dec 8, 2017 2017-61	Unanimous with one abstention (Mr. Craig for Treasurer Torsella)	1. Sen. Browne (Sent Designee) 2. Rep. Markosek (Sent Designee) 3. Sec. Rivera (Sent Designee) 4. Treasurer Torsella (Sent Designee) 5. Sec. Wiessmann (Sent Designee) 6. Chairman Vogler (Absent)
Lots at 23, 27, 31 N. 10th Street	Dec 7, 2018 2018-63	Unanimous with one abstention (Mr. Clancy for Treasurer Torsella)	1. Sen. Browne (Sent Designee) 2. Rep. Markosek (Sent Designee) 3. Sec. Rivera (Sent Designee) 4. Treasurer Torsella (Sent Designee) 5. Sec. Wiessmann (Absent)

The DGS Publications Building	Dec 7, 2018 2018-64	Unanimous with one abstention (Mr. Clancy for Treasurer Torsella)	1. Sen. Browne (Sent Designee) 2. Rep. Markosek (Sent Designee) 3. Sec. Rivera (Sent Designee) 4. Treasurer Torsella (Sent Designee) 5. Sec. Wiessmann (Absent)
PHFA Building	Jan 17, 2019 2019-04	Unanimous with one abstention (Mr. Craig for Treasurer Torsella) and one recusal (Mr. Pandaledis for Sec. Wiessmann)	1. Sen. Blake (Sent Designee) 2. Rep. Bradford (Sent Designee) 3. Sen. Browne (Sent Designee) 4. Rep. Keller (Sent Designee) 5. Sec. Rivera (Sent Designee) 6. Treasurer Torsella (Sent Designee)
Additional Funding for 812 Market, Inc.	Oct 11, 2019 2019-46	Passed with three opposed: Treasurer Torsella, Rep. Ryan, and Sec. Wiessmann	1. Vice Chair Mains (Sent Designee) 2. Rep. Bradford (Sent Designee) 3. Sen. Browne (Sent Designee) 4. Sec. Rivera (Sent Designee)

6. None of the Harrisburg property acquisitions required appraisals, except for the DGS Publications Building.

Real estate appraisals are rarely valuable in property acquisitions because they are notoriously flexible. Further, appraisals are generally required only when a buyer needs third-party financing. PSERS, in contrast, did not require third-party financing for any of its Harrisburg property acquisitions.

Womble's report states that no appraisals were done in connection with the Harrisburg property acquisitions, except for the DGS Publications Building. That is correct. Unlike other transactions, the sale of the DGS Publication Building required legislative approval under 71 P.S. § 651.4 because it was owned by the Commonwealth of Pennsylvania. Any proposed sale of Commonwealth land requires an independent appraisal under 71 P.S. § 651.5(4). The Board did not request appraisals before voting to approve the other acquisitions subject to this investigation, and none were required.

As discussed above, the Harrisburg property acquisitions were driven by operational needs. For example, PSERS bought 812 Market Street in large part because the System needed more office space and parking. An appraisal would not reflect those needs. Nor would an appraisal of one property reflect the aggregate value of contiguous properties near PSERS current headquarters.

In any event, Mr. Grell worked closely with outside advisors and PSERS staff from the Investment Office and Office of Chief Counsel on each transaction. McNees—a firm with institutional knowledge of commercial real estate in Harrisburg—served as PSERS' counsel for each deal. Negotiations were based on PSERS' operational needs, development plans, property assessments, financial statements for lots, environmental reports, and other forms of diligence.[23] PSERS staff and their outside advisors were all comfortable with the purchase price of each property, as were the Board members who approved the acquisitions. Appraisals would have added little or no value to this robust process and would have cost PSERS additional time and money.

#6847112

[23] See, e.g., PSERS_00034635, PSERS_00032968, PSERS_00031652.

Jim Grossman's Response to
"The Risk Share Calculation" report prepared by Womble Bond Dickinson
January 21, 2022

Summary

I have reviewed a 21-page redacted draft report prepared by Womble Bond Dickinson (US), entitled "The Risk Share Calculation." I was not supplied with any other portions of the full report. It is important to note this portion of the report is missing (1) the context of the relationship between PSERS and its general investment consultant (Aon), (2) PSERS' reliance on the investment consultant, and (3) the degree to which PSERS depends on the general investment consultant to calculate the investment returns, including the investment returns reported in the Comprehensive Annual Financial Report (CAFR). The most important points in response to the draft report are as follows:

- The Board relied on the Aon Investment Consulting data and the performance calculations it provided four times to certify the risk share number: (1) 2014; (2) 2017; (3) December 2020; and (4) April 2021.

- In none of the four certifications did the Board use CAFR (Comprehensive Annual Financial Report) values because the investment returns in the CAFR are not audited. Instead, the Board has historically chosen—rightly so in my opinion—to use the investment returns calculated by Aon, the Board's performance consultant. The investment performance numbers in the CAFR are *also* calculated by Aon. PSERS currently does not have the technology or systems to calculate the composite and Total Fund investment returns independently.

- During the public meeting in December 2020, Brian Carl, PSERS' Chief Financial Officer, explained to the Board that the nine-year return calculated from the CAFR was different from the Aon reported investment returns (specifically that it was lower). In other words, the difference existing between the CAFR numbers and the Aon reported investment return was discussed in public session with the Board (what was not then known was that the Aon reported investment returns contained a data error).

- The investment return calculated by Aon for December 2020 and April 2021 was independently certified by the ACA Group. (See attached December 2, 2020 and April 16, 2021 ACA reports.)

- Aon confirmed the return used in the December 2020 meeting multiple times, including on the day of the meeting, stating unequivocally: "we are very confident that the 6.38% reported nine year return is an accurate representation of PSERS' investment returns during the period." (See attached December 3, 2020 email.)

- In the end, all investment performance figures, whether in the CAFR or used for the risk share certification, were Aon calculated investment performance figures.

- Finally, Aon accepted blame for the error in writing on at least two occasions. (See attached March 5, 2021 and April 16, 2021 letters.)

In the remainder of this response, I'll explain these key points and more in greater detail.

<u>Performance Calculations</u>

It is important to note that PSERS relies on investment consultants to, among other things, generate investment performance reports. The investment consultant pulls hundreds of data points together each quarter to generate performance reports. For a multi-asset defined benefit plan such as PSERS generating such reports is a very involved process. Pension plans typically rely on either the custodian bank or investment consultants for official investment performance calculations. PSERS Board retained Aon for two 5-year contracts, the first on October 4, 2013 (PSERB Resolution 2013-44) and the second on August 10, 2018 (PSERB Resolution 2018-39), subsequently re-approved on March 8, 2019 (PSERB Resolution 2019-05a). PSERS pays Aon close to $700,000 a year for their professional services, including performance evaluation and attribution. Aon is one of the largest investment consulting firms in the world. Prior to Aon, PSERS had a 15-year relationship with Wilshire Associates who performed similar services.

PSERS does not currently have the technology or systems to calculate the investment performance for the Total Fund and composites. This is why these responsibilities are outsourced to a qualified, independent, third-party consultant hired by the Board through a competitive bidding process. This said, at present PSERS is endeavoring to build an Investment Book of Record which, once completed, will provide PSERS an independent source of calculating both composite performance and Total Fund performance. This will allow PSERS to fully reconcile performance reports completed in the future. Currently, our reconciliation efforts are focused on individual accounts while reviewing composites, including the Total Fund performance composite, for reasonableness.

In the meantime, PSERS heavily relies on Aon for the calculations. Aon was asked numerous times about the 2nd quarter of 2015 performance, which was revised in the 3rd quarter of 2019 as part of a re-write of the Board's Investment Policy Statement. PSERS representatives were repeatedly assured, in writing, by Aon representatives that the returns were accurate. (See, e.g., the July 30, 2020 email attached hereto, where Aon describes changes to 2015 data as "the result of retroactive adjustments" and not the result of a data error.) I would equate this to an individual repeatedly asking their doctor if there is a health issue and the doctor repeatedly saying “no.” Unfortunately, we later found out that Aon’s assurances were unsupported.

<u>Going to be Close</u>

Going into 2020, PSERS investment returns for the nine-year period were well above the risk share hurdle rate. However, as a result of the COVID-19 pandemic, PSERS’ investment performance took a significant hit in the 1st quarter of 2020 before rebounding in the 2nd quarter of 2020. The first quarter performance pushed the nine-year return well below the risk share hurdle, while the second quarter performance moved it razor close to the risk share hurdle.

In August 2020, Treasurer Joe Torsella sent management a letter inquiring about some changes to historical returns as reported in PSERS’ Comprehensive Annual Financial Reports (CAFR). We had Aon review the differences and comment specifically on the most material difference from fiscal year 2015. Aon reviewed that fiscal year and noted that the investment returns were correct. They also provided similar assurances multiple times, including on December 3, 2020 during the Board meeting. (See attached December 3, 2020 email.) In fact, while the Board meeting was occurring, Aon again assured me of the correctness of the 6.38% calculation, stating: “As you know we are **very confident** that the adjusted returns are accurate reflecting the revised information we received on the valuation and therefore we are **very confident** that the 6.38% reported nine year return is an **accurate representation** of PSERS investment returns during the period.” (Emphasis added.)

