OHIO AUDITOR OF STATE
KEITH FABER

STATE TEACHERS RETIREMENT SYSTEM OF OHIO
FRANKLIN COUNTY

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GLOSSARY OF ACRONYMS

Acronyms	Definition
ACFR	*Annual Comprehensive Financial Report* - An annual financial report most government pensions issue, which includes audited financial statements and other financial data.
AI	*Alternative Investments* - Includes STRS' private equity and opportunistic/diversified investments. Their nature and use in STRS' investment strategies offers alternatives to *public* equity (stock) strategies.
AOS	*Auditor of State*
AUM	*Assets Under Management* - Market value of investments handled by a manager
BFS	*Benchmark Financial Services, Inc*. - A company the Ohio Retired Teachers Association hired to issue a report about STRS. BFS' allegations were the source of many of the allegations this audit addresses.
bps	*Basis points* - Equal 1% of 1% interest rates (.01%).
COLA	*Cost of Living Adjustment* - Increase in pay/benefits based on rising cost of goods
ERCOT	*Electric Reliability Council of Texas* - Authors of an energy needs forecast discussed in this report.
FASB ASC	*Financial Accounting Standards Board Codification* - The source of the fair value accounting standard applicable to most investments held by nongovernment entities.
GAAP	*Generally Accepted Accounting Principles* **–** commonly followed accounting principles for financial reporting.
GAO	*Government Accountability Office* - A Federal audit office and author of GAGAS.
GASB	*Governmental Accounting Standards Board* - The source of the fair value accounting standard applicable to most investments held by government entities such as STRS.
GIPS	*Global Investment Performance Standards* - Standards designed to promote full disclosure and fair representation of investment performance. The GIPS standards are administered globally by Chartered Financial Analyst Institute.
IMA	*Investment Management Agreement* – Agreement signed between STRS and external investment managers.
NPL	*Net Pension Liability* - The deficiency of actuarially measured pension liabilities exceeding net pension assets.
OPERS	*Ohio Public Employees Retirement System* - The statewide pension system available to state and local government employees not covered by one of the other systems.
OP&F	*Ohio Police and Fire Pension Fund* - The statewide pension system for state and local police and fire staff.
ORSC	*Ohio Retirement Study Council* - Established under Ohio Rev. Code Chapter 171, the OSRC has oversight responsibility over the five Ohio statewide pension systems.
ORTA	*Ohio Retired Teachers Association* - A nonprofit organization that advocates for retired teachers' retirement benefits.
OSHPRS	*Ohio State Highway Patrol Retirement System* - One of the five statewide retirement systems specifically for Highway Patrol employees.
PBI	*Performance-Based Incentive* - The bonus program for STRS' investment staff.
PE	*Private Equity* - An investment not publicly traded.
REIT	*Real Estate Investment Trusts* - A company owning, and in most cases operating, income-producing real estate. They typically sell shares or other interests in their portfolio to investors.
SEC	*Securities and Exchange Commission* - The federal commission responsible for regulating securities (such as stock), formed after the 1929 stock market crash.
SERS	*School Employees Retirement System of Ohio* - The retirement system covering non-teaching employees.
SIOP	*Statement of Investment Objectives & Policy* - STRS' listing of investment benchmarks allocations and other policies.
STRS	*State Teachers Retirement System of* Ohio - The statewide pension system for teachers in Ohio's school districts, colleges and universities and community schools.

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SPECIAL AUDIT

State Teachers Retirement System of Ohio
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To the Executive Director, Deputy Executive Directors, Retirement Board, and Ohio Retirement Study Council:

Special Audit

The Auditor of State (AOS), Special Investigations Unit in coordination with the Ohio Performance Team and a Senior Advisor to the Deputy Auditor conducted a special audit of the State Teachers Retirement System of Ohio (STRS). This audit resulted from certain complaints in Benchmark Financial Services, Inc. (BFS), June 2021 report, titled *The High Cost of Secrecy: Preliminary Findings of Forensic Investigation of State Teachers Retirement System of Ohio, Commissioned by Ohio Retired Teachers Association (ORTA).* Subsequent to commencing this audit, we received additional complaints. Some were material to our overall objectives, and we addressed them in this report. We compiled those outside our objectives and which we deemed of lesser potential adverse effect and will refer them to the Ohio Retirement Study Council (ORSC) for consideration (see Appendix E).

After obtaining background information about these allegations from interviews and preliminary examinations of records, the Auditor of State declared a Special Audit.

Scope and Approach

Our audit period focused on the fiscal year ended June 30, 2021, but we also applied certain tests and analyses to prior years and from fiscal year 2022 up to the date of this report (the Period) based on when the events in the allegations occurred.

Our objectives were to determine the validity of the complaints (Allegations) and report our findings and conclusions thereon. Each allegation falls within one of the overall objectives below related to the following aspects of STRS' operations:

- Transparency
- Investments
- Cost of Living Adjustment (COLA)
- Regional Offices

We followed Generally Accepted Government Auditing Standards for conducting performance audits, which requires us to plan and perform our audit to obtain sufficient, appropriate evidence to provide a reasonable basis for findings and conclusions based on the four objectives listed above. We believe the evidence we obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Pension Plan Background and Funding

Legislation passed in 1919 formed STRS as the United States' first actuarially measured teachers' retirement system.

STRS is a defined-benefit plan, meaning it will pay a (monthly) benefit to retirees for as long as they live. This imposes many uncertainties in predicting how much the system must earn on investments or collect from contributions to fund benefits for current retirees and for current teachers retiring soon or even decades in the future. Like other defined-benefit pension plans in Ohio and elsewhere, STRS draws on three sources to fund retiree benefits:

1. Employee contributions (currently 14% of salaries).
2. Employer contributions (also currently 14% of salaries).
3. Investment earnings.

Of these sources, STRS can influence only investment earnings. Only the State legislature can change the contribution rates.

STRS' Board adopted a 7% assumed rate of return on investments as of its June 30, 2022 actuarial valuation. STRS, like other state pension funds, uses the assumed return rate as its *discount rate* for valuing liabilities. Using Governmental Accounting Standards Board (GASB) methodology and the 7% assumed rate of return, actuaries have computed STRS' net pension liability (NPL) is $22 billion as of June 30, 2022. This is based on an $83 billion fair value of net assets minus a $105 billion total pension liability.

Actuaries calculate the total pension liability — the estimated value of future pension payments workers have earned — using various actuarial assumptions about future experience, including demographic patterns (mortality and disability rates), wage patterns (covered payroll growth rates and individual salary growth rates), and employment patterns (estimated times and ages when members will withdraw from the retirement system or file for retirement).

These assumptions, along with the assumed investment rate of return, are regularly reviewed and adjusted based on actual experience. Changes to actuarial assumptions create an actuarial gain or actuarial loss which normally change the NPL.

STRS cannot achieve 7% overall portfolio returns using relatively riskless investments such as certificates of deposit (which for example, may currently yield only 0.1% -- 4%) or money market funds. Pension systems must rely on investments posing more risk, such as stocks, real estate, hedge funds, and private equity (PE) funds. STRS attempts to reduce the risk associated with these investments by hiring internal investment staff and outside investment consultants to advise regarding investment goals and strategies, and by using significant diversification.

Executive Summary

In summary, we found no evidence of fraud, illegal acts, or data manipulation related to the $90 billion held in trust by STRS for its members. STRS' organizational structure, control environment and operations are suitably designed and well-monitored, both internally and by independent experts. These experts help assure that STRS follows applicable asset and liability measurement, reporting, investing and cash management laws, professional standards, and best practices. Our conclusions are consistent with the findings of these independent firms.

The Ohio Legislature and the ORSC require STRS to engage most of these firms. Appendix B lists these firms and their duties. They consistently report that STRS is following best practices and sometimes even leading practices in its operations. The checks and balances these experts provide should reassure stakeholders concerning STRS' operations.

In the *Transparency* objective, we addressed allegations related to public records requests and trade secrets and concluded that STRS was within its legal parameters in declaring certain items as trade secrets; however, it is within their discretion to be more transparent by amending the non-disclosure portion of their contracts accordingly.

Our *Investments* objective addressed whether STRS is operating properly regarding:

- Whether staff bonuses follow the Ohio Rev. Code requirement and STRS' policy.
- Whether benchmarks used to measure investment results (and which are part of the bonus formula) are adopted with input from independent benchmarking experts, are comparable to peers, or were subject to manipulation.
- Whether STRS has addressed the risk of paying unapproved PE fund fees.
- How STRS' investment returns, funding levels and deficit compares to those of other Ohio pension systems as well as peer pension systems (approximately 20-25 based on available data) throughout the United States.

Key Conclusions:

- Bonuses were awarded based on approved policies.
- Investment benchmarks are adopted with input from an independent benchmarking firm and are not unusually high or low compared to its peers' benchmarks. There are internal controls that mitigate risks of manipulation.
- STRS' controls over PE fees have been appropriately designed and implemented. While STRS cannot eliminate the risk of paying unapproved PE fees, STRS has appropriately addressed this risk.
- STRS' investment earnings ranked in the top quartile among its peers, based on earnings we summarized from peers' audited Annual Comprehensive Financial Reports (ACFR).
- Because neither Ohio law nor the laws applicable to most peer plans require employer contributions to match actuarially determined contributions, these plans are at risk of accumulating deficits. All the plans not actuarially computing contributions have accumulated significant deficits. STRS' deficit requires careful monitoring and may require amendments to benefits or contributions. STRS should not rely primarily on superior future investment earnings to address the deficit.
- Some of our allegation assessments and conclusions relied, in part, on whether there were appropriate internal controls in place. Internal controls are procedures designed to prevent or detect errors, whether intentional (i.e., fraud) or not. We concluded that controls relevant to these allegations were properly designed and implemented to prevent and/or detect errors and to mitigate the risk of fraud.
- We also recommended specific roles for the investment subcommittee, to support transparency to the Board.

The *COLA* objective focused on the financial impact of reinstating the COLA and ultimately notes that STRS utilized an expert to assess their data through multiple scenarios regarding ongoing, one-time, or no COLA increases. STRS exercised their statutory authority to determine when/if COLAs should be given. We also noted the School Employees Retirement System of Ohio (SERS) shares the same statutory authority with STRS, while other Ohio pension systems do not, and SERS also eliminated COLAs for several years.

In the *Regional Offices* objective, we reviewed the costs of four regional real estate offices and noted that STRS maintains these offices to implement an internally managed real estate strategy, which differs from the strategy of many peers. We compared STRS' real estate management costs and investment returns with those of its peers. STRS has realized substantial cost savings over their peers by internally managing a larger proportion of real estate assets, as compared to higher-fee external investments. STRS real estate returns, however, underperformed the peer group in recent years, resulting in a negative net effect.

As a result of our special audit, we have management recommendations for the actuarial review requirement, fiduciary audit requirement, and duties of the investment subcommittee. We also issued legislative recommendations regarding the investment manager transparency, frequency of actuarial assumption reviews, the independent auditor requirement for actuarial services and defining the required scope for fiduciary audits, the reduction of the amortization period for unfunded pension liabilities, a stress-test framework for pension oversight, whether bonuses should be allowable, and restrictions on allowable PE investments for pensions. The full details of these recommendations are in Appendix A.

Special Audit Objectives, Allegations, Analysis and Conclusions

Transparency

Allegations 1-5 - Refusal to Provide Public Records

Page 25 of the BFS report states "On February 19, 2021, we filed a request pursuant to Ohio Rev. Code § 149.49 [sic], et seq. for an opportunity to inspect or obtain copies of public records related to the pension's investment managers, investment consultants, performance compliance auditor, investment cost monitor, financial auditor, and custodians, as well as board and staff. As noted throughout this report, the overwhelming majority of the most critical disclosure information we requested was summarily denied. That is, STRS repeatedly simply permitted the investment firms involved to unilaterally determine whether the information we sought on behalf of stakeholders had to be disclosed under Ohio law. Not surprising, most firms granted the opportunity to oppose public scrutiny of their financial dealings with STRS, chose to do so.

More disturbing, included in key investment services contracts which were provided to us, we discovered identically-worded confidentiality provisions (apparently drafted by STRS) indicating that both parties agreed the services provided in connection with the contract were confidential; agreed to hold such confidential information in the strictest confidence; agreed to release it only to authorized parties on a need-to-know basis, or as required by law; provided, however, that each party gave the other prior timely notice of such disclosure to enable the other to challenge such disclosure."

BFS alleged that STRS declined to provide certain documents to them, including:

- Prospectuses and offering documents.
- Compensation information related to ACA Performance Services and Callan (Expert Nos. 7 and 10 in Appendix B).
- Cliffwater Investment Advisers' compensation agreement (Expert No. 11 in Appendix B).

Analysis

This allegation relates to compliance with the Ohio Public Records Law (Ohio Rev. Code § 149.43). Determining Public Records Law violations is beyond the scope of this report. STRS deemed some of Mr. Siedle's requests to be overly broad. Ohio Rev. Code § 149.43(B)(2) states a public office may decline to respond to *overly broad* requests, though the office must provide the requestor with an opportunity to revise their request. STRS explained this to Mr. Siedle.

Mr. Siedle then filed a writ of mandamus with the Ohio Supreme Court, which was ultimately dismissed by the Court's Chief Justice because he did not submit evidence to the Court within the required deadline. Later still, Mr. Siedle and STRS agreed to confidential mediation relating as to which documents STRS would provide. AOS was not (and should not have been) a party to these legal proceedings. (Note: Mr. Siedle later refiled the mandamus action in the 10th District Court of Appeals, with briefings and responses scheduled in January and February 2023.)

The Ohio Public Records law helps assure transparency with governments' actions. The Ohio Public Records Law requires the State and its agencies (such as STRS) to provide requested documents, though there are important exceptions to this general requirement. The following analysis provides background on the relevant laws and how the investment industry and governmental pension plan investors have typically interpreted those laws over the years.

Access to information concerning the conduct of the people's business is a right of every person in this state (and indeed persons outside of Ohio with interests in Ohio, such as BFS and Mr. Siedle). But it is also important to recognize that the public's interest may be best served when certain records are protected from wide access. For example, most would agree that personal medical records should not be available upon any request.

<u>In a free-market economy, it is also important to protect records constituting *trade secrets* from access</u> by

competitors. Private companies use their skills and experiences to develop better and lower-cost products, hoping to gain a competitive advantage in the market. Providing this information freely to competitors would reduce the incentive for companies to innovate in ways that can benefit society.

Ohio Rev. Code § 1333.61 codifies the *Uniform Trade Secrets Act*, listing criteria for judging what constitutes a trade secret not subject to the public records law. Therefore, determining whether STRS properly redacted certain information sent to Mr. Siedle, or deemed other requests as "too broad" is a matter of determining whether STRS properly deemed the requested information a *trade secret*, based on Ohio Rev. Code § 1333.61, relevant court law and/or generally accepted practices in applying this law.

The *Uniform Trade Secrets Act* prohibits the misappropriation of a trade secret. For information to classify as a "trade secret," Ohio Rev. Code § 1333.61 requires that two elements be met: (1) the information "derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use" and (2) the information "is the subject of efforts that are reasonable under the circumstances to maintain its secrecy."

The documents described above can reasonably be assessed on the merit of these two elements.

Further, in *State ex Rel. The Plain Dealer v. Ohio Dept. of Ins.*, 80 Ohio St. 3d 513, 524 (1997), the Court articulated six factors that are to be considered in determining whether information is protected from misappropriation as a trade secret:

(1) The extent to which the information is known outside the business.
(2) The extent to which it is known to those inside the business, i.e., by the employees.
(3) The precautions taken by the holder of the trade secret to guard the secrecy of the information.
(4) The savings effected and the value to the holder in having the information as against competitors.
(5) The amount of effort or money expended in obtaining and developing the information.
(6) The amount of time and expense it would take for others to acquire and duplicate the information.

These documents can reasonably be assessed on the merit of these six factors.

However, these assessments are not absolute. For example, factor (3) relies on the precautions taken by the holder to guard secrecy. If a holder elects to share the information publicly, the secrecy factor is no longer met, and the trade secret is no longer a viable explanation.

Some PE firms have indicated that they would cease working with pension funds if they are required to disclose the fees they charge. In 2015, the New York Times reported that, "Giants like Blackstone, TPG and the Carlyle Group have said that disclosing their agreements with investors would reveal trade secrets. Pension funds investing in these deals also refuse to disclose relevant documents, saying PE firms would bar them from future deals if they did so." However, this threat does not affect legal determinations as to whether their information should remain confidential.

Conclusion:
While AOS is not rendering a legal opinion on this matter and there remains pending litigation in this matter, STRS' classification of PE performance fees and the other documents listed above as *trade secrets* is plausible based on the six legal factors described above. However, despite the trade secrets law STRS relied on to classify these items as trade secrets, STRS could elect to negotiate with their investment firms to allow more transparency. For example, the California Public Employees Retirement System (the nation's largest government pension system) posts many documents online, including but not limited to, details on their bonus incentives and prospectuses. The state legislature could also direct all statewide pension funds to engage only investment managers who do not rely on trade secret laws to withhold/redact documents.

Note: Allegations 6-8 address the significance of STRS' NPL and whether the ORSC is timely engaging actuarial experts to independently examine this liability per Ohio Rev. Code requirements. Actuarial oversight is critical to measuring STRS' funded status, which in turn has important effects on STRS' investment strategy, COLA, and contribution rates. The remainder of the allegations in this objective assess the reasonableness of STRS' investment benchmarks, performance, and certain costs.

Allegation 6 – STRS' Funding Status

Pages 30 and 31 of the BFS report note that as of June 30, 2020, STRS is 77.4% funded. This funded ratio means actuarial assets equal 77.4% of liabilities ($76.4 billion and $98.7 billion, respectively), so a deficit exists.

BFS also noted that the Federal *Pension Protection Act of 2006* (the Act) establishes the following color zone criteria for classifying pension plan health:

(1) Green Zone = healthy, with a funded ratio 80% or higher.
(2) Yellow Zone = endangered, with a funded ratio between 65% and 79%.
(3) Red Zone = critical, with a funded ratio less than 65%.

BFS notes that STRS' 77.4% funded ratio placed STRS in the yellow (endangered) zone as of June 30, 2020.

