



**STATE TEACHERS
RETIREMENT SYSTEM
OF OHIO**

275 East Broad Street
Columbus, OH 43215-3771
614-227-4090
www.strsoh.org

March 17, 2022

Ms. Bethany Rhodes, Director
Ohio Retirement Study Council
30 E. Broad St.
2nd Floor
Columbus, OH 43215

Dear Bethany:

Pursuant to Substitute Senate Bill 133 and as required by Section 3307.044 of the Ohio Revised Code, enclosed is a report of the actions of the Audit Committee of the State Teachers Retirement Board for calendar year 2021.

Please don't hesitate to contact me if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'William J. Neville'.

William J. Neville
Executive Director

Enclosure

To: Ohio Retirement Study Council (ORSC)

Subject: STRS Ohio Audit Committee Reports – 2021 Activities

Date: March 17, 2022

As required by Section 3307.044 of the Ohio Revised Code, the following report outlines the activities of the STRS Ohio Audit Committee and the STRS Ohio Internal Audit Department for the year ending Dec. 31, 2021. This report outlines the following: audit reviews completed during 2021; STRS Ohio Audit Committee meetings and actions; and the 2022 Internal Audit Plan. Audit Committee members during 2021 were Robert McFee (Chair/Active Member), Claudia Herrington (Vice Chair/Appointee), Jeffrey Rhodes (Active Member), Wade Steen (Appointee), Rita Walters (Retired Member), and Carol Correthers (Active Member/Non-Voting Observer).

Audit Reviews Completed During 2021

The attached 2021 Internal Audit Summary lists the audits performed, the scope of each audit, the recommendations to management; management's response and expected implementation dates. The Internal Audit Summaries were provided to all STRS Ohio Board Members in March, August, and December of 2021.

STRS Ohio Audit Committee Meetings and Actions

The Audit Committee met on August 19, 2021, at 8:00 a.m. and was called to order by the committee chair. Committee members taking part were Rita Walters, Claudia Herrington, Jeffrey Rhodes and Wade Steen. Also in attendance were board members Carol Correthers, Robert McFee, Scott Hunt, and Dale Price; Arthur Lard and Yoel Mayerfeld joined the meeting in progress. Staff present included Bill Neville, Lynn Hoover, Kathy Boettcher, Jeff Lieser, Robert Vance, Philip Licata, Kimberly VanGundy, Stacey Wideman and Rhonda Hare.

Robert Vance, chief audit executive, reviewed the Quarterly Internal Audit Summary and informed the committee that there were no material findings and Internal Audit had full cooperation from STRS Ohio management. Management has accepted all internal audit recommendations and is in various stages of action-planning or implementation. Mr. Vance informed the committee that his review of the fiscal year 2021 performance-based incentives (PBIs) was complete, and he found the PBIs to be in compliance with the STRS Ohio Board Policy. He also informed the committee that Internal Audit has initiated meetings with non-Investment department associates, who have PBI review responsibilities, to discuss reviewing and coordinating multi-departmental procedures for the purpose of identifying ways of potentially improving efficiencies and coverage. The outcome of these meetings will be discussed with the committee at a future meeting. The next update will be presented to the committee at the December meeting. All audit activity for 2021 will be summarized, and the 2022 Internal Audit Plan will be presented at that time for approval.

Mr. Licata, IT audit controls manager, provided a summary of the scope of active IT audit testing for security and administration of Cloud-based storage and services. Additionally, he provided a brief summary of closed IT audits that did not result in formal recommendations.

Ms. VanGundy, investment audit specialist, provided an update on completed investment audits and discussed recommendations related to documentation of policies and procedures. She indicated that the staff was highly qualified and cooperative and that she was working on follow-up on the implementation of the recommendations.

Ms. Hoover, deputy executive director – Finance, introduced Christine Torres, engagement partner and Jen Aras, concurring partner – Crowe LLC to present a summary of the Fiscal 2021 Financial Statement Audit Plan. Crowe LLC Serves as the independent public accounting firm for STRS Ohio, under the oversight of the

Ohio Auditor of State. Crowe's audit of the system includes testing of investments, contributions and the pension liability and will issue an independent auditor report and required communications will be presented to the Audit Committee in December.

Ms. Hoover introduced Karen Foley, partner – ACA Group, to present their annual investment performance verification and annual performance examination of STRS Ohio for the fiscal year ended June 30, 2021. ACA Group is the third-party verification firm for STRS Ohio and performs rigorous testing and validates to third-party support, the STRS Ohio total fund performance calculation inputs, resulting return and reporting. Their independent tests also verifies that STRS Ohio has both complied and designed its policies and procedures to calculate and present performance in compliance with the Global Investment Performance Standards (GIPS®). ACA Group plans to issue their verification and performance examination report by August 31, 2021, and the final report will be provided to the board in September.

Upon roll call the vote was as follows: Mr. McFee, yes; Ms. Herrington, yes; Ms. Correthers, yes; Dr. Fichtenbaum, yes; Dr. Hunt, yes; Mr. Lard, yes; Mr. Price, yes; Mr. Rhodes, yes; Ms. Walters, yes. The motion carried.

A meeting of the Audit Committee was called to order by the committee chair, on December 16, 2021, at 8:00 a.m. Committee members present were Mr. McFee, Mr. Rhodes, Mr. Steen and Ms. Walters. Board members Ms. Correthers, Dr. Fichtenbaum, Dr. Hunt, Mr. Lard and Mr. Price were also in attendance. Ms. Herrington joined the meeting in progress. Staff present included Mr. Neville, Ms. Hoover, Ms. Boettcher, Mr. Vance, Mr. Licata, Ms. VanGundy, Ms. Wideman and Ms. Hare.