Given how close to the hurdle the investment returns were going to be, PSERS proactively hired ACA Group to provide performance certification of PSERS nine-year returns. This certification, issued by ACA in early December (see attached), as well as Aon’s assurances, provided the Board and staff the comfort that the reported investment returns were accurate and certifiable. I would equate this to going to another doctor to get a second opinion. The second opinion in this case was that ACA saw no issues with nine-year returns presented by Aon.

<u>Finding the Error</u>

After the December 3, 2020 Board meeting, in reviewing Aon’s draft 3rd quarter 2020 performance reports, PSERS Investment Office professionals noted an issue with the Absolute Return Composite. Another one of PSERS’ consultants for the Absolute Return Program, Aksia, noted an issue with the 2015 Absolute Return composite returns as well. After the December 3, 2020 Board meeting and into January 2021, Aon researched those concerns and noted issues with other composites from 2015. They traced the issue to cash flows in the 2nd quarter of 2015 (specifically April 2015) and corrected those cash flows. Aon issued the final 3rd quarter 2020 report and stated that only certain **composite** returns were affected and that the Total Fund returns, which are used for the risk share calculation, **were unaffected**. On January 13, 2021, I challenged Aon on cash flow changes to the 2nd quarter 2015 made in Aon's report and requested that they research those (note: the cash flows as reported in the March 2017 quarterly report up through the draft 3rd quarter 2020 report were reasonably consistent for the 2nd quarter 2015). After researching those changes, Aon realized that the updated cash flows in the final 3rd quarter 2020 report were actually correct (incorrect in the previous 14 quarters since this information was first included in the quarterly performance reports) and also that the Total Fund return for the nine-year risk share calculation was overstated by 0.04% (4 basis points).

Aon notified me of this error, **for the first time**, on February 17, 2021. Upon my being informed of the error by Aon, I notified PSERS' senior management. Six PSERS professional staff had a meeting that evening with Aon to discuss the error. PSERS instructed Aon to review every month that wasn't previously reviewed by ACA to determine if there were potentially other errors. The intent of the review was to understand the scope of the problem as either an isolated error or a systemic issue affecting more quarters. Once Aon was 80%+ through that review, finding no other errors, PSERS' senior management had sufficient knowledge to factually inform the Chair and Vice Chair of the Board of the situation on March 3, 2021. The full board was notified at the regularly scheduled meeting on March 5, 2021.

The 0.04% error caused PSERS' reported nine-year return to fall from 6.38% to 6.34%. Normally, a revision of return this small would be considered immaterial; however, given the proximity to the risk share benchmark, risk share was triggered. The Board recertified the member contribution rates on April 19, 2021 (PSERB Resolution 2021-16) effective for July 1, 2021, using Aon's updated nine-year performance figure with ACA's updated performance verification.

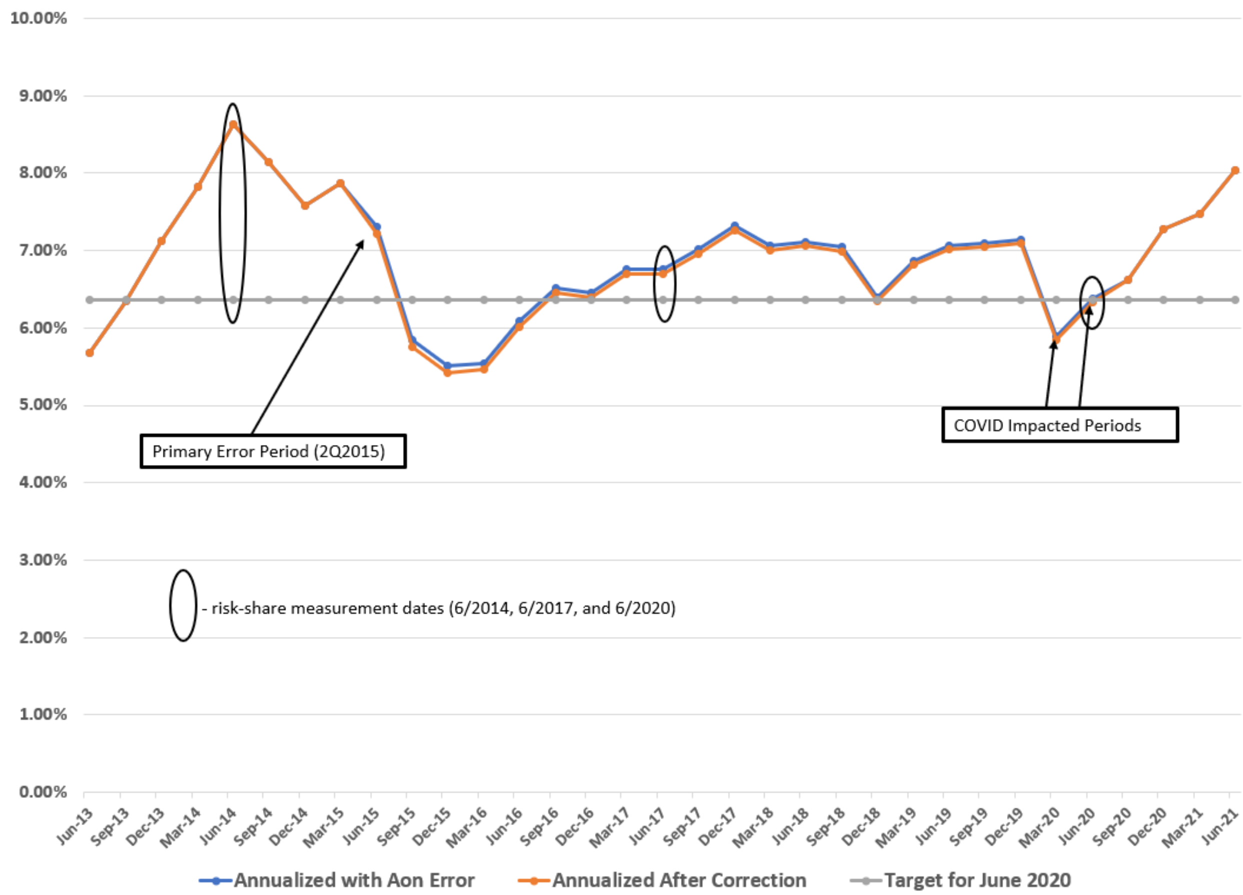
<u>Aon Accepts Responsibility</u>

Multiple times verbally and in writing, Aon accepted responsibility for "what very much appears to have been a clerical data-entry mistakes, however unfortunate." Letters from Aon, which include the preceding statement, were presented to the Board for use in their deliberations. (Copies of a March 5, 2021 letter from [redacted], Aon, and April 16, 2021 letter from [redacted], Aon Investments USA Inc. are attached.) It is further worth noting that but for the persistent inquires and efforts of myself and the Investment Office staff from December 2020 to February 2021, the error may not have been found. That is, the error was not discovered in spite of staff, but because of our collective commitment to get the numbers right, no matter the consequences.

Context of Error

The following chart shows the magnitude of the investment performance error:

PSERS Cumulative Rolling Annual Net of Fee Returns Since July 1, 2011



The blue line shows the returns with the 2nd quarter 2015 Aon error while orange line shows the corrected returns. Two things to note from this chart:

1. PSERS investment returns were well above the risk share hurdle up until the COVID-19 pandemic impact; and

2. The two lines are almost indistinguishable during most of the period.

If risk share would have been calculated at any other time than June 30, 2020, it would have been clear cut whether risk share was triggered with or without the data error in the results.

Investment Returns Presented in the Comprehensive Annual Financial Report (CAFR)

PSERS financial statements are audited annually by a qualified independent public accounting firm (currently, CliftonLarsonAllen LLP). The Investment Section, a part of the financial statements, includes investment performance numbers sourced from Aon's Quarterly Investment Review report, which contains performance for the total fund, composites, and individual accounts. It is important to note two things about the investment performance reported in the CAFR:

1. The performance information presented comes directly from the Board's Investment Consultant's performance books each year (currently Aon); and

2. Those investment returns are not audited by the accounting firm, as noted by the following language in the Independent Auditors' Report:

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

Some people have misrepresented or inappropriately assumed that the investment returns in the CAFR are audited; however, as a matter of procedure, they are not audited. Aon's reported investment performance for any previous fiscal year can be superseded by adjustments after the CAFR is issued causing a difference to returns previously reported in the CAFR. This occurred when the Investment Policy Statement was revised by the Board in 2019 and the investment performance reports were restructured to match the updated Board-approved policy. As such, none of the published investment returns in the CAFRs were subjected to ACA's certification procedures. ACA's certification procedures were focused on the most up-to-date investment returns, which were reported in Aon's Quarterly Investment Review report.

Aon is currently the firm that presents the official investment results to PSERS. These results were used to certify the final employee contribution rate in April 2021. That rate went into effect July 1, 2021 in accordance with the Shared Risk provisions of PSERS' Retirement Code.