Analysis

While the Act only applies to U.S. *private* pensions and does not apply to *governmental* pensions, we agree these zones can provide useful guidance for determining the degree of concern about a governmental plan's funding. The following table presents STRS' funded ratios for the fiscal year ended June 30, 2020 (the date upon which BFS reported) and subsequent fiscal years:

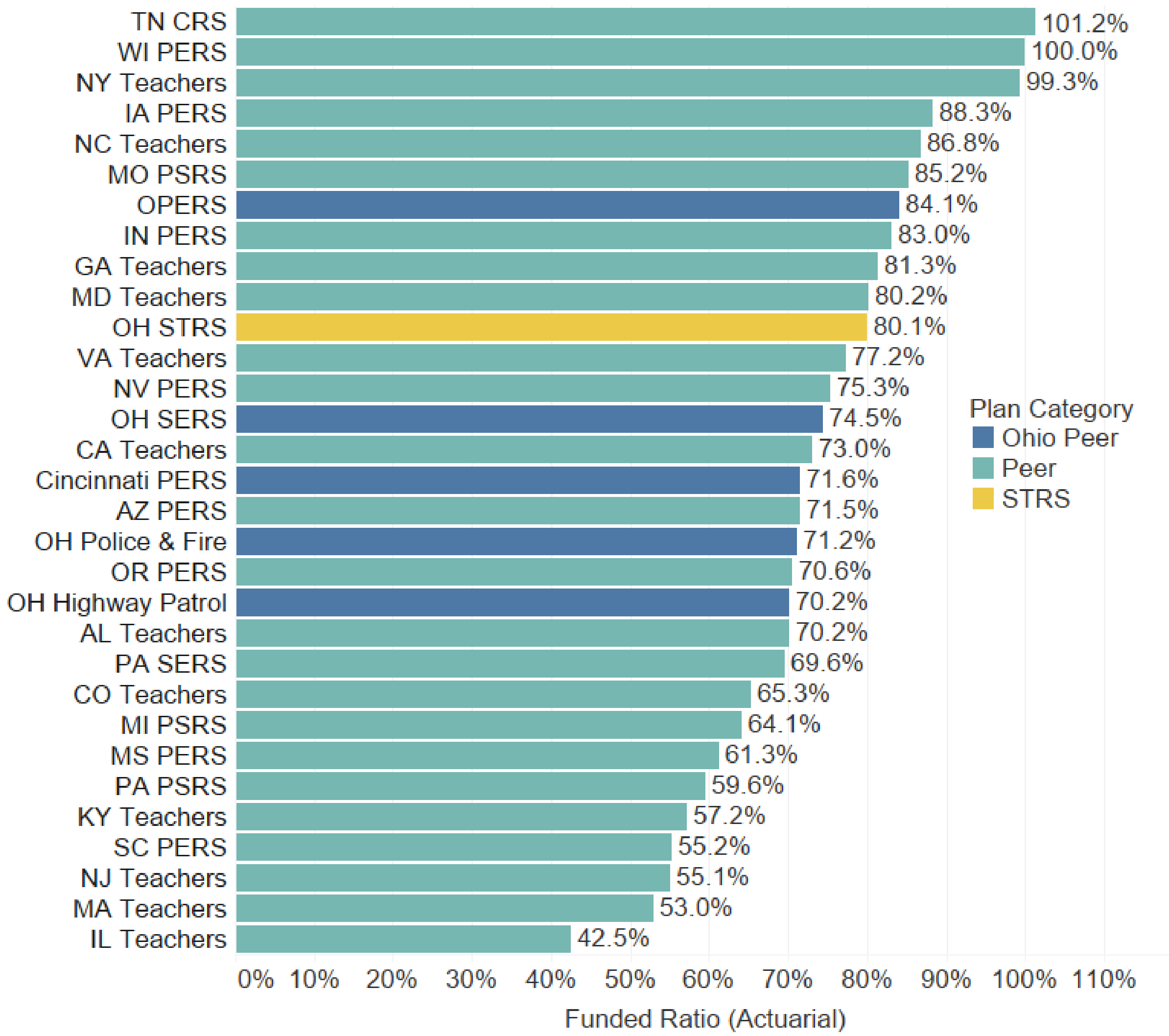
Fiscal Year Ended June 30	Funded Ratio, Based on Actuarial Asset Values	Assumed Rate of Return
2020	77.4%	7.45%
2021	80.1%	7.0%
2022	80.9%	7.0%

The June 30, 2021 and 2022 funded ratios rank STRS in the Act's green zone. The improvement between fiscal-year 2020 and 2021 was primarily due to very strong 2021 investment results. The ratio increased again in 2022 because despite market losses, actuarial standards[1] require amortizing investment results over several years. STRS' actuaries amortize investment earnings over four years. The strong 2021 market earnings deferred into 2022 helped offset market losses in 2022.

STRS would have reported higher ratios in 2021 and 2022, except the STRS Board voted to lower the assumed rate of return from 7.45% to 7% as a more realistic assessment of future investment returns. However, adopting the lower investment assumption also meant recognizing that the value of liabilities, as measured on an actuarial accounting basis, were higher than previously reported. (All else equal, the lower the discount rate, the higher the value of liabilities, and vice versa.) The net effect was that STRS both reported larger assets in 2021 (due to investment returns) and higher liabilities due, in part, to the changed discount rate.

[1] Actuarial standards recognize gains and losses over several years to smooth the resulting changes to the NPL. Immediate recognition in years of large gains or losses would suggest correspondingly large changes to contribution rates, which would impose significant budget pressures on governments contributing to these systems.

The following graph ranks STRS' funded ratio 11th for 2021 (most recent information available for peers) compared to 30 of its peers[2].



As another tool, Ohio Rev. Code § 3307.512 requires STRS (and the other statewide pension systems) to report to the legislature and to the ORSC if the annual actuarial valuation concludes the period necessary to amortize its unfunded actuarial accrued pension liability exceeds 30 years. STRS' independent actuary annually projects when the system will be 100% funded based on current assumptions.

Cheiron reported the following funding periods (a decrease in the funding period means the plan improved relative to the previous year):

Fiscal Year Ended June 30	Funding Period (years)
2020	14.9
2021	14.0
2022	11.5

[2] TN CRS has required full, annual funding of actuarially determined contributions since 1972. This funding method prevent deficits from occurring. Similarly, WI PERS and NY Teachers rely on actuarially determined contributions.

A 2014 *Report Of The Blue Ribbon Panel (the Panel) On Public Pension Plan Funding,* commissioned by the Society of Actuaries, noted that while 30-year amortization period requirements are common, “To improve intergenerational equity and strengthen control over funding risks, the Panel recommends that amortization of unrecognized amounts should be limited to a period of 15 to 20 years.” The Ohio legislature, the ORSC and the statewide pension plans should determine if reducing the amortization period from 30 to 15 or 20 years in Ohio Rev. Code § 3307.512 (and other Rev. Code sections for the other plans) would be prudent.

Also, page 7 of the Panel’s report suggested that “Stress tests of future financial positions should be disclosed in an effort to measure investment and contribution risks. Such tests, constituting 30-year financial projections, should be conducted using the following assumptions: 1) returns at a standardized baseline and at returns of 3 percentage points more and less than the baseline assumption and 2) funding entities making 80 percent of recommended contributions.”

Other states have created measurement frameworks to provide snapshots (i.e. a stress test) of the fiscal health of state retirement systems. For example, Colorado has created a similar green/yellow/red "stoplight" assessment framework to help the legislature detect if a state pension plan has fragile or distressed funded status. Several other states have adopted stress testing frameworks requiring retirement systems to measure the likelihood of contribution rate increases or future insolvency.

Conclusion
While STRS’ 2022 Funded Ratio is in the federal Pension Protection Act’s *green zone*, there are limits to using this standard for state systems. Ohio’s pension plans do not follow the accounting rules required of private pension plans. Moreover, the Society of Actuaries and American Academy of Actuaries have stressed that it is inappropriate to consider 80% funded rates a “healthy” funded status. STRS still reports a significant deficit requiring careful monitoring and adjustments to contributions, benefits and/or investment strategies when warranted. We recommend the ORSC and the legislature consider:

- Reducing the amortization period in Ohio Rev. Code § 3307.512 from 30 to 15 (or at least to 20) years.
- Whether creating a stress-testing framework would help fulfill ORSC’s oversight duties and provide stakeholders with easy-to-understand information about the funded status of their pension benefits.

Allegation 7 - Lack of a Timely Fiduciary Audit
Pages 32 and 33 of the BFS report note that Ohio Rev. Code § 171.04(F) requires the ORSC to “Have conducted by an independent auditor at least once every 10 years a fiduciary performance audit of each of the state retirement systems.” When BFS released their report in June 2021, STRS’ most recent fiduciary audit had been performed by the firm Independent Fiduciary Services, Inc., and was dated December 2006. Therefore, it had been over 15 years since a fiduciary audit had been released for STRS. (BFS also noted this same circumstance also existed for the Ohio Police and Fire Pension Fund (OP&F). That is, their most recent fiduciary audit was also issued in 2006.)

BFS also noted that STRS’ 2006 fiduciary audit was not performed by an independent auditor, contrary to Ohio Rev. Code § 171.04(F).

Analysis
<u>Timeliness of the audit</u>
Subsequent to the BFS report, on September 30, 2021, the ORSC contracted for fiduciary audits for both STRS and OP&F with Funston Advisory Services, LLC. Subsequently:

- STRS’ fiduciary audit was issued May 19, 2022.
- OP&F’s fiduciary audit was released August 3, 2022.

Because the 2022 issuance dates were over 15 years after the prior audit, we agree with BFS that the ORSC did not satisfy the requirement to have conducted a fiduciary audit for STRS and OP&F "at least once every 10 years."

Scope of a Fiduciary Audit

Ohio Rev. Code § 171.04(F) does not define the scope of a fiduciary pension system audit. While this lack of specificity allows the retirement systems, ORSC and the fiduciary auditors to develop the scope of work based on evolving standards and norms, it also leaves open the possibility of a review scope that is too narrow. The pension systems and ORSC should consider codifying the minimum scope of a fiduciary audit.

An example of a suitable scope is from Funston Advisory Services Inc.'s 2022 STRS' audit; the report explained that its scope included:

1. Board governance and administration.
2. Organizational structure and staffing.
3. Investment policy and oversight.
4. Legal compliance.
5. Risk management and control.
6. IT Operations.

This outline might serve as a starting point for scoping pension fiduciary audits. The requirement should also leave some flexibility to adjust the scope if unique circumstances arise. Also, the five-year review requirement for Ohio Administrative Code sections would allow revising these requirements as the pension environment changes.

Independent Auditor Requirement

We read the most recent fiduciary audits for each of the five statewide pension systems and noted they were all performed by firms with well-established reputations in the pension industry. (Also of importance, each were independent of the pension system they engaged with.) However, none was an auditing firm. While there are auditing firms with expertise in pension operations, there is no advantage in forcing the pension systems to limit the firms performing these services to independent auditors. Instead, a small modification to Ohio Rev. Code § 171.04(F) could replace "independent auditor" with terminology more descriptive of the firms qualified to provide these services.

Conclusion

1. STRS' 2022 fiduciary audit was not completed in time to meet the Ohio Rev. Code § 171.04(F) requirement to have a fiduciary audit every 10 years and was not completed by an independent auditor.
2. Also, ORSC and Ohio's pension systems should discuss with the legislature whether Ohio Rev. Code § 171.04(F) should be modified to: (a) explain what the minimum scope for the audit should include and (b) what should happen if the 10-year deadline is not met. Because setting this scope may be more of an administrative than a legislative matter, consider whether the legislature should allow the ORSC to codify the fiduciary audit scope in the Ohio Administrative Code.
3. Finally, we recommend the Ohio retirement systems and the ORSC work together to determine if Ohio Rev. Code § 171.04(F) can be amended to replace "independent auditor" with terminology more descriptive of the firms qualified to provide these services.

Allegation 8 – The 10-Year Actuarial Review Was Not Timely Completed

Footnote 11 on page 34 of the BFS report states "The only 10-year actuarial review for STRS available on the ORSC website is dated November 6, 2009. That review is limited to 'the July 1, 2008 Actuarial Pension Valuation report for STRS, and the January 1, 2009 Actuarial OPEB Valuation report for STRS.' It does not cover 10 years of valuation reports."

Page 14 of *STRS Ohio Response to BFS Report (STRS' Response)* states "The statute does not require that the ORSC actuarial audit review cover any set period of time, such as 10 years of valuations."

Analysis

The Ohio Rev. Code requires three periodic actuarial reports:

(1) Ohio Rev. Code § 3307.51(A) requires STRS to hire an actuary for an annual *valuation*.
(2) Ohio Rev. Code § 3307.51(B) requires STRS to hire an actuary for a quinquennial *investigation* of the annual valuations.
(3) Ohio Rev. Code § 171.04(E) requires the ORSC to engage an actuary at least every 10 years to *review* the actuarial valuations and investigations.

Note each of these three reports evaluates the report above it. That is, the 10-year *review* evaluates the five-year *investigation*, which in turn evaluates the annual *valuation* reports. (The 10-year review is a different report than the 10-year fiduciary audit discussed previously in this report.)

BFS raises two issues: (1) the timeliness of reporting; and (2) the period the review must cover.

Regarding the timeliness of reporting, in October 2021, ORSC contracted with Pension Trustee Advisors, Inc. and KMS Actuaries LLC to conduct a decennial review of STRS. This report was issued in May 2022. However, this report was not issued "at least once every 10 years," as required by Ohio Rev. Code § 171.04(E).

Regarding the period of coverage, the decennial actuary review requirement should capture all the actuarial valuations and quinquennial actuarial investigations prepared. The decennial review must be performed at least once every 10 years. For example, if ORSC opts to perform them every five years, then the lookback will be five years. If ORSC opts to perform them every 10 years, then the lookback will be 10 years.

As noted above, Ohio Rev. Code § 3307.51(B) currently requires STRS to hire an actuary at least every five years to investigate actuarial assumptions and determine whether they require revision. (The other Ohio statewide pension systems have the same requirement.) The most recent investigation for STRS covered the quinquennial period (plus an additional year to offset COVID effects) and was timely issued in March 2022. While this five-year coverage period is comparable to that of many other states, the relatively volatile economy of this century suggests that shortening the investigative period to three years might be prudent. While increasing the frequency of investigations does have an additional administrative cost, those costs are likely outweighed by avoiding actuarial losses that would occur from maintaining actuarial assumptions after they should have been replaced by more relevant assumptions. Finally, each review should then be independently audited for compliance with *Actuarial Standards of Practice*.

Conclusion

1. The decennial actuarial review for STRS was not completed at least once every 10 years, contrary to Ohio Rev. Code § 171.04(E).
2. The decennial actuarial review should cover all the years, as described above.
3. The Ohio pension systems and the ORSC should consider reducing the five-year investigation interval to three years.

Allegations 10-13 – Benchmarking

<u>Background</u>

Pension plans typically invest the contributions they receive in a diverse portfolio of assets. Trustees for the pension plan adopt a benchmark for each asset class as well as for the total investment portfolio. These benchmarks are available from independent firms and measure the various asset classes' goals and subsequent performance. Benchmarks are important planning and measurement tools. As a *planning* tool, they set targets for investment returns. As *measurement* tools, pension plans compare their actual returns to benchmarked results.

Pension plans adopt benchmarks based on what they believe are reasonable objectives for their asset classes. These objectives might include measurement against an investment goal, comparison with peers, providing guidance to investment managers, and analyzing the effectiveness of internal investment staff or external asset managers.

At STRS, benchmarks are a very important part of the formula for computing investment staff bonuses, discussed in Allegation 28 of this report. Investment staff assigned to a particular asset class do not earn that component of their bonus if their assigned asset class(es) does not meet benchmarked returns.

For example, STRS uses the *Russell 3000* to benchmark its domestic equities asset class. Each year, the compensation of certain STRS staff is based on the performance of its equity investments compared to the performance of the Russell 3000 index. The Russell 3000 is generally similar to the S&P 500, except it measures the performance of the 3,000 largest publicly-held American corporations by total market capitalization, representing approximately 97% of the American public equity market. FTSE Russell, a subsidiary of the London Stock Exchange Group, maintains this index. (As discussed later in the allegation, STRS also formerly based their *AI*[3] benchmark on the Russell 3000.)

Benchmarks have both objective and subjective aspects. They are *objective* measurements of investment performance, but they are *subjective* in that different pension plans judgmentally select benchmarks they believe are appropriate considering investment stragegies and other relevant factors..

Key points to remember when reading the following analysis:

- Benchmarks are not only used for bonus achievement. (And, in fact, government pension funds that do not pay bonuses still set benchmarks.)
- Particularly important, benchmarks are one measure of investing risk that pension plans are willing to assume.
- Benchmarks are also important for evaluating whether investment strategies and investment allocations are succeeding.
- While it might promote certain consistencies if governmental pensions agreed to uniform benchmarks, this would not be proper. Despite their similarities, retirement systems can have slightly different actuarial demographics, suggesting slightly different long-term investment strategies and correspondingly different benchmarks.
- Pension plan trustees can adopt different aproaches to how they want to use benchmarks as a tool.
- As an example of differing benchmarking strategies:
    - Illinois Teachers benchmarks it's PE performance against public markets because it wants to measure the risk-adjusted return on allocating money to private markets instead of just passive investments in public equities. This strategy compares PE investments against other kinds of asset classes, like having put those same dollars in public markets.
    - This differs from custom PE benchmarks that try to measure PE investment performance against other possible private capital uses. Beginning with fiscal year 2022, STRS changed its PE (and other AI) from public benchmarks to private, capital-based benchmarks.
- A given benchmark is not always higher or lower than another benchmark. They vary in return results from year to year, depending on what they are measuring. One could be higher than another in one year, then lower the next.
- Setting benchmarks too high may make bonus achievement more difficult, but it could also have adverse results -- it could incentivize investment staff to assume too much risk when assessing potential investment purchases, resulting in losses.

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[3] STRS classifies its PE funds and opportunistic/diversified investments as *alternatives*. Allegations 16 and 19 describe PE fund operations. Opportunistic/diversified investments include commingled funds, co-investments, and direct investments involving domestic and global energy, infrastructure, and specialty finance funds. These are generally long-term lock up vehicles, typically with 10-year terms plus available extensions.

- Setting benchmarks too low might result in more easily-achievable results, but could also lead to lower investment returns, if those benchmarks inappropriately guide strategy.
- Callan (Expert No. 10 in Appendix B) reviews and advises STRS on selecting benchmarks for all asset classes. The STRS Board approves these benchmarks, and STRS incorporates them into their *Statement of Investment Objectives & Policy (SIOP)*.

> *Because of allegations that benchmarks were manipulated to allow investment staff to earn bonuses, it is critical to understand that investment staff subject to bonuses have no role in setting benchmarks or recording them in STRS' records.*

Specific Benchmarking Allegations and Analysis:

1. *STRS' benchmarks are too low. For example, page 8 of the BFS report alleges that using the Russell 3000 Index as a five-year benchmark for Alternative Investments is "absurd."*

   To help assess whether using the Russell 3000 index as a five-year benchmark was reasonable for PE funds, we summarized and ranked the five-year PE fund benchmarks that peer pension funds used for 2019, 2020, and 2021. We included 2021 because this was the last year STRS used the Russell 3000 to benchmark PE investments:

2021 Rank	Pension System	PE Benchmark	Fiscal Year 2021 Five-Year PE Benchmark Expressed as a Percent[4]
1.	**OP&F**	Actual Portfolio Returns	24.88%
2.	Iowa PERS	Actual Portfolio Returns	24.37%
3.	New York State Teachers	S&P 500 + 5%	22.60%
4.	Illinois Teachers	Russell 3000 + 3%	21.40%
5.	Kentucky Teachers	S&P 500 + 3%	21.17%
6.	Mississippi PERS	S&P 500 + 3%	21.13%
7.	Michigan Public School Employees	S&P 500 + 3% (three-month lag)	21.10%
8.	Oregon PERS	Russell 3000 + 3%	20.09%
9.	**Ohio PERS**	State Street PE	19.41%
10.	**Ohio STRS**	Russell 3000 + 1%	19.06%
11.	Colorado School	MSCI ACWI IMI Net + 1.5%	18.70%
12.	New Jersey Teachers	Cambridge Associates	18.50%
13.	South Carolina SCRS	80% Russell 3000/ 20% MSCI EAFE + 3% (on a 3-month lag)	17.81%
14.	Tennessee CRS	Cambridge Associates Custom PE	17.63%
15.	Missouri Teachers	75% MSCI ACWI ex-USA net/ 25% Russell 3000	17.20%

[4] Several pension systems have the same benchmark; however, there are variances in the resulting five-year percentages. These benchmarks were obtained from the respective system's audited financial reports. The variances may be due to the lags (additional months) some systems use to refine their computations, differences in fiscal year ends or other factors. The variances do not significantly affect STRS' rank, so we did not pursue them.