Mr. Vance began with the 2021 Internal Audit Summary. He stated the summary contained no material findings and Internal Audit had full cooperation from management. The results of the Board Expenses, Child Care, and Investment Performance Incentive (PBI) audits were presented. The majority of the outstanding summary recommendations are scheduled to be implemented by management by June 2022.

Mr. Licata summarized the purpose and recommendations related to the IT Change Controls, IT Operations, Business Continuity, and Cloud Access Security Broker audits performed in 2021. Ms. VanGundy summarized the purpose and recommendations related to the Real Estate, Liquidity Reserves, and Operation Risk performed in 2021.

Mr. Vance then reviewed the Executive Summary of the 2022 Internal Audit Plan and the Risk Assessment Process that determines which audits to conduct. Mr. Licata provided a summary of the purpose of the IT Firewall, Cloud Computing/Infrastructure, and Bring Your Own Device (B.Y.O.D) audits scheduled to be performed in 2022. Ms. VanGundy provided a summary of the purpose of the Research, Broker, Trading, Annual PBI and Death Match Process audits to be performed in 2022. Mr. Vance reviewed the process for requesting audits of areas not on the current-year plan and stated the board will be notified of significant areas of concern outside of the quarterly or annual reporting cycle as necessary.

Mr. McFee moved, seconded by Ms. Walters to enter executive session under the authority of the Division (G)(5) of Section 121.22 of the Ohio Revised Code for the purpose of discussing matters required to be kept confidential by federal law or state statute.

Upon roll call the vote was as follows: Mr. McFee, yes; Ms. Walters, yes; Ms. Herrington, yes; Mr. Rhodes, yes; Mr. Steen, yes. The motion carried.

Crowe LLP issued an unmodified opinion on the 2021 financial statements.

Public session resumed and the meeting was adjourned at 9:50 a.m.

Upon roll call the vote was as follows: Mr. McFee, yes; Ms. Walters, yes; Ms. Correthers, yes; Dr. Fichtenbaum, yes; Ms. Herrington, yes; Dr. Hunt, yes; Mr. Lard, yes; Mr. Price, yes; Mr. Rhodes, yes; Mr. Roulston, yes; Mr. Steen, yes. The motion carried.

Special Reviews/Projects


Internal Audit received no requests for supplemental reviews from the Audit Committee or management. See the 2021 Internal Audit Summary, "Other Audit Related Activity" section, for additional departmental activities.

2022 Internal Audit Plan

The 2022 Internal Audit Plan was approved by the STRS Ohio Board on December 16, 2021. A copy of the 2022 Internal Audit Plan is enclosed.

If you have any questions, or need further information, please feel free to call me at (614) 227-4046.

Respectfully submitted,



Robert L. Vance, MBA, MSA
Chief Audit Executive

2021 Internal Audit Summary

Closed Audits: Recommendations

Audit Area	Risk Rating	Scope	Recommendations	Management's Response	Implemented	Implementation or Target Implementation
Associate Payroll	Low	State and Federal Tax Regulations Access to Payroll Database Accuracy of Associates' Net Pay Immigration Guidelines/Compliance Form W-4	Locate missing/obtain new Form 1-9 and review the controls related to retention to strengthen compliance with documentation requirements.	Agree	Yes	August 2021
Child Care Center	Low	Compliance with State Licensing Rules Compliance with State Inspections Enrollment Tuition Payments Review of Cost Neutrality Segregation of Duties	Management meet to review and discuss updates to Child Care Center operational goals and guidelines.	Agree	Yes	November-21
I.T. Change Control	Med	Change Authorizations Change Testing Change Approved Change Monitoring Segregation of Duties Emergency Change Management	Evaluate the cost/benefit of implementing controls designed to reduce the risks associated with privileged user access in the STRS Ohio ITS Change Control process.	Agree	Yes	June 2021
International Investing	Low	Documented Policies and Procedures Foreign Tax Reclamations External Manager Fees Monitoring of External Managers Segregation of Duties	Processes should be updated to include desktop procedures, time of deliverables, Board materials approval documents, meeting notes, revision dates, external manager reviews, and quarterly, annual, and ad hoc meeting information to mitigate oversight, inconsistencies, and continuity concerns.	Agree	Yes	June 2021
			Store all phases of the investment lifecycle in central and accessible locations.	Agree	Yes	June 2021
			With the upgrade to a new accounting platform, Finance and ITS departments consider the cost/benefit of automating and integrating the foreign tax reclaim process to reduce the risk of inaccuracies or untimely collections.	Agree	No	June 2023
Liquidity Reserves	Low	Documented Policies and Procedures Compliance - Approved Issuers Compliance - Approved Guidelines Compliance - Independent Reviews Income Management Board Reporting Business Continuity	The Liquidity Reserve and other Cash Manager procedures should be reviewed for completeness at least annually and updated with an appropriate level of detail to reference clearly defined and consistent expectations.	Agree	Yes	July 2021
			Staff should ensure processes are in the form of written desktop procedures and should include the expected timing of deliverables, approvals, and monthly, quarterly, annual, and ad hoc activities to mitigate inconsistencies, oversight, and continuity concerns.	Agree	Yes	July 2021
			All procedures should be reviewed for automation to reduce the potential for manual errors and stored in central and accessible locations.	Agree	Yes	July 2021
			Write access and changes to the Approved Issuers List should be limited to Investment Operations staff for segregation of duties.	Agree	Yes	July 2021

