

OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM
277 EAST TOWN STREET, COLUMBUS, OH 43215-4642
1-800-222-PERS (7377)
www.opers.org

NOTICE

1. The Audit Committee will meet on **Tuesday, May 20, 2025, at 9:30 a.m.** in the offices of the Board.
2. The OPERS Board will meet on **Tuesday, May 20, 2025, at 10:30 a.m. and Wednesday, May 21, 2025, at 9:00 a.m.** in the offices of the Board.
3. The Personnel and Salary Review Committee will meet on **Tuesday, May 20, 2025, immediately following the Board meeting** in the offices of the Board.

Members of the public may view the live video of the Board meetings. Registration/sign in to access the meetings is available at the following link https://opersorg.zoom.us/webinar/register/WN_Hax4S3zMRJmTjvUgeH0U-w. Once completed you will receive additional information regarding how to observe the meetings.

Audit Committee

AUDIT COMMITTEE MEETING AGENDA

May 20, 2025
Start Time: 9:30 a.m.

I. Action Items:

- A. [2025 Six Month Internal Audit Plan \(July-December\)](#)
Approval (20 minutes)
Caroline Stinziano, Director – Internal Audit

II. Discussion Items:

- A. [Report on Recent Internal Audit Activities, Status of Prior Audit Recommendations, and IIA Standards Update – Ethics & Objectivity \(20 minutes\)](#)
Caroline Stinziano, Director – Internal Audit
- B. [External Audit Results for 2024 and Internal Control Discussion \(20 minutes\)](#)
Bob Dobrowsky, Plante Moran - Engagement Partner
Michelle Watterworth, Plante Moran - Colleague Partner
Spencer Tawa, Plante Moran - Senior Manager
- C. [2024 Annual Report \(45 minutes\)](#)
Jenny Starr, Director – Finance
Erica Worley, Assistant Director – Financial Reporting

III. For Your Information:

- A. [2024 External Audit Required Communications](#)
Jenny Starr, Director – Finance

Audit Committee I.A



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MEMORANDUM

DATE: May 12, 2025
TO: OPERS Audit Committee
FROM: Caroline Stinziano, Director – Internal Audit
RE: **I. Action Items:**
A. 2025 Six Month Internal Audit Plan (July – December)

Action requested: _____ moved, _____
seconded, a motion to recommend approval of the 2025 Six Month Audit Plan (July -
December) to the full Board, as recommended by staff.

Background

Instead of a 12 month audit plan, Internal Audit prepares two six month audit plans to capture audit projects scheduled for a given year. The intent of these plans is to provide the Board with a conceptual understanding of how Internal Audit resources will be allocated during the upcoming six month period. This allows for more agile and flexible planning and execution throughout the year.

The six month Internal Audit plan for the period of July – December 2025 is based off of the consideration of a number of factors including, but not limited to, the 2025 annual audit risk assessment (conducted in 2024), results of other external assessments, changes in the business, new risks or changes in the previous landscape, timing and resources.

2025 Six Month Internal Audit Plan

The following 2025 Six Month Internal Audit Plan is provided for your review on the following pages.

Please let me know if you require any additional information.

2025 Six Month Internal Audit Plan (July – December)

May 20, 2025

Introduction

As required by the *Global Standards* issued by the Institute of Internal Auditors (IIA) and by the OPERS *Internal Audit Charter*, the 2025 Six Month Internal Audit Plan for the period July 1, 2025 through December 31, 2025 (Audit Plan) is presented. The Audit Plan is required to be evaluated and updated at least annually for recommendation of approval by the OPERS Audit Committee (Audit Committee) to the OPERS Board of Trustees (Board).

This document is considered an addendum to the 2025 Six Month Audit Plan (January – June) document dated and approved on November 19, 2024 by the OPERS Audit Committee. As a result, only changes since that time are reflected in this document, primarily to present the 2025 Six Month Internal Audit Plan for the period of July 1, 2025 through December 31, 2025.

Risk Assessment & Audit Planning Approach

Risk assessment is defined as a “systematic process for assessing and integrating professional judgments about probable adverse conditions and/or events”. Projects for the 2025 Audit Plan were identified using an annual audit risk assessment. Internal Audit divided OPERS functions into auditable areas, considered the results of outsourced risk assessments, held meetings with senior management, considered ERM risks identified by the organization, and considered prior audit experience to identify perceived areas of risk and potential internal audit projects for 2025. Internal Audit management exercised professional judgment in selecting projects for the coming six month period utilizing the various sources available. The six month plan allows the opportunity for more agility and flexibility regarding the work performed by the Internal Audit Department.

Types of Projects to Cover Risk Areas

Internal Audit considered risk assessment scores while identifying and prioritizing various projects. An important part of the Audit Plan is that the identified processes, systems, and initiatives should receive differing types and levels of review. Suggested levels of audit activities are as follows:

- Audit
 - Focus: Assess evidence available to conclude on an audit objective
 - Deliverable: Audit report
 - Estimated level of effort per project: 200 – 500 hours

- Advisory
 - Focus includes, not limited to:
 - Advising on the design and implementation of new policies, processes, systems and products,
 - Providing training and/or research,
 - Facilitating discussions about risks and controls
 - Participation in activities in a non-voting capacity
 - Deliverable: Formal report, memo or verbal discussion
 - Estimated level of effort per project: 10 – 200 hours

Audit Plan

The following table summarizes the name and type of each engagement and the preliminary scope of work to be performed. The scope of work will be finalized as part of each project's planning phase.

Engagement Name (Department)	Project Type	Description
Ohio Deferred Compensation Recordkeeping	Audit	Assess the design and effectiveness of key controls related to Ohio Deferred Compensation Recordkeeping.
Employer Services (Benefits)	Audit	Assess the design and effectiveness of key controls related to Employer Services.
Derivatives (Investments)	Audit	Assess the design and effectiveness of key controls related to derivatives.
IT Asset Management (IT)	Audit	Assess the design and effectiveness of key controls related to IT asset management.
Compass Access Testing (IT)	Audit/Advisory	Review system access capabilities in Compass and related systems.
Enterprise Risk Management	Audit/Advisory	Select a sample of risks and controls for testing within the ERM program.
Continuous Auditing (Finance/Benefits/Health Care/Fraud/Investments)	Audit	Individual tests performed throughout the year.
Risk Assessment/Audit Plan (Internal Audit Activity)	Other	Preparation of the 2026 Six Month Audit Plan for January – June 2026.
Audit Recommendation Follow-up (Internal Audit Activity)	Other	Follow-up and report on the status of outstanding audit recommendations.