16.	Virginia VRS	MSCI ACWI IMI	17.10%
17.	Maryland Teachers	Custom State Street PE	17.00%
18.	Indiana Public Retirement	60% Russell 2000/ 20% EAFE Small Cap Index/ 15% CS + 3%/ 5% CS Western European High Index (Hedged).	16.80%
19.	**Ohio SERS**	Burgiss All PE Benchmark (quarter arrears)	16.70%
20.	Pennsylvania State Employees[5]	Burgiss All PE Custom Russell 3000 + 3%	16.30% 19.30%
21.	Pennsylvania School Employees	Burgiss Median, Vintage Year Weighted (quarter lag)	15.93%
22.	**Cincinnati ERS**	Cambridge Associates	15.60%
23.	California Teachers	Weighted blend of the CalSTRS Custom PE and Custom Tactical (both quarter-lagged).	14.90%
24.	Arizona ASRS	MSCI ACWI Blended	14.50%
25.	North Carolina Teachers and State Employees	Burgiss Group Private iQ Indices (Buyout, Venture Capital, Special Situations and Distressed Debt)	14.33%

As mentioned above, we also ranked STRS' five-year PE benchmarks compared to these same peers for fiscal years ending in 2020 and 2019 (see Appendix C for complete rankings).

Conclusion

- For 2021, STRS' five-year benchmark for PE ranked 10th of25[6].
- For 2020, STRS' five-year benchmark for PE ranked 11th of25.
- For 2019, STRS' five-year benchmark for PE ranked 13th of24.

In summary, STRS' PE benchmarks are comparable to its peers.

2. *Pages 7 and 8 of the BFS report explain the PE asset class has a five-year benchmark, but has no benchmark to measure one-year performance (all other STRS asset classes have one and five year benchmarks.) Page 8 of the BFS report states "In our decades of professional experience, we have never seen actual performance proposed as a benchmark."*

We agree with BFS that STRS' ACFR reported actual results as its one-year AI benchmark for purposes of disclosing the asset classes and methodology for the total fund blended benchmark in its financial reporting. However, STRS used a Russell 3000-based benchmark to measure AI one-year performance for performance reporting within the AI asset class, including bonus computations.

We surveyed 24 peer governmental pension plans (as listed in the tables to 1 above) and found that 22 of those plans reported one-year PE benchmarks. Two peers reported actual PE results instead of a benchmark for both one and five-year results. They are the Iowa Public Employees' Retirement System and the OP&F.

[5] Pennsylvania State Employees uses two benchmarks for PE and therefore both are included above.

[6] PE benchmark comparisons only include 24 peers and STRS rather than the 30 peers plus STRS as noted in Allegation 6 due to information being unavailable from Ohio Highway Patrol, Nevada PERS, Wisconsin PERS, Alabama Teachers, Georgia Teachers, and Massachusetts Teachers for PE benchmarks (Note: this applies to the 2020 and 2019 comparisons as well).

Effective July 1, 2021, STRS changed their one and five-year benchmarks to the following:

AI Types	One and Five-Year Benchmarks Through June 30, 2021	One and Five-Year Benchmarks Effective July 1, 2021
PE	Russell 3000 + 1%	Cambridge Associates PE and Venture Capital Index (one quarter lagged)
Opportunistic/Diversified	Russell 3000 – 1%	Opportunistic/ Diversified Blended Benchmark[7]

- We agreed the benchmarks used through June 30, 2021 to the SIOP in STRS' 2020 ACFR.
- We agreed the benchmarks used effective July 1, 2021 to the SIOP in STRS' 2021 ACFR.

Conclusion
BFS is correct that, prior to July 1, 2021, STRS used AI actual returns as a component of the total fund blended benchmark. However, in accordance with their approved SIOP, separate AI, PE and opportunistic/diversified performance benchmarks were established based on the Russell 3000 index. Effective July 1, 2021, the Board adopted new AI benchmarks, and the AI actual return is no longer used as a component of the total fund blended benchmark.

3. *A STRS Board Member issued a whitepaper titled The Benchmark Scam, wherein he explained that because STRS computes its total investments return benchmark based on budgeted asset allocations rather than actual allocations, investment staff assigned to AI can reduce the benchmark they are measured against by over-investing in PE funds and reducing the investment in opportunistic/diversified instruments.*

To understand this allegation, we first must explain how AI impacts the total fund benchmark at June 30, 2021. For this period, the AI component of the total fund benchmark was the AI actual return. The allocation between PE and opportunistic/diversified did not impact the total fund benchmark as the total allocation for the asset class (AI) was used to calclulate this component of the benchmark.

Further, the AI return component of the total fund return is based on the actual allocation between PE and opportunisitic/diversified.

But was this a "Scam?" A scam is defined as a dishonest scheme and fraud. It was not a scam, because:

- STRS computed its total portfolio benchmark in accordance with its SIOP Section 4.7, which requires using the AI actual return.
- Footnote 4 to Section 4.4 from the *SIOP* explains the budgeted allocations (7% and 10% in the table) are "only meant to be general guidelines."
- STRS' Board approved this *SIOP*.

Conclusion
STRS followed the Board-approved SIOP for computing its total returns benchmark.

4. *In a September 2022 meeting between the AOS and ORTA,* it was alleged that:
   a. STRS used unapproved, lower PE five-year benchmarks for fiscal years ended June 30, 2012 through 2020. These understatements improperly allowed investment staff to earn their PE bonuses.
   b. STRS never properly approved using actual results as the one-year PE or alternatives investment benchmark.
   c. STRS backdated the SIOP so it would appear to support these improper benchmarks.

[7] *Opportunistic/Diversified Blended Benchmark* = actual weight of Opportunistic portfolio multiplied by Cambridge Associates Private Credit Index (one quarter lagged) + actual weight of Diversified portfolio multiplied by HFRI Fund of Funds Composite Index.

We examined evidence supporting approved benchmarks. This evidence included the following:

- The SIOPs for 2018 through 2022, which describe benchmark formulas (and are appended to every externally-audited STRS ACFR), support that STRS used the proper, approved benchmarks.
- ACA's Global Investment Performance Standards (GIPS) compliance reports for 2018 through 2022, also describe approved benchmark formulas, expresses them as a percentage based on actual results, and agrees with the benchmarks STRS used.
    - The ACA GIPS report is also appended to every externally-audited STRS ACFR. (ACA is expert No. 7 in Appendix B.)
- We recomputed STRS' five-year alternative total funds benchmarks for fiscal year 2020 and 2021 from data on the Russell 3000 website, noting it agrees to the benchmarks STRS presented.

Conclusion

There is no support for these allegations.

- We used information from ACFRs posted on AOS' website to corroborate benchmarks. These ACFRs also include the SIOP applicable to each year. It is impossible for STRS to "backdate" reports posted annually on the AOS secure website.
- We also note that STRS' fiduciary audit from 2006, page 39, mentions that STRS was using actual results to benchmark one-year PE returns.
    - Therefore this practice existed, and was audited annually, at least since 2006.

We again note that investment staff eligible for bonuses do not choose or record benchmarks. Selecting benchmarks is the joint duty of Callan (Expert No. 10 in Appendix B) and STRS' Board. It would require collusion between Callan, the Board and the investment staff to misstate benchmarks for the purpose of earning bonuses.

5. *In September 2022, an ORTA press release stated (in relevant part) "[A] new look at STRS records and market performance show that STRS did not report any material loss in the value of its billions of dollars of PE holdings from January 2022 through June 2022. This glaring omission likely dramatically understated STRS' losses because public equity stocks lost a quarter of their value during that same time period."*

This allegation was repeated in our aforementioned meeting with ORTA and in a subsequent communication to our office.

If STRS did not record investment losses in the first half of calendar year 2022, investment values and earnings would have been over-stated in their June 2022 accounting records. Among other adverse effects, this could allow investment staff to receive unearned bonuses.

In assessing the risk of fraudulent misstatements, auditors (not just the AOS, but auditors generally) also consider whether an entity has sufficient *segregation of duties*. That is, are duties assigned to more than one staff (or department or entity) such that one person cannot create a fictitious transaction (e.g. overstate investment values) and also conceal it by falsifying accounting records and investment balance reconciliations?

Investment staff eligible for bonuses do not record PE investment value changes in STRS' accounting records. Instead, STRS applies the following three-step process to record and validate PE fund fair market values:

1. *GCM Grosvenor,* who are not eligible for bonuses, record PE fair value changes in their system based on statements they receive directly from PE fund managers. (Expert No. 12 in Appendix B.)
2. STRS' accounting staff (who are not eligible for bonuses) then record these entries from the information they receive and periodically reconcile to GCM Grosvenor's records.

3. STRS' AI Fund Manager, who is ineligible for bonuses, independently reconciles PE managers' fair values to amounts GCM Grosvenor recorded and to statements confirmed by PE funds.

We examined reports supporting that STRS has implemented the controls these three steps describe. The reports are prepared as described. These controls are sufficient to mitigate the risk of misstating investment fair values in the accounting system.

For additional evidence, we inquired of Crowe (STRS' independent auditor and Expert No. 5 in Appendix B) concerning their audit tests of fiscal year 2022 investment transactions and balances to determine if they detected fair value misstatements. Their response:

- Their understanding of the segregation of duties in recording fair values was consistent with ours.
- They also applied additional tests of controls.
- They performed substantive tests of transactions and balances.

They found no evidence of overstatement or understatement that would require adjusting investment fair values.

Conclusion

Fraud resulting from intentional overstatements of PE fair values would have required collusion among the three parties listed above, none of which receive performance bonuses from STRS.

Crowe's audit results also support that their was no manipulation of investment values.

A more reasonable explanation of this rumor of *intentionally* underreporting losses is that it requires up to three months after each June 30 for STRS to finalize certain investment results, especially PE fair value balances and earnings or losses. This lag was not unique to 2022 – it is the process used in preparing every fiscal year's financial statements. Also, note that some peers in the benchmarking comparison table above also describe a reporting lag. Other asset values such as stock, derive fair-value information the exchanges update virtually in real time, and requires less time to compile.

STRS prepares final *performance* reports after each fiscal year end. STRS follows GIPS standards for these reports, which require using the values *available* at month end. Generally accepted accounting principles (GAAP), which STRS uses in its ACFR, require using the values *earned* at month end. In some years, such as fiscal 2022, GIPS performance reports more favorable results than do the GAAP financial statements at June 30; however, the performance reports for GIPS capture the loss in the next period. In other years, the reverse occurs. For the year ended June 30, 2022, the best estimates of fair value as of June 30 required recording additional write-downs of $670 million in September when values were finalized, which impacted GAAP reporting at June 30, but didn't impact GIPS reporting until September 30.

STRS recorded the following adjustments between its first closing and the investment fair values (rounded to nearest thousand) from the unaudited ACFR submitted to the AOS on November 23, 2022:

Investment fair values reported in July	$87,615,530,000
Reclassification of real estate debt	+2,156,743,000
Reclassification of receivables and other liabilities	-311,598,000
PE lag adjustment	-670,428,000
Fair value reported to Board in October and submitted to the AOS	$88,790,247,000

We conclude there were no delays in recording losses. STRS followed its established closing procedures, consistent with prior year closings.

Allegations 14 and 25 – Potential Conflicts of Interest with Consultants
Page 45 of the BFS report states “External investment consultants have conflicts of interest “due to conflicts of interest pervasive in the investment consulting industry... it appears that STRS has never received disclosure regarding the specific amounts paid to [investment consultants Callan and Cliffwater, experts nos. 10 and 11 in Appendix B] by those investment managers employed by STRS, detailing the specific services provided to those managers.”

Also, page 83 of the BFS report states “... agreements with the new investment consultants require the full disclosure as recommended 15 years ago of all business relationships with investment managers and service providers, as well as specific amounts paid to the investment consultants by STRS investment managers. However, *it appears STRS has not received full disclosure of conflicted payments*. If true, then both consultants may be in breach of their contracts with the fund.”

Finally, page 86 of the BFS report states “[C]onflicts of interest at investment consulting firms were found to result in *substantial financial harm* to plans by the Government Accountability Office (GAO) in a 2007 report. Benchmark Financial Services assisted GAO in its review.”

Page 40 of *STRS’ Response* states, in part, “Despite the BFS report author’s contention, the GAO Report did not find that the presence of pension consultant conflicts of interest resulted in “substantial financial harm” to pension plans. Rather, the GAO’s findings suggested that defined benefit plans advised by consultants with significant disclosure issues underperformed plans advised by consultants that adequately disclosed their conflicts of interest. Further, the GAO report fully acknowledged that a conflict does not itself constitute a breach of fiduciary duty. In other words, where there was adequate disclosure of conflicts by plan consultants, the GAO found no negative correlation with plan performance.”

Page 41 of *STRS’ Response* also states “The BFS report’s contention that STRS Ohio’s consultants do not adequately disclose their conflicts is not supported by the facts. As the BFS report acknowledges, Callan and Cliffwater provide extensive disclosure of conflicts of interest in their Forms ADV (the Form ADV is a mandatory disclosure document filed at least annually by all Securities and Exchange Commission (SEC) registered investment advisers). In addition, Callan discloses a list of money manager clients to STRS Ohio quarterly [Cliffwater has no such clients]. These disclosures make clear the types of services Callan could provide to money manager clients and the costs of those services. As stated in the BFS report, anyone reading Callan’s Form ADV can determine both the median amount and maximum amount of compensation Callan could receive from its money manager clients (*see* page 109 of the BFS report). Moreover, as discussed below, both the manner in which STRS uses consulting services and the processes in place with those consultants further mitigate potential conflicts of interest.”

<u>Background</u>
The Investment Advisers Act of 1940 (the Act) requires firms acting in an investment advisory compacity to register with the SEC and follow all relative SEC regulations. The SEC has interpreted the Act to impose a fiduciary duty of loyalty that requires investment advisers to disclose a conflict of interest fully and fairly to a client such that the client can provide informed consent.

STRS’ standard Investment Management Agreement (IMA) requires investment managers to conduct investment activities in a manner consistent with the Code of Ethics and the Standards of Professional Conduct adopted by the CFA institute. The IMA also requires investment managers to comply, to the extent applicable, with the reporting requirements contained in §§ 101.90 et seq (Joint Legislative Ethics Committee) and Chapter 102 (Ohio Ethics Commission) of the Ohio Rev. Code. They are required to provide evidence of compliance upon request and notify STRS of any change in the representations contained in the IMA. The standard IMA further requires managers to promptly notify STRS if its representations in the IMA, including with respect to conducting its activities in accordance with applicable ethics laws, cease to be satisfied, or as otherwise requested by STRS.

Analysis
Conflicts of interest would exist if any of STRS' external investment consultants recommended that STRS purchase investments from companies that had paid fees to them. Above, BFS mentions potential conflicts for investment advisers Callan and Cliffwater. These firms advise STRS concerning investment strategies and results (Expert Nos. 10 and 11 per Appendix B). Their duties do not include recommending investment purchases to STRS. STRS' investment staff make those decisions. Therefore, this source of potential conflicts does not exist.

STRS also has the following controls in place to monitor and review for potential conflicts of interest:

- Each investment adviser signs an IMA, which requires certain confirmations, disclosures, and reports be made to STRS (AOS reviewed the agreements covering 2021 and the related reports).
- STRS annually confirms with Cliffwater that none of the hedge funds that STRS invested in were clients of Cliffwater (AOS reviewed the email confirmation from July 2021).
- Callan notifies STRS of potential conflicts quarterly, and external managers notify STRS of conflicts when they arise (AOS reviewed the fourth quarter 2022 report from Callan).
- STRS receives the Forms ADV filed with the SEC annually from Cliffwater and Callan, in accordance with the Act (AOS reviewed the Forms ADV for Callan and Cliffwater from 2011-2021 and confirmed via inquiry with STRS that there were few material changes noted by either firm and the ones noted didn't relate to their business with STRS. We also confirmed no regulatory or judicial actions were noted, which addresses the *financial harm* concern related to GAO noted above).
- Conflict waiver requests, i.e. external managers secure prohibited transaction exemption from the Department of Labor, are reviewed by STRS legal and escalated to the Chief Investment Officer and Executive Director, as necessary (AOS reviewed the waiver for Insight from November 2022 and confirmed signature of acknowledgement by STRS).

Some processes above rely on self reporting. This is common for these purposes. For STRS to validate these confirmations would require examinations of adviser's records, which would be costly and impractical.

The Funston fiduciary audit also addressed conflicts of interest in great detail. Rather than repeat those issues here, we evaluated STRS' response and any changes put into place to address Funston's recommendations regarding conflicts, as follows:

- STRS created a new Compliance Director position (posted in August 2022) to centralize their existing compliance efforts. Duties will include, but not be limited to:
    - Reviewing and evaluating the development and implementation of an annual certification process for both internal staff and external investment advisers.
    - Ensuring information received by STRS is consistent with information filed with the SEC.
    - Reviewing related investment compliance reports.
    - Monitoring and curing potential conflicts of interest.
    - Reviewing Forms ADV.
- STRS legal counsel is working together with staff to evaluate and update its policies regarding ethics, confidentiality, manager/vendor referrals, associate guidelines as it relates to whistleblower protection, and SEC pay-to-play, among others.

Conclusion
STRS relies on legal standards and their IMA's to help mitigate the risks related to potential conflicts of interest. While STRS does have some internal controls in place as well, they are currently working to tighten up their controls and put formal processes and policies in place to address the recommendations related to their most recent fiduciary audit, including posting a new Compliance Director position in August

2022 (but yet to be filled as of the date of this report). Additionally, the legal guidelines, IMA's, SEC filings, and overall knowledge of STRS help to mitigate any potential risks relating to conflicts of interest.

Allegations 15 and 17 – Investment Costs and CEM Benchmarking Reports
Page 46 of the BFS report states "AI managers, including hedge, venture, and PE, may charge asset-based performance and other fees amounting to approximately 8 percent -- 800 times greater fees than indexing."

Page 51 of the BFS report states, "CEM Investment Benchmarking is a private Canadian company which STRS retains to annually analyze the pension's investment costs and performance. CEM is neither registered with the US Securities and Exchange Commission as an investment adviser nor as a broker-dealer." (A footnote in the BFS report cites CEM's website which states that benchmarking is all they do. They do not manage assets.)

Analysis
BFS infers that AI costs may be up to 8%, or 800 basis points (bps). STRS' AI constituted about $19 billion (21.7%) of its total investments as of June 30, 2022.

Pension funds such as STRS face a variety of investment costs that reduce the net returns available to distribute to plan beneficiaries. Depending upon the investment implementation strategy, these costs can encompass anything from compensating internal staff, to performance fees paid to outside investment funds, and reimbursements of costs investment funds incur.

We assessed STRS' investment costs relative to peer pension plans, both at the overall fund level and within individual investment classes such as AI.

The industry-standard source for comparing pension plan costs, including fees, is compiled by CEM Benchmarking Inc. (Expert No. 8 in Appendix B), which produces cost and performance benchmarking reports. Many large US public pension plans subscribe to the CEM product, whereby in exchange for sharing their own detailed plan cost data, pensions such as STRS can buy customized benchmarking reports to see how their costs compare to peer plans. The most recent CEM benchmarking report was released in 2021 and covers the year ending December 31, 2020[8]. Investment costs are standardized as a percentage of assets under management (AUM) and reported in bps whereby 100 bps equals one percent.

CEM Benchmarking Report Takeaways:
<u>Peer Group</u>
The CEM peer group consists of 16 public pensions with a median size of $95.2 billion in AUM (STRS had $87.0 billion AUM at the time of the 2020 CEM report.)