OEC Reporting	Low	Filer List Updates G/L Support Reporting Follow-up Segregation of Duties	Each department review and document procedural steps to ensure sufficiency and to reduce the risk of errors or omissions during administration or absence of key associates.	Agree	Yes	November 2021
Real Estate	Low	Proper Documentation and Approval	For indirect real estate investments, ensure the completeness of vetting and fiduciary oversight documentation and store with consistent file structures in centralized, accessible locations.	Agree	No	March 2022
		Written Policies and Procedures				
		Due Diligence	Enhance written procedures and include appropriate checklists for approval documents, acquisitions, monitoring, etc.	Agree	No	December 2021
		Property Management Company Audit Recommendations				
Segregation of Duties	Increase key-person risk coverage of indirect real estate investments to ensure continuity during periods of employee turnover.	Agree	No	June 2022		
Compliance Monitoring						
Key Person Risk						

Closed Audits: No Recommendations

Audit Area	Risk Rating	Scope	Management's Response
Business Continuity Plan	Low	Policies and Procedures Change Approval Change Documentation Change Monitoring	N/A
Contribution Reporting	Low	Foundation Management Employee Contribution Management G/L Postings Segregation of Duties	N/A
I.T. Operations	Low	Policies and Procedures Batch-Job Processing and Monitoring Backup and Recovery Issues Resolution	N/A
I.T. Security Access - MRI	Low	Password Settings User Access Logical Access Privileged Access	N/A
Investment Performance (PBI Review)	Low	Segregation of Duties Compliance with Policy Accuracy	N/A
Purchase Service Credit	Low	STaRS Access Certifications and Cost Calculations Member Applications Posting of Purchase Service Credit Payments Compliance with the Ohio Revised Code	N/A

Active Audits

Audit Area	Risk Rating	Scope	Target Completion
Benefit Payment Process	N/A	Investment Operations Department Review and Verification ITS Department Review and Verification Finance Department Review and Verification Segregation of Duties	January 2022
Board Expenses	N/A	Preapproval of Travel Accuracy of Reimbursements Compliance with Policy	December 2021
Cloud Access Security Broker (C.A.S.B.)	N/A	Service Level Agreement (SLA) Identity and Access Management Credentialing Security Configuration Program Management	January 2022
Fixed Income	N/A	Sufficiency of Current Policies and Procedures Compliance with Policies and Procedures Due Diligence Segregation of Duties Performance Reporting Turnover Best Execution Trade Confirmation/Monitoring	February 2022
Member Services Center	N/A	Scheduling and Adherence Performance Monitoring Associate Training KPI	December 2021
Other Staff Expenses	N/A	Compliance Accuracy of Board Reporting	December 2021
Securities Lending	N/A	Sufficiency of Current Policies and Procedures Compliance with Policies and Guidelines Collateral Requirements Income and Expenses Contract Indemnification Reconciliations and Reporting	February 2022

Scheduled Audits

Audit Area	Risk Rating	Scope	Target Start Date
Annual Statements	N/A	Accuracy of Member Information Accuracy of Statement Information External Contracts Segregation of Duties	December 2021
Reemployed Retirees	N/A	Compliance with Ohio Revised Code Input Controls Policies and Procedures	December 2021

Rescheduled Audits

Audit Area	Scope	Explanation
STRS Ohio Self-Funded Associate Health Insurance	Administrative Service Fees Review of Key Goals and Objectives Accuracy of Payroll Withholdings Accuracy of Financial Reporting Monitoring of Health Insurance Costs Miscellaneous Income Segregation of Duties	Associate healthcare administration changed from HRS Dept. to the Member Benefits Health Care Dept. This operational change warranted a postponement of the previously planned audit of HRS activities. The future audit approach will be based on Member Benefits Health Care Dept. operations.
Member Income Taxes	Withholding Change Reconciliations Tax Interface Reconciliations Segregation of Duties	2022 Plan: Audit Reprioritization
Survivor Benefits	Benefit Calculations Death Refunds Segregation of Duties	2022 Plan: Audit Reprioritization

Other Audit Related Activity

Area	Risk Rating	Subject/Project	Description
Multi-departmental	N/A	SimCorp (Maximis system replacement)	Consult during the various phases of technical and business process implementation.
I.T.S.	N/A	Black Hills Information Security: Penetration Testing	Consult with various members management on action items and follow-up.
I.T.S.	N/A	Privileged Access Management (PAM)	Consult with I.T.S. on the evaluation/implementation of a PAM software tool.
Multi-departmental	N/A	STRS Ohio Disaster Recovery	Participate in disaster recovery testing review. Strategize on business and human resource needs.
I.T.S.	N/A	IT Framework	Consult with I.T.S. on the evaluation of an IT Framework.
Multi-departmental	N/A	Organizational Risk Assessment	Participate in multi-departmental risk identification/mitigation efforts.
Multi-departmental	N/A	Data Analytics Research/Integration	Consult with I.T.S. to develop useful analytics tools.

Risk Rating Level: (Refers to rating assigned to findings/recommendations)

High: Requires Immediate attention and remediation.

Medium (Med.): Requires near-term attention.

Low: Improvements possible but does not require attention in immediate or near-term.