Engagement Name (Department)	Project Type	Description
Audit Committee Meetings/Preparation (Internal Audit Activity)	Other	Prepare communications and attend Audit Committee and Board Meetings.
Assurance Map (Internal Audit Activity)	Other	Continue developing an assurance map to ensure assurance is aligned and coordinated to reduce duplication or gaps.
Strategic Plan (Internal Audit Activity)	Other	Continue action plans and measure success toward long-term IA department goals.
Suspected Misconduct Hotline Request for Quotes (RFQ)	Other	Review vendor options for internal suspected misconduct reporting hotline.

Changes Subsequent to Approval

Changes to the Audit Plan may occur from time to time due to changes in risks, timing of initiatives and staff availability. Audit Plan changes will be reported to senior management and to the Audit Committee. Significant changes (based on discussions with the Executive Director and Audit Committee Chair) to the approved Audit Plan will be submitted to the Audit Committee for recommendation to the Board for approval.

Caroline Stinziano
 Director - Internal Audit

Stewart Smith
 Chair, Audit Committee, Board of Trustees

2025 Six Month Internal Audit Plan (July – December)

Caroline Stinziano, Director – Internal Audit



Agenda

- Annual Audit Plan Process - Updates
- 2025 Six Month Internal Audit Plan (July – December)



Updates to Internal Audit Plan for 2025

Internal Audit Plan Reminders:

- Internal Audit prepares a six month audit plan for approval by the Audit Committee each May and November.
- Allows for a more agile and flexible planning and execution during the year.
- A refresh of risk assessment procedures is formally performed once per year in advance of the November Audit Committee meeting

Examples of additional consideration given since initial 2025 risk assessment (performed in 2024):

- Results of external risk assessment performed in 2023 over Investments
- Changes in the business
- Timing of projects
- New risks identified or changes to previous risk landscape
- Resources

Six Month Internal Audit Plan: July – December 2025

Engagement Name (Department)	Project Type	Description
Ohio Deferred Compensation Recordkeeping	Audit	Assess the design and effectiveness of key controls related to Ohio Deferred Compensation Recordkeeping.
Employer Services (Benefits)	Audit	Assess the design and effectiveness of key controls related to Employer Services.
Derivatives (Investments)	Audit	Assess the design and effectiveness of key controls related to derivatives.
IT Asset Management (IT)	Audit	Assess the design and effectiveness of key controls related to IT asset management.
Compass Access Testing (IT)	Audit/ Advisory	Review system access capabilities in Compass and related systems.
Enterprise Risk Management	Audit/ Advisory	Select a sample of risks and controls for testing within the ERM program.

Six Month Internal Audit Plan: July – December 2025

Engagement Name (Department)	Project Type	Description
Continuous Auditing (Finance/Benefits/Health Care/Fraud/Investments)	Audit	Individual tests performed throughout the year.
Risk Assessment/Audit Plan (Internal Audit Activity)	Other	Preparation of the 2026 Six Month Audit Plan for January – June 2026.
Audit Recommendation Follow- up (Internal Audit Activity)	Other	Follow-up and report on the status of outstanding audit recommendations.
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Suspected Misconduct Hotline Request for Quotes (RFQ)	Other	Review vendor options for internal suspected misconduct reporting hotline.

Potential Future Focus Areas

The following is a list of potential focus areas for future audit plans:

- Risk Parity, Private Credit, and/or Real Estate (Investments)
- Custodial Bank Vendor Review (Finance/Investments)
- Investment Compliance (Finance/Investments)
- Member Registration/Online Self-Service (Benefits)
- Output from outsourced IT Risk Assessment

Audit Committee II.A



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MEMORANDUM

DATE: May 12, 2025

TO: OPERS Audit Committee

FROM: Caroline Stinziano, Director – Internal Audit

RE: **II. Discussion Items:**
A. Report on Recent Internal Audit Activities, Status of Prior Audit Recommendations, and IIA Standards Update – Ethics and Objectivity

Purpose

The accompanying presentation and appendices provide an update on Internal Audit related activities and initiatives occurring during calendar year 2025, including a status of prior audit recommendations as well as an IIA Standards Update related to Ethics & Objectivity.

Background

Internal Audit Update

Included in the Audit Committee materials is an update on Internal Audit activities and initiatives. The presentation is broken into three sections:

Section 1: Status of 2025 Internal Audit Plan & Internal Audit Reports Issued

This section covers an update on the status of the work performed by Internal Audit as well as any reports issued in accordance with the projects approved by the Audit Committee through the annual risk assessment and Six Month Audit Plan process. **Appendix A – Status of Internal Audit Plan Activities** provides additional details of projects represented in the presentation summary including project name, applicable completion dates, project status, Audit Plan reference, as well as project objective.

Section 2: Status of Internal Audit Recommendations

This section provides a status on the remediation of Internal Audit Recommendations to include new and previously issued recommendations. The charts included in the presentation are representative of all Internal Audit Recommendations and highlights what has been remediated and validated by Internal Audit since the November Audit Committee meeting.

Appendix B – Status of Internal Audit Recommendations provides a status of any medium and high rated audit recommendations and includes additional summarized detail of the audit observations and recommendations based on the audit work performed. As of the date these materials were prepared, there are currently no open audit recommendations of high criticality.

The appendix is further broken out into two sections:

- **Appendix B.1** – New high and medium rated audit recommendations added since the previous Audit Committee meeting
- **Appendix B.2** – Historical high and medium audit recommendations previously communicated

The presentation also includes a high-level status of the recommendations associated with findings from the most recently completed outsourced IT penetration testing assessment in 2023. Any remaining open recommendations pertaining to this project are anticipated to be remediated by early Summer 2025.

Management continues to make satisfactory progress towards the remediation of these audit recommendations and there is nothing of concern to highlight at this time.

Section 3: Institute of Internal Auditors (IIA) Standards Update – Ethics & Objectivity

As part of conformance with the Institute of Internal Audit’s Global Standards we are providing the Audit Committee with an update on how we conform with the standards associated with Ethics & Individual Objectivity. **Appendix C - IIA Standards Update – Ethics & Objectivity** which is included as an appendix to this transmittal memo provides more detail on these standards and outlines our conformance activities for each.

Next Steps

- Internal Audit will provide a written update of activities to the Audit Committee in August 2025.

Appendix C - IIA Standards Update – Ethics and Objectivity



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MEMORANDUM

DATE: May 1, 2025
TO: OPERS Audit Committee
FROM: Caroline Stinziano, Director – Internal Audit
RE: **IIA Standards Update – Ethics and Objectivity**

Purpose

The purpose of this memorandum is to make the Audit Committee aware of how the Internal Audit department conforms with the Institute of Internal Audit (IIA) Standards regarding ethics and objectivity.