<u>Total Fund Performance</u>
- STRS' total calendar year 2020 investment costs, including both internal expenses such as salaries and external expenses such as outside fund base and hedge fund performance fees and PE management fee offsets, was $316,447,000.
- $316,447,000 equates to 37.5 bps with respect to STRS' total AUM, or 13.9 bps less than the peer group benchmark of 51.4 bps.
    - The two biggest sources of STRS' cost savings compared to peers were its use of less external management – 8 bps in savings and the fact that STRS pays lower fees than peers for the external management it does use – 11.6 bps in savings.

[8] Even though STRS reports on a fiscal year ending June 30, CEM obtains unaudited information through the end of the calendar year for its comparisons.

- The two areas in which STRS generated higher investment costs compared to peers were in its use of more active versus lower cost passive management – 2.6 bps in excess costs and in its higher use of partnerships as a percentage of total external investment – 1.7 bps in excess costs.
- The remaining five areas in CEM's assessment of STRS' costs had less than 1 bps impact each.

Externally Managed Investments

- For its PE fund investments, STRS paid 211.5 bps (which includes both management and performance fees). This is 102.3 bps less than the peer average PE fees of 313.8.
- For its external real estate fund investments, STRS paid 121.4 bps (which includes both management and performance fees). This is 64.1 bps less than the peer average PE fees of 185.5.

Internally Managed Investments

- CEM captures the cost of 12 categories of internal, actively managed investments, ranging from different categories of stock, fixed income, real estate, and private credit. These costs include salaries of STRS personnel and purchased professional services.
- In nine of these 12 categories, STRS costs were at or below the median peer group costs.
- The internally managed categories in which STRS had the highest cost in relation to the peer median was in US Large Cap Stock (11.8 bps vs 3.1 bps, respectively.) STRS had the lowest cost in relation to the peer median in Private Credit (5.5 bps vs 14.1 bps, respectively.)

Conclusion

STRS has a lower overall cost of investments than peer pensions, as reported by CEM. This is due to a combination of STRS managing a larger portion of its portfolio internally at a lower cost, as well as paying less than peers overall for fees on external management. The fees STRS paid in 2020 on its AI compares favorably to peer pension averages (i.e., STRS paid fewer bps in fees on its invested assets.) Especially note that STRS' AI costs are 102.3 bps less than its peers and 588.5 bps less than the 800 bps BFS suggests. See Allegation 18 below where we assessed investment returns.

Of course, simply having fees consistent with peers does not necessarily mean the fees paid were appropriate. There are numerous ways in which external fund manager fees could be excessive and in need of reform, even if they are industry standard. For example, the SEC is considering new rules related to how PE firms charge fees due to complaints about non-transparent and excessive fee charging practices (see also analysis of Allegations 16 and 19). It is incumbent of STRS' management to provide accurate summary and analytical information to the Board regarding these fees. Review of such information could be delegated to the Board's Investment subcommittee.

We are unsure why BFS' report states that CEM is not registered with the SEC, inferring that registration is relevant to benchmarking. SEC registration is required for investment advisers -- those advising clients on investment purchases and sales. CEM's benchmarking services are not investment advice.

Allegations 16 and 19 – PE Investment Funds May Be Charging STRS Fees and Expenses Exceeding Contract Amounts

Page 50 of the BFS report states "... a recent[9] internal review by the United States Securities and Exchange Commission found that a majority of certain alternative investment managers and private equity firms inflate fees and expenses charged to companies in which they hold stakes, raising the prospect of a wave of sanctions against managers (including potentially some of the dozens of PE managers STRS invests in), by the agency. More than half of about 400 private equity firms that the SEC staff examined charged unjustified fees and expenses without notifying investors."

[9] Based on footnote 19 in the BFS report, this is a 2014 review that, in part, cites a 2008 paper by a Hofstra professor, so some of the information is 14 years old.

Pages 63 and 69 of the BFS report question whether PE managers are inflating fees or reporting all the fees they incur.

"… CEM (Expert No. 8 in Appendix B) excluded external private asset performance fees and all transaction costs from the pension's total cost [from their report] because "only a limited number of participants were able to provide complete data." In other words, either most of the 17 unnamed U.S. public pensions included in the custom peer group failed to diligently monitor the complete fees paid related to these high-cost, high-risk opaque investments, i.e., did not know the complete costs, or the pensions were aware of the complete fees but refused to disclose them-either of which would serve to reduce each pension and the group's overall costs reported to CEM."

Background: PE Fund Operations and Fees

To understand this allegation, a brief description of PE operations, including longstanding transparency concerns, is helpful. About 12% of STRS' investments are PE funds. Private fund managers raise capital from investors, such as STRS. PE funds have a contractual lifespan, commonly 8 – 10 years. This finite lifespan can be attractive to institutional investors looking for long-term investments, but not wanting to tie-up funds indefinitely.

The PE fund managers:

1. Identify underperforming companies.
2. Solicit several sophisticated (or institutional) investors (a term the SEC defines and includes STRS) to commit typically 98% of the estimated acquisition costs, as partners (the fund manager commits the remainder).
3. Buy those companies, by drawing cash investors have committed.
4. Attempt to improve those companies' performance. During this step, the PE fund receives cash from the acquisition's continuing operations, and then
5. Hopefully sell them at a profit.

(There are exceptions, but this is a common PE business model.)

Investors receive no cash returns in the early stage of a fund's life. PE funds begin distributing cash to the investors as they generate revenue from their acquisitions (Step 4 above). At the end of the fund's life, the fund liquidates and distributes all remaining cash, including proceeds from selling the investment, to its investors, except profits the PE manager retains.

A longstanding PE industry issue is the secrecy with which PE funds tend to operate. Some question whether this secrecy allows funds to conceal improper dealings, including charging unapproved fees to investors. Fund managers believe this secrecy protects their trade secrets (as discussed earlier in the *Transparency* section of this report). We do not claim all this secrecy is necessary. But as one example of potential consequences, if competitors knew of a planned acquisition, they might purchase the company first, or at least drive the price higher by bidding against the PE fund performing the acquisition analysis. This would adversely affect STRS' potential earnings.

Analysis

The concern BFS raises is part of the longstanding concern related to secrecy: Are PE funds disclosing all the fees they charge? If a PE fund underreports fees, the result is to overcompensate itself and short-change the limited partner investors, such as STRS.

PE fund managers and investors agree to various fees in their contract. There are many common types of fees, such as accounting, auditing, banking, and management.

STRS has safeguards that aim to partially mitigate the risk of under-reported fees:

1. All the PE funds STRS invests with have annual, independent audits by international accounting firms. Auditing standards require these audits to include evaluations of risk and tests for material misstatements, such as under-reporting fees.

An inability to reasonably assure the absence of material misstatement would require an auditor to qualify their opinion on the financial statements. In this context, qualifications would include detected material understated fees, or insufficient evidence to reasonably assure there were no material understated fees.

During the period from July 1, 2019 through June 30, 2021, STRS received about 600 annual PE fund audits. We selected 10 reports and read their opinions. All the opinions were unqualified, meaning the auditors had sufficient evidence to provide high (but not absolute) assurance that there were no misstatements of fees that would be material to the financial statements.

Regarding the reputation of the firms performing these audits, we noted that for the 10 reports we read, all the firms were ranked in the top 10 internationally in both revenue and number of staff. We further noted the firms performed the audits in accordance with generally accepted auditing standards, were in good standing, and were qualified to perform such audits.

2. In 2018, STRS created the position of AI Fund Manager in the Finance Department. He reports to the CFO. Thus his duties are segregated from the Investment Department. One of his responsibilities is to determine the reasonableness of PE fees. A simplified summary of these duties follows:
    a. At the end of each fund's fiscal year, STRS' PE external third party administrator (GCM Grosvenor) (Expert No. 12 in Appendix B) sends confirmation requests to each PE fund. Among other information, these confirmations request the PE fund to send fee amounts by category to the AI Fund Manager .
    b. The AI Fund Manager recomputes the fees charged to STRS in the confirmation response to verify they equal STRS' pro rata share of the total fees recorded in each fund's audited financial statements.
    c. The AI Fund Manager also applies reasonableness tests to the reported fees. Examples of these tests include:
        i. Determining whether changes in fees were greater than 50 bps or more than $100,000, which might suggest over-charging.
        ii. Determining whether management fees were charged after the investment period expired, which would be unusual.
        iii. Analyzing whether carried interest the PE managers have charged agrees to the audited statements and to fund distribution amount notices the PE funds sent to STRS during the year.
        iv. The AI Fund Manager investigates exceptions to the above (such as if management fees exceeded 7.5% of STRS' commitment). These investigations may involve discussion with GCM Grosvenor, the responsible STRS Portfolio Manager or the PE general partner.
        v. Finally, as described in our benchmarking allegation analysis, the AI Fund Manager also reconciles PE fair values to those reported by GCM Grosvenor, PE fund managers and values reported in independently-audited PE annual financial reports.
            1. These reconciliations must factor in timing differences arising from the lag period necessary to finalize fair values.
        vi. Finally, the AI Fund Manager summarizes findings and forwards them to the STRS' fee monitoring subgroup.

We selected two recent PE fund annual audit reports and obtained documentation supporting whether the AI Fund Manager had implemented the procedures described in 2.a through c above. The documentation supported that the above control procedures were implemented as described. Reconciliations properly accounted for the lag in valuations, consistent with our reporting in Allegations 10-13, item 6.

Conclusion
There are no absolute safeguards guaranteeing that management fee fraud cannot occur. However, PE fund audits, plus the design of the STRS' AI Fund Manager's reconciliations and reasonableness tests, affords sufficient controls to reduce, if not eliminate, the risk that PE funds are over-charging fees. We recommend the Board's Investment subcommittee include review of the AI Fund Manager's reconciliations and reasonableness tests as part of their committee meetings.

Given the longstanding issues about PE fee completeness, the Ohio legislature should consider legislation restricting the kinds of PE funds the state pension funds can invest in, such as requiring state pension funds to obtain certain fee disclosures that can be made public as a precondition to using an external asset management firm.

Allegation 18A – Investment Returns and Costs
Pages 61 and 62 of the BFS report note "The unredacted 2018 [CEM] report initially states in the Key Takeaways section of the Executive Summary that the [STRS] pension's 5-year net total return of 6.25 percent was in the top quartile and above the fund's 6.09 percent 5-year policy [policy = benchmark] return. The five-year net value added was 0.16 percent… A footnote later in the [CEM] report discloses that 'to enable fairer comparisons, the policy returns for all participants except your fund were adjusted to reflect private equity benchmarks based on lagged, investable public-market indices. If CEM used this same adjustment [substitute PE benchmark] for your fund, your five-year policy return would be 6.8 percent, 0.7 percent higher than the pension's actual 5-year policy return of 6.1 percent. Mirroring this, the 5-year total fund net value added of 0.16 percent would be 0.7 percent lower or, by our [BFS] estimate, -0.54 percent… STRS would have earned over $400 million more annually, or over $2 billion for the 5-year period by simply passively indexing its investments according to its policy mix."

Page 26 of STRS' response notes, in part, "The BFS Report incorrectly asserts that STRS Ohio's policy return should use the Substitute PE Benchmark rather than STRS Ohio's actual alternative investments benchmark. This argument is flawed for two reasons. First, and most obviously, STRS' alternative investments benchmark is, by definition, the benchmark approved by the Board and reflected in its SIOP, Annual Comprehensive Financial Report, and annual GIPS compliant presentations. Using any other benchmark, including the Substitute PE Benchmark, would not accurately reflect STRS Ohio's policy return. Second… the Substitute PE Benchmark does not meet the definition of an acceptable or appropriate benchmark for STRS Ohio's alternative investments. The Substitute PE Benchmark is a not a publicly available or trackable benchmark. CEM developed the Substitute PE Benchmark only as a tool for comparison purposes and did not intend it as a recommendation of suitability as a policy benchmark for STRS or any other pension plan."

Page 44 of the BFS report states "According to the Cliffwater report for June 30, 2019, STRS Ohio Alternative returns 'fall behind' Relative Return Objectives [i.e. benchmark] across *all periods* "due to the very strong performance of public US stocks across all periods."

"The alternatives underperformance losses for the period [last 10 years] amount to $8.6 billion or $2.5 million per trading day for 14 years."

Analysis
As noted in Allegations 10-13, until July 1, 2021, STRS added 100 bps to the Russell 3000 as its PE benchmark,[10] while the two peers using Russell added 300 bps. Russell measures public equity performance. Approximately half the peer pensions used a private index of PE returns to set their PE benchmark, rather than a public equity index + bps. The private PE index benchmark returns were generally lower than public index benchmarks, including the benchmark used by STRS, due to the strong performance of US stock during 2019 through 2021.

[10] As previously noted, effective July 1, 2022, STRS began using a PE benchmark produced by Cambridge Associates for its five-year PE benchmark in accordance with a 2022 SIOP change.

Considering both approaches, STRS PE returns ranked in the middle relative to peers' returns for 2019 through 2021.

BFS accurately asserts that STRS' AI returns underperformed their relative returns benchmark for the period ending June 30, 2019, and this held true through June 30, 2021. STRS' five-year actual AI plan returns through June 30, 2021 were 14.52%, compared to their benchmark objective of 17.78%. (For the year ended June 30, 2022, STRS' AI rebounded, returning 18.36%, compared to its benchmark of 13.59%.)

As of June 30, 2016, STRS held $10,019,630,000 in AI. From July 1, 2016 – June 30, 2021 the Russell 3000 returned an annualized 17.89%. If STRS had invested their $10.019 billion in an index at this 17.89% rate rather than the 14.52% they actually achieved through AI, they would have made over $2.8 billion more in returns over these five years.

BFS' precise allegations on this topic, however, are problematic for several reasons:

- The critique benefits from hindsight bias. Over any time period, certain asset classes will outperform others. It will always be possible to claim after-the-fact that one asset class would have yielded higher returns than another. For example, there have been periods in recent history, especially prior to the last decade, in which AI outperformed US public equities.
- The relative underperformance of an asset, with respect to either its benchmark or a different hypothetical allocation decision, does not constitute a "loss" in a technical financial or accounting sense. That is, though STRS' AI five-year earnings of 14.52% were lower than its benchmark, it represented earnings over six percent above STRS' discount rate. It was not a loss.
- From a portfolio construction perspective, US stocks and AI are not exact substitutes. These two asset classes have different risk profiles, and different return correlations with the rest of STRS' portfolio.
    - Key takeaway: Diversification is critical because the future is unknown.

To gain additional perspective on STRS' performance, we summarized the five-year *total fund benchmark* and *total fund returns* for STRS and its peers for both 2021 (most current information available for peers) and 2018 (since this was the year cited in the BFS report), and ranked them according to return as follows:

Rank	**Pension System**	**2021 Total Fund Benchmark (Five-Year)**	**2021 Total Fund Return (Five-Year net)**
1	Colorado School	11.70%	13.30%
2	Kentucky Teachers	12.42%	13.23%
3	Mississippi PERS	12.11%	13.03%
4	**Ohio STRS**	11.85%	12.21%
5	Michigan Public School Employees	no total fund benchmark[11]	12.10%
6	**Ohio Highway Patrol**	11.40%	12.10%
7	Missouri Teachers	10.60%	11.90%
8	New York State Teachers	11.90%	11.90%
9	Iowa PERS	11.76%	11.86%
10	California Teachers	11.04%	11.78%
11	**OP&F**	10.18%	11.62%
12	**Ohio SERS**	10.50%	11.50%
13	**Ohio PERS**	10.96%	11.41%

[11] Michigan did not publish a benchmark for their total fund and only included actual results.

14	New Jersey Teachers	11.60%	11.27%
15	Tennessee CRS	10.98%	11.03%
16	Arizona ASRS	9.70%	10.90%
17	Pennsylvania State Employees	11.30%	10.70%
18	Virginia VRS	10.20%	10.70%
19	Maryland Teachers	10.20%	10.68%
20	Oregon PERS	11.49%	10.53%
21	**Cincinnati CRS**	10.90%	10.50%
22	Indiana Public Retirement	9.50%	10.30%
23	Pennsylvania School Employees	9.39%	10.10%
24	Illinois Teachers	10.40%	10.10%
25	South Carolina SCRS	9.87%	10.07%
26	North Carolina Teachers and State Employees	12.92%	9.51%

Rank	Pension System	2018 Total Fund Benchmark (Five-Year)	2018 Total Fund Return (Five-Year net)[12]
1	Michigan Public School Employees	no total fund benchmark[11]	10.10%
2	Kentucky Teachers	8.98%	9.44%
3	Mississippi PERS	9.00%	9.30%
4	New York State Teachers	9.10%	9.30%
5	**Ohio STRS**	8.98%	9.26%
6	Arizona ASRS	8.00%	8.90%
7	Missouri Teachers	7.70%	8.80%
8	**Ohio SERS**	8.00%	8.80%
9	Oregon PERS	9.21%	8.59%
10	Tennessee CRS	8.37%	8.35%
11	**Cincinnati CRS**	8.20%	8.30%
12	Illinois Teachers	8.50%	8.30%
13	Virginia VRS	7.84%	8.27%
14	New Jersey Teachers	8.00%	8.23%
15	Iowa PERS	8.05%	8.22%
16	Pennsylvania School Employees	7.30%	7.62%
17	Pennsylvania State Employees	7.80%	7.60%
18	North Carolina Teachers and State Employees	6.46%	7.27%
19	Maryland Teachers	6.72%	7.15%
20	South Carolina SCRS	6.94%	7.07%
21	Indiana Teachers	5.70%	6.30%
22	**OP&F**	4.98%	6.13%

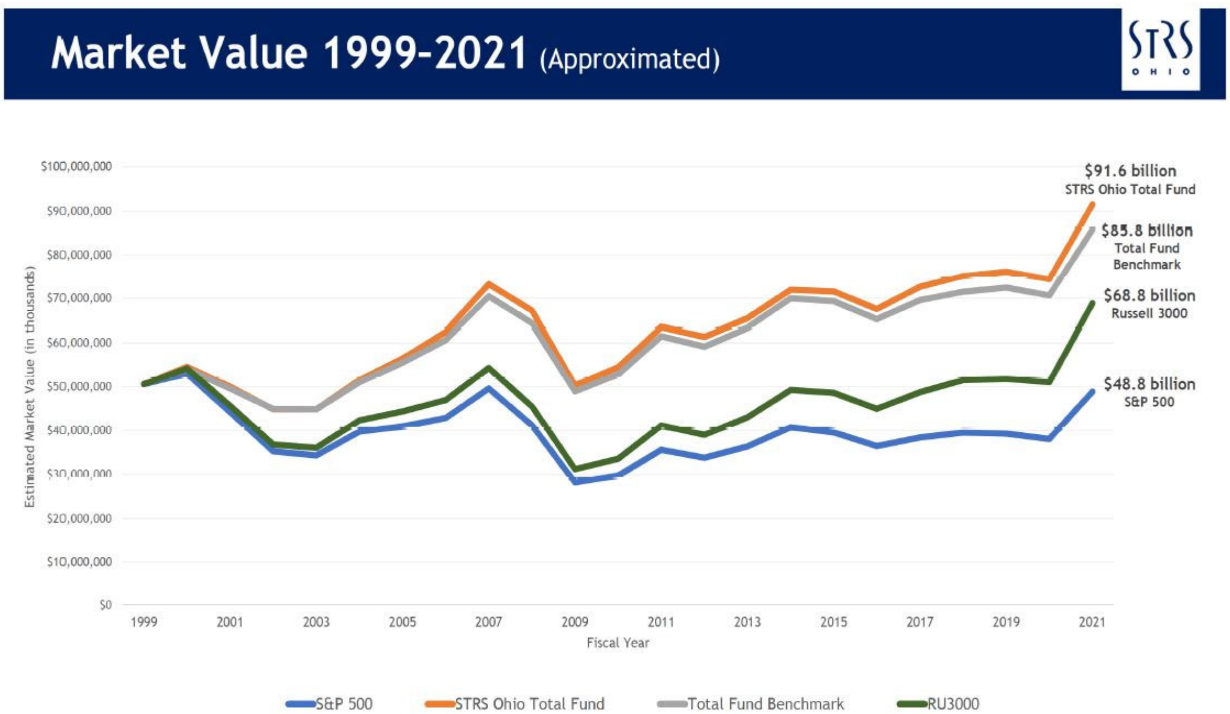
[12] California STRS information not available for this comparison.