Composition of Current Audit Committee:

Robert McFee, Active Member/Chair
 Claudia Herrington, Appointee/Vice Chair
 Jeffrey Rhodes, Active Member
 Wade Steen, Appointee
 Rita Walters, Retired Member
 Carol Correthers, Active Member/Non-Voting Observer



2022 Internal Audit Plan

INTERNAL AUDIT DEPARTMENT

Mission Statement

To work in partnership with associates to conduct value-added independent appraisals of policies and procedures to contribute to the continuous improvement of STRS Ohio.

Vision Statement

To be recognized as an innovative department that, through independent appraisals and partnered solutions, strives for quality enhancements and the elimination of non-value-added processes.

To create an environment that encourages teamwork, innovation, open communication, empowerment and personal and professional growth.

Guiding Principles

To achieve our mission and vision, we will:

- Prepare a comprehensive, practical, planned program of audit coverage consistent with STRS Ohio's mission, vision and guiding principles.
- Perform audits in compliance with the International Standards for the Professional Practice of Internal Auditing.
- Verify the adequacy and effectiveness of STRS Ohio's systems of administrative, operating and financial controls.
- Understand the associates' business from their perspective.
- Produce objective, clear, concise, constructive and timely reports.
- Maintain contemporary professional proficiency through continuing education and training.
- Seek to continuously improve our team, tools and processes.
- Develop professional expertise for potential career opportunities within STRS Ohio.

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2022 INTERNAL AUDIT SCHEDULE

Audit Area	Description of Audit Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
Quality Assurance Activities: I/A	Administrative Reviews	■												
	Quality Improvement and Compliance Updates	■												
Board/Audit Committee Support	Reviews Performed to the Request of the Board/Audit Committee	■												
Internal Audit Recommendation Follow-Up	Document and Report on Recommendation Compliance	■												
Fiduciary Audit Support	Recommendation Consultation	■					■							
	Implementation Tracking & Reporting	■					■							
Reemployed Retirees	Compliance with Policies and Procedures	■												
	Compliance with Ohio Revised Code	■												
	Input Controls	■												
Member Income Taxes	Withholding Change Reconciliations		■											
	Tax Interface Reconciliations		■											
	Segregation of Duties		■											
Personal Investment Disclosure	Compliance with Policies and Procedures		■	■										
	Accuracy and Completeness		■	■										
	Monitoring		■	■										
Cloud Computing/Infrastructure	Identity and Access Management			■										
	Configuration			■										
	Security			■										
	Program Management			■										
	Issues Logging, Monitoring, and Reporting			■										
Firewall Review	Firewall Security: Logical/Physical			■										
	Configuration			■										
	Change Management			■										
	Intrusion Detection			■										
Member Withdrawals	Compliance with Ohio Revised Code						■							
	Refund Estimates						■							
	Refund Payments						■							
	Non-Zero Accounts						■							
	Segregation of Duties						■							
Death Match	Compliance with Policies and Procedures						■		■					
	Vendor Data Management						■		■					
	Monitoring						■		■					
	Timeliness of Response/Updates						■		■					
	Risk Mitigation						■		■					

2022 INTERNAL AUDIT SCHEDULE

Audit Area	Description of Audit Area	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Broker/CSA/Research	Compliance with Policies and Procedures												
	Segregation of Duties												
	Compliance with Approved Brokers												
	Compliance with SEC Section 28(e)												
	Broker Utilization												
	Fees												
	Trade Accuracy												
	Proper Allocation												
Bring Your Own Device (BYOD)	Compliance with Policies and Procedures												
	New-User Setup												
	Monitoring and Data Security												
Risk Management/Insurance	Compliance with the STRS Ohio Insurance and Risk Management Manual												
	Adequacy of Existing Insurance Policies												
	Adequacy of Carrier Ratings												
	Accuracy of Premium Payments												
	Segregation of Duties												
Survivor Benefits	Benefit Calculations												
	Death Refunds												
	Segregation of Duties												
Trading	Compliance with Policies and Procedures												
	Segregation of Duties												
	Approved Brokers												
	Best Execution												
	Trade Accuracy												
	Proper Allocation												
Investment Performance/PBI Review	Associate Eligibility												
	Compliance with PBI Policy												
Board Expenses	Preapproval of Travel												
	Accuracy of Reimbursement												
	Compliance with Rules/Policies												

RISK FACTORS

RISK FACTOR	RISK FACTOR DESCRIPTION	WEIGHTING
A	Adequacy and Effectiveness of the System of Internal Controls	9
B	Major Changes in Technology, Operations, the Organization or the Economy	8
C	Dates and Results of Previous Audits	7
D	Recent or Relevant Changes in Key Personnel	6
E	Complexity or Volatility of Activities	5
F	Asset Size or Transaction Volume	4

RISK ASSESSMENT SCALE

The risk assessment scale is a 9-point system with graduations of risk as follows:

RISK FACTOR DESCRIPTION	SCORE
Extremely Risky	9
Very Risky	7
Risky	5*
Slightly Risky	3
Not Risky	1

* If no previous audit was performed, the auditable area was assessed a 5 — Risky.