Background

Internal Audit Standards Update:

The Institute of Internal Auditors (IIA) is the international standard setting body for the Internal Audit Profession. OPERS Internal Audit Department is an active member of the IIA and follows the standards in the execution of our department's audit activities. The IIA Standards are a set of principles-based requirements that guide the professional practice of internal auditing. Conformity with the standards is assessed as part of internal and external quality reviews that Internal Audit departments are subject to. The IIA recently went through an exercise to update its standards with the goals of clarification, additional guidance on implementation and conformation of the Standards, and further elevating the Internal Audit function. During 2024, the OPERS Internal Audit Department reviewed the changes to the standards and assessed the need for updates and enhancements to our documentation and processes. The final standards became effective on January 9, 2025.

As part of our review, Internal Audit identified opportunities to enhance communication with the Audit Committee on certain elements within the standards on a more regular basis. Below we have highlighted two standards

related to the areas of Ethics & Objectivity and provided some insight into how our department seeks to conform with these standards. IIA Global Standards on Ethics & Objectivity:

Standard 1.2 – Organization’s Ethical Expectations:

Internal auditors must understand, respect, meet, and contribute to the legitimate and ethical expectations of the organization and must be able to recognize conduct that is contrary to those expectations.

Internal auditors must encourage and promote ethics-based culture in the organization. If internal auditors identify behavior within the organization that is inconsistent with the organization’s ethical expectations, they must report the concern according to applicable policies and procedures.

Standard 2.1 – Individual Objectivity:

Internal auditors must maintain professional objectivity when performing all aspects of internal audit services. Professional objectivity requires internal auditors to apply an impartial and unbiased mindset and make judgements based on balanced assessments of all relevant circumstances. Internal auditors must be aware of and manage potential biases.

Conformance to Standard 1.2

Internal Audit encourages and promotes an ethics-based culture at OPERS and within the department. Below are examples of conformance:

- **OPERS Suspected Misconduct Policy:** This policy formalizes the process if an ethical concern is identified and assigns the responsibility of coordinating internal efforts of compliance to the Internal Audit Department.
- **Ethics Training:** Internal Audit team members complete two hours of ethics training annually.
- **Annual Attestation Statement:** To increase our conformance to the new standards, our department now requires annual attestation forms that each team member acknowledges and adheres to the IIA’s Standards, Audit Department Charter, and OPERS Ethics Policy.
- **Annual Ethics Continuous Audit:** Internal Audit performs a rotating ethics continuous audit annually.
- **OPERS Suspected Misconduct Reporting Hot Line:** A hotline is in place to report suspected misconduct. Internal Audit is notified if a report is filed, or a call is conducted.

Conformance to Standard 2.1

Internal Audit maintains professional objectivity. Below are examples of conformance:

- **Internal Audit Charter:** This Charter references internal auditors’ responsibility for maintaining objectivity.

- **Internal Audit Manual:** Processes and procedures are included related to objectivity and the process to disclose potential conflicts of interest or other impairments to objectivity.
- **Conflict of Interest (COI) Statement:** Internal Audit team members complete an annual COI statement to disclose any potential objectivity.
- **Specific Project Consideration:** Starting with new projects, specific consideration will be given regarding professional objectivity and documented within our audit workpapers.

Next Steps

Internal Audit will continue to monitor conformance to the IIA standards with respect to ethics and objectivity. If suspected misconduct is identified, any findings will be summarized and reported to the OPERS Audit Committee. Throughout the entire process, Internal Audit is charged with maintaining confidentiality to the fullest extent possible and protecting the rights of individuals who may be directly connected with any reported misconduct.

Internal Audit Update May 2025

Caroline Stinziano, Director – Internal Audit

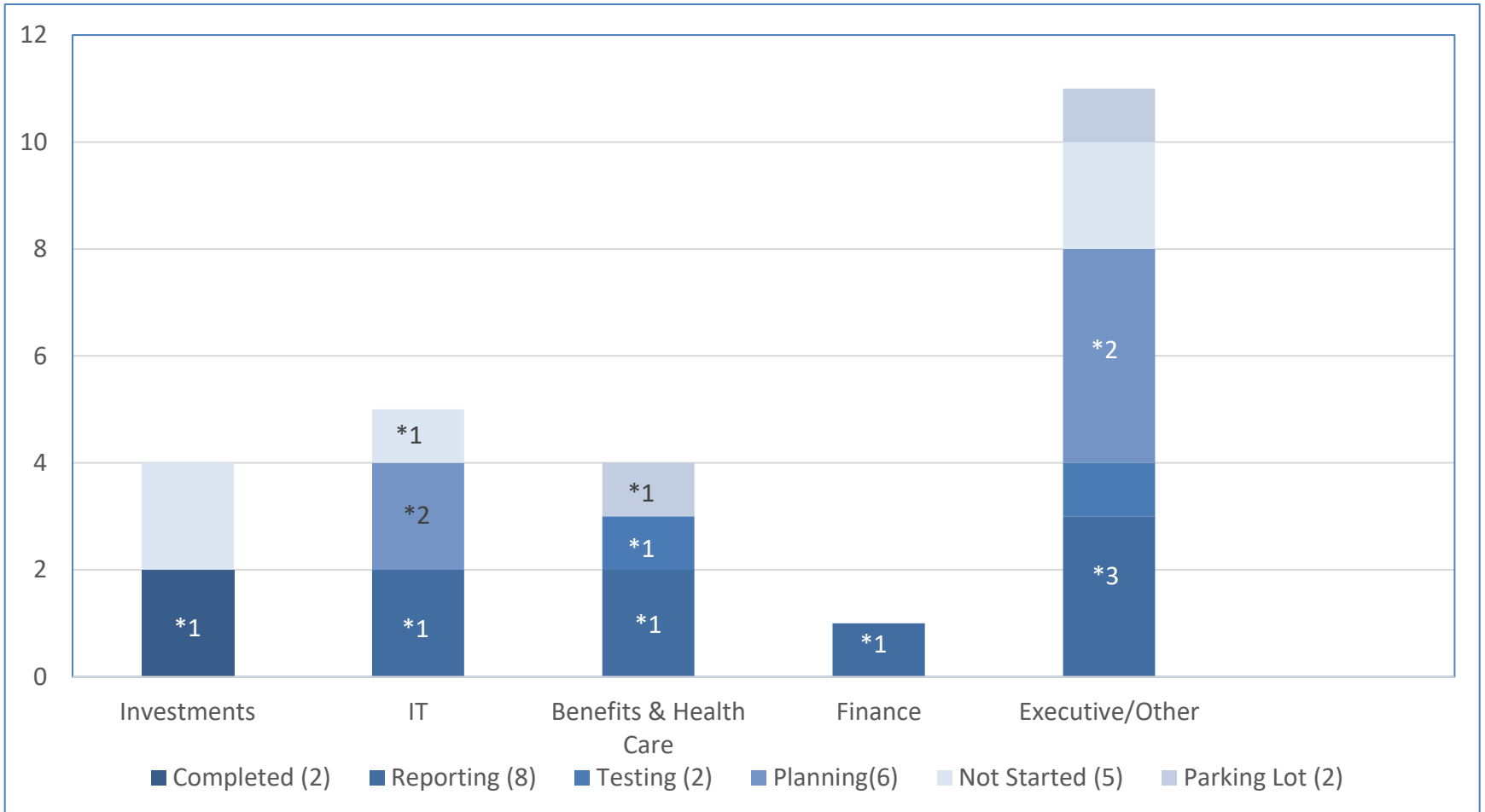


Agenda

- Status of 2025 Internal Audit Plan & Internal Audit Reports Issued
- Status of Audit Recommendations
- Internal Audit Standards update – Ethics & Objectivity