23	**Ohio PERS**	5.17%	5.67%
24	Colorado School	5.00%	5.60%
25	**Ohio Highway Patrol**	4.94%	4.71%

Conclusion
STRS AI underperformed their Russell 3000 benchmark in recent years due to the relatively strong performance of US equities prior to the 2022 market decline. (That is, until July 2021 STRS benchmarked its AI investment performance against equities, because the Russell 3000 measures equity performance.) As such, BFS is correct to note that STRS would have made higher returns had they passively indexed funds to US stocks in place of their AI allocations.

A more reasonable evaluation of STRS performance than considering counterfactual asset allocations with the benefit of hindsight, however, is to look at STRS' total portfolio performance relative to peer plans. STRS performed better than 75% of peers in recent years.

Allegation 18B - STRS Understated S&P 500 and Russell 3000 Index Returns to Present More Favorable Relative Earnings to the Board
In April 2022, a STRS Board Member issued a whitepaper titled *Incompetence or Deceit.* Therein, he alleged that a comparison STRS prepared of its 1999 - 2021 investment total fund returns versus the (1) S&P 500 index, (2) the Russell 3000 index and (3) STRS' overall benchmark omitted dividend earnings from the two indexes. (See the graph below.) He further alleged a "cherry-picked" start date for the comparisons that presented a more favorable view of investment earnings.

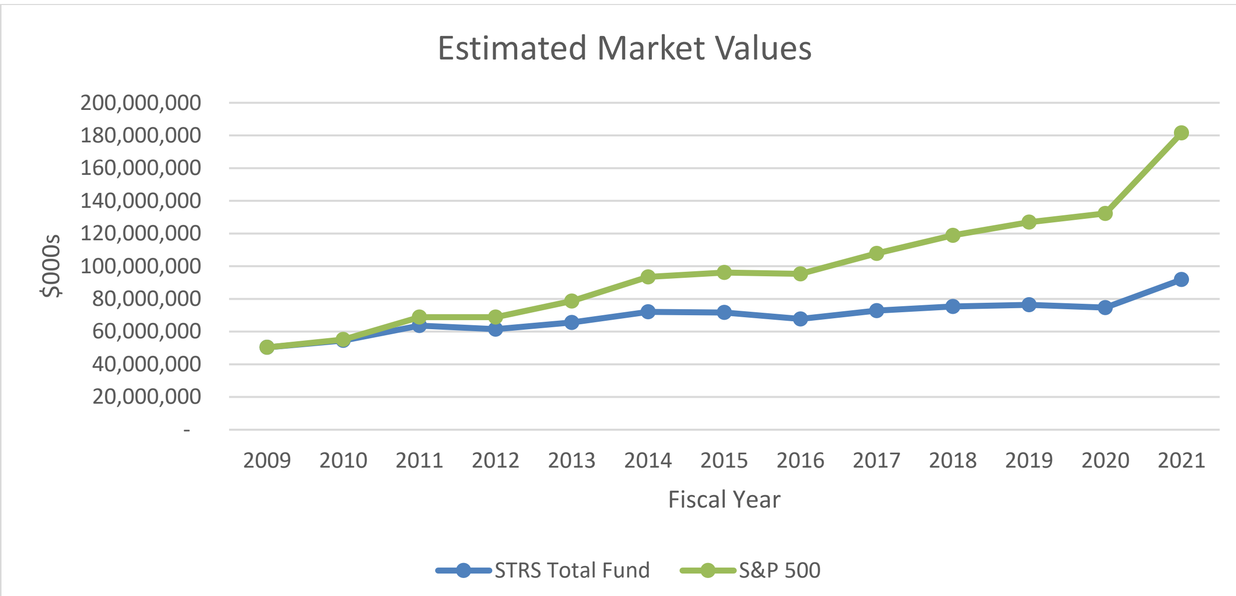


Analysis
A comprehensive assessment of STRS' total funds' returns compared to the S&P 500 and Russell 3000 indices should include both stock appreciation and dividends. If STRS did omit dividends from the two indices and its total return benchmark, the graph would mislead readers into believing STRS outperformed the indexes over the 22-year period when in fact, they did not.

To determine the accuracy of the graph, we reviewed STRS' response to the white paper and then recomputed its *Indexing Comparison Analysis* as of June 30, 2021 as compiled by STRS. We traced information for the two indices for June 30, 2021 to source documentation from the S&P 500 and from Russell. We also recalculated the amounts supporting the above graph.

Our calculations support that the STRS graph *does* include dividends (and appreciation) for the S&P 500 and Russell 3000 indices. STRS' earnings properly factor in contributions received and benefits paid as well as investment earnings. Accounting for these relevant factors and based on a beginning date of July 1, 1999, STRS' market value from 1999 through June 30, 2021 was 87% higher than the S&P 500 index.

Regarding the "cherry-picked" start date, however, the Board Member's point is valid. Because STRS chose to start their comparison with July 1, 1999 and used the rolling market value from that date, the higher returns STRS received from 2000-2009 (except 2004) offset lower returns from 2010-2021 relative to the S&P 500. In comparing yearly return percentages over the 22-year span, STRS only beat the S&P 500 nine out of 22 years. Based on the earnings built-up from the early 2000's, even a smaller return percentage in recent years for STRS has resulted in higher investment earnings since 1999. To illustrate the point, the below graph depicts similar information, but begins with 2009 and paints a different picture.



Conclusion

Our calculations support that the STRS-provided graph does include dividends (and appreciation) for the S&P 500 and Russell 3000 indices. (Note: Prior to issuing our report, the Board Member acknowledged his assertion about excluding dividends was incorrect. But because his whitepaper received public distribution and expressly alleged incompetence or deceit, we believe it is important to address this matter.)

Additionally, the Board Member is accurate in that STRS was unable to outperform the S&P 500 for 13 of the past 22 years. Further, deciding the beginning point of a market value analysis is significant, considering the conflicting conclusions of STRS' market value performance with a start date of July 1, 1999 versus 2009. Investments by nature rely on market value and changes to investment balances, so it is accurate for STRS to present their return data across as many years as possible and to include all the relative additions and deletions to the investment balance to compare the actual monetary value rather than just percentages. It is also important to look at different time periods when assessing the past success or failure of investment strategy, because looking at a post-2008-financial-crisis timeframe shows that STRS missed considerable public equity returns (in part by shifting assets into PE) during an 11-year bull market run and post-pandemic market surge. Both graphs are accurate and valid.

Their relevant importance depends on what one is attempting to measure.

Based on the 2009 – 2021 results, it might be reasonable to criticize STRS' investment allocations, but 2022 results were strong for AI, again demonstrating the cyclical nature of markets – that is, public equities lost considerable value in fiscal 2022. STRS' public equities lost less than the market. STRS AI, which include PE, returned +18.36%. AI and real estate were the only STRS investment classes to avoid losses during fiscal 2022.

Allegation 20 – "Looting" by STRS' Investment Managers

Page 68 of the BFS report states "We note with great emphasis that since STRS investment managers may withdraw their fees from pension accounts in the absence of any diligent monitoring by STRS, the risk of looting, i.e., illegitimate withdrawals, is dangerously high, in our opinion."

Page 30 of the *STRS' Response* rebutted this, stating "This statement is simply not true. STRS Ohio investment managers cannot withdraw fees from pension accounts. Payment of management fees for alternative investments and real estate follows a multi-step internal process. Direct management fees for separate account external managers are authorized for payment by the Ohio Treasurer of State following a standardized, multi-step internal process."

Analysis

As with ORTA's allegation of fraudulent PE fair values, we assessed STRS' segregation of duties for investment payments. That is, are duties assigned to more than one staff (or department or entity) such that one person cannot create a fictitious transaction (e.g., draw cash for unauthorized capital calls) and conceal it by falsifying accounting records and cash balance reconciliations? We requested STRS to provide us with written documentation of their procedures for paying PE fund draws on capital commitments, because the fees BFS mentions are included with those payments.

The following is a summary of STRS' procedures for paying cash draws to PE funds:

Procedure	Performed By
1. The PE fund submits a capital call notice (request for cash) to GCM Grosvenor. (Expert No. 12 in Appendix B.)	The PE fund general partner (this is the private company with which STRS has invested).
2. Matching the request to records of investment commitments, calls, distributions, valuations, audited financial statements and other relevant documentation.	GCM Grosvenor, STRS' independent third party administrator. GCM Grosvenor then transmits the cash draw information to STRS. (GCM Grosvenor maintains a "portal" of investment and accounting information. STRS has read-only access to this portal.)
3. STRS sends a wire authorization to the Treasurer of State. The authorization includes the amount, date due, financial institution to which it will send the money, account number and other relevant information.	STRS Investment Operations - (STRS' Executive Director signs the authorization).
4. The amount is wired to the PE fund's financial institution.	Ohio Treasurer of State
5. Finance / accounting records the transaction in the accounting records and reconciles the activity between its records and the GCM Grosvenor portal information.	STRS Finance / accounting.

To support whether STRS had implemented the above-stated controls segregating PE fund cash payment procedures, we examined documents supporting a cash withdrawal of $1.6 million for a PE fund capital call requested during August 2022. We found that documents existed to support that all five of the above procedures were properly performed for this withdrawal.

Conclusion
Per review of STRS' control procedures, STRS has segregated investment purchasing duties among internal staff (investment operations, finance / accounting, and the Executive Director) and two external organizations (GCM Grosvenor and the Ohio Treasurer of State). Duties are sufficiently segregated to mitigate the risk of "looting."

Allegation 21 – STRS is Paying Fees to PE Managers for Doing Nothing
Page 70 of the BFS report states "In 2017, reportedly 91 percent of private equity managers demanded investors pay fees today on money investors had committed to invest over time, say, over the next 10 years. Fees on committed, uninvested capital amount to paying managers for *doing nothing*--no service whatsoever is provided in exchange for the lavish fee."

Analysis
BFS is correct in that PE managers charge the limited partners (such as STRS) fees on committed but unpaid capital, up to 2% annually. In other words, PE managers are charging STRS fees before they've *purchased* investments. (For PE funds, the *investments* include companies they will purchase intending to improve and later sell for a profit.) However, BFS is simply incorrect in stating that these are fees for doing nothing.

Recall from the previous description of *PE Fund Operations and Fees* in Allegation 16, that draws on committed capital (step 3 in the description) do not occur until <u>*after*</u> the fund manager identifies underperforming companies to purchase (step 1). Until these draws occur, we agree with BFS that limited partners are paying fees on committed but unpaid capital.

However, the due diligence PE managers must perform to identify underperforming companies is critical to the success of a PE fund. Limited partners agree to fees on committed but unpaid capital with the understanding that the fund's success depends, in large part, on successfully identifying acquisition targets *before* the PE manager draws committed cash from investors.

Conclusion
The pre-acquisition service of identifying underperforming companies is critical, necessitating real costs. PE limited partners pay fees on committed but unpaid capital in exchange for this and other services. To claim that a PE fund is "doing nothing – no service whatsoever is provided..." is false.

The STRS Board could adopt a new PE investment policy where they only commit capital to investment opportunities that have already been identified. While these deals would eliminate paying fees prior to investing cash, they would also limit the deals to which STRS had access. There are trade-offs in any investment strategy and both the current or hypothetical approaches could be reasonably supported or criticized. As long as management makes a knowledgeable decision and are transparent with the Board, these decisions are within management's discretion.

Allegation 22 – Conflicts of Interest Impair the Reliability of PE and Real Estate Asset Values.
Page 77 of the BFS report states "…there is substantial uncertainty regarding the value of these [PE and real estate] assets. While industry and GIPS standards may permit these managers to unilaterally, subjectively value such assets they manage, such valuations cannot be considered credible by asset owners. After all, the managers are subject to a profound conflict of interest in establishing portfolio values since they are compensated on the value of those assets through asset-based fees."

Analysis

We agree with BFS that determining real estate and PE fund investments' fair values in accordance with the GASB's fair value standard requires subjective, potentially biased valuations. However, this risk exists because more objective information does not exist for real estate and PE funds (such as recent trade values from a public stock exchange). The GASB does require STRS to alert financial statement readers when the more subjective measurements are required, so readers can understand the additional subjectivity involved.[13]

A material overstatement of investment fair values would adversely affect STRS' ability to fund pension benefits, because they would likely assume there were more assets available than actually existed.

However, STRS has the following controls in place to mitigate the risk of significantly overstating real estate and PE fund fair values:

<u>Real Estate Valuation Controls</u>

As of June 30, 2021, STRS' real estate portfolio was reported at about $10 billion. Because GASB requires management to estimate this fair value, management bias conceivably could result in overvaluing this portfolio. To mitigate this risk, STRS' *SIOP*, Section 18(e) *Security Valuation*, requires "Full, self-contained appraisals completed by an independent external appraiser no less than every third year." (Pages 76 and 77 of BFS' report acknowledge that STRS requires these appraisals, citing from the ACA Compliance Group Performance Services report.) Having *independent* appraisals mitigates the risk of biased overstatements.

To test whether STRS has implemented its independent valuation policy, AOS selected a recent independent appraisal from each of STRS' four real estate regions. We read each appraisal, noting it was completed by a credentialed appraiser. We also noted that the appraisal was prepared in conformance with guidelines and recommendations set forth in the *Uniform Standards of Professional Appraisal Practice*. (These valuation methods also comply with valuation techniques prescribed in GASB Section 3100.)

We then compared each appraised valuation to the value recorded in STRS' accounting system. Each of the property values was timely updated to match the new appraised value.

Conclusion – Real Estate

STRS' use of independent appraisals mitigates the risk of "profound conflicts of interest" regarding real estate asset valuations.

<u>PE Fund Valuation Controls</u>

About 12.4% of STRS' June 30, 2021, investments were held in PE funds. As a limited partner, STRS does not value its PE funds. It must rely on subjective values each fund's general partners develop, which could be subject to overvaluation bias. Concerns about this bias have been a longstanding issue not just for STRS, but for all those investing in PE funds.

However, STRS has a control to mitigate this risk. As described in Allegations 16 and 19, PE funds have annual, independent audits. *STRS' Response* page 29 notes that:

> Most private fund managers are SEC-registered and subject to SEC examination. These managers have audited financial statements and must comply with fair value standards.
>
> Fund valuations are typically audited by credible, nationally recognized audit firms and must adhere to applicable accounting standards. Financial audits require that, to be GAAP compliant, fair value of assets must be determined pursuant to a specific accounting standard known as [Financial Accounting Standards Board Accounting Standards Codification] FASB ASC Topic 820.[14]

[13] Section 3100 calls the more subjective valuation factors "significant unobservable inputs." For an example, see the fair value investment classifications on page 26 of STRS' 2022 ACFR.

[14] FASB Topic 820 is consistent with GASB Codification 3100. In other words, FASB and GASB have similar fair value measurement requirements.

As STRS states, these audits include tests of fair value measurements. Auditors must qualify their opinions if asset values are materially misstated, or if evidence is insufficient to reasonably support management's valuations. As explained in Allegations 16 and 19, we selected 10 PE annual reports from the fiscal years ended June 30, 2021, and 2020, and read the auditor's opinions. There were no qualified opinions.

Also, the finite life of PE funds (usually about 10 years) at least assures that any overvaluations would not be reported in the asset records indefinitely. That is, upon liquidation, PE funds distribute remaining cash, and STRS removes the subjective valuations from its accounting records.

Conclusion – PE Fund Valuation
Independent PE fund audits, plus the finite lifespan of PE funds, reasonably mitigates the risk of "profound conflicts of interest" regarding PE fund valuations.

Allegations 23 and 24 – Compliance with GIPS
The BFS report provided some background on GIPS on page 72 as follows:

> Introduced in 1999, the GIPS standards are universal, voluntary standards based on the fundamental principles of full disclosure and fair representation of investment performance. The GIPS standards are administered globally by CFA Institute and have been adopted by 1,700+ firms in more than 47 markets around the world, including some or all of the assets of the 24 of the top 25 asset management firms.

Page 71 of the BFS Report also states:

> Since 2006, STRS has regularly stated in press releases and on its website that its performance was verified by ACA Performance Services and was in compliance with the CFA Institute Global Investment Performance Standards (GIPS), widely considered to be the best standard for calculating and presenting investment performance."

BFS expressed the following three concerns:

1. Page 79 states, "Based upon statements by ACA that less than 5 percent of alternatives managers are GIPS compliant, it seems likely that most of STRS's approximately 170 alternative investment funds are *not* GIPS compliant."

2. Conversely, page 17 of the BFS report states "It is disputable whether GIPS standards are 'best practice' or acceptable for retirement plan fiduciaries. That is, standards which the asset management industry is comfortable voluntarily adopting likely will fail to be rigorous enough to meet the heightened standards applicable to fiduciaries charged with safeguarding retirement plan assets."

3. Page 80 of the BFS Report indicates, "We note that Ohio Revised Code § 3309.15 governing the investment and fiduciary duties of the Board states: 'If the board contracts with a person, including an agent or investment manager, for the management or investment of the funds, the board shall require the person to comply with the global investment performance standards established by the chartered financial analyst institute, or a successor organization, when reporting on the performance of investments.' It appears that compliance with the above statutory requirement may not be enforced."

Page 35 of the *STRS' Response* rebuts concerns 1 – 3 above, stating, "Despite STRS Ohio's rigorous valuation policies, procedures and oversight noted above, the BFS Report's author further maligns STRS Ohio's performance reporting by posting that alternative asset valuations received from general partners simply cannot be trusted, implying that general partners are free to make up their own numbers. To arrive at this conclusion, he mischaracterizes the fund valuation process and ignores the considerable checks and balances in place to ensure fair valuations. . . Importantly, STRS Ohio's alternative investment portfolio is over 20 years old, with tens of billions in cumulative invested capital across thousands of line-items. During this time, STRS has observed the full maturation of numerous funds and would have been able to detect if there were material differences between unrealized valuations and realized valuations in those funds. Our experience has shown this not to be the case."

Also regarding number 3, Page 36 of *STRS' Response* states, "The BFS Report incorrectly states that STRS Ohio is subject to ORC 3309.15, which requires external managers to comply with the GIPS standards. This provision is from ORC Chapter 3309, which applies to School Employees Retirement System, not STRS Ohio. ORC Chapter 3307, which governs STRS Ohio, includes no such requirement for external managers."

Analysis
There are several statements above to analyze:

1. Regarding BFS' three concerns, it is unclear why BFS is concerned with possible failures to apply GIPS if they also believe GIPS compliance for asset managers "likely will fail to be rigorous enough."

2. Regarding statement 3, we agree with the *STRS' Response* -- Ohio Rev. Code § 3309.15 applies to SERS, not to STRS.

   That is, SERS' GIPS provision in Ohio Rev. Code § 3309.15 is not included in STRS' companion section of 3307.15.