ASSIGNMENT OF RISK RATING

Audit Area	Risk Factors*						Total
	A	B	C	D	E	F	
ADMINISTRATION							
Associate Travel Expenses	2	1	1	1	1	2	8
Attendance Reporting	4	2	2	2	2	2	14
Benefit Payment Process	3	4	3	3	3	3	19
Board Expenses	1	1	1	1	1	1	6
Fixed Assets — Computer Equipment	3	4	2	3	3	4	19
Flexible Spending Plans	2	2	2	2	3	2	13
HRS: Associate Payroll	2	2	2	3	2	2	13
HRS: Child Care Center	2	2	2	2	2	1	11
HRS: Educational Assistance Program	2	2	2	2	2	2	12
HRS: Exit Interview Management	1	1	5	1	1	1	10
Insurance/Risk Management	2	2	1	1	2	2	10
Legal: Contract Management	3	2	3	2	4	5	19
Legal: OEC Reporting	1	2	1	2	2	1	9
Legal: Records Management	2	2	4	1	2	3	14
Other Staff Expenses	2	1	1	1	1	1	7
Personal Investment Disclosure	1	1	3	3	5	3	16
Purchasing Practices	3	2	3	2	2	3	15
Third-Party Relationships: Administration	3	3	5	3	3	4	21
STRS Ohio Self Insurance Plan	3	2	3	2	3	3	16
Unused Sick and Vacation Leave	2	1	2	2	2	1	10

* See Page 3 for description of risk factors.

ASSIGNMENT OF RISK RATING

Audit Area	Risk Factors*						Total
	A	B	C	D	E	F	
FINANCE							
Accounts Payable	2	1	2	1	2	2	10
Administrative Services: Postage	2	2	2	1	2	3	12
Administrative Services: Security & Safety	3	2	5	1	1	1	13
Annual Reporting	2	3	2	2	2	2	13
Building Services: Maintenance	3	2	3	2	2	2	14
Contribution Reporting	1	3	1	1	3	5	14
Financial Reporting (STRS Ohio)	2	2	2	2	3	4	15
Fixed Assets	3	2	3	3	2	2	15
Investment Accounting	3	5	5	1	5	5	24
Member Income Taxes	1	1	2	2	4	5	15
Member Withdrawals	2	1	2	2	2	2	11
Petty Cash/Café Operations	2	2	2	3	1	1	11
Purchasing Service Credit by Payroll Deduction	2	2	2	2	2	3	13
Tax Management	3	5	5	1	3	4	21
Third-Party Relationships: Finance	3	3	5	4	3	4	22

* See Page 3 for description of risk factors.

ASSIGNMENT OF RISK RATING

Audit Area	Risk Factors*						Total
	A	B	C	D	E	F	
INFORMATION TECHNOLOGY SERVICES							
Active Directory/Azure	5	3	5	1	3	3	20
Business Continuity Plan	3	3	3	3	5	3	20
Cloud Computing/Infrastructure	5	5	5	3	5	3	26
Compliance: B.Y.O.D.	5	3	5	1	3	3	20
Data Analytics	5	3	5	1	5	3	22
Data Management	5	3	5	1	3	3	20
Data Privacy	5	3	5	1	2	3	19
Data Warehouse	5	3	5	1	5	3	22
Database Security	3	3	3	1	4	3	17
Data Loss Prevention (DLP)	3	3	3	1	3	3	16
Email Security	3	3	3	3	5	3	20
Endpoint Security	3	3	3	1	5	5	20
External Partners/Assessments	3	3	3	1	4	5	19
Firewall Security	5	3	3	1	5	3	20
I.T. Cloud/CASB	5	5	5	1	5	3	24
I.T. Operations	3	3	3	1	3	3	16
I.T. Security: Change Control	4	3	3	3	3	3	19
I.T. Security: Cyber Vulnerabilities	3	3	3	1	3	3	16
I.T. Security: HIPAA Security/Privacy	5	3	5	1	5	3	22
I.T. Security: Logical/Physical Access	3	3	3	1	5	3	18
I.T. Security: MRI	3	3	3	1	3	3	16
I.T. Security: PeopleSoft Security	3	3	3	3	4	3	19
I.T. Vendor Contract Management	3	3	3	1	5	3	18
Incident Response Plan	5	3	5	1	2	3	19
Intrusion Projection Services (IPS)	5	3	5	1	5	3	22
Manage Requests	3	3	3	1	3	3	16
Network Security	5	5	5	3	5	3	26
Project Management (ITS Projects)	4	3	3	3	3	3	19
Remote Access	3	3	3	1	3	3	16
Social Engineering	5	3	3	1	5	3	20
Web Security	3	3	3	1	5	3	18
Wireless Security	4	3	3	3	3	3	19

* See Page 3 for description of risk factors.

ASSIGNMENT OF RISK RATING

Audit Area	Risk Factors*						Total
	A	B	C	D	E	F	
INVESTMENTS							
Alternative Investments	3	3	2	4	5	4	21
Brokers/CSA/Research	4	3	5	2	3	4	21
Compliance	4	5	5	1	4	4	23
Consultants	5	3	5	1	4	3	21
Custodians/Record Keepers	5	5	5	1	4	3	23
Derivatives	4	4	3	2	5	3	21
Domestic Equities	2	3	3	3	2	4	17
External Management	5	3	5	3	3	3	22
Fixed Income	2	3	2	3	2	4	16
International Investing	3	3	2	3	3	4	18
Investment Performance (PBI Review)	2	2	2	3	3	2	14
Liquidity Reserves	2	2	1	3	2	3	13
Investments Operations	5	5	5	5	3	4	27
Proxy Voting	2	2	1	3	2	3	13
Real Estate	3	3	3	3	3	3	18
Securities Lending	2	3	2	2	3	4	16
Trading	5	3	5	1	3	4	21

* See Page 3 for description of risk factors.