Status of 2025 Audit Plan & Internal Audit Reports Issued

Internal Audit Project Status: May 2025



- Detail regarding the individual audits included above provided as Appendix A to these materials.
- Chart does not include continuous auditing which is on-going.
- “*#” represent projects from previous year’s audit plans

Internal Audit Reports Issued and Other Work performed since last AC Meeting (November 2024)

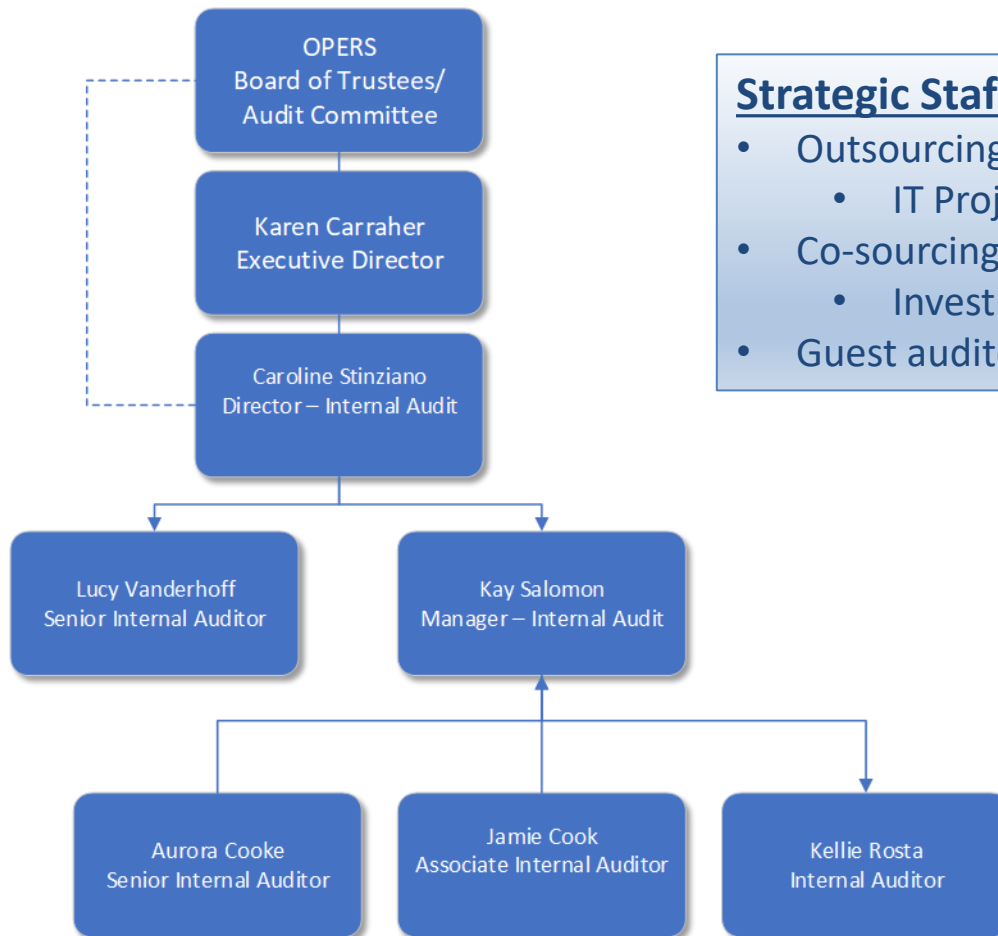
Audits

- Public External Managers (Investments) – Four recommendations (1 med, 3 low)
- Annual Incentive Compensation Audit (Investments) – no recommendations
- Eight projects in the reporting phase.

Other Work Performed:

- Continuous Auditing Procedures (Finance/Benefits/Fraud/Investments)
- Audit Recommendation Remediations (Internal Audit Activity)
- Risk Assessment/Audit Plan (Internal Audit Activity)

Internal Audit Department - May 2025



Strategic Staffing Opportunities

- Outsourcing
 - IT Projects
- Co-sourcing
 - Investment SME
- Guest auditor opportunities

Status of Audit Recommendations

Satisfactory progress being made towards remediating audit recommendations

Recommendation Type	Open	Open pending validation	Closed	Total
New (since Nov AC update)	2	0	2	4
Previously reported				
Reported in 2024	4	0	11	15
Reported in prior years	1	0	0	1
Total	7	0	13	20

Satisfactory progress being made towards remediating audit recommendations

Highlights:

- Seventeen audit recommendations closed since November 2023
- All High Rated recommendations are closed
- Additional detail on High/Medium rated recommendations provided in Appendix B

Recommendation Criticality	#
High	1 (1 closed)
Medium	7 (4 closed)
Low	12 (8 closed)
Total	20

Audit Recommendations – Network Pen Testing/Social Engineering

Recommendation Type	Open	Open pending validation	Closed	Total
Project				
Network Pen Testing	6**	0	11	17
Social Engineering	0	0	7*	7
Total	6	0	18	24

* One recommendation “Closed – accepted.”