   Section 3307.15(B) *does* require STRS to comply with GIPS when reporting investment performance. A Verification and Performance Examination Report from the ACA Group, Performance Services Division was included in STRS' fiscal year 2020 and 2021 ACFRs. (ACA is expert No. 8 in Appendix B.) These reports expressed unqualified opinions on STRS' compliance with GIPS performance presentation standards. ACA also issued their unqualified report dated Auguest 18, 2022 for the fiscal year ended June 30, 2022. ACA Group conducted examinations in accordance with the required verification and performance examination procedures of GIPS, which includes testing performed on a sample basis.

Conclusion
According to the Verification and Performance Examination Report from the ACA Group, for their reporting period of July 1, 2006 through June 30, 2022, STRS' policies and procedures have been designed and implemented in compliance with the GIPS standards, related to composite and total fund maintenance, as well as the calculation, presentation and distribution of performance.

In addition, GIPS requirements are not included in the statutory requirements which govern STRS, except with respect to reporting performance. STRS has complied with this requirement.

Allegation 26 – Fiduciary Performance Insurance
Page 20 of the BFS report states "In our opinion, [$25 million of fiduciary insurance coverage] is absurdly low and offers virtually no protection for a $90 billion pension. Virtually any fiduciary breach may result in actual damages amounting to hundreds of millions of dollars.

For example, STRS recently disclosed it had lost more than half a billion dollars on a PE investment in Panda Power Funds. From 2011 to 2013, STRS invested $525 million with Panda but the investment is now valued at zero."

Page 94 of the BFS report states "The agreement [with Callan] provides that Callan will maintain professional liability insurance coverage in the amount of only $5 million. In our opinion, this amount of insurance seems woefully inadequate to protect the $90 billion public pension from potential investment consultant negligence or malfeasance, particularly given that GAO estimates consultant conflicts can result in billions of losses over time."

Page 124 further states "§ 3307.10 (B) of the Ohio Revised Code provides the Board may secure insurance coverage designed to indemnify board members and employees for their actions or conduct in the performance of official duties and may pay required premiums for such coverage from the expense fund.

We were provided with documents indicating the fund had coverage in the amount of $10 million with Hudson Insurance Company and $10 million with Federal Insurance Company. In addition, the pension has an excess liability policy in the amount of $5 million with RLI Insurance Company. In our opinion, this level of coverage is absurdly low and offers virtually no protection for a $90 billion pension."

Page 50 of STRS' Response notes "While Callan and Cliffwater both serve as fiduciaries in their roles as investment advisers for the Board, they serve in a non-discretionary capacity which means they do not make investment decisions. Those decisions are ultimately the responsibility of STRS Ohio, as directed by the policies set forth and adopted by the Board on an ongoing basis. According to Board consultant Callan, in their experience, insurance coverage of $5MM is well within industry standards for non-discretionary consulting contracts with large institutional investors like STRS Ohio. Callan has rarely seen a case where a large fund has required more than $10MM in insurance coverage for a non-discretionary consulting relationship, and $5MM is more common. As a practical matter, Callan currently carries $10MM in insurance."

Analysis
Fiduciary liability insurance protects a person or organization from claims resulting from breeches in fiduciary duty. For pension plans, those with fiduciary responsibility can include board members, employees, external consultants, and asset managers. It is important to understand what fiduciary insurance protects versus what it does not protect when determining an appropriate policy amount. Insured fiduciary breeches include theft and other intentional violations of fiduciary duties by the STRS Board or those acting on its behalf in a fiduciary capacity. Fiduciary insurance does not insure against investment losses arising from misjudging the future profits of an investment.

As an example, BFS mischaracterizes the loss of $500 million invested in Panda Energy Company as an "example" of a loss that might be insured by a fiduciary policy. It was not. While this loss was certainly severe (see details in Allegation 27), this loss arose from external fund managers' misjudgments of future energy needs in certain markets, not fiduciary misconduct. Fiduciary insurance provides no protection against such market losses.

To discern the reasonableness of STRS' fiduciary insurance policy, we compared STRS to five Ohio peer pension plans as well as national peers for which information was available.

For STRS as well as the Ohio Public Employees Retirement System (OPERS), SERS, and OP&F, the Ohio Rev. Code requires that "every fiduciary of the system be bonded or insured to an amount not less than one million dollars." In practice, OPERS scales its minimum amount of required liability coverage in proportion to the amount of a manager's AUM (ranging from $1 million in coverage for under $500 million AUM to $5 million in coverage for $3-10 billion AUM.) OP&F also requires $5 million in coverage in excess of Ohio Rev. Code minimums. The Ohio State Highway Patrol Retirement System (OSHPRS) is the one statewide Ohio pension system without Ohio Rev. Code requirements for fiduciary insurance, but as a matter of policy requires a minimum of $1 million in coverage. Cincinnati ERS, a municipal pension plan, is not governed by the Ohio Rev. Code, but carries $5 million of liability coverage.

For out-of-state peer pensions, the exact amount of fiduciary coverage was not readily accessible. However, we were able to determine the following peer plans had a requirement for carrying fiduciary insurance.

Pension Plan	Fiduciary Liability Insurance Requirement
Arizona ASRS	Yes, via the State
California Teachers	Yes
Colorado School	Yes, via the State
Georgia Teachers	Yes, via the State

Illinois Teachers	Yes
Kentucky Teachers	Yes
Maryland Teachers	Yes
Michigan Public School Employees	Yes
Ohio PERS	Yes
Ohio SERS	Yes
OP&F	Yes
Pennsylvania State Employees	Yes, via the Fund
Pennsylvania School Employees	Yes, via the Fund
South Carolina SCRS	Yes
Virginia VRS	Yes
Wisconsin PERS	Yes, via the State

For the 16 peers with available information, there was wide variability in the minimum coverage amount requirements. There was also variation as to whether coverage was provided by the state government or a private third party entity.

- Many of the states impose a fiduciary insurance requirement on their pension boards, but do not specify specific amounts of coverage.
- Six pensions backstop board members' fiduciary liability through the state government or the fund itself (i.e., the states are self-insured.)
- Of the peers found to be publicly reporting a specific amount of liability coverage, only California's exceeded $15 million.

Conclusion
BFS' report alleges that STRS coverage amounts are "absurdly low." However, our review of peer pension practices does not show STRS to be a low outlier regarding fiduciary insurance coverage. STRS also exceeds Ohio Rev. Code requirements for coverage amounts. Funston's 2022 fiduciary audit did not question the adequacy of fiduciary coverage. While there may be general arguments that STRS should exceed its peers in the provision of fiduciary performance insurance, the specific claim leveled by BFS against STRS is unsupported. It was also inappropriate for BFS to cite the Panda loss as an example of an insurable fiduciary loss. Losses related to STRS' Panda investment related to market misjudgments and were not fiduciary breeches.

Finally, note that fiduciary insurance is only one layer of protection over STRS' decision making. External consultants and actuaries also help management with decision-making. Financial audits must report control deficiencies to the Board. The fiduciary audit assesses policies, organizational structure, and information technology.

Allegation 27 – Publicized Investment Losses
STRS invested in the two companies discussed below. One incurred nearly a 90% loss in value. The other suffered a loss of nearly 40%. Events related to these losses were publicized, which is of course, appropriate. Judging STRS' actions regarding these would include:

- Assessing whether STRS followed its investment due diligence and approval policies.
- Determining whether STRS recorded these losses in their accounting system accurately and in the proper period
- Assessing whether STRS' investment strategies have been appropriate.

It is beyond the scope of our audit to evaluate STRS' investment strategies – STRS consults with Callan and Cliffwater regarding strategies (They are expert Nos. 10 and 11 in Appendix B).

However, it is appropriate for us to determine if STRS followed their policies for these investments and recorded losses accurately and in the proper period. For the benefit of STRS' stakeholders, we also summarized key events related to these losses below.

Panda Power Investments (Panda)

Page 20 of the BFS report notes STRS lost about $500 million from its investment in Panda between 2011 and 2020. BFS is correct regarding this loss as of June 30, 2020. STRS' Director of AI, Deputy Executive Director of Investments and Senior Analyst, AI provided the following explanation, which we have simplified for this report:

- In 2010, the Electric Reliability Council of Texas (ERCOT) reported that reserve energy margins would fall below reserve targets by 2014, necessitating additional electrical energy in certain markets.
- In response, Panda sought to raise investment funds to construct gas-fired and solar electrical generation plants, in Texas and eastern Pennsylvania.
    - Panda's main functions were to identify opportunities and raise capital. They subcontracted the construction projects.
    - They created six companies for the different geographic and operational aspects of this venture. (A seventh company was not completed.)
- As part of its *energy and natural resource* investments strategy in 2011, STRS became aware that Panda was seeking investment capital. STRS' investment staff performed a due diligence analysis of Panda.
    - This 49-page analysis cited the ERCOT report. The analysis also noted that Panda had operated 11 power and renewable energy investments since 1989, and returned $778 million, investing $245 million of its own capital. The analysis did note that Panda lost money on two of these 11 projects.
    - Cliffwater agreed this investment was consistent with STRS' investment strategies.
- Between 2012 and 2016, STRS invested (paid) about $511 million to Panda.
    - Some of these were "co-investments," in which STRS invested directly in the holding companies of power generation assets.
    - Co-investments imposed additional investment risk because the investors had both indirect exposure through the fund and direct exposure (at a lower cost) through direct investment.
- This venture reported profitable results through 2016, with the Panda companies audited 2016 financial statements reporting that STRS' investments had increased in fair value to over $622 million.
- However, ERCOT's energy forecasts eventually proved overly optimistic. Other adverse events also occurred:
    - Relatively milder summers and warmer winters resulted in less electricity demand than the forecast.
    - The supply of electricity exceeded the forecast:
        - Heavily subsidized renewables, especially wind-turbine generated power, produced more electricity than expected.
        - Certain older coal and nuclear producers did not retire their plants as had been forecasted.
    - The lesser demand and greater supply both reduced electricity costs, reducing Panda's revenue significantly.
    - A power outage at a Panda plant and an unaffiliated regional transmission organization's transmission outage also contributed to accumulating losses.
- Due to insufficient revenue, certain Panda companies were unable to pay scheduled debt service, resulting in defaults and bankruptcy filings.
- By the end of 2017, these losses and bankruptcies required STRS to reduce the Panda companies' fair value to about $340 million.
- Some lenders were awarded the remaining assets in the bankruptcy. STRS reduced its fair value in all Panda companies to zero by June 30, 2020.

- Panda filed a $2.7 billion lawsuit against ERCOT, alleging that ERCOT published false market data to encourage investors to build new power generation in Texas. As of the date of our report, this suit has not been resolved.
- Two companies avoided dissolution and have improved their performances and regained some fair value. STRS originally invested $175 million in them and reduced their values to zero by June 30, 2020. By July 2022, their third party valuation agents reported that STRS' share of their fair value had increased to $56 million.

We also asked if STRS changed its investment analyses or strategy based on the Panda losses. They explained:

- While not specifically prompted by Panda, STRS now has additional staff within the AI Department focusing specifically on co-investments and have developed additional policies for reviewing co-investments.
- Based on reconsiderations of the market, they have reduced their investment allocations for *energy and natural resources* in their AI portfolio. Allocations in 2017 and 2018 targeted 10% to 15% of the Opportunistic/Diversified portfolio to invest in energy and natural resources. STRS reduced this targeted allocation to zero to 5% for 2021 and 2022.

Analysis
To corroborate the above explanations, we:

- Read STRS' 2011 Panda due diligence and authorization document.
- Summarized changes in STRS' Panda companies' investment balances between 2011 and 2022.
- Read selected Panda companies' audited annual reports.
- Agreed the updated $56 million fair values to STRS' August 2022 monthly market accounting report.
- We read June 30, 2022 AI quarterly investment reports presented to the Board. The balances classified as *energy and natural resources* comprised 4.6% of the AI portfolio total, within the 5% target described above.

Conclusion
Evidence supports STRS' explanation of losses arising from its Panda company investments. STRS followed its procedures in researching and approving this investment and in recording fair value changes in the accounting records.

<u>Infinity Q Capital Management</u>
We received a complaint that the SEC found management fraud in a fund with which STRS had invested. Similar to the Panda discussion above, we are presenting a summary of the events and determining if STRS reported the transactions properly.

Analysis
STRS invested $50 million in the Infinity Q Volatility Alpha Fund, L.P. This fund began operating in 2017 and used volatility-based strategies to provide long and short exposure to a diversified portfolio of derivatives across equities, currencies, bonds, interest rates, and commodities markets. As the fund's administrator, US Bank has been responsible for reporting fair value changes for this investment. Based on US Bank's information, STRS' investment had increased to a $53 million fair value by June 30, 2020.

In May 2020, the SEC began investigating a scheme whereby Infinity's founder and chief investment officer had been able to override controls and inflate asset values to conceal losses, providing fraudulent supporting documents to independent auditors. US Bank did not have information about this investigation at the time. Accordingly, neither US Bank nor STRS wrote down the Infinity Q investment as of June 30, 2020.

In February 2021, Infinity's partners (which include STRS) were notified of the investigation. US Bank revalued STRS' share of this investment to $28.7 million by STRS' June 30, 2021 fiscal year end. STRS reported this write-down in its accounting records.

Conclusion
Press reports and STRS' accounting records are consistent with the narrative above. STRS recorded this write-down properly in its accounting records.

Allegation 28 – Performance Bonuses
Background
Recall from the *Pension Plan Background and Funding* discussion at the beginning of this report that STRS cannot exceed its targeted 7% overall portfolio returns using relatively riskless investments. Therefore, most of STRS' investment portfolio must be held in asset classes subject to the risk of loss. Also, some of the gains or losses correlate to the rise or fall of the stock market.

STRS attempts to acheive its targeted investment return with a combination of external asset management (committing money to firms who will invest in public and private ventures) and internal asset management (having STRS investment staff make decisions about equity, real estate, or other asset class opportunities). As a form of compensation, STRS incentivizes its staff with bonuses based on performance relative to established benchmarks:

- STRS awarded about $6.6 million in bonuses for the year ended June 30, 2021. This equals about 0.03% of total investment earnings of $22.3 billion.
- For the year ended June 30, 2022, bonuses of $9.3 million equated to 0.18% of the investment losses of $5.3 billion.

A slightly simplified explanation of the bonus formula is useful in understanding the allegations discussed below:

1. STRS awards bonuses to investment staff responsible for investment purchases and sales based on whether they performed better than the *benchmarks* discussed in Allegations 10 – 13.
2. STRS adds an additional amount (called the *hurdle*, typically 30 – 50 bps, or 0.3% -- 0.5%) staff must exceed to fully earn a bonus. If earnings are between the benchmark and the benchmark plus hurdle, staff earn a pro-rated amount.
3. It is possible for staff to earn bonuses in years with losses, if STRS loses at a lower rate than the benchmark lost. If this occurs (as it did for the year ended June 30, 2022), there is a reduction to the total of between 10% (for losses of up to 2%) up to 50% for losses exceeding 12% of the portfolio. Using fiscal year 2022 as an example, in their GIPS performance report, ACA states the total STRS portfolio lost 3.61% against a benchmark of minus 5.62%. While investment staff exceeded their benchmark by 2.01%, the overall loss resulted in reducing bonuses by 15%.

Allegations and Analysis
There are several allegations related to STRS' staff bonuses:

1. Many have questioned why STRS staff have received bonuses in years the fund lost money or whether they should receive bonuses even when earnings exceed benchmarks.[15]

The AOS found that investment staff of some (but not all) other governmental pension plans have a bonus policy and award investment performance bonuses. These include two statewide Ohio pension plans in addition to STRS. Non-Ohio plans were generally not responsive to our requests for information concerning bonus policies. However, additional online sources indicate that some did award bonuses, while only one plan responded that they did not award bonuses.

Step 3 above explains the reasoning and formula for awarding reduced bonuses in years with losses.

It is fair to note that while STRS paid bonuses in a year with losses, some bonus goals were not met in 2021, when the total fund earned +29.3%. That is, earnings were very high, but benchmarks were also very high. Many bonus targets were met, but some were not. As two examples:

[15] For example criticisms, see articles in the Cleveland Plain Dealer dated August 16, 2022 and the Toledo Blade dated October 23, 2022.

- In 2021, the one-year real estate asset category earned +8%, but staff earned no one-year real estate asset category bonuses, because this performance was less than the one-year real estate blended benchmark.
- As an extreme example, in 2021, the one-year small cap select portfolio earned 56.6%, but because this was less than the related benchmark, no bonuses were earned for this one-year portfolio investment.

In April 2018, a compensation study by McLagan[16] assessed the competitiveness of both investment staff and non-investment staff pay levels. We'll focus on the results of the investment staff. The Board-determined peer group relied upon a 50/50 split between private and public sector peers. In the study, *max compensation* means regular salary plus maximum bonuses. Key highlights from the investment staff study follow (additionally, the following chart illustrates one of the peer comparisons):

- In 2017, STRS' max compensation levels were 2% below the median.
- Also in 2017, salary levels were 6% below the median.
- 2016 actual pay levels were in the 22nd percentile.

Plan Name	12/31/16 AUM
California Public Employees Retirement System	$302.8
California State Teachers Retirement System	196.4
New York State Common Retirement Fund	186.0
Teacher Retirement System of Texas	140.4
Washington State Investment Board	112.4
State of Wisconsin Investment Board	109.1
Ohio Public Employees Retirement System	89.1
State of North Carolina	86.6
Division of Investment Services, State of Georgia	79.3
Virginia Retirement System	69.9
PA Public School Employees' Retirement System	57.8
Colorado Public Employees' Retirement Association	45.0
High Quartile	151.8
Median	**99.1**
Low Quartile	77.0
State Teachers Retirement System of Ohio	**$71.7**

Chart from McLagan's Compensation Study for public sector peers

2. *Page 36 of the BFS report states: "Performance incentives have been paid annually, despite no clear benchmarks for earning these so-called 'bonuses'."*

Ohio Rev. Code § 3307.041(B), states, in part, if the board intends to award a bonus to any employee of the board, they must establish a policy regarding employee bonuses. Ohio Rev. Code § 3307.15(B) states, in part, "the board shall adopt, in regular meeting, policies, objectives, or criteria for the operation of the investment program that include asset allocation targets and ranges, risk factors, asset class benchmarks, time horizons, total return objectives, and performance evaluation guidelines." To fulfill this statutory requirement, STRS adopts a SIOP (the SIOP applicable for 2021 was approved in December 2019 by the Board) which applied to the year we analyzed. The SIOP is prepared by the

[16] McLagan performs compensation benchmarking services across many industries.

STRS Investment staff, reviewed by and recommended by Callan (Expert No. 10 per Appendix B) and approved annually by the Board.

In addition, STRS has adopted Performance-Based Incentive (PBI) Compensation policy #4.150, which documents the guidelines and procedures STRS follows for issuing bonuses to STRS Investment staff. The policy specifically documents the eligibilty, performance measures, program administration, and bonus payment. The PBI program and all compensation paid under the program are subject to review and approval annually by the Board.

The following lists key requirements from the Program Administration section of the policy. Most of these procedures are also internal controls. That is, they are procedures designed to detect or prevent errors:

Establishing Bonus Goals

- The Deputy Executive Director – Investments establishes investment goals for eligible associates.
- The Human Resources Department and Internal Audit Department review and approve these goals.
- Associates receive individualized copies of their goals (i.e. benchmarks plus applicable hurdle).

Computing and Approving Bonuses

- At year end, the Finance Department summarizes investment results compared to the goals.
- Performance results of the asset classes and total fund are examined annually by ACA (Expert No. 7 in Appendix B).
- The Finance Department provides and the Investment Department asset heads confirm each eligible associates' overall bonus percentage earned.
- The Deputy Executive Director – Investments reviews all calculations of performance and the proposed payments.
- The Internal Audit Department and the Human Resources Department review each of the individual incentive calculations.
- The Executive Director reviews and approves all individual incentive compensation performance worksheets and then submit the recommended incentive compensation to the Board in August.
- The Board has final approval of bonuses.
- Bonuses are paid in the month following Board approval.