ASSIGNMENT OF RISK RATING

Audit Area	Risk Factors*						Total
	A	B	C	D	E	F	
MEMBER BENEFITS							
Annual Statements	2	2	2	2	2	2	12
Death Match	3	3	3	2	3	3	17
Defined Contribution Plan	2	2	2	2	2	3	13
Disability Benefits	3	2	2	4	2	3	16
Health Care	3	2	2	2	3	4	16
Member Data Processing	3	3	2	2	2	2	14
Member Data Management	3	3	3	1	3	3	16
Member Records Management	2	3	2	2	2	2	13
Member Services Center	2	2	2	1	2	2	11
Purchasing Service Credit	2	3	2	2	2	2	13
Recipient Benefit Processing	2	2	3	2	3	3	15
Reemployed Retirees	2	3	2	2	2	2	13
Service Retirement Benefits	2	3	2	3	3	3	16
Survivor Benefits	3	2	2	3	2	3	15
Third-Party Relationships: Member Benefits	3	3	5	4	3	4	22

* See Page 3 for description of risk factors.

RISK FACTORS WEIGHTED

Audit Area	Risk Factors*						Total
	A	B	C	D	E	F	
ADMINISTRATION							
Associate Travel Expenses	18	8	7	6	5	8	52
Attendance Reporting	36	16	14	12	10	8	96
Benefit Payment Process	27	32	21	18	15	12	125
Board Expenses	9	8	7	6	5	4	39
Fixed Assets — Computer Equipment	27	32	14	18	15	16	122
Flexible Spending Plans	18	16	14	12	15	8	83
HRS: Associate Payroll	18	16	14	18	10	8	84
HRS: Child Care Center	18	16	14	12	10	4	74
HRS: Educational Assistance Program	18	16	14	12	10	8	78
HRS: Exit Interview Management	9	8	35	6	5	4	67
Insurance/Risk Management	18	16	7	6	10	8	65
Legal: Contract Management	27	16	21	12	20	20	116
Legal: OEC Reporting	9	16	7	12	10	4	58
Legal: Records Management	18	16	28	6	10	12	90
Other Staff Expenses	18	8	7	6	5	4	48
Personal Investment Disclosure	9	8	21	18	25	12	93
Purchasing Practices	27	16	21	12	10	12	98
Third-Party Relationships: Administration	27	24	35	18	15	16	135
STRS Ohio Self Insurance Plan	27	16	21	12	15	12	103
Unused Sick and Vacation Leave	18	8	14	12	10	4	66

* See Page 4 for description of risk factors.

RISK FACTORS WEIGHTED

Audit Area	Risk Factors*						Total
	A	B	C	D	E	F	
FINANCE							
Accounts Payable	18	8	14	6	10	8	64
Administrative Services: Postage	18	16	14	6	10	12	76
Administrative Services: Security & Safety	27	16	35	6	5	4	93
Annual Reporting	18	24	14	12	10	8	86
Building Services: Maintenance	27	16	21	12	10	8	94
Contribution Reporting	9	24	7	6	15	20	81
Financial Reporting (STRS Ohio)	18	16	14	12	15	16	91
Fixed Assets	27	16	21	18	10	8	100
Investment Accounting	27	40	35	6	25	20	153
Member Income Taxes	9	8	14	12	20	20	83
Member Withdrawals	18	8	14	12	10	8	70
Petty Cash/Café Operations	18	16	14	18	5	4	75
Purchasing Service Credit by Payroll Deduction	18	16	14	12	10	12	82
Tax Management	27	40	35	6	15	16	139
Third-Party Relationships: Finance	27	24	35	24	15	16	141

* See Page 4 for description of risk factors.

RISK FACTORS WEIGHTED

Audit Area	Risk Factors*						Total
	A	B	C	D	E	F	
INFORMATION TECHNOLOGY SERVICES							
Active Directory/Azure	45	24	35	6	15	12	137
Business Continuity Plan	27	24	21	18	25	12	127
Cloud Computing/Infrastructure	45	40	35	18	25	12	175
Compliance: B.Y.O.D.	45	24	35	6	15	12	137
Data Analytics	45	24	35	6	25	12	147
Data Management	45	24	35	6	15	12	137
Data Privacy	45	24	35	6	10	12	132
Data Warehouse	45	24	35	6	25	12	147
Database Security	27	24	21	6	20	12	110
Data Loss Prevention (DLP)	27	24	21	6	15	12	105
Email Security	27	24	21	18	25	12	127
Endpoint Security	27	24	21	6	25	20	123
External Partners/Assessments	27	24	21	6	20	20	118
Firewall Security	45	24	21	6	25	12	133
I.T. Cloud/CASB	45	40	35	6	25	12	163
I.T. Operations	27	24	21	6	15	12	105
I.T. Security: Change Control	36	24	21	18	15	12	126
I.T. Security: Cyber Vulnerabilities	36	32	35	6	25	12	146
I.T. Security: HIPAA Security/Privacy	45	24	35	6	25	12	147
I.T. Security: Logical/Physical Access	27	24	21	6	25	12	115
I.T. Security: MRI	27	24	21	6	15	12	105
I.T. Security: PeopleSoft Security	27	24	21	18	20	12	122
I.T. Vendor Contract Management	27	24	21	6	25	12	115
Incident Response Plan	45	24	35	6	10	12	132
Intrusion Projection Services (IPS)	45	24	35	6	25	12	147
Manage Requests	27	24	21	6	15	12	105
Network Security	45	40	35	18	25	12	175
Project Management (ITS Projects)	36	24	21	18	15	12	126
Remote Access	27	24	21	6	15	12	105
Social Engineering	45	24	21	6	25	12	133
Web Security	27	24	21	6	25	12	115
Wireless Security	36	24	21	18	15	12	126

* See Page 4 for description of risk factors.