** 6 open recommendations will be closed in conjunction with registration redesign project

Recommendation Criticality	High	Med.	Low	Total
#	7 (7 closed)	6	11	24

Institute of Internal Auditors (IIA) Standards Update – Ethics & Objectivity

IIA Standards Update – Ethics

Promoting an Ethics-Based Culture at OPERS and Within Our IA Team:

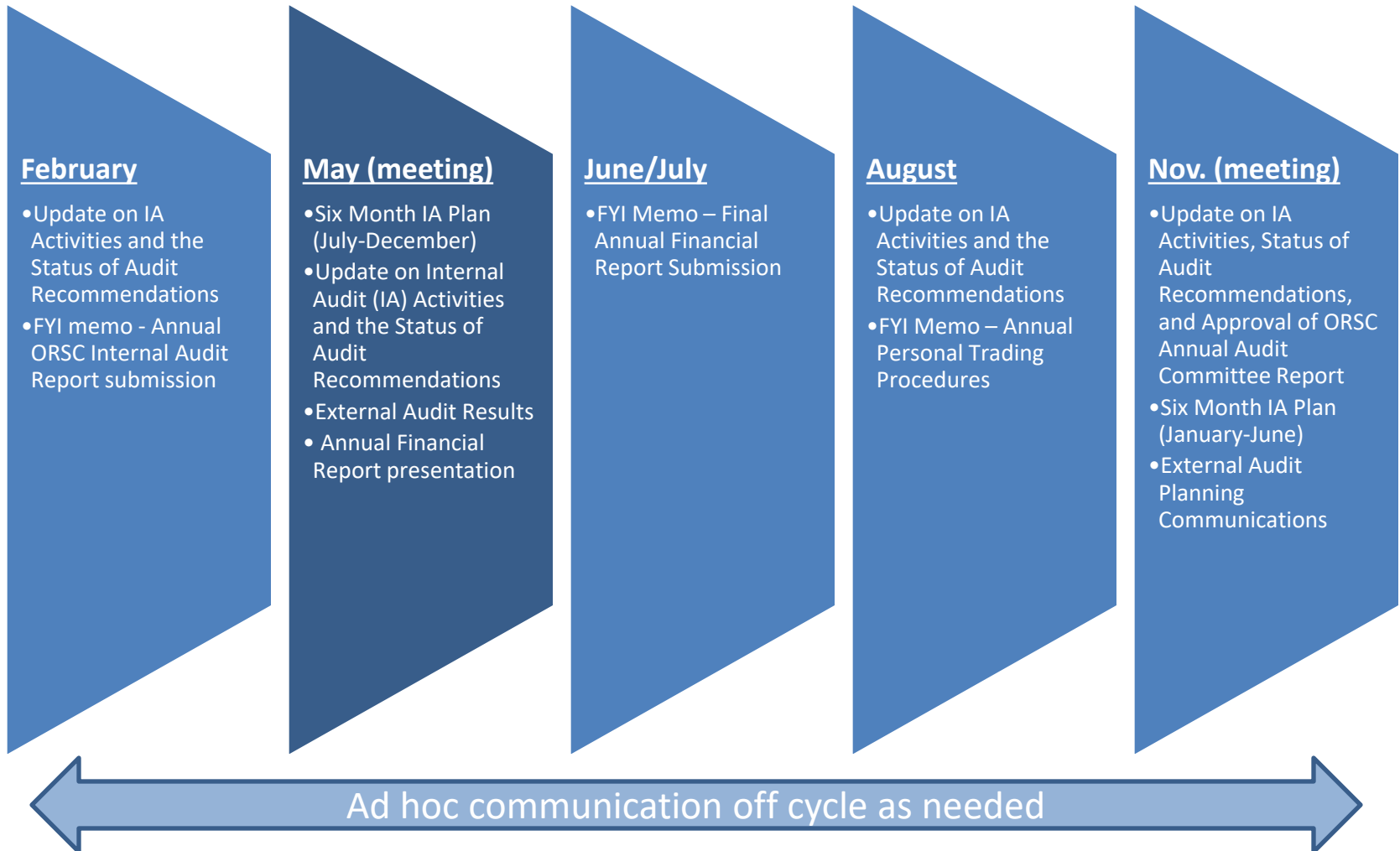
- **OPERS Suspected Misconduct Policy & Reporting Hot Line:**
 - This organizational policy formalizes the process if an ethical concern is identified and assigns the responsibility of coordinating internal efforts of compliance to the Internal Audit Department.
 - An internal hotline is in place to report suspected misconduct. Internal Audit is notified if a report is filed, or a call is conducted.
- **Ethics Training:** IA team members complete two hours of ethics training annually.
- **Annual Attestation Statement:** IA Annual attestation forms that each team member acknowledges and adheres to the IIA's Standards, Audit Department Charter, and OPERS Ethics Policy.
- **Annual Ethics Continuous Audit:** IA performs annual continuous auditing procedures related to ethics.

IIA Standards Update – Integrity

Maintaining and managing professional objectivity within the IA function:

- **Internal Audit Charter:** This Charter references internal auditors' responsibility for maintaining objectivity.
- **Internal Audit Manual:** Processes and procedures are included related to objectivity and the process to disclose potential conflicts of interest or other impairments to objectivity.
- **Conflict of Interest (COI) Statement:** Internal Audit team members complete an annual COI statement to disclose any potential objectivity.
- **Specific Project Consideration:** Starting with new projects, specific consideration will be given regarding professional objectivity and documented within our audit workpapers.

Annual Audit Committee Communications



Ohio Public Employees Retirement System – Internal Audit

APPENDIX A - 2025 Internal Audit Activities – May 2025

The following table represents the status of the Internal Audit Activities performed in the 2025 calendar year as of May 1, 2025:

Project Name & Completion Date	Department	Project Type	Status	Audit Plan Year (1)	Project Objective
Annual Incentive Compensation Audit (April 2025)	Investments	Audit (Recurring)	Completed	2025A	Verify the accuracy of the 2024 Incentive Compensation payments.
Annual Personal Trading Policy Procedures	Investments	Audit (Recurring)	Not started	2025A	Risk Assessment and focused testing of the organization’s compliance with the Personal Trading Policy.
Investment Risk System – Data Management	Investments	Audit	Not started	2025A	Assess the design and effectiveness of controls in place to ensure the completeness and accuracy of data used as part of the Investment Risk System.
Public External Managers (January 2025)	Investments	Audit	Completed	2024B	Assess the design and effectiveness of key controls related to public external manager investments.
Compass Access	IT	Audit	Reporting	2025* (Ad hoc)	Testing and confirmation of Internal Audit read-only access in Compass application.

1 – Calendar year 202XA designates a project from the audit plan for January – June of the respective year and 202XB designates a project from the audit plan for July – December of the respective year.

*Ad hoc projects added after approval of the January – June 2025 Audit Plan (November 2024 Audit Committee); communicated to Committee as part of March written update and included in July – December 2025 Audit Plan.

Ohio Public Employees Retirement System – Internal Audit

APPENDIX A - 2025 Internal Audit Activities – May 2025

Project Name & Completion Date	Department	Project Type	Status	Audit Plan Year (1)	Project Objective
IT Penetration Testing – 2024	IT	Other	Reporting	2024A	Conduct testing on externally accessible systems from the perspective of an outside threat to assess the effectiveness of security controls (outsourced to a third-party).
IT Security Framework Assessment	IT	Other	Planning	2024A	Perform an assessment of OPERS’ IT Security processes and controls against the NIST framework. (outsourced to a third-party)
IT Risk Assessment	IT	Other	Planning	2023A	Perform specific risk assessment over IT functions to drive future IT audit plans (outsourced to a third-party).
Microsoft Security Audit	IT	Audit	Not started	2024B	Assess the system security configurations and controls in place related to OPERS’ Microsoft applications (outsourced).
Dental/Vision Vendor Audit	Benefits/ Health Care	Audit	Reporting	2025A	Assess the design and effectiveness of controls in place related to OPERS’ Dental/Vision vendor, to include processing of members claims.