Womble Bond Dickinson (US) Risk Share Calculation Report

The 21-page Risk Share Calculation report that I reviewed was prepared by Womble Bond Dickinson. I was provided a redacted version of the report on January 7, 2022 and afforded the opportunity to review and comment to address any factual errors or misconceptions; I was not supplied any other portion of Womble Bond's report. For the record, I had one live interview with the Womble Bond team on August 30, 2021 as well as an opportunity to provide answers to a limited number of written questions in December 2021. I made myself available for further interviews, but as of the date of this response, Womble Bond has not found acceptance of the open invitation necessary. Separately, attached to this response is a copy of a letter dated January 12, 2022 addressed from my counsel at Kleinbard LLC to Womble Bond, identifying various issues with the then-draft report as it had been provided to me (i.e., with various redactions). As I write this response, I have no knowledge as to whether the issues noted in the letter from my counsel were reflected in the final report issued by Womble Bond.

Conclusion

Our goal in the Investment Office is to present the most accurate information to the Board, including investment returns. We present the pertinent facts as they become known to us. Per the record of events chronicled in this response, PSERS Investment Office at large, and I in particular, responded to these facts to ascertain the pervasiveness and to remedy the erroneous circumstances. When inconsistencies in Aon's performance report were noted, questions were asked of Aon. When Aon verified the nine-year Total Fund performance figure twice, this expert opinion was reported to the Board only after receiving assurances from a second consultant, ACA Group, that the figure was correct. When Aon later reported errors in the Total Fund performance, staff in the Investment Office and the Office of Financial Management immediately and collaboratively worked with Aon to determine the scope of the error. As soon as Aon provided sufficient data supporting a singular data entry error and the impact on previously reported Total Fund performance used in the risk share calculation, PSERS Chair and Vice Chair of the Board were notified.

Ultimately, the Board received the most accurate nine-year investment return for risk share purposes; unfortunately, the accurate calculation took a few months longer than it should have. As noted above, the error came to light due to continued attention to the matter by dedicated PSERS staff, not in spite of us. In the end, while the error was unfortunate and burdensome, it was caught, corrected, and its origins—an error self-admitted by Aon—quickly identified.

Attachments to Grossman Response

Attachment 1

PA Public School Employees' Retirement System Independent Performance Certification Report

June 30, 2020

ACA
COMPLIANCE GROUP
PERFORMANCE SERVICES

ACA
COMPLIANCE GROUP
PERFORMANCE SERVICES

Independent Performance Certification Report

PA Public School Employees' Retirement System

The following report issued by ACA Performance Services division of Adviser Compliance Associates, LLC ("ACA") is for an independent performance certification of the accompanying Schedule A of the **PA Public School Employees' Retirement System Total Fund** (the "Total Fund") for the periods from July 1, 2011 through June 30, 2020. The Total Fund is managed by PA Public School Employees' Retirement System ("PSERS"). PSERS is responsible for the performance within Schedule A and for calculating performance in accordance with the criteria set forth in the Notes to the Schedule A.

Scope of Work
ACA examined, on a sample basis, whether the investment performance return set forth on Schedule A for the Total Fund is calculated in accordance with the methodologies which were provided by PSERS to ACA, as set forth in the Notes to the Schedule A. Our review was designed to provide reasonable, but not absolute, assurance to PSERS that the performance returns for the Total Fund have been calculated consistent, in all material respects, with the methodology assumptions set forth in the Notes to the Schedule A. In conducting our review, ACA relied on the data and records provided to us by PSERS and was not retained to, and has not attempted to, independently confirm the authenticity and accuracy of those data and records. PSERS remains ultimately responsible for the accurate calculation and presentation of its performance returns.

Conclusion
Based on the methodology assumptions set forth in the Notes to the Schedule A, and our sample testing, we conclude that the performance return presented in the Schedule A for the Total Fund for the periods from July 1, 2011 through June 30, 2020, has been calculated in accordance with the criteria set forth in the Notes to the Schedule A, in all material respects.

Schedule A and the Notes to the Schedule A are attached hereto, are incorporated herein, and are a material part hereof.

Adviser Compliance Associates, LLC

Adviser Compliance Associates, LLC
ACA Performance Services Division
December 2, 2020

ACA Performance Services 1370 Broadway, 12th Floor New York, NY 10018
Phone: (212) 951-1030 www.acacompliancegroup.com/aca-performance-services

PA PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM

1. ANNUALIZED RESULTS

SCHEDULE A

Period Ending	9-Year Annualized Net Return
7/1/2011 - 6/30/2020	6.38%

NOTES TO THE SCHEDULE A – PAGE 1 OF 2

2. CALCULATION METHODOLOGIES

The performance for the PA Public School Employees' Retirement System Total Fund (the "Total Fund") is prepared using the following methodologies consistently. Other methods may produce different results.

- For the period 7/1/11-6/30/13 Total Fund performance was calculated using a time-weighted return methodology on a quarterly basis by Wilshire Associates. All external cash flows are assumed to occur at the midpoint of each quarterly reporting period.
- For the period 7/1/13-6/30/20 Total Fund performance was calculated using a time-weighted return methodology monthly by Aon. All external cash flows are weighted on the day that they occurred. In instances where an external cash flow is greater than 10% of the Total Fund market value, the Total Fund is re-valued and sub-period performance is calculated. Sub periods of performance will be geometrically linked to arrive at a monthly performance return.
- Periodic returns are geometrically linked and annualized to arrive at the 9-year annualized net return.
- Total investment performance includes realized and unrealized gains and losses, dividends, and interest.
- Trade date accounting is used for calculation and valuation purposes.
- Underlying investments are valued based on the following criteria:
  - a) For separate accounts in public market investments, PSERS uses the valuation provided by the custodian on the last calendar day of the month.
  - b) Commingled Liquid Public Market Funds are valued at net asset value (NAV) as reported by the fund managers. In instances where an estimated NAV is not available, the prior month NAV will be carried forward and adjusted for any periodic cash flow activity.
  - c) For Private Market Investments, PSERS uses the most recent quarterly capital balance statement. All quarterly capital balance statements are reported on a one quarter lagged basis, except for Private Credit which is not lagged.
- Performance is shown net of transaction costs and is presented net of investment advisory fees paid to external separate account and pooled fund managers. Investment management fees and performance fees are accrued, as applicable.
- Net of fee performance is calculated using actual management fees.
- The U.S. Dollar is the currency used to express performance.

NOTES TO THE SCHEDULE A – PAGE 2 OF 2

3. OTHER

Past performance is not indicative of future results.

Because we did not perform a detailed review of all of PSERS's book and records, and our review was limited as described in this report and/or in our agreement with PSERS, there is a risk that material issues or deficiencies were not detected during the course of our review or that the investment performance shown herein is not in fact calculated accurately.

The Independent Performance Certification Report and Schedule A are attached hereto, are incorporated herein, and are a material part hereof.

Attachment 2

ACA Group
1370 Broadway, 12th Floor, New York, NY 10018
T +1 212.951.1030

PA Public School Employees' Retirement System
5 N 5th Street
Harrisburg, PA 17101-1905

Dear PSERS:

In October of 2020, ACA was engaged to perform a performance calculation review of PSERS' total fund track record in accordance with PSERS' methodology. All testing procedures and delivery of ACA's performance certification report was due by the Thanksgiving holiday. An overview of the engagement is as follows:

Phase 1: Discovery Phase

ACA conducted a series of interviews remotely with PSERS staff and representatives from Aon, PSERS' performance consultant, to conduct the discovery phase. Discussions covered the following:

1. General knowledge sharing of ACA's process, as well as a detailed review of PSERS' investment performance process framework and reporting processes
2. Interviews with relevant employees, as necessary, to gain an understanding of the current processes and procedures used to generate performance results used in performance reports
3. In-depth discussion and review of performance policies, procedures, processes, and controls to better understand:
    a. Reconciliation procedures including discussions of how all inputs (monthly transactions, cash flows, income, fees/expenses and valuations) are classified within the Aon system
    b. Procedures and methodologies used for calculating returns
    c. Process for gathering and maintaining books and records support from third parties

4. Discussion of record keeping requirements/access to records that support the performance, including an analysis of PSERS/Aon's ability to retrieve documentation on a timely basis

Phase II: Testing Phase

ACA performed a performance calculation review of PSERS' total fund track record for the period from July 1, 2011 through June 30, 2020. On a sample basis, 40 monthly performance returns were reviewed and replicated. Specifically:

Cash Flow Input Checks

For the cash flow input checks, ACA checked one day's flows from each sampled month. ACA compared the flows in the PSERS Total Fund Cash Flows spreadsheet to the BNYM Audited Statements pdfs. For the cash flows that were not found in the audited statements pdfs, ACA requested additional support. This was provided in the form of capital call/distribution pdfs and PSERS Cash Management pdfs and Private Equity and Real Estate spreadsheets.