RISK FACTORS WEIGHTED

Audit Area	Risk Factors*						Total
	A	B	C	D	E	F	
INVESTMENTS							
Alternative Investments	27	24	14	24	25	16	130
Brokers/CSA/Research	36	24	35	12	15	16	138
Compliance	36	40	35	6	20	16	153
Consultants	45	24	35	6	20	12	142
Custodians/Record Keepers	45	40	35	6	20	12	158
Derivatives	36	32	21	12	25	12	138
Domestic Equities	18	24	21	18	10	16	107
External Management	45	24	35	18	15	12	149
Fixed Income	18	24	14	18	10	16	100
International Investing	27	24	14	18	15	16	114
Investment Performance (PBI Review)	18	16	14	18	15	8	89
Liquidity Reserves	18	16	7	18	10	12	81
Investments Operations	45	40	35	30	15	16	181
Proxy Voting	18	16	7	18	10	12	81
Real Estate	27	24	21	18	15	12	117
Securities Lending	18	24	14	12	15	16	99
Trading	45	24	35	6	15	16	141

* See Page 4 for description of risk factors.

RISK FACTORS WEIGHTED

Audit Area	Risk Factors*						Total
	A	B	C	D	E	F	
MEMBER BENEFITS							
Annual Statements	18	16	14	12	10	8	78
Death Match	27	24	21	12	15	12	111
Defined Contribution Plan	18	16	14	12	10	12	82
Disability Benefits	27	16	14	24	10	12	103
Health Care	27	16	14	12	15	16	100
Member Data Processing	27	24	14	12	10	8	95
Member Data Management	27	24	21	6	15	12	105
Member Records Management	18	24	14	12	10	8	86
Member Services Center	18	16	14	6	10	8	72
Purchasing Service Credit	18	24	14	12	10	8	86
Recipient Benefit Processing	18	16	21	12	15	12	94
Reemployed Retirees	18	24	14	12	10	8	86
Service Retirement Benefits	18	24	14	18	15	12	101
Survivor Benefits	27	16	14	18	10	12	97
Third-Party Relationships: Member Benefits	27	24	35	24	15	16	141

* See Page 4 for description of risk factors.

2022 INTERNAL AUDIT WORK PLAN

Audit Area	Priority	Dept.	Risk Score	Last Audit	Estimated Audit Date	Risk Codes
I.T. Cloud/CASB	HIGH	ITS	163	2021		F, I, C, O, PS
I.T. Security: Cyber Vulnerabilities	HIGH	ITS	146	2019		F, I, C, O, PS
International Investing	HIGH	I	114	2020		F, I, C, O
Domestic Equities	HIGH	I	107	2019		F, I, C, O
Real Estate	HIGH	I	117	2020		F, I, C, O
Derivatives	HIGH	I	138	2019		F, I, C, O
Alternative Investments	HIGH	I	130	2019		F, I, C, O
Fixed Income	HIGH	I	100	2021		F, I, C, O
Liquidity Reserves	HIGH	I	81	2020		F, I, C, O
Board Expenses	HIGH	A	39	2021	2022	I, C, O, PS
Endpoint Security	HIGH	ITS	123	N/A		F, I, C, O, PS
Network Security	HIGH	ITS	175	N/A		F, I, C, O, PS
Cloud Computing/ Infrastructure	HIGH	ITS	175	N/A	2022	F, I, C, O, PS
I.T. Security: HIPAA Security/ Privacy	HIGH	ITS	147	N/A		F, I, C, O, PS
Legal: Contract Management	HIGH	A	116	N/A		F, I, C, O, PS
Investment Accounting	HIGH	F	153	N/A		F, I, C, O, PS
Investment Operations	HIGH	I	181	N/A		F, I, C, O
Compliance	HIGH	I	153	N/A		F, I, C, O
Compliance: B.Y.O.D.	MED.	ITS	137	2017	2022	F, I, C, O, PS
Database Security	MED.	ITS	110	2020		F, I, C, O, PS
I.T. Vendor Contract Management	MED.	ITS	115	2020		F, I, C, O, PS
I.T. Operations	MED.	ITS	105	2021		F, I, C, O, PS
I.T. Security: Change Control	MED.	ITS	126	2020		F, I, C, O, PS

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2022 INTERNAL AUDIT WORK PLAN

Audit Area	Priority	Dept.	Risk Score	Last Audit	Estimated Audit Date	Risk Codes
I.T. Security: Logical/Physical Access	MED.	ITS	115	2020		F, I, C, O, PS
I.T. Security: PeopleSoft Security	MED.	ITS	122	2017		F, I, C, O, PS
Business Continuity Plan	MED.	A	127	2021		F, I, C, O
Member Data Management	MED.	MB	105	2017		C, PS
Financial Reporting (STRS Ohio)	MED.	F	91	2018		I, C, O
Service Retirement Benefits	MED.	MB	101	2017	2022	I, C, O
Annual Statements	MED.	MB	78	2021		I, C, O
Health Care	MED.	MB	100	2018		I, C, O
Contribution Reporting	MED.	F	81	2020		I, C, O
Annual Reporting	MED.	F	86	2020		I, C, O
Defined Contribution Plan	MED.	MB	82	2020		I, C, O
Risk Management/Insurance	MED.	A	65	2017	2022	F, I, C, O
Accounts Payable	MED.	F	64	2018		I, C, O
Data Analytics	MED.	ITS	147	N/A		F, I, C, O, PS
Data Management	MED.	ITS	137	N/A		F, I, C, O, PS
Data Privacy	MED.	ITS	132	N/A		F, I, C, O, PS
Data Warehouse	MED.	ITS	147	N/A		F, I, C, O, PS
Data Loss Prevention (DLP)	MED.	ITS	105	N/A		F, I, C, O, PS
Email Security	MED.	ITS	127	N/A		F, I, C, O, PS
External Partners/ Assessments	MED.	ITS	118	N/A		F, I, C, O, PS
Firewall Security	MED.	ITS	133	N/A	2022	F, I, C, O, PS
Incident Response Plan	MED.	ITS	132	N/A		F, I, C, O, PS
Intrusion Protection System (IPS)	MED.	ITS	147	N/A		F, I, C, O, PS