1 – Calendar year 202XA designates a project from the audit plan for January – June of the respective year and 202XB designates a project from the audit plan for July – December of the respective year.

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Ohio Public Employees Retirement System – Internal Audit

APPENDIX A - 2025 Internal Audit Activities – May 2025

Project Name & Completion Date	Department	Project Type	Status	Audit Plan Year (1)	Project Objective
Member Assessment	Benefits/ Health Care	Audit	Testing	2024A	Assess the design and effectiveness of controls in place for the processes managed by the Member Assessment department. <ul style="list-style-type: none"> • Data Maintenance (excludes SSN corrections & Backout/Repost) – Reporting • ARP Process – Planning • Payments – Not started • Service Purchase – Not started • Estimates – Not started • Refunds – Not started • Defined Contribution/SSN Correction & Backoff Repost – Not started
Member Overpayments	Benefits/ Health Care	Audit	Reporting	2024B	Assess the design and effectiveness of controls in place to process member overpayments.
Disability Benefits	Benefits/ Health Care	Audit	Parking Lot	2024B	Assess the design and effectiveness of key controls related to disability benefits processing.
Collateral Management	Finance/ Investments	Audit	Reporting	2024B	Assess the design and effectiveness of key controls related to the collateral management process.

1 – Calendar year 202XA designates a project from the audit plan for January – June of the respective year and 202XB designates a project from the audit plan for July – December of the respective year.

*Ad hoc projects added after approval of the January – June 2025 Audit Plan (November 2024 Audit Committee); communicated to Committee as part of March written update and included in July – December 2025 Audit Plan.

Ohio Public Employees Retirement System – Internal Audit

APPENDIX A - 2025 Internal Audit Activities – May 2025

Project Name & Completion Date	Department	Project Type	Status	Audit Plan Year (1)	Project Objective
Ohio Deferred Comp - Recordkeeping	Exec./Other	Audit	Planning	2025* (Ad hoc)	Assess the design and effectiveness of controls in place related to Ohio Deferred Comp’s recordkeeping processes.
Business Continuity/Disaster Recovery	Exec./Other	Audit	Planning	2025A	Assess the design and effectiveness of controls in place related to the organization’s Business Continuity and Disaster Recovery programs.
Member Fraud Prevention	Exec./Other	Audit	Not started	2025A	Assess the design and effectiveness of controls in place related to the newly established Member Fraud monitoring program.
Board Member Elections	Exec./Other	Other	Testing	2025A	Assess the design and effectiveness of key controls related to the board election
Ethics Policy - gifts	Exec./Other	Audit	Parking lot (2026)	2025A	Assess the design and effectiveness of controls in place related to the potential receipt, reimbursement, and reporting of potential gifts.
Data Sharing/Security	Exec./Other	Advisory	Planning	2024A	Inventory and review the processes in place related to the organization’s sharing of data with third

1 – Calendar year 202XA designates a project from the audit plan for January – June of the respective year and 202XB designates a project from the audit plan for July – December of the respective year.

*Ad hoc projects added after approval of the January – June 2025 Audit Plan (November 2024 Audit Committee); communicated to Committee as part of March written update and included in July – December 2025 Audit Plan.

Ohio Public Employees Retirement System – Internal Audit

APPENDIX A - 2025 Internal Audit Activities – May 2025

Project Name & Completion Date	Department	Project Type	Status	Audit Plan Year (1)	Project Objective
					parties (non-investment related) and controls in place to manage the associated risks.
Assurance Mapping Project	Exec./Other	Other	Planning	2024A	Develop an assurance map that documents the assurance activities shared by the three lines of defense across the organization.
Fiduciary Audit Review	Exec./Other	Audit	Reporting	2023A	Perform an external fiduciary assessment to evaluate OPERS fiduciary controls in place related to Investments.
Proxy Voting Reconciliations – Follow-up Audit	Exec./Other	Audit	Reporting	2024A	Assess the design and effectiveness of reconciliation controls associated with proxy voting.
Procurement	Exec./Other	Audit	Reporting	2024B	Focused testing of compliance with OPERS Procurement Policy.
Continuous Auditing	Various	Audit	On-going	2025	Individual tests performed throughout the year in various areas including Finance, Benefits, Ethics, Health Care, and Investments.
Enterprise Risk Management	Various	Advisory/Audit	On-going	2025	Review and provide feedback related to the organization’s ERM process.

1 – Calendar year 202XA designates a project from the audit plan for January – June of the respective year and 202XB designates a project from the audit plan for July – December of the respective year.

*Ad hoc projects added after approval of the January – June 2025 Audit Plan (November 2024 Audit Committee); communicated to Committee as part of March written update and included in July – December 2025 Audit Plan.

Ohio Public Employees Retirement System – Internal Audit
APPENDIX A - 2025 Internal Audit Activities – May 2025

Project Name & Completion Date	Department	Project Type	Status	Audit Plan Year (1)	Project Objective
Quality Self Assessment/Workpaper Review	Internal Audit Activities	Other	Not started	2025A	Perform internal quality review procedures in accordance with the IIA standards.

1 – Calendar year 202XA designates a project from the audit plan for January – June of the respective year and 202XB designates a project from the audit plan for July – December of the respective year.

*Ad hoc projects added after approval of the January – June 2025 Audit Plan (November 2024 Audit Committee); communicated to Committee as part of March written update and included in July – December 2025 Audit Plan.