April 2015 was not one of the months in ACA's sample selection and therefore ACA did not detect missing cash flows in the Aon calculations for that month. ACA selected May 2015 for testing and reconciled the ending market value.

Market Value Input Checks

For the market value input checks, ACA checked the ending market values for each of the sampled months. ACA compared the market values in the PSERS Total Funds Assets by Account Monthly to the BNYM Audited Statements. ACA checked that these values were within 2.5% threshold.

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Total Fund Calculations

ACA evaluated and tested that total fund returns were calculated accurately and in accordance with PSERS'/Aon's established policies and evaluated and tested that period returns were properly linked. All performance calculation information was provided to ACA by Aon.

ACA originally replicated the monthly total fund returns for each of the sampled months and tied these to the PSERS Total Fund Returns spreadsheet. ACA found two errors in calculation testing - the 3/31/2014 return ACA calculated was 5 bps higher and the 10/31/2015 return ACA calculated was 5 bps lower. Because AON was unable to detail the reason for these differences, ACA went back and replicated all the monthly returns from 7/31/2013 - 6/30/2020, using market values and cash flows provided by Aon, after receiving approval from PSERS for the additional procedures. ACA found no errors in the additional testing and the differences in March and October did not impact the since-inception return. Additional testing caused a slight delay in delivery of the performance certification report until December 2, 2020.

For the quarterly returns from July 1, 2011 through June 30, 2013, ACA replicated the quarterly returns for 3Q11 and 1Q12. ACA used the total cash flows obtained from Wilshire and used Original Dietz for the calculation since the original methodology and actual cash flow dates were not available. ACA compared the beginning and ending market values from Wilshire Reports to the BNYM Audited Statements.

ACA then geometrically linked the quarterly returns in the PSERS Total Fund Returns spreadsheet to confirm the nine-year return of 6.38%.

At the conclusion of ACA's review, ACA issued a performance review statement.

Events and Procedures Subsequent to the December 2, 2020 Issuance of the ACA Performance Certification Statement

On February 18, 2021, ACA was informed that errors in Aon's source data for April, May, and September of 2015 were discovered, causing questions about the nine-year return of 6.38%. We understand that the only performance periods with an effect on the overall return appear to be April and May of 2015. We also understand that Aon has indicated that the cause of the error was a human mistake and multiple cash flows that should have been factored into the monthly performance calculation were omitted, resulting in an erroneous total fund ending market value for April 2015 and the returns for those two months. Because the ending market value for any given month is rolled forward to the next month and serves as the beginning market value for the next performance period, this caused an impact to the performance for May 2015. However, we are not aware of any issues with the cash flows or ending market value for May 2015. On April 16, 2021 ACA became aware of minor errors with Aon's data for the months of February and May 2020 but they did not impact the overall return calculation.

Because of the identified error, PSERS staff asked ACA to conduct additional testing on the cash flows used in the performance calculation for April 2015, test the May 2015 beginning market value and update the calculation for the return for the nine years ended June 30, 2020 as needed. To do this, ACA followed the process described above, whereby cash flows in Aon's performance system were reconciled to underlying support.

For public market investments this included comparing the Aon-listed cash flows to the cash flows found in the BNYM Audited Statements for April 2015. ACA was able to reconcile all cash flows.

For any private market investments further testing included comparing the private cash flows per PSERS to support like records from BNY Mellon. These cash flows are recorded on a lagged basis for performance purposes; therefore ACA was able to reconcile all private market flows to the January 2015 BNYM Audited Statements.

ACA was able to validate the new beginning May 2015 NAV based on the revised April 2015 cash flows. The market values in the PSERS Total Funds Assets by Account Monthly, compared to the BNYM Audited Statements, were 2.58% higher. In addition, ACA recalculated performance, based on

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the revised NAVs and cash flows, for both April 2015 and May 2015 and matched the revised performance that was calculated by Aon. Finally, using the updated information for April 2015 and May 2015, ACA calculated a 6.34% nine-year return for the period ended 6/30/2020.

ACA Group

ACA Group, Performance Services Division

April 16, 2021

Attachment 3

Message

From: Grossman, James [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=2FA926AF7443432B8D6CCEFE1BC2457C-JGROSSMAN]
Sent: 12/3/2020 10:17:44 AM
To: [redacted]@aon.com]
Subject: RE: [External] Re: 9 Year CAFR Returns

I agree with that and that, based on the latest and most accurate information, the 6.38% is the correct 9-year number. Just want to be ready if the question comes up again or if someone calculates by hand the returns from the CAFR using sub-optimal information. Brian was right...our job it to present the most accurate return, not ignore past adjustments which were necessary to provide the most accurate return information for the decision makers.

James H. Grossman, Jr., CPA, CFA
Chief Investment Officer
Commonwealth of Pennsylvania, Public School Employees' Retirement System
Phone: 717-720-4703
Fax: 717-787-9527
email: jgrossman@pa.gov

« "There are decades where nothing happens, and there are weeks where decades happen." – Vladimir Lenin »

« "These days everyone has the same data regarding the present and the same ignorance regarding the future." – Howard Marks »

« "Get your facts first, then you can distort them as much as you please." – Mark Twain »

« "Wrong does not cease to be wrong because the majority share in it." – Leo Tolstoy, *A Confession* »

« "Repeating a lie over and over does not make it true." – Jeffrey Immelt, CEO of GE »

« "When the facts change, I change my mind. What do you do?" – John Maynard Keynes »

From: [redacted]@aon.com>
Sent: Thursday, December 3, 2020 10:10 AM
To: Grossman, James <jgrossman@pa.gov>
Subject: [External] Re: 9 Year CAFR Returns

I was just checking the calculation using the CAFR reported returns as well. I concur with your calcuation for the nine year return using the CAFR returns.

As you know we are very confident that the adjusted returns are acurate reflecting the revised information we received on the valuation and therfore we are very confident that the 6.38% reported nine year return is an accurate representation of PSERS' investment returns during the period.

From: Grossman, James <jgrossman@pa.gov>
Sent: Thursday, December 3, 2020 10:06 AM
To: [redacted]@aon.com>
Subject: 9 Year CAFR Returns

[redacted]

Please check a recalculated 9-year annualized return using linked annual returns as follows:

2012: 3.43%
2013: 7.96%
2014: 14.91%
2015: 3.04%
2016: 1.29%
2017: 10.14%
2018: 9.27%
2019: 6.68%
2020: 1.11%

I get 6.337%, but wanted you to check it.

Thanks,

James H. Grossman, Jr., CPA, CFA
Chief Investment Officer
Commonwealth of Pennsylvania, Public School Employees' Retirement System
Phone: 717-720-4703
Fax: 717-787-9527
email: jgrossman@pa.gov

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« "When the facts change, I change my mind. What do you do?" – John Maynard Keynes »

Attachment 4

March 5, 2021

Mr. James Grossman
PSERS
5 Fifth Street
Harrisburg, PA 17101

Dear Jim:

Subject: **Data Corruption of April 2015 Performance Data**

In the process of reconciling some prior year asset class composites with PSERS investment staff in mid- December 2020, Aon has become aware of data corruption in some sub-composite market values, cashflows and returns for the month of April 2015. This data corruption was due to an error by an analyst in uploading NAV and cashflow data from the BNY system into the PARis performance system Aon uses.

This data corruption impacted a few asset class composites in the public markets. After exhaustive forensics and comparisons of the data, we did uncover a cashflow discrepancy which when recalculated does result in a change in the Total Plan composite returns for April and May. Unfortunately, due to this error, the FY and CY 2015 returns for several of the asset class composites and Total Plan were inaccurately reported in the June 30, 2020 report.

Background

As part of the quarterly performance process Aon uploads asset values and cash flows from BNY Mellon using a system uploader to PARis, the third-party performance reporting system utilized by Aon. After finalizing the annual 2015 report it appears that an incomplete erroneous upload was made for April 2015 data which overwrote the cashflows and Net Asst Values for several accounts, corrupting the cash flow and market value data for several accounts. While the exact timing and nature of this erroneous upload is unclear, Aon has isolated the time for the upload between October 2016 and March 2017. It appears that in attempting to update one account with revised market values and cashflows, the analyst erroneously uploaded incorrect data into other accounts overwriting and corrupting the data for April 2015. The impact of the corrupted data resulted in an overstatement of net cashflows by $311.0 million which includes a re-statement of $475.9 million from May 2015 to April 2015 for a net understatement of $165.8 million in cashflows for the second quarter of 2015.

When running the Quarterly report, the PARis system calculates returns for the month or quarter based on the market values and cashflows for that month and quarter only. Historical monthly and quarterly returns are not re-calculated every quarter unless Aon specifically goes back to revise a past monthly return. As a result, the error in the cashflows and market values was not readily apparent in the quarterly reconciliation process as the April 2015 return was not recalculated with this "new" data until Aon re-calculated the April 2015 monthly data as part of its process of re-structuring the Performance Report during the first fiscal quarter of 2020 in September 2019. This recalculation was related to the restructuring of the performance composites and the revision of historical data for the Bain Managed Account investment due to updated market values and cashflows provided by Bain. By re-calculating the Total Fund Composite to capture all revisions, Aon also unintentionally captured the erroneous data for April 2015 which had been uploaded previously.