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2022 INTERNAL AUDIT WORK PLAN

Audit Area	Priority	Dept.	Risk Score	Last Audit	Estimated Audit Date	Risk Codes
Manage Requests	MED.	ITS	105	N/A		F, I, C, O, PS
Project Management (IT Project)	MED.	ITS	126	N/A		F, I, C, O, PS
Remote Access	MED.	ITS	105	N/A		F, I, C, O, PS
Social Engineering	MED.	ITS	133	N/A		F, I, C, O, PS
Web Security	MED.	ITS	115	N/A		F, I, C, O, PS
Wireless Security	MED.	ITS	126	N/A		F, I, C, O, PS
Third-Party Relationships: Member Ben.	MED.	MB	141	N/A		F, I, C, O, PS
Third-Party Relationships: Finance	MED.	F	141	N/A		F, I, C, O, PS
Third-Party Relationships: Administration	MED.	A	135	N/A		F, I, C, O, PS
Active Directory/Azure	MED.	ITS	137	N/A		F, I, C, O, PS
Legal: Records Management	MED.	A	90	N/A		F, I, C, O, PS
Tax Management	MED.	F	139	N/A		F, I, C, O, PS
Trading	MED.	I	141	N/A	2022	F, I, C, O
External Management	MED.	I	149	N/A		F, I, C, O
Custodians/Record Keepers	MED.	I	158	N/A		F, I, C, O
Consultants	MED.	I	142	N/A		F, I, C, O
Brokers/CSA/Research	MED.	I	138	N/A	2022	F, I, C, O
I.T. Security: MRI	LOW	ITS	105	2020		F, I, C, O, PS
Benefit Payment Process	LOW	A	125	2021		I, C, O
Member Income Taxes	LOW	F	83	2017	2022	I, C, O
Fixed Assets-Computer Equipment	LOW	A	122	2018		I, C, O
Reemployed Retirees	LOW	MB	86	2021		I, C, O

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2022 INTERNAL AUDIT WORK PLAN

Audit Area	Priority	Dept.	Risk Score	Last Audit	Estimated Audit Date	Risk Codes
STRS Ohio Self Insurance Plan	LOW	A	103	2020		I, C, O
Securities Lending	LOW	I	99	2021		I, C, O
Fixed Assets	LOW	F	100	2018		I, C, O
Personal Investment Disclosure	LOW	A	93	2017	2022	I, C
Disability Benefits	LOW	MB	103	2018		I, C, O
Member Services Center	LOW	MB	72	2021		C, O
Purchasing Service Credit by Payroll Deduction	LOW	F	82	2019		I, C, O
Purchasing Practices	LOW	A	98	2019		I, C, O, PS
Survivor Benefits	LOW	MB	97	2017	2022	I, C, O
Member Records Management	LOW	MB	86	2020		C, O
Building Services: Maintenance	LOW	A	94	2018		I, C, O
Administrative Services: Postage	LOW	A	76	2018		I, C, O
Flexible Spending Programs	LOW	A	83	2019		I, C, O
Attendance Reporting	LOW	A	96	2018		I, C, O
HRS: Associate Payroll	LOW	A	84	2020		I, C, O
Member Benefits Processing	LOW	MB	95	2018		I, C, O
Investment Performance (PBI Review)	LOW	I	89	2021	2022	I, C, O
Member Withdrawals	LOW	F	70	2017	2022	I, C, O
HRS: Educational Assistance	LOW	A	78	2019		I, C, O
Petty Cash/Café Operations	LOW	F	75	2017		I, C, O, PS

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2022 INTERNAL AUDIT WORK PLAN

Audit Area	Priority	Dept.	Risk Score	Last Audit	Estimated Audit Date	Risk Codes
HRS: Child Care Center	LOW	A	74	2021		I, C, O
Purchasing Service Credit	LOW	MB	86	2020		I, C, O
Unused Sick and Vacation Leave	LOW	A	66	2019		I, C, O
Associate Travel Expenses	LOW	A	52	2017		I, C, O, PS
Other Staff Expenses	LOW	A	48	2021		I, C, O, PS
Legal: OEC Reporting	LOW	A	58	2020		I, C, O, PS
Proxy Voting	LOW	I	81	2019		I, C, PS
HRS: Exit Interview Management	LOW	A	67	N/A		F, I, C, O, PS
Administrative Services: Security & Safety	LOW	F	93	N/A		C, O, PS
Recipient Benefits Processing	LOW	MB	94	N/A		F, I, C, O, PS
Death Match	LOW	MB	111	N/A	2022	F, I, C, O, PS

Risk Codes:

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