Appendix B.1 - Status of High/Medium Internal Audit Recommendations - NEW (since November 2024)

Audit Area/Report Date	Director(s)	Report Reference/Summarized Audit Observation	Criticality	Summarized Audit Recommendation	Status & Date
External Manager Audit (January 2025)	Greff	3 - a. The ODD process changed in 2024, but internal procedures remain outdated. Two managers had high-risk scores, with insufficient documentation to justify comfort with these scores. b. The total risk score is Based on five categories and some managers' scores exceeded the maximum. The scoring methodology is does not appear to be consistently used. c. The ODD process uses data as of 3/31/24, however, not all 2023 financials were available at that time. d. The risk management team aims to visit all managers every 5-10 years, but three managers were not visited within this timeframe. e. In 2024, all managers received a survey and document request list. One manager didn't provide all requested documents, and not all received documentation was reviewed.	Medium	a. The Risk Management Team (Team) should update internally documented procedures and supporting documents for the current ODD process, including but not limited to the process for concluding on the risk rating results. The team should share these updates with the Public Markets Committee and consider adding a procedural change log. b. The review of the risk score results should be documented by the Team to validate accurate scoring, higher risk managers are escalated, documents are reviewed for any concerns, and documented analysis of the final conclusion is included. c. The Team should consider changing some of the document request timeframes. For example, the audited financials were unable to be provided for some managers for the current year under review due to request timeframe. It could be considered to extend the deadline from 3/31 to 6/30 for this particular item. d. The Team should consider visiting managers that fall outside the specified timeframe and monitor the visitation list to ensure adherence to the agreed cadence, unless deemed not beneficial. e. The Team should ensure all supporting documents received for the ODD process are reviewed and evidenced. A checklist should be considered for all documentation received. Documentation not provided should be escalated to management. The Team should consider additional oversight from management to ensure results are within tolerance.	OPEN
(1) The following key defines the terminology used in the status column of this report:					
OPEN – The status of the Internal Audit recommendation is open pending management’s remediation/implementation.					
OPEN pending IA validation – The status of the Internal Audit recommendation has been implemented by management but is pending validation by Internal Audit.					
CLOSED – The Internal Audit recommendation has been implemented by management and validated/accepted by Internal Audit.					

Appendix B.2 - Status of High/Medium Internal Audit Recommendations - Historical (prior to November 2024)

Audit Area/Report Date	Director(s)	Report Reference/Summarized Audit Observation	Criticality	Summarized Audit Recommendation	Status & Date
Member Directed Processing Audit (August 2024)	Foster	<p>1 - The following items were noted related to performance standards:</p> <p>a) One performance standard metric is not being reported to OPERS that was agreed upon per the contract: Investment Election Changes PSR or Internet.</p> <p>b) Three metrics reported quarterly to OPERS on Voya's performance are not included in the contract.</p> <ul style="list-style-type: none"> - Plan Selection/Change Forms - Plan Selection - Internet - Signature Changes on Refund and Benefit Checks <p>These metrics appear to be old performance standards that were included in a prior contract that were removed from the most recent contract.</p>	Medium	<p>1 - OPERS and Voya should review the current contract and begin reporting on performance standards as outlined. Any deviations from what has been agreed to in the contract should be documented.</p> <p>OPERS should enhance the review and communication process of the quarterly performance standards provided by Voya to include sharing with a wider OPERS group that has more direct insight into certain reported metrics. A periodic status meeting between OPERS and Voya should be considered in order to discuss any questions/concerns, open items, or further performance metric review.</p>	CLOSED
Member Directed Processing Audit (August 2024)	Foster	<p>2 - The process for removing OPERS employees from Voya's Workspace/Sponsor Web site is not working as intended. The following issues were discovered:</p> <ul style="list-style-type: none"> - 3 terminated employees continue to have access to Voya's site and member account information - 21 employees have EDIT access, compared to VIEW access, which is unnecessary <p>Currently when VOYA system access is granted to an OPERS employee it consists of the employee's OPERS email and a separate password that is not integrated with an OPERS identity and management access tool (Okta). This creates a risk that a person's employment could be terminated with OPERS and they could still be able to access OPERS Member Directed information if access is not removed timely from Voya.</p>	Medium	<p>2 - OPERS should enhance the process of removing access from Voya's system for terminated employees as well as the process of considering the level of access current employees have.</p> <p>Consideration should be given to whether access to the Voya system can be managed through the OPERS identity and access tool (Okta) to allow for timely removal of system access.</p>	CLOSED
2S Eligibility - Continuous Audit (June 2024)	Foster	<p>IA reviewed five 2S accounts that were ineligible for a monthly benefit as the beneficiaries were 22 years or older and not living disabled. If a beneficiary turned 22 the same month as their first monthly benefit or PBD, Compass does not recognize the member as being outside of the eligibility period going forward and continues to send a monthly benefit.</p> <p>Four out of the five accounts were outside of the 1-year window to collect the overpayment per OPERS Benefits and Health Care Overpayments Collection Procedure, therefore, the total amount waived for these accounts was \$88,661.22. One account was within the 1-year window and the overpayment amount of \$6,190.96 can be collected.</p> <p>System enhancements should be considered within Compass that flags an account with a warning/alert when a processor pays a beneficiary for the first time for a 2S benefit when they are 22 or older at time of payment or creates a workflow for account review when an account trips the overpayment scenario described (> 22 year old beneficiary with a person status of "living" in Compass receiving benefit payments).</p>	High	<p>System enhancements should be considered within Compass that flags an account with a warning/alert when a processor pays a beneficiary for the first time for a 2S benefit when they are 22 or older at time of payment or creates a workflow for account review when an account trips the overpayment scenario described (> 22 year old beneficiary with a person status of "living" in Compass receiving benefit payments).</p>	CLOSED
Cash and Cash Equivalents (June 2024)	Greff/Starr	<p>1 - Two securities tested in September 2023 and March 2024 extended past their WAL 3-year policy limit and were not identified/addressed. Potential risks include going beyond the portfolio's goal of maintaining liquidity if these securities are not monitored to appropriately follow Policy requirements.</p>	Medium	<p>Enhance controls to identify securities that extend their WAL 3-year Policy limit and ensure Policy language and understanding is clear as to what "addressed in 90 days" means. Consideration should also be given to reviewing and potentially revising the Policy to ensure expectations are clear and ensure consistency with guideline language.</p>	OPEN
Cash and Cash Equivalents (June 2024)	Greff/Starr	<p>2 - Audit testing identified 6 securities that appear to go against guideline rules. While it appears the team was monitoring these identified securities, it's not clear what actions should occur when securities fall out of compliance with guideline metrics. Potential risks include going beyond the portfolio's diversification goal if these securities are not monitored to appropriately follow guideline requirements.</p>	Medium	<p>Ensure securities that fall outside of guidelines are clearly identified and process/procedures are in place to ensure holdings that fall outside of guidelines are documented on a watchlist, escalated, and evaluated. For consistency, this process should be included in documented procedures. Consideration should also be given to reviewing and potentially revising guidelines to ensure expectations are clear and ensure consistency with Policy language.</p>	OPEN
Cash and Cash Equivalents (June 2024)	Greff	<p>3 - While a majority of the testing performed was without exception, Internal Audit observed some data issues within Aladdin related to some specific tests. While reviewing security holdings for Policy requirements (which includes the three cash portfolios), it was noted that some maturity dates were incorrect, multiple securities were falsely shown over the 3-year WAL limit, various securities did not have ratings, and multiple instances were observed where the Cash team communicated incorrect issuer information and cusips to Blackrock for correction. Our concern is that the team uses this information to determine rating tiers, other guideline/policy requirements, and to present information to management and the Board; however, the data does not appear to be reliable. Additionally, the Cash management team regularly contacts Blackrock to correct issues, which could potentially create separation of duties issues.</p>	Medium	<p>While it appears some of these issues are being addressed with Aladdin, it seems to be an ongoing issue where the root cause is not being fixed. We recommend working with BNY Mellon and Blackrock to ensure the data is reliable without manual manipulation and cash management outreach. Any known issues or workarounds should be appropriately documented for the context and general understanding of all potential users of the data. The Cash team should work with Investment Risk for any issues and/or updates to security information.</p>	CLOSED
Reemployed Retirees (January 2024)	Foster	<p>2 - Accounts with overpayments were reviewed to confirm the calculations were billed correctly. Audit testing performed manual re-calculations to confirm accuracy with the calculations in Compass. Out of 20 accounts tested, two accounts were identified where the re-calculation did not agree with Compass. The accounts were determined to be a part of a cleanup project Service Retirement received from IT.</p>	Medium	<p>Service Retirement should work with IT to ensure the calculations in Compass are fixed. An analysis of the cleanup project should be documented identifying the issues and root cause. A corrective action plan should be developed to include the status of the project along with achievable deadlines to ensure completeness of the cleanup project and to ensure calculations in Compass are accurate and reliable.</p>	CLOSED
<p>(1) The following key defines the terminology used in the status column of this report:</p>					
<p>OPEN – The status of the Internal Audit recommendation is open pending management's remediation/implementation.</p>					
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<p>CLOSED – The Internal Audit recommendation has been implemented by management and validated/accepted by Internal Audit.</p>					