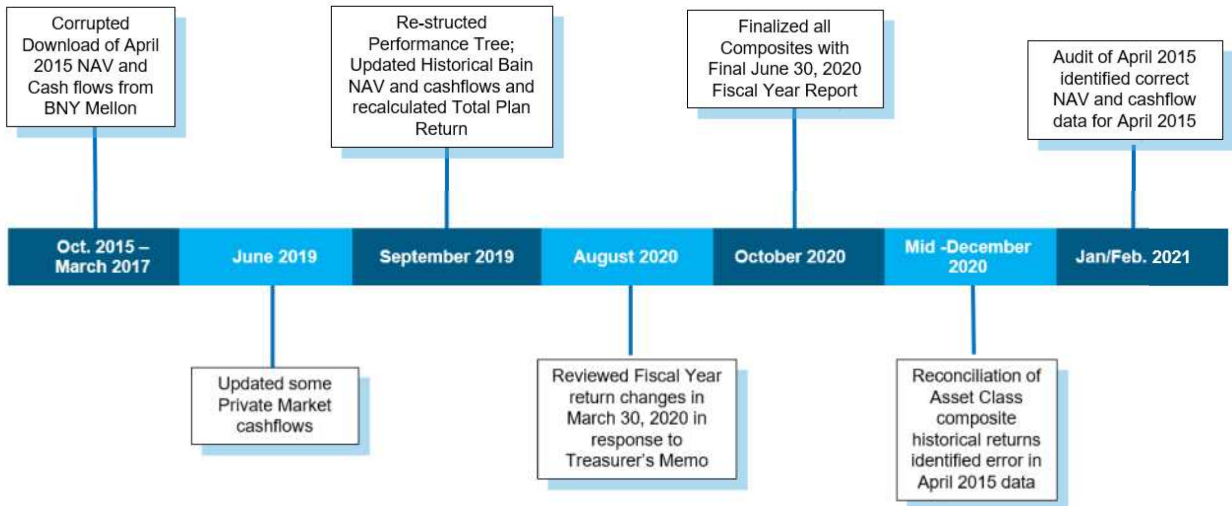
In August 2020, Aon responded to questions regarding the change in the fiscal year returns in the March 31, 2020 performance report versus prior performance reports and the CAFR reports. In this review of returns Aon conducted a review of the currently reported returns to confirm the calculations. For all Fiscal Year returns, Aon reconfirmed the calculation of the Total Fund returns were correctly calculated based on the NAVs and cashflows reported on the PARis system. All but three of the Fiscal Year returns had only modest (less than 5 basis points difference in returns). For Fiscal Year 2015 which had a 37-basis point change, Aon did a more detailed review of the returns and the changes in both the Total Plan and sub-composites versus the CAFR. As part of this review process Aon:

- Re-reviewed the return calculations for Fiscal Year 2015 and verified that the revised returns as reported in the March 31, 2020 report were correctly calculated based on the new revised NAVs received for some private market funds after the fiscal year close.
- Confirmed that there had been revisions to the market values and cash flows for some Private Credit and Commodity funds which had resulted in changes to the returns of these composites and the Total Fund.
- Reviewed the Historical Schedule of Investments in all prior quarters and confirmed that the NAVs and cashflows were the same until the changes were made in 2019 to the Private Credit and Commodity composites.
- Reviewed the changes made in September 2019 to the performance tree as part of the performance report alignment to the new Investment Policy Statement which had resulted in the re-calculation of several composites.

Our review of reports from 2019, 2018 and 2017 did not uncover any other material changes to returns or cashflows. As this review did not uncover any miscalculations of returns nor any material changes to the market values or cash flows for the period other than those known in the Private Credit and Commodity composites, Aon did not review the cashflows on the PARis system versus the source statements at this time.

When finalizing the June 30, 2020 quarterly performance report, Aon finalized all outstanding composites resulting in the recalculation of the sub-composites with the now updated cash flows resulting in changes to the underlying composites. In mid-December 2020, Aon received questions regarding the changes to these sub-composites. As part of the investigation of these changes, Aon did identify an issue with April 2015 data and began a process of reconfirming all NAVs and cashflows for the period versus the source statements.

Timeline



Aon Reconciliation Process

Aon reconciles the calculated rates of returns for Separate Accounts monthly with the Custodian Bank and Investment Managers. External Portfolio Managers fill out Aon's template for monthly performance (gross and net) and market value and provide to Aon as soon as monthly data is finalized.

Aon reconciles monthly returns for the System's internally managed portfolios with those provided by Staff. Aon reconciles market values, cash flows and performance for all separate accounts with the Custodian Bank's reports for the current month and quarter. Any differences in these amounts will be worked out between the Custodian and Aon. Any exceptions and discrepancies deemed material will be brought to the attention of PSERS Staff. Reasons for deviations are documented accordingly. Aon reconciles the calculated rates of return for Commingled Funds (i.e. Absolute Return) for the current month with the Specialty Consultant and PSERS Staff. The Specialty Consultant will provide a spreadsheet with NAVs and returns which Aon will reconcile with their NAVs and returns. Any differences in these amounts will be resolved between the Consultants. Any exceptions and discrepancies deemed material will be brought to the attention of PSERS Staff. Reasons for deviations are documented accordingly.

Aon reconciles the calculated rates of return for non-marketable accounts for the current quarter with PSERS' Private Market Team and the Specialty Consultants. Given the nature of revisions, some adjustments to prior quarter (within a fiscal year) market values and returns are addressed each quarter as well.

Cash flows are sourced from the Custodian statements for all accounts except the Private Markets. PSERS staff provides a spreadsheet quarterly for all cash flows related to the Private Market Composites. For any cash flow where the cash is transferred out in one month and not invested into the fund until the following month (subscription/settlement date), the cash flow date on Aon's records will be the last day of the month (with the cash flow) to minimize the impact on performance. This adjustment is necessary because the cash is not invested in the fund until the subscription date (so the cash does not start earning a return until the subscription date).

Quarterly Report Review Process

1. Once all market values and returns are reconciled for each account (excludes Private Markets) as described above, Aon runs an initial monthly flash each month and confirms the returns match the reconciliation before providing the report to PSERS staff.
2. Staff notifies Aon of any additional account restatements, terminated and new accounts, and/or changes in performance benchmarks.
3. Aon makes the necessary revisions and provides a revised report.
4. Upon final reconciliation and review of reports by Staff, Aon finalizes the monthly report and distributes to PSERS.
5. On the quarter end, once the Public Market monthly report is finalized, Aon reconciles the Private Markets NAVs, cashflows and returns as described above and distributes the draft Quarterly Report to PSERS for review and reconciliation.
6. Aon finalizes the Quarterly report upon the completion of all revisions to the Quarterly Report.

Process Improvements Implemented in 2020

As a result of the identification of this error, Aon has instituted several process improvements to ensure that this type of error does not occur again.

1) Upon final approval of the Fiscal Year Report, Aon will lock all monthly and quarterly returns in the PARis system for asset class and Total Plan composites. Aon has identified a way to permanently lock all returns for all composites and the Total Plan once the full fiscal year report is finalized so the prior returns will not be re-calculated.
2) Aon has created an additional reconciliation step which will require the manual verification and sign off that all historical period cashflows, market values and returns are unchanged from prior reports. A new reconciliation spreadsheet will pull all historical market values, cashflows and returns as reported in the Schedule of Investments and confirm that all historical period information is unchanged from the prior report. Any changes to any market values and/or returns will be investigated and corrected as needed. This process will verify all quarterly periods summary data back to September 2013, the earliest period for the data on the PARis system
3) Process improvements have already been implemented with the finalization of the June 30, 2020 report whereby no revisions to prior fiscal year periods will be made. All revisions to market values or cashflows for any account will be made in the current fiscal year and be documented.

Comparison of Historical Quarterly Schedule of Investable Assets for June 2015, as Reported by Quarter, and Impact of Total Fund Return Revision

Note: This schedule was a new page added to the March 2017 Performance Report and was not reported in previous quarterly reports.