We recalculated all bonuses paid in 2021 to ensure the aforementioned policies were followed and noted no issues. Further, we reviewed the control structure in place for an individual PBI memo and verified the controls were properly implemented. Per the bullet points above, there are multiple approvals of bonus targets prior to each fiscal year, and multiple approvals of bonus computations afer each fiscal year. We also noted bonus calculations rely on GIPS performance reporting, rather than GAAP financial reports; however, any gains/losses recognized on a lag via GIPS performance reporting are appropriately considered in the next reporting period.

3. *In 2022, a STRS Board member issued a paper titled: <u>The Benchmark Scam: How STRS Manipulates its Benchmarks to Enhance Bonuses</u>. Other aspects of this were previously addressed in Allegations 10-13.*

AOS viewed the March 2022 STRS Board Meeting recording, which included discussion of concerns raised by a STRS Board member regarding how the benchmarks impact bonuses. (AOS was instructed the pertinent discussion began at the 9:53 mark and ended at the 39:42 mark.) Around the 38 minute mark, the discussion was summarized as follows:

- Words matter and the way the paper was published made it seem like there was a "scam".
- The concerns are more of a discussion about whether the benchmark is appropriate.

- There are layers of transparency, layers of oversight, the SIOP is Board-approved, and the benchmarks have been Board approved.
- There has been no manipulation or scam. The only question would be one Board member's opinion if the benchmark is appropriate.
- The Board asked STRS Deputy Executive Director – Chief Investment Officer to confirm if the above bullet points were an accuate summary of the Board's discussion and he agreed.

4. *A Board member questioned whether benchmarks are too low. (as discussed in Allegations 10 – 13), such that staff almost always earn the bonuses.*

   We can analyze this objectively by presenting information about how often STRS met its benchmarks. We chose the most recent five fiscal years for this comparison, which includes results for all STRS' asset classes:

	2022		2021		2020		2019		2018	
Investment Class	**1 yr**	**5 yr**	**1 yr**	**5 yr**	**1 yr**	**5 yr**	**1 yr**	**5 yr**	**1 yr**	**5 yr**
Domestic Equities	**No**	Yes	Yes	Yes	Yes	Yes	**No**	Yes	Yes	**No**
International Equities	Yes	Yes	Yes	**No**	**No**	Yes	Yes	Yes	**No**	Yes
Fixed Income	Yes	Yes	Yes	Yes	Yes	Yes	**No**	Yes	Yes	Yes
Real Estate	Yes	Yes	**No**	**No**	Yes	Yes	Yes	Yes	Yes	Yes
AI	Yes	N/A	Yes	Yes	**No**	**No**	Yes	Yes	Yes	Yes
Total Fund	Yes	Yes	Yes	Yes	Yes	Yes	**No**	Yes	Yes	Yes

Notes:
(1) There is no five-year benchmark in 2022 (i.e., it is marked N/A) for AI because GIPS do not permit retroactive application to prior years, for which STRS used different AI benchmarks.

Important: The analysis above reports the frequency with which plans met their benchmarks. It does not report the frequency that bonuses were earned, because investment staff must also clear the hurdle added to the benchmarks.

From the above table, STRS met its benchmarks 47 of 59 times (79.6%) over the past five years. In comparison, from 2018-2021[17], Ohio peer pension systems met their benchmarks as follows:

- SERS – 56 of 65 times (86.2%).
- OP&F – 66 of 87 times (75.9%).
- OSHPRS – 36 of 48 times (75.0%).
- OPERS – 94 of 133 times (70.7%).
- Cincinnati – 27 of 66 times (40.9%).

The Ohio peer comparisons rank STRS second among the six Ohio governmental pensions regarding how often benchmarks were met. We again caution that it is inappropriate to judge whether benchmarks are appropriate based solely on how frequently they are met, as explained in the *Background* above.

[17] Fiscal year 2022 information for the other Ohio pensions was unavailable when we prepared this analysis. Also, plans have different numbers of benchmarks depending on how they classify investments.

For all of the bonus allegations addressed above, it is important to understand how/if peers have bonus incentives and how they compare to STRS. The below charts summarize our findings:

PEER PENSION SYSTEMS WHICH DO ISSUE BONUS INCENTIVES

	Investment Staff Receiving Bonuses	Total Salary Paid In 2021	Total Bonuses Paid In 2021	Average salary Average bonus
STRS	90	$16,645,102	$6,622,467	$184,945 $73,583
SERS	11	$1,427,744	$817,117	$129,795 $74,283
OPERS *	59	$8,682,560	$5,545,792	$147,162 $93,996
California PERS	Unknown	Unknown	$11,470,000	Unable to calculate
California STRS	189	$92,500,000^	$16,900,000	$489,418 $89,418

* - OPERS did not respond to our request for bonus information. We obtained staff headcount, total salary, and bonus payment information from the *Ohio Checkbook* website (https://checkbook.ohio.gov).
^ - California STRS salary amount is based on budgeted figures.

PEER PENSION SYSTEMS INFORMING US THEY DO NOT ISSUE BONUS INCENTIVES

OSHPRS
OP&F
City of Cincinnati
North Carolina Department of Treasury

Eight peer plans (in addition to OPERS) declined to provide us information. Two of the plans explained they consider bonus information a "trade secret" (as defined in Allegations 1 – 5). That is, they believe disclosing bonuses would place them at a competitive disadvantage in attracting and retaining investment professionals.

Conclusion

STRS paid fiscal year 2021 bonuses to their investment staff in accordance with the Board-approved SIOP and each individual's PBI assessment. BFS is incorrect in stating there are no benchmarks established for bonuses. STRS uses investment benchmarks plus a hurdle rate.

STRS has multi-layer controls in place surrounding the payment of PBI, including Board approval of the overall payments. The evaluation and calculation of what/when bonuses are paid is properly segregated from the investment staff and requires multiple reviews.

Peer comparisons, although limited due to response rate and willingness to share such data, show that STRS is not the only one paying bonuses. When considering average salary and bonus rates, STRS does not appear to be an outlier. However, the Board, ORSC and legislature should consider whether invesment performance bonuses are appropriate for pension systems and, if appropriate, whether legislature should include resrtictions surrounding such payments.

Allegation 9 – Reduction of the COLA
Page 35 of the BFS report states "Most objectionable was the loss of a promised Cost of Living Adjustment (COLA) in 2013 with no resumption in sight. In 2013, STRS did not pay the annual COLA; in 2014, 2015, and 2016, the COLA was reduced from the promised 3 percent to 2 percent. In 2017, the COLA benefits were reduced to zero."

<u>Background</u>
Ohio Rev. Code § 3307.67(A) reduced STRS' COLA from 3% to 2% beginning after August 1, 2013.

Further, Ohio Rev. Code § 3307.67(E) states "The board may adjust the increase payable under this section if the board's actuary, in its annual actuarial valuation required by § 3307.51 of the Revised Code or in other evaluations conducted under that section, determines that an adjustment does not materially impair the fiscal integrity of the retirement system or is necessary to preserve the fiscal integrity of the system." Ohio Rev. Code § 3309.374(G) and § 5505.174(B)(1)(b) affords SERS and OSHPRS similar Board rights, while notably OPERS does not have the ability to make these adjustments without legislative action (see Ohio Rev. Code § 145.323).

Analysis
Our objective here is to report the financial impact of reinstating a COLA on STRS' liabilities and its funded ratio (assets as a percentage of liabilities).

STRS was not the only Ohio pension to suspend COLA's. From 2018-2020, SERS also suspended their COLA in accordance with their statutory authority, while from 2020-2021 OSHPRS suspended their COLA. The other Ohio pensions do not have this authority in their statutes.

Rather than independently run scenarios and calculations or weigh-in whether the COLA should have been eliminated, we have summarized and reported on the experience study STRS' actuarial firm prepared. Ohio Rev. Code § 3307.51(B) requires an *experience study* conducted by a qualified actuary at least every five years.

Between October 2021 and March 2022, the actuarial firm Cheiron (Expert No. 2 in Appendix B) conducted the five-year experience study and ran various scenarios at the request of STRS' Board that calculated the impact of certain changes to the pension plan revolving around COLA reinstatement. Cheiron followed generally accepted actuarial practices for this presentation.

<u>Timeline and Scenarios Considered</u>
Cheiron began with 17 scenarios requested by the STRS Board in October 2021 (inclusive of the baseline current state) revolving around COLA reinstatement and considered the impacts to plan liabilities and funded ratio both immediately and in 2032. The scenarios considered permanent and one-time COLA reinstatements at various rates, changes to contribution rates, retirement eligibility, and final average salary calculations.

Lever	Description	2022 NC	2022 Liab.	2022 Funded Ratio	2022 Amort. Period	2032 Funded Ratio	2032 Amort. Period
1	6/30/2021 Baseline Valuation	11.76%	$101,408	88.5%	10.9	108.3%	0.0
2	+1% Contributions	11.76%	$101,408	88.6%	10.1	110.2%	0.0
3	-1% Contributions	11.76%	$101,408	88.4%	11.9	106.3%	0.0
4	3% Ongoing Simple COLA	13.55%	$122,115	73.5%	46.6	76.4%	21.6
5	2% Ongoing Simple COLA	12.95%	$115,213	77.9%	27.9	85.3%	9.8
6	1% Ongoing Simple COLA	12.36%	$108,310	82.9%	17.8	95.7%	2.2
7	3% COLA, one time, No 5 year wait	11.76%	$103,099	86.9%	12.4	105.0%	0.0
8	2% COLA, one time, No 5 year wait	11.76%	$102,536	87.4%	11.9	106.1%	0.0
9	1% COLA, one time, No 5 year wait	11.76%	$101,972	88.0%	11.4	107.2%	0.0
10	2% Ongoing COLA for first $2,500/month	12.31%	$109,482	82.0%	18.9	94.0%	3.1
11	2% Ongoing COLA starting in 2024	12.94%	$113,286	79.2%	25.0	88.0%	7.6
12	Benefit Multiplier of 2.1%	11.53%	$100,837	89.0%	10.3	109.8%	0.0
13	FAS using 6 years	11.62%	$100,933	88.9%	10.5	109.4%	0.0
14	2026 Retirement eligibility starting Immediately	11.74%	$101,216	88.7%	10.8	108.6%	0.0
15	Return of 150% of Contribution at 10 yrs vs. 5 yrs	11.68%	$101,474	88.4%	10.9	108.3%	0.0
16	2% Ongoing COLA offset by total employer contrib. rate of 28.06%	12.95%	$115,213	79.4%	10.1	108.3%	0.0
17	One-time supplemental benefit of $80 million 6/30/2022	11.76%	$101,408	88.4%	11.0	108.1%	0.0

Table prepared by Cheiron as part of the presentation to the STRS Board, dollar values are in millions.

The *Lever* column enumerates the different scenarios, with the Baseline Valuation (i.e., STRS status quo at the time with no COLA in effect) listed first. Impacts of the various plan changes can be seen by comparing the liabilities and funded ratio of each scenario to those in the Baseline Valuation. The most impactful changes considered are those involving restoration of ongoing COLAs (Levers 4, 5, 6, 10, 11, and 16). The amortization period refers to the number of years it will take for the plan to reach a 100% funded ratio.

During the March 2022 STRS Board meeting, the Board narrowed its focus to five of Cheiron's levers. The Board also asked the firm to report on which scenarios would "materially impair the fiscal integrity of the system." The scenarios and liability-impact are in the table below.

Lever	1st Yr COLA	2nd Yr COLA	Age 60 Ret req	Member Contrib	Liability Impact
Baseline @ 7.0%	-	-	keep	14%	$ -
A	2%	-	remove	14%	$ 1,623
B	3%	-	remove	14%	$ 2,119
C	2%	-	remove	13%	$ 2,875
D	3%	-	remove	13%	$ 3,372
E	2%	2%	remove	13%	$ 3,789

Table prepared by Cheiron as part of the presentation to the STRS Board.

All scenarios were computed using STRS' 7% assumed rate of return. Also note that in March 2022, the Board voted to eliminate the age 60 requirement for retirement eligibility with unreduced benefits, which was previously scheduled to take effect in 2026. All scenarios A-E are computed without the age 60 retirement requirement. The COLA scenarios considered here are one-time restorations only (except E). Ongoing COLA restorations previously considered increased fund liabilities by $6-$20 billion. In addition to COLA restoration and the age 60 requirement, a third variable previously considered was a potential decrease in member contributions from 14% to 13% of wages. The scenarios above did not consider changes to employer contribution rates, although one earlier scenario (see item 16 in the first chart) did consider doubling employer contribution rates.

It its further worth noting that while these scenarios do not factor in any investment losses at STRS since March 2022, the scenarios are primarily focused on changes to accrued liabilities (increased in promised benefits due to COLA restoration) and accumulated assets (due to changes in the member contribution rate).

Cheiron concluded that two scenarios, D and E, could materially and adversely impact plan fiscal integrity, with increases to plan liabilities by over $3 billion.

<u>Takeaways:</u>
All Cheiron scenarios consider the current baseline STRS' valuation as of June 30, 2021. This places STRS with $101.4 billion in liabilities and an 88.5% funded ratio. In the year 2032, the plan would be 108.3% funded - assuming that the 7% investment target is achieved over the long-term, that all other actuarial experience aligns with assumptions, and that all contributions are paid as currently forecasted. This study was completed before fiscal 2022 investment losses were known and accordingly excludes their effect. (Note: Cheiron establishes this baseline using market, rather than actuarial asset values for the defined benefit plan only.)

Cheiron calculated that restoring an ongoing simple COLA of 2% would increase liabilities (e.g., the value of promised benefits) to $115.2 billion (an increase of $13.8 billion from the baseline) and reduced the funded ratio to 77.9%. In the year 2032, the plan would still be underfunded at 85.3%, again, assuming a 7% investment return and no changes to contribution rates.

The impact of a one-time, 3% COLA for those members who are "COLA eligible" (which differs from the scenario (Lever 7) in the first chart above, which represents a COLA for all members) would increase STRS' current liabilities by $2.1 billion from the baseline (Lever B).

<u>Current Resolution:</u>
At the March 2022 meeting, the STRS Board voted in favor of a one-time, 3% COLA increase to eligible plan retirees, to begin July 1, 2022.

Conclusion
The STRS Board used their statutory authority to determine when and if to pay COLAs. The Board utilized Cheiron's actuarial experience studies to make these determinations in 2022. There will be further consideration of COLAs for STRS members by the Board and legislature, as inflation is an on-going issue. Similar analyses should be provided for consideration of any future changes to benefits.

Allegation 29 – Out of State Regional Offices
Complaints from ORTA members noted that "Unlike other statewide pension systems, STRS has out-of-state regional offices." The inference is that these offices pose an unnecessary cost.

Background
STRS does operate four regional offices in San Francisco, Chicago, New York, and Atlanta. STRS uses these offices for in-house active management of real estate. That is, STRS owns and leases commercial buildings versus investing in external, third party real estate funds. (These external funds are often real estate investment trusts, or REITS.) STRS' leadership believes their in-house management provides a cost savings and value to their plan over what would be possible with externally managed options.

Analysis
The industry-standard source for comparing pension plan administrative and investment costs is CEM Benchmarking Inc. (Expert nos. 8 and 9 in Appendix B), as previously described in Allegations 15 and 17.

CEM reports investment costs in both absolute dollars and in bps. CEM also calculates a *value-added* returns measure, which compares a plan's actual returns in each asset class to its benchmark index. The relevant cost and performance data for the STRS real estate asset class are as follows:

Performance
The data below relates to the calendar year ending December 31, 2020, which is the most recent year CEM analyzed.

- STRS real estate asset allocation policy of 10% is in line with the CEM peer group average of 9%.
- STRS internally manages 84.2% of its real estate. This proportion is inverted from the peer average, which is only 10.4% internally managed.
- The 2020 costs of STRS' internally managed real estate were $16.8 million.
- CEM calculates STRS incurred 31.2 bps in expenses for internal management. Had STRS paid the median peer group cost for external management, expenses would have been 83.2 bps. This equates to a savings of $28 million.
- STRS' five-year policy return benchmark was 5.9%; peers were 6.1% for the five years ended December 31, 2020.
- STRS actual returns were less than its peers. STRS five-year actual return in real estate excluding REITS was 6.0%; Peers averaged 7.5% over those same five years. STRS' returns exceeded peer average returns in only one of the five years from 2016-2020 (that was in 2019, STRS = 7.8%; Peer 7.7%).
- We do not yet have peer information for the fiscal year ended June 30, 2022. However, ACA (Expert No. 7 in Appendix B) reported that STRS' real estate earned 21.96% and exceeded its benchmark of 17.30%.

Conclusion
STRS' internal active management strategy, of which the regional offices are one cost component, is lower than a strategy based on purchasing shares in REIT. The active-management savings were about $28 million for 2020.

However, STRS' real estate portfolio performance fell below peers over the five years ended in December 31, 2020 and exceeded the benefit of costs savings from their active-management strategy.

Overall, regional office costs are insignificant in assessing STRS' real estate investments' performance. The focus should be on monitoring STRS' active-management strategy's returns compared to peers' passive-management returns both on a short-term and long-term basis.

Exit Conference and Response

On December 21, 2022, we held an exit conference with the following individuals representing STRS and ORSC (Note: All members of the STRS Board, as well as key management team members for STRS and ORSC were invited to attend):

Bill Neville, CEO
Stacey Wideman, Chief Legal Counsel
Mark Maxwell, Deputy General Counsel
Samuel Peppers, Assistant Attorney General
Scott Roulston, Board Member
Rudy Fichtenbaum, Board Member
Scott Hunt, Board Member
Steven Foreman, Board Member
Bethany Rhodes, ORSC Director/General Counsel

Lynn Hoover, CFO
Matt Worley, CIO
Robert Vance, Chief Audit Executive
Carol Correthers, Board Chair
Dale Price, Board Member
Wade Steen, Board Member
Julie Sellers, Board Member
Arthur Lard, Board Member
Jeff Bernard, ORSC Sr. Research Assoc.

The attendees were informed they had five business days to respond to this report. A response was provided by Executive Director William Neville on December 27, 2022 and was evaluated in the final preparation of this report (see Appendix F). We also received comments related to the special audit from two board members. These comments were not prepared as official responses to the report and will be maintained in the special audit working papers.

Keith Faber
Auditor of State
Columbus, Ohio

December 22, 2022

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APPENDIX A

SCHEDULE OF MANAGEMENT RECOMMENDATIONS

APPENDIX A

MANAGEMENT RECOMMENDATIONS

Actuarial Review Requirement (from Allegation 8)

Ohio Rev. Code § 171.04(E) requires, in part, the ORSC have prepared for each system by an independent actuary, at least once every ten years, an actuarial review of the actuarial valuations and quinquennial actuarial investigations, including a review of the actuarial assumption and methods, the underlying data, and the adequacy of contributions to amortize the unfunded actuarial pension liability, if any.

ORSC had an actuarial review conducted of STRS in 2009 and not again until May 2022, which exceeds the required timeframe. Furthermore, STRS actuarial review did not include all years in the period, but rather select reports were reviewed.

Failure to have the required actuarial review and for the review to cover the full lookback period could result in out-of-date and improper actuarial valuations used by the Board to make important decisions regarding the operations and future of the pension fund.

We recommend the ORSC and STRS work together to ensure the required actuarial reviews are performed in accordance with the required timeframe and cover the required period.