Audit Committee II.B



OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM
277 EAST TOWN STREET, COLUMBUS, OH 43215-4642
1-800-222-PERS (7377)
www.opers.org

MEMORANDUM

DATE: May 12, 2025

TO: OPERS Audit Committee

FROM: Caroline Stinziano, Director – Internal Audit

RE: **II. Discussion Items:**
B. External Audit Results for 2024 and Internal Control Discussion

Purpose

Representatives from the Plante Moran audit team will present their end of audit communications for the annual external audit as of December 31, 2024.

Background

OPERS, in connection with the Ohio Auditor of State, selected Plante Moran as our external audit firm for the period of January 1, 2021 – December 31, 2025. Planning communications for the audit were provided as part of the November 2024 Audit Committee meeting.

The Plante Moran team members meeting with you today will include:

- Bob Dobrowsky, CPA – Engagement Partner
- Michelle Watterworth, CPA – Colleague Partner/Public Sector Technical Leader
- Spencer Tawa, CPA – Senior Manager



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Wealth Management.

Ohio Public Employees Retirement System

Audit Presentation – May 20, 2025

Bob Dobrowsky, CPA | Michelle Watterworth, CPA | Spencer Tawa, CPA



Your Team Here Today



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Agenda



- Overview of Audit Process
- Audit Opinion
- Communications with Audit Committee
 - Required end of audit communications
 - Report on Internal Control over Financial Reporting
- Questions



Overview of Audit Process

- Executed the audits as planned, both in scope and timing
 - Annual Comprehensive Financial Report
 - GASB 68, Schedule of Collective Pension Amounts and Employer Allocations
 - GASB 75, Schedule of Collective OPEB Amounts and Employer Allocations
- Highlights of audit approach
 - Fourth year audit
 - Hybrid model

*Considerable resources and cooperation received from OPERS
(Thank you!)*



Audit Opinions

- Unmodified Opinions
- Planned and performed audit to express an opinion on OPERS as a whole and an opinion on each of the following individual plans:
 - Traditional Pension Plan
 - Member-Directed Plan
 - 115 Health Care Trust
- Ohio Public Employees Deferred Compensation Program – audited by other auditors

Opinions

We have audited the financial statements of Ohio Public Employees Retirement System (OPERS) as of and for the year ended December 31, 2024 and the related notes to the financial statements, which collectively comprise OPERS' basic financial statements, as listed in the table of contents. We have also audited the Traditional Pension Plan, the Member-Directed Plan, and the 115 Health Care Trust of Ohio Public Employees Retirement System as of and for the year ended December 31, 2024, as displayed in OPERS' basic financial statements.

In our opinion, based on our audit and the report of other auditors, the accompanying financial statements referred to above present fairly, in all material respects, the fiduciary net position of Ohio Public Employees Retirement System, as well as the Traditional Pension Plan, the Member-Directed Plan, and the 115 Health Care Trust of OPERS, as of December 31, 2024 and the respective changes in fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

We did not audit the financial statements of the Ohio Public Employees Deferred Compensation Program, which represents 14.05 percent, 15.32 percent and 20.54 percent, respectively, of the total assets, fiduciary net position, and total additions of the Ohio Public Employees Retirement System. Those financial statements were audited by other auditors, whose report has been furnished to us, and our opinion, insofar as it relates to the amounts included for the Ohio Public Employees Deferred Compensation Program, is based solely on the report of the other auditors.



Communications with Audit Committee

- Required end of audit communications
 - No difficulties or disagreements with management in performing the audit
 - Reporting entity changes for 2024
 - Combined Plan consolidated into the Traditional Plan
 - ODC included in OPERS as a component unit
 - No corrected misstatements or uncorrected misstatements
 - Management estimates included within the financial statements
 - Harder to value investments
 - Actuarial assumptions



Communications with Audit Committee

- Report on Internal Control over Financial Reporting
 - No instances of noncompliance identified that are required to be reported under *Governmental Auditing Standards*
 - No reportable control deficiencies required to be reported under *Governmental Auditing Standards*



Questions

Thank you for the opportunity
to serve you!

Audit Committee II.C



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MEMORANDUM

DATE: May 12, 2025

TO: OPERS Retirement Board Members

FROM: Jenny Starr, Director – Finance
Erica Worley, Assistant Director – Financial Reporting

RE: **II. Discussion Items:**
C. 2024 Annual Comprehensive Financial Report Review

Purpose – The purpose of this presentation is to review the results of OPERS’ financial operations for the year ended December 31, 2024, presented in the *Annual Comprehensive Financial Report* (annual report).

Background – Each year the results of the financial activities of the System are summarized and presented in the annual report with comparative data from the prior year included in the document. OPERS’ financial position as presented in the annual report is audited by the independent external audit firm Plante & Moran, PLLC, who will also present the status of their audits.

Significant changes in 2024

Two key changes occurred in 2024 with significant impacts to the annual report. This presentation will highlight the main updates within each section of the annual report as a result of these changes.

First, as disclosed in the prior years’ annual report and discussed with the Board, we consolidated the Combined Plan into