Report Date	Beginning MV	Contributions	Withdrawals	Net Cash Flow	Net Gain/Loss	Ending MV	Net Return	Comments
Jun-15	**52,294,922.85**			**(643,300.00)**	**(258,300.00)**	**51,393,429.00**	**-0.5**	**June 2015 Quarterly Report as originally reported**
Mar-17	52,294,922.85	5,787,431.23	6,617,330.32	(829,899.09)	(70,928.87)	51,394,094.90	-0.5	
Jun-17	52,298,800.27	5,787,431.23	6,620,947.13	(833,515.90)	(71,189.47)	51,394,094.90	-0.5	
Sep-17	52,298,800.27	5,787,431.23	6,620,947.13	(833,515.90)	(71,189.47)	51,394,094.90	-0.5	
Dec-17	52,298,800.27	5,787,431.23	6,620,947.13	(833,515.90)	(71,189.47)	51,394,094.90	-0.5	
Mar-18	52,298,800.27	5,787,431.23	6,620,947.13	(833,515.90)	(71,189.47)	51,394,094.90	-0.5	
Jun-18	52,298,800.27	5,787,431.23	6,620,947.13	(833,515.90)	(71,189.47)	51,394,094.90	-0.5	
Sep-18	52,298,800.27	5,787,431.23	6,620,947.13	(833,515.90)	(71,189.47)	51,394,094.90	-0.5	
Dec-18	52,298,800.27	5,787,431.23	6,620,947.13	(833,515.90)	(71,189.47)	51,394,094.90	-0.5	
Mar-19	52,298,800.27	5,787,431.23	6,620,947.13	(833,515.90)	(71,189.47)	51,394,094.90	-0.5	
Jun-19	52,298,800.27	5,794,431.23	6,620,947.13	(826,515.90)	(78,189.47)	51,394,094.90	-0.5	Updated some PE cash flows
Sep-19	52,306,553.66	5,794,431.23	6,620,947.13	(826,515.90)	(85,942.86)	51,394,094.90	-0.2	Re structured Performance Tree, updated Bain Market Value Changed Net Gain Loss and Recalculated Total Plan
Dec-19	52,306,553.66	5,794,431.23	6,620,947.13	(826,515.90)	(85,942.86)	51,394,094.90	-0.2	
Mar-20	52,306,553.66	5,794,431.23	6,620,947.13	(826,515.90)	(85,942.86)	51,394,094.90	-0.2	
Jun-20	52,306,553.66	5,794,431.23	6,620,947.13	(826,515.90)	(85,942.86)	51,394,094.90	-0.2	
Sep-20	52,306,553.66	7,961,320.75	8,614,552.89	(653,232.14)	(259,226.63)	51,394,094.90	-0.2	**Total Plan Return frozen;recalculation of cashflows results in a -0.5% return**

Audit of Aon Returns

As part of the performance audit conducted by ACA in November 2020, Aon provided ACA the historical market values and cashflows residing on the PARis system for all months going back to July 1, 2013 and quarterly market value data for the period July 1, 2011 through June 30, 2013. ACA tested the calculation of all monthly returns from July 2013 and was able to independently calculate all monthly returns within the tolerance range set by the audit. The recalculation of the April and May 2015 returns as part of the Sept. 30, 2019 performance report had aligned Aon's calculated returns with the cashflows on the system so ACA calculated the same return as reported by Aon in June 2020.

As part of the audit, ACA did test 40 of the 84 monthly periods from July 2013 and June 2020 including six months in Fiscal Year 2015. ACA independently verified the cash flows on PARis to the source BNY statements and the Private Market spreadsheets for these 40 months tested.

Subsequent to the identification of the data error, Aon is conducting its own audit of the remaining 44 monthly returns by re-confirming all the cashflows on the PARis system with the BNY Mellon data and the Private Market source datasheets. Aon has completed verifying 83% of the 24,000 cashflow line items. To date, the only other difference identified is a $10.3 million net cashflow adjustment for September 2015.

Impact of Correction on Total Plan Returns

With the correction of the NAVs and the contribution and distribution cashflows for the month of April, May and September 2015, the returns would be corrected as described below.

	Corrected	Reported	diff
6/30/2015	-1.25%	-1.25%	0.00%
5/31/2015	-0.11%	1.05%	-1.17%
4/30/2015	0.87%	0.04%	0.84%
2Q15	-0.50%	-0.17%	-0.33%
9/30/2015	-1.12%	-1.10%	-0.02%
8/31/2015	-2.81%	-2.81%	0.00%
7/31/2015	-0.13%	-0.13%	0.00%
3Q15	-4.02%	-4.00%	-0.02%

As a result of the recalculated quarterly returns for 2Q2015 and 3Q2015, the nine-year return ended June 30, 2020 is 6.34%, a 4-basis point decline from the originally reported nine-year trailing return.

Conclusion

Aon sincerely regrets the error in the prior reported finalized June 30, 2020 quarterly report. Aon is constantly reviewing our processes to identify areas for potential error in order to develop appropriate reviews and checks to eliminate the opportunity for human error. As noted above, we have worked to install additional locks on the data as well as a new reconciliation process for all historical market value, returns and cashflows reported in the quarterly report in addition to the existing detailed reconciliation process for the current period. In addition, Aon's Error Committee will be formally reviewing the performance process and this error to evaluate any additional process changes that can be made to further improve the process and further eliminate the impact of human error on the performance calculation process.

Aon takes very seriously its role in calculating accurate returns for the System. As a result of the identification of this error, we have embarked on a reconfirmation of the cashflows in the PARis system for all months not already verified in November 2020 as part of the ACA audit. To date we have not uncovered any other error.

Sincerely,

Claire P. Shaughnessy, CFA
Partner

Attachment 5

April 16, 2021

Mr. James Grossman
PSERS
5 Fifth Street
Harrisburg, PA 17101

Subject: **Performance Reporting Data Review**

Dear Jim:

I write further to Aon's letter of March 5, 2021, in which we endeavored to report and detail, based upon our review as of that time, the data errors discovered in the April, May and September 2015 returns. The purpose of this letter is to update PSERS on our continued review and our process of identifying and reconciling any other asset class composite errors in prior returns. Aon understands PSERS urgent need for information here and, indeed, Aon shares that sense of urgency. The comprehensive review instituted by Aon that is described below has been specifically calculated to be as exhaustive as possible. Aon reports here the best available information yielded by its review. Aon fully understands that its responsibility to report to PSERS is ongoing and will supplement the information related here when and to the extent appropriate and, of course, as may be responsive to any questions PSERS may have. It is important to note that all indications are that the issues here reflect inadvertent clerical mistakes at a data-entry level.

As described in detail below, we have reviewed and analyzed performance calculations, market values and cash-flow data on Aon's performance system versus all prior monthly and quarterly reports issued by Aon since the inception of our engagement in November 2013. Moreover, in addition to the recent auditing performed by ACA for 40 of the months within Aon's engagement, Aon has reconfirmed the cash flow data for 46 months (our review has overlapped with ACA's audit for two months – May and September of 2015), for a total review of 84 months between July, 2013 and June, 2020, to the original custodian and private market spreadsheet source data.

Our review and analysis of nearly 24,000 cash-flow items in the above-mentioned months identified 3 additional missing cash-flow data points in February 2020 and May 2020. Corrected returns for these two months to take into account the missing cash-flow data points result in a less than a one basis point adjustment. Such deviations are within the tolerance ranges that are common in industry practice and consistent with Aon and PSERS Performance Standards Manual.

<u>Impact of Correction on Total Plan Returns</u>

The overall 5 (out of 84) monthly returns in which Aon identified an apparent clerical data entry error result in corrections to the Net Asset Values (NAVs) and cash-flow data on our system for those 5 months. Aon previously disclosed the impacted returns for April, May and September 2015 in our March 5, 2021 letter to PSERS. The correction to the February 2020 return is 0.008% and the correction to

May 2020 is 0.006%. The impact to these monthly returns and the related quarterly returns are detailed in the table below.

	Corrected	Reported	diff
6/30/2015	-1.248%	-1.248%	0.000%
5/31/2015	-0.112%	1.053%	-1.165%
4/30/2015	0.872%	0.036%	0.836%
2Q15	-0.499%	-0.172%	-0.326%
9/30/2015	-1.120%	-1.099%	-0.021%
8/31/2015	-2.810%	-2.810%	0.000%
7/31/2015	-0.128%	-0.128%	0.000%
3Q2015	-4.021%	-4.001%	-0.020%
3/31/2020	-7.010%	-7.010%	0.000%
2/28/2020	-1.832%	-1.841%	0.008%
1/31/2020	0.559%	0.559%	0.000%
1Q2020	-8.204%	-8.212%	0.008%
6/30/2020	-0.317%	-0.3170%	0.000%
5/31/2020	1.981%	1.9753%	0.006%
4/30/2020	4.029%	4.0287%	0.000%
2Q2020	5.753%	5.747%	0.006%

As a result of the recalculated quarterly returns, we believe that the nine-year return ended June 30, 2020 is 6.34%, a 4-basis point decline from the originally reported nine-year trailing return.

Summary of Performance Review Process

There are 84 months of cash-flow data on Aon's performance system for the period of Aon's retention: July 2013 through June 30, 2020. Aon's review of the cash-flow data for this time period has involved the following process:

1. Identifying 46 months to be reviewed (the previously impacted months plus 44 months not already reviewed by ACA as part of their audit in November 2020 -- see Attachment 1;
2. Extracting all cash-flow items for the tested 46 months from the performance system;
3. Downloading all cash-flow items for the tested 46 months from the BNY system;
4. Matching cash-flow items from the two downloads; and
5. Reviewing and reconciling the resultant cash-flow items to other source files for private market cash-flows and historical tracking file for manual adjustments.

As a result of this process, Aon matched all cash-flow items on our system and identified the 3 additional corrections for missing cash-flows for February 2020 and May 2020 (as noted above).