Fiduciary Audit Requirement (from Allegation 7)

Ohio Rev. Code § 171.04(F) requires the ORSC to have conducted by an independent auditor at least once every ten years a fiduciary performance audit of each of the state retirement systems, which includes STRS.

ORSC had a fiduciary performance audit conducted of STRS in December 2006 and not again until May 2022, which exceeds the required timeframe. Further, the audit was not conducted by an independent auditor, but by an independent firm with a well-established reputation in the pension industry.

Failure to have the required fiduciary performance audit caused over 100 recommendations that were received via this audit to be delayed and unable to be addressed timely by STRS.

We recommend the ORSC and STRS work together to ensure the required fiduciary performance audits are performed in accordance with the required guidelines. We further recommend the results of the 2022 fiduciary performance audit be thoroughly reviewed and action should be taken to address any weaknesses. The ORSC should monitor the progress of STRS as items are addressed to ensure they are addressed timely and efficiently.

APPENDIX A

<u>Duties of the Investment Subcommittee (from Allegations 15, 16, 17 and 19)</u>

The STRS **Governance Process: Investment Committee Charter** requires, in part, that the committee meet as needed, review the SIOP and recommend changes, review monthly investment activity, review performance returns in relation to benchmarks, and report to/make recommendations to the full Board after each meeting.

There is no set meeting schedule for the investment subcommittee or detailed requirements for the information STRS management should provide to the committee and subsequently share with the Board. The Investment Charter does not include monitoring controls over the reconciliations and reasonableness tests of fees performed by the AI Fund Manager. There is also not a clear requirement for the committee to review and analyze the related investment costs or expert reports.

Failure to provide clear roles and responsibilities for the Investment subcommittee could result in the committee not serving the Board in an efficient manner and key investment components not being analyzed by the Board.

We recommend the STRS Board revise the Investment Committee Charter to require regularly scheduled meetings and specify the information required to be shared with the subcommittee and Board. It should also include detailed roles and responsibilities for the subcommittee including, but not limited to, reviewing reconciliations and analyses performed by finance employees, reviewing the costs of investments (fees paid, internal vs. external management costs) to help assess the Board's investment strategy, and reviewing Expert (see Appendix B) reports and considering implications on investment policy/strategy.

APPENDIX A

<u>Legislative Recommendations</u>

1. Consider directing all pension funds in the state to only work with outside investment managers who will also fully document transparency such as to eliminate any grounds when “trade secrets” could lead to documents being withheld/redacted.

2. **Ohio Rev. Code § 3307.51(B)** requires STRS to hire an actuary at least every five years to investigate actuarial assumptions and determine whether they require revision. We recommend the Ohio pension systems and the ORSC consider reducing the five-year investigation interval to three years.

3. **Ohio Rev. Code § 171.04(F)** requires the ORSC to have conducted by an independent auditor at least once every ten years a fiduciary performance audit of each of the state retirement systems, which includes STRS. We recommend the ORSC and STRS discuss with the legislature a potential change in the Ohio Rev. Code to allow for an “independent firm with pension expertise” to conduct the fiduciary performance audit, rather than an “independent auditor.”

   We further recommend the ORSC and Ohio’s pension systems discuss with the legislature whether Ohio Rev. Code § 171.04(F) should be modified to: (a) explain what the minimum scope for the audit should include and (b) what should happen if the 10-year deadline is not met. Because setting this scope may be more of an administrative than a legislative matter, consider whether the legislature should allow the ORSC to codify the fiduciary audit scope in the Ohio Administrative Code.

4. **Ohio Rev. Code § 3307.512** requires, in part, the STRS board to establish a period of not more than thirty years to amortize its unfunded actuarial accrued pension liabilities for benefits paid under the STRS defined benefit plan. We recommend reducing the amortization period from 30 to 15 or 20 years.

5. Consider whether creating a stress-testing framework would help fulfill ORSC’s oversight duties and provide stakeholders with easy-to-understand information about the funded status of their pension benefits.

6. STRS as well as SERS and OPERS, among other pension systems in the nation provide for bonuses to be paid to investment staff on top of their regular salary each year, based on their established policy. The legislature should consider whether bonuses should be allowable and, if allowable, whether legislature should establish restrictions regarding bonuses.

7. Consider legislation restricting the kinds of PE funds the state pension funds can invest in, such as requiring state pension funds to obtain certain fee disclosure that can be made public as a precondition to using an external asset management firm.

APPENDIX B

INDEPENDENT EXPERTS

APPENDIX B

List of Independent Experts Providing Oversight and Advisory Services to STRS

As described in the Executive Summary, the Ohio Legislature requires STRS and/or the ORSC to engage independent experts for the services described below. STRS has also elected to engage some additional experts, also described below.

	Scope of Engagement and Reporting	**Frequency**	**Required by Ohio Rev. Code §**	**Service Provided by**	**Most Recent Report Date**
1.	Actuarial valuation of assets, liabilities, and funding requirements: • STRS uses the actuary to compute its NPL. • This information is used as a basis for determining the adequacy of contributions.	Annually	3307.51(A)	Cheiron	October 20, 2022
2.	Actuarial *investigation* of the mortality, service, and other experience of the members, retirants, and beneficiaries of the system, and other system retirants: • Investigates the actuarial valuations (per 1 above) to determine if assumptions are still reasonable.	At least once every five years	3307.51(B)	Cheiron	March 11, 2022
3.	Actuarial *review* of the annual actuarial valuations and five-year investigations: • Reviews annual valuations and the five-year investigations (from 1 and 2 above) to determine if the assumptions, methodology, and data are reasonable and appropriate.	At least once every ten years	171.04(E)	Pension Trustee Advisors, Inc., and KMS Actuaries, LLC	May 10, 2022
4.	Fiduciary audit – Includes reviews of: • Governance, • Organizational structure, • Investment policies vs. best practices, • Risk management, • IT capability, and • Compliance with laws, ethics training and monitoring.	At least once every ten years	171.04(F)	Funston Advisory Services, LLC	May 19, 2022

APPENDIX B

	Scope of Engagement and Reporting	Frequency	Required by Ohio Rev. Code §	Service Provided by	Most Recent Report Date
5.	Audit of financial statements: • Opine on the fair presentation of financial statements in conformity with generally accepted accounting principles. • Report on compliance with material laws and regulations. • Report any significant deficiencies or material weaknesses regarding internal controls.	At least once every two years. (Note: STRS opts for an annual audit.)	117.11(C)(1)	Crowe LLP	December 8, 2022
6.	Investment performance: • Report comparative performance data for all five statewide pensions.	Semi-annually plus others as needed.	171.04(D)	RVK Inc.	May 12, 2021
7.	GIPS Verification and performance examination: • Verification – Opine that STRS performance calculations and reporting complies with *GIPS*. • Performance Examination -- Additional testing of the performance calculation inputs, resulting returns and reporting.	Annually	3307.15(B)	ACA Group	August 18, 2022
8.	Investment costs performance vs. benchmarks and cost analysis: • Benchmarking and cost effectiveness analysis vs. peers • Each report covers a rolling 5 calendar-year period	Annually, covering a rolling five-year period.	N/A	CEM Bench-marking	Through December 31, 2020
9.	Administrative costs - Benchmarking and cost effectiveness analysis vs. peer pension systems	Annually	N/A	CEM Bench-marking	August, 2021
10.	Investment advisers and consultants exclusively for the Board members: • Serve as an independent resource Board members can consult with for all investment matters except AI. (Cliffwater, below, advises Board members regarding AI.) Specifically, Callan:	At least quarterly	3307.15	Callan	For the quarter ended September 30, 2022

APPENDIX B

	Scope of Engagement and Reporting	Frequency	Required by Ohio Rev. Code §	Service Provided by	Most Recent Report Date
	○ Reviews and advises on investment strategies. ○ Reviews and analyzes investment performance relative to peers and benchmarks. ○ Reviews and advises on selecting benchmarks for all asset classes. ○ Reviews and advises on the *SIOP* and Annual Investment Plan.				
11.	Alternative asset Investment Advisers for Board members: • Cliffwater is an independent resource the Board can consult with for all *AI* matters. Specifically, Cliffwater: ○ Reviews and advises on AI strategies. ○ Reviews and advises on AI performance relative to peers and benchmarks.	Ongoing	3307.15	Cliffwater, LLC	For the year ended June 30, 2022
12.	Third party administrator -- records and reports all of STRS' private funds' transactions, including: • Capital calls, • Distributions, and • Fair values. • STRS utilizes this information to record in their accounting system.	As transactions occur.	N/A	GCM Grosvenor	Updated every business day
13.	Custodial services -- The Treasurer of State is the custodian of STRS Ohio assets.	Ongoing	3307.12	Northern Trust/Fifth Third	As needed
14.	Legal Advisor -- The AG's office represents STRS in certain legal matters and further appoints outside law firms to provide legal services to the system.	Ongoing	3307.13	Ohio Attorney General	As needed

APPENDIX C

PEER BENCHMARKS

APPENDIX C

Five-year PE investment benchmarks for 2020 and 2019
The following two tables support the summary described in benchmarking allegations 10 - 13.

2020 Rank	Pension System	PE Benchmark	5-year PE Benchmark
1	**OP&F**	Actual Portfolio Returns	16.43%
2	Colorado School	MSCI ACWI IMI Net + 1.5%	16.40%
3	New York State Teachers	S&P 500 + 5%	15.70%
4	North Carolina Teachers and State Employees	Burgiss Group Private iQ Indices (Buyout, Venture Capital, Special Situations and Distressed Debt)	14.33%
5	Kentucky Teachers	S&P 500 + 3%	14.05%
6	Michigan Public School Employees	S&P 500 + 3%	14.00%
7	Mississippi PERS	S&P 500 + 3%	13.93%
8	Iowa PERS	Actual Portfolio Returns	13.54%
9	Illinois Teachers	Russell 3000 + 3%	13.30%
10	**Ohio PERS**	State Street PE	12.04%
11	**Ohio STRS**	Russell 3000 + 1%	11.13%
12	New Jersey Teachers	Cambridge Associates	10.10%
13	**Ohio SERS**	Burgiss All PE Benchmark (quarter arrears)	9.80%
14	Pennsylvania School Employees	Burgiss Median, Vintage Year Weighted (quarter lag)	9.76%
15	Missouri Teachers	75% MSCI ACWI ex-USA net/ 25% Russell 3000	9.70%
16	Pennsylvania State Employees *	Burgiss All PE Custom Russell 3000 + 3%	9.70% 9.00%
17	Tennessee CRS	Cambridge Associates Custom PE	8.94%
18	Oregon PERS	Russell 3000 + 3%	8.93%
19	**Cincinnati ERS**	Cambridge Associates All PE	8.70%
20	Maryland Teachers	Custom State Street PE	8.41%
21	South Carolina SCRS	80% Russell 3000/ 20% MSCI EAFE + 3% (on a 3-month lag)	7.52%
22	California Teachers	Weighted blend of the CalSTRS Custom PE and Custom Tactical (both quarter lagged).	7.20%
23	Virginia VRS	MSCI ACWI IMI	6.60%
24	Indiana Public Retirement	60% Russell 2000/ 20% EAFE Small Cap/ 15% CS + 3%/ 5% CS Western European High (Hedged).	3.30%
25	Arizona ASRS	MSCI ACWI Blended	2.80%

APPENDIX C

2019 Rank	Pension System	PE Benchmark	5-year PE Benchmark
1	New York State Teachers	S&P 500 + 5%	15.70%
2	Iowa PERS	Actual Portfolio Returns	14.97%
3	Kentucky Teachers	S&P 500 + 3%	14.03%
4	Michigan Public School Employees	S&P 500 + 3% (3-month lag)	14.00%
5	**OP&F**	Wilshire 5000 +3%	13.92%
6	Colorado School	MSCI ACWI IMI Net + 1.5%	13.90%
7	Mississippi PERS	S&P 500 + 3%	13.79%
8	Oregon PERS	Russell 3000 + 3%	13.64%
9	New Jersey Teachers	Cambridge Associates	12.13%
10	South Carolina SCRS	80% Russell 3000/ 20% MSCI EAFE + 3% (on a 3-month lag)	11.76%
11	Pennsylvania State Employees *	Burgiss All PE Custom Russell 3000 + 3%	11.50% 13.60%
12	Tennessee CRS	Cambridge Associates Custom PE	11.87%
13	**Ohio STRS**	Russell 3000 + 1%	11.29%
14	**Ohio SERS**	Burgiss All PE Benchmark (quarter arrears)	11.10%
15	Pennsylvania School Employees	Burgiss Median, Vintage Year Weighted (quarter lag)	10.88%
16	**Cincinnati ERS**	Cambridge Associates All PE	10.78%
17	Virginia VRS	MSCI ACWI IMI	10.70%
18	**Ohio PERS**	State Street PE	10.47%
19	Maryland Teachers	Custom State Street PE	10.45%
20	Missouri Teachers	Russell 3000	10.20%
21	California Teachers	Weighted blend of the CalSTRS Custom PE and Custom Tactical (both quarter-lagged).	9.74%
22	North Carolina Teachers and State Employees	Burgiss Group Private iQ Indices (Buyout, Venture Capital, Special Situations and Distressed Debt)	8.41%
23	Illinois Teachers	Russell 3000 + 3%	7.90%
24	Arizona ASRS	MSCI ACWI Blended	7.20%

* - Pennsylvania State Employees uses two benchmarks for PE and therefore both are included above.

APPENDIX D

ENGAGEMENT TIMELINE

APPENDIX D

ENGAGEMENT TIMELINE

Date	Event
October 7, 2021	AOS declared special audit.
October 11, 2021	STRS notified of special audit.
November 5, 2021	First set of requested information received from STRS for audit.
November 16, 2021	STRS engagement letter delivered.
November 30, 2021	STRS pre-audit meeting held.
December 21, 2021	Significant information requested received from STRS.
January 25, 2022	STRS 2021 ACFR released.
February 8, 2022	Significant information requested received from STRS.
March 4, 2022	Contract signed with Equable Institute.
April 22, 2022	Interviews with STRS employees.
April 25, 2022	Significant information requested received from STRS.
June 1, 2022	Significant information requested received from STRS.
July 20, 2022	Interviews with multiple STRS employees.
August 24, 2022	Interview with Board Member Wade Steen.
August 31, 2022	Significant information requested received from STRS.
September 7, 2022	Interview with BFS' Ed Siedle.
September 13, 2022	Meeting with Seth Metcalf and ORTA representative.
October 7, 2022	Significant information requested received from STRS.
October 20-21, 2022	STRS Board meeting approving 2022 unaudited report information (needed for special audit).
November 22, 2022	Interview with Board Member Rudy Fichtenbaum.
November 23, 2022	STRS filed their unaudited ACFR with AOS (used in documenting 2022 information).
November 25, 2022	Written details received from Seth Metcalf on formal concerns alleging June 30, 2022 misstated investment fair values.
December 9, 2022	Most recent complaint received (complaints have continued to be received throughout this process).
December 14, 2022	Information from STRS' independent auditors on 2022 investment and control documentation testing results.

APPENDIX E

ORSC REFERRAL LETTER

OHIO AUDITOR OF STATE
KEITH FABER

88 East Broad Street
Columbus, Ohio 43215
FraudOhio@ohioauditor.gov
(800) 282-0370
Report fraud: 866-Fraud-OH

Bethany Rhodes, Director and General Counsel
Ohio Retirement Study Counsel

Dear Ms. Rhodes,

The Auditor of State performed a special audit of the State Teachers Retirement System of Ohio (STRS) based on a June 2021 report commissioned by the Ohio Retired Teachers Association as well as complaints/concerns received by our office. Each allegation was reviewed and assessed to determine whether it fell within the parameters of our special audit, which addressed transparency, investments, cost of living adjustments, and regional offices. The complaints/concerns which were outside of our scope are outlined below and are being referred to the Ohio Retirement Study Council, as the legislative oversight body for STRS:

1. In-house cafeteria
2. Fee RFP
3. Childcare facility costs/ratios
4. Extravagance of building and related costs (including expensive artwork and fitness facilities)
5. Pension plan choice/contributions
6. International Travel
7. Humana/Aetna RFP/contracting lawsuit

Upon review, if any fraud, theft, or misuse of public funds is noted, please report those findings to the Special Investigations Unit (see https://ohioauditor.gov/fraud/default.html).

Thank you for your consideration.

Robert R. Hinkle

Robert R. Hinkle, CPA, CGFM
Chief Deputy Auditor
Auditor of State Keith Faber

APPENDIX F

STRS REPORT RESPONSE

APPENDIX F

STRS Report Response

The State Teachers Retirement System of Ohio (STRS) has reviewed the special audit report issued by your office. STRS management accepts the Auditor of State's findings and we are appreciative of your team's professionalism and detailed work over the course of the special audit. Our members can be reassured that the Auditor of State's findings are consistent with those of the recent fiduciary performance audit, commissioned by the Ohio Retirement Study Council (ORSC) and completed by Funston Advisory Services LLC, as well as the findings of other professional experts providing ongoing and regular oversight of STRS. We note that the special audit's findings refute much of the inaccurate information circulated about STRS over the past two years and the report provides extensive detail and analysis in support of its conclusions.

We would like to address the three Management Recommendations in Appendix A at this time. With regard to the first two recommendations, STRS has already begun implementation of the majority of recommendations from the 2022 fiduciary performance audit and will work with ORSC to implement plans related to future fiduciary and actuarial audits.

The third and final management recommendation is related to suggested updates to the Board's investment committee and committee charter. We would like to note a few items in response to this recommendation. First, the full STRS Board currently reviews investment materials at each board meeting, and the Board has also retained investment consultants to advise regarding oversight matters, such as asset allocation and investment policies. These investment consultants are fiduciaries to the system, attend board meetings, and are available to Board members between board meetings.

Additionally, as a result of discussions related to the fiduciary performance audit, the Board chair is forming an ad hoc governance committee to review the Board's existing committee structure, including updated charters for each committee. As a part of this review, STRS Board and management will evaluate the schedule of investment committee meetings, as well as detailed roles and responsibilities of the committee. The special audit report specifically noted that the investment committee should review controls over reconciliations and reasonableness tests of investment fees and costs performed by the AI Fund Manager. As previously discussed, STRS issued an RFP earlier this year for private market fee validation services. Once a firm is hired, it is anticipated that regular reporting will be made to the Board (and its investment committee) in this area. Increased fee transparency is an industry-wide issue and STRS continues to broadly support the SEC's efforts to increase disclosure and transparency of general partner fee reporting. STRS encourages the firms with whom we do business to use the International Limited Partners Association (ILPA) fee reporting template, which standardizes the reporting of fees, expenses and carried interest. Additionally, STRS invests with firms that are SEC-registered and required to have annual audited financials prepared by a credible public accounting firm.

Finally, STRS will work with ORSC to provide information related to the Legislative Recommendations contained in Appendix A, as well as the referral items in Appendix E.

STRS appreciates your team's diligence in reviewing the complaints it received from some of our members and the assurances your office's oversight provides to Ohio's teachers. We remain steadfast in our dedication to ensuring the sustainability of the pension fund and providing financial security to current and future generations of Ohio's educators.

OHIO AUDITOR OF STATE
KEITH FABER

STATE TEACHERS RETIREMENT SYSTEM OF OHIO
SPECIAL AUDIT

FRANKLIN COUNTY

AUDITOR OF STATE OF OHIO CERTIFICATION

This is a true and correct copy of the report, which is required to be filed pursuant to Section 117.26, Revised Code, and which is filed in the Office of the Ohio Auditor of State in Columbus, Ohio.

Certified for Release 12/29/2022

88 East Broad Street, Columbus, Ohio 43215
Phone: 614-466-4514 or 800-282-0370