In addition to the comprehensive data review described above, Aon conducted a thorough review of the market value and cash-flows in order to compare all previously reported monthly and quarterly performance reports as well as to re-review all performance calculations. This analysis involved:

- Confirming that all quarter-end market values in the performance system match the market values shown on past quarterly investment reports provided to PSERS;
- Re-calculating month-ending market values using reviewed cash-flows and previously reported returns within a tolerance range of five basis points (as per the standard generally set forth between Aon and PSERS in the Performance Standards Manual) for every month outside of April and May 2015; and
- Confirming consistency of reported cash-flow information in the Aon performance reports over time by reviewing all reported cash-flows in the “Schedule of Investable Assets”.

On behalf of Aon, please know that we very much appreciate PSERS patience as we have endeavored to unravel what very much appears to have been clerical data-entry mistakes, however unfortunate. Aon is determined to ascertain all pertinent details surrounding the issues here and will provide further and updated information as best we are able to provide it as our comprehensive review continues.

Sincerely,

Steve Voss
Head of North America Investments, Aon Investments USA Inc.

cc: Glen Grell
Kristen Doyle
Claire Shaughnessy
Kelly M. Ross, Esq.

Attachment 6

Message

From: [redacted]@pa.gov]
Sent: 7/30/2020 4:22:39 PM
To: [redacted]@aon.com]
CC: Carl, Brian [bcarl@pa.gov]; [redacted]i@pa.gov]; PSERS Mailbox [PSERS.Reporting.to.HEK@aon.com]
Subject: RE: [External] PSERS 1Q20 Quarterly Investment Review - FINAL

Great! Thanks for confirming that, [redacted].

[redacted]

Director- Investment Accounting & Budget
PA Public School Employees' Retirement System (PSERS)
5 N 5th Street | Harrisburg, PA 17101-1905
Phone: [redacted] | [redacted]
Email: [redacted]
Toll Free: 1.888.773.7748
www.psers.pa.gov

From: [redacted]@aon.com>
Sent: Thursday, July 30, 2020 12:59 PM
To: [redacted]@pa.gov>
Cc: Carl, Brian <bcarl@pa.gov>; [redacted]i@pa.gov>; PSERS Mailbox <PSERS.Reporting.to.HEK@aon.com>
Subject: RE: [External] PSERS 1Q20 Quarterly Investment Review - FINAL

Hi [redacted],

Yes, these return differences are the result of retroactive adjustments.

Best regards,
[redacted]

[redacted]
Aon
[redacted]

aon.com | Aon Insights

From: [redacted]@pa.gov>
Sent: Sunday, July 19, 2020 11:32 AM
To: [redacted]@aon.com>
Cc: Carl, Brian <bcarl@pa.gov>; [redacted]i@pa.gov>; PSERS Mailbox <PSERS.Reporting.to.HEK@aon.com>
Subject: FW: [External] PSERS 1Q20 Quarterly Investment Review - FINAL

ALERT: This message originated outside of Aon's network. **BE CAUTIOUS** before clicking any link or attachment.

Hi [redacted]
I hope you are doing well. Have you had a chance look at the attached spreadsheet? Have a great weekend!
Thanks,
[redacted]

[redacted]

[redacted]
PA Public School Employees' Retirement System (PSERS)
5 N 5th Street | Harrisburg, PA 17101-1905
Phone: [redacted] | [redacted]
[redacted]
Toll Free: 1.888.773.7748
www.psers.pa.gov

From: [redacted]
Sent: Monday, June 29, 2020 2:47 PM
To: [redacted]@aon.com>; [redacted]@pa.gov>
Cc: Carl, Brian <bcarl@pa.gov>; PSERS Mailbox <PSERS.Reporting.to.HEK@aon.com>
Subject: RE: [External] PSERS 1Q20 Quarterly Investment Review - FINAL

Hello [redacted],
Please see your spreadsheet attached. In column D are the quarterly returns for fiscal years 2014-15, 2015-16 and 2016-17 that we received from you previously. These are the 3 years whose returns changed the most from what was originally issued. Of particular interest is the June 2015 quarter which improved by over 33 basis points. Can you verify for us then that the changes in the quarterly returns for these three years are all due to subsequent adjustments?
Thanks,
Andy

[redacted]

[redacted]
PA Public School Employees' Retirement System (PSERS)
5 N 5th Street | Harrisburg, PA 17101-1905
[redacted] | [redacted]
[redacted]
Toll Free: 1.888.773.7748
www.psers.pa.gov

From: [redacted]@aon.com>
Sent: Saturday, June 20, 2020 8:49 PM
To: [redacted]@pa.gov>; [redacted]i@pa.gov>
Cc: Carl, Brian <bcarl@pa.gov>; PSERS Mailbox <PSERS.Reporting.to.HEK@aon.com>
Subject: RE: [External] PSERS 1Q20 Quarterly Investment Review - FINAL

Hi [redacted]

I assume so, yes but I don't know what historical numbers you're referencing.

[redacted]
Aon
201 Merritt 7 | Norwalk, CT 06851
[redacted]@[redacted]

aon.com | Aon Insights

Investment advice and consulting services provided by Aon Investments USA Inc.

From: [redacted]@pa.gov>
Sent: Friday, June 19, 2020 5:03 PM
To: [redacted]@aon.com>; [redacted]i@pa.gov>
Cc: Carl, Brian <bcarl@pa.gov>; PSERS Mailbox <PSERS.Reporting.to.HEK@aon.com>
Subject: RE: [External] PSERS 1Q20 Quarterly Investment Review - FINAL

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Thank you, [redacted]. Can you tell us then are the changes in the quarterly returns that you provided last Friday from the ones that we have received previously all due to subsequent adjustments?

[redacted]

[redacted]
PA Public School Employees' Retirement System (PSERS)
5 N 5th Street | Harrisburg, PA 17101-1905
Phone: [redacted] | [redacted]
Email: [redacted]v
Toll Free: 1.888.773.7748
www.psers.pa.gov

From: [redacted]@aon.com>
Sent: Wednesday, June 17, 2020 2:42 PM
To: [redacted]i@pa.gov>; [redacted]@pa.gov>
Cc: Carl, Brian <bcarl@pa.gov>; PSERS Mailbox <PSERS.Reporting.to.HEK@aon.com>
Subject: RE: [External] PSERS 1Q20 Quarterly Investment Review - FINAL

Hi [redacted]

I just double checked and the quarterly returns I sent Andy do match what we have in our system.

[redacted]
Aon
[redacted]

aon.com | Aon Insights

Investment advice and consulting services provided by Aon Investments USA Inc.

From: [redacted]@pa.gov>
Sent: Wednesday, June 17, 2020 1:40 PM
To: [redacted]@aon.com>; [redacted]@pa.gov>
Cc: Carl, Brian <bcarl@pa.gov>; PSERS Mailbox <PSERS.Reporting.to.HEK@aon.com>
Subject: Re: [External] PSERS 1Q20 Quarterly Investment Review - FINAL

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Hi [redacted],

Can you please verify the quarterly returns for FY2014 through FY2017 since some of those are significantly different from what we have on record?

Thanks,

[redacted]

[redacted]pa.gov
www.psers.pa.gov

From: [redacted]@aon.com>
Sent: Friday, June 12, 2020 4:23 PM
To: [redacted]@pa.gov>
Cc: Carl, Brian <bcarl@pa.gov>; [redacted]@pa.gov>; PSERS Mailbox <PSERS.Reporting.to.HEK@aon.com>
Subject: RE: [External] PSERS 1Q20 Quarterly Investment Review - FINAL

Hi [redacted] – Please see attached.

Thanks,
[redacted]

[redacted]
Aon

201 Merritt 7 | Norwalk, CT 06851
[redacted]

aon.com | Aon Insights
Investment advice and consulting services provided by Aon Investments USA Inc.

From: [redacted]s@pa.gov>
Sent: Friday, June 12, 2020 2:46 PM
To: [redacted]@aon.com>
Cc: Carl, Brian <bcarl@pa.gov>; [redacted]@pa.gov>
Subject: RE: [External] PSERS 1Q20 Quarterly Investment Review - FINAL

ALERT: This message originated outside of Aon's network. **BE CAUTIOUS** before clicking any link or attachment.

Hi [redacted]
I hope you and everyone at Aon are doing well. Thank you for providing the 1Q20 Total Fund Report. I have a favor to ask you. Could you please calculate the return that would be required for both the fiscal year and the quarter ending June 30, 2020 for PSERS to achieve a nine-year return ending June 30, 2020 of 6.36%. This is the shared risk hurdle for our Act 120 members that must be met in order for them not to be required to contribute to the plan. On page 130 of the 1Q20 report, the "Since July 2011" return currently stands at 5.89%. Please let me know if you have any questions. Have a great weekend!
Thanks,
[redacted]
PA Public School Employees' Retirement System (PSERS)
5 N 5th Street | Harrisburg, PA 17101-1905
[redacted]
Toll Free: 1.888.773.7748
www.psers.pa.gov

From: [redacted]@aon.com>
Sent: Friday, June 5, 2020 6:31 PM
To: Etter, Andrea <aetter@pa.gov>; Fiscus, Andrew <afiscus@pa.gov>; Andrianna Papadimitriou <andrianna.papadimitriou@aon.com>; Turri, Angela <aturri@pa.gov>; Salem, Anne <asalem@pa.gov>; BNY Mellon (PSERS) (P&RA.Commonwealth.of.PA.PSERS@bnymellon.com) <P&RA.Commonwealth.of.PA.PSERS@bnymellon.com>; Little, Robert <rlittle@pa.gov>; Lamb, Bradley <brlamb@pa.gov>; Carl, Brian <bcarl@pa.gov>; Koleno, Brian <bkoleno@pa.gov>; Harley, Carolyn <charley@pa.gov>; Spiller, Charles <cspiller@pa.gov>; Steever, Christine <csteever@pa.gov>; Claire Shaughnessy <claire.shaughnessy@aon.com>; Knapp, Denise <deknapp@pa.gov>; Dennis Sentelle (dennis.sentelle@bnymellon.com) <dennis.sentelle@bnymellon.com>; Meadows, Gene <gmeadows@pa.gov>; Del Gaudio, James <jdelgaudio@pa.gov>; Kuntz, Jason <jaskuntz@pa.gov>; Grossman, James <jgrossman@pa.gov>; Sheva, Joseph <josheva@pa.gov>; Kemp, John <johkemp@pa.gov>; Sprenkle, Kelly <kesprenkle@pa.gov>; Roessler, Krista <kroessler@pa.gov>; Lauren Durfey <lauren.durfey@aon.com>; Jacobs, Luke <ljacobs@pa.gov>; Cubias, Melanie <mcubias@pa.gov>; Benson, Michael <mibenson@pa.gov>; O'Toole, Michael <michotoole@pa.gov>; Kondas, Mike <mikondas@pa.gov>; PSERS Mailbox <PSERS.Reporting.to.HEK@aon.com>; Sarraf, Sean <ssarraf@pa.gov>; Stephen

Cummings <steve.cummings@aon.com>; Bauer, Thomas <thbauer@pa.gov>
Subject: [External] PSERS 1Q20 Quarterly Investment Review - FINAL

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Hi All,

Please find attached the 1Q20 quarterly investment review for PSERS.

Have a nice weekend!

Best regards,
[redacted]

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Attachment 7

Joshua J. Voss
jvoss@kleinbard.com
Direct Dial 267.443.4114

KLEINBARD LLC

January 12, 2022

VIA EMAIL

Claire Rauscher, Esq.
Womble Bond Dickinson (US) LLP
Claire.Rauscher@wbd-us.com

RE: Risk Share Section of Womble Bond 1/6/22 Draft Report

Dear Ms. Rauscher:

As you know, my firm represents Jim Grossman. Thank you for sharing a portion of Womble Bond's 1/6/22 draft report to the Board. Our review of the same is ongoing, and this letter is not, and should not be construed as, Mr. Grossman's formal response. That response, per your email to us, will be forthcoming on or before noon on January 17, 2022.

Instead, I write today to share with you various issues with the single section of the draft report that we've received (i.e., regarding the risk share calculation). Those issues are set forth in the Appendix to this letter. After you review these issues—and consistent with the January 7, 2022 email wherein you advised that if Mr. Grossman wished to speak with you again, you would be willing to hear from him—Mr. Grossman will make himself available to answer any follow up questions you may have regarding the information in the Appendix. We share these issues in writing so you have time to review them, and also as part of Mr. Grossman's commitment to help you and your firm present a full, complete, and accurate accounting to the Board.

To that end, we invite you to consider the issues appended to this letter, and to appropriately address the same in the final work product you present to the Board. Please note, these issues are based solely upon the redacted version of the draft report, which are the only sections Mr. Grossman has been able to review. We renew here our request that Mr. Grossman be afforded access to the un-redacted portion of the draft report.

After you've had a chance to review the appendix hereto, kindly reach out to me with any questions and to schedule Mr. Grossman's interview. We look forward to your response.

Very truly yours,

Joshua J. Voss

Joshua J. Voss

cc: Sarah Motley Stone, Esq. (via email); Matt Haverstick, Esq. (via email)

APPENDIX

General Corrections/Clarifications:

- The Board relied on Aon data and calculations to certify the risk share number four times: (1) 2014; (2) 2017; (3) December 2020; and (4) April 2021.

- In none of the four certifications did the Board use CAFR values.

- During the PSERS Budget/Finance Committee meeting on December 3, 2020, Brian Carl expressly told the Committee that the CAFR number and the adjusted Aon performance value were different, saying: "So the nine-year number is actually better than if you did the CAFR numbers…."

- Mr. Grossman and many others believed the 6.38% calculation was correct because Aon repeatedly advised that it was, going so far as to say to Mr. Grossman on December 3, 2020: "As you know we are very confident that the adjusted returns are accurate reflecting the revised information we received on the valuation and therefore we are very confident that the 6.38% reported nine year return is an accurate representation of PSERS investment returns during the period." (GROSJ007549.)

- Aon, in writing, accepted blame for the error on at least two occasions (by letters dated March 5, 2021 and April 16, 2021).

- A couple of points need to be made regarding performance in PSERS' CAFR:

    - Performance is NOT audited by the financial statement auditor (currently CLA) as noted in the Independent Auditor's Report:

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

    - Performance numbers in every CAFR since Mr. Grossman started almost 25 years ago are generated by the System's general consultant from their quarterly performance book. As such, the System's general investment consultant (currently Aon) provides the official performance reported by PSERS, including the performance numbers in the CAFR. Performance reported every fiscal year comes from the fiscal year end performance report prepared the last 8 years by Aon.

    - Thus, the values in the CAFR are based on data from Aon; i.e., all of the material values are from Aon.

Particular Corrections/Clarifications:

Page 8, top paragraph, sentence "…to understand why Aon and Staff apparently believed…":

> Staff believed Aon since Aon is the performance expert who provided the explanation that the difference was attributable to them having updated information for that time period. They have the complete data.

Page 9, 2nd paragraph under Restructuring, consider changing last sentence to:

> "…was adjusted to make the reporting consistent with those Board-approved format changes."

Page 11, paragraph beginning "The engagement was…":

> In the middle of the paragraph, there is a sentence that reads: "Looking at a single month, ACA checked the beginning and end NAV and also looked at the cash flows from a single day each month." Mr. Grossman's understanding, based on discussions after the error was discovered, was that ACA did **not** check beginning NAVs. His understanding was that they only checked cash flows and ending NAVs. This is relevant because ACA relied on checking the ending NAVs and assumed the beginning NAVs were fine. If they had checked beginning NAVs, they would have identified the issue with the 2nd quarter 2015 returns. Mr. Grossman's understanding is that ACA tested May 2015 and noted it was fine. However, as noted in Aon's April 16, 2021 letter, the largest difference occurred in this tested month:

	Corrected	Reported	diff
6/30/2015	-1.248%	-1.248%	0.000%
5/31/2015	-0.112%	1.053%	-1.165%
4/30/2015	0.872%	0.036%	0.836%
2Q15	-0.499%	-0.172%	-0.326%

Page 13, copy the 10:10 AM reply from Aon verbatim into the report (GROSJ007549):

> From [redacted], Aon

I was just checking the calculation using the CAFR reported returns as well. I concur with your calcuation for the nine year return using the CAFR returns.

As you know we are very confident that the adjusted returns are acurate reflecting the revised information we received on the valuation and therfore we are very confident that the 6.38% reported nine year return is an accurate representation of PSERS' investment returns during the period.

Page 17, last sentence:

> Quoting the "contemporaneous emails" would more fully underscore that all parties understood, based on communications from Aon, that the issue was at the composite and not total fund level.

Page 19-21, Performance Composites additional information:

> Mr. Grossman's understanding is that the composite errors that stemmed from Aon's 2015 data error did not show up until the 2nd Quarter 2020 Quarterly Performance Report. Mr. Grossman's understanding now is that, in response to the letter of inquiry written by Treasurer Torsella, Aon re-ran all the composites one last time to lock down the quarter and all previous periods. It was in the 2nd Quarter 2020 that the Absolute Return and public market composites changed as a result of Aon's 2015 data entry error. Those composites were correct in the 3rd quarter 2019, 4th quarter 2019, and 1st quarter 2020 Quarterly Performance Reports. It stands to reason that when the performance tree was updated in the 3rd quarter of 2019, Aon only re-ran the new or changed composites plus the total fund. So, composites such as Absolute Return and other public market only composites were not re-run at that time. To get a fuller explanation, Aon would need to be contacted.
>
> In addition, there was some discussion about the Absolute Return not being "part of public markets" which is true. However, from a performance calculation point of view, it is much closer to public markets than private markets, given that NAVs are updated monthly in real time and there is not a quarter lag (with the exception of the aviation funds). In fact, for a reasonably long period of time, Absolute Return was reported in the Monthly Flash Reports with the public market accounts and composites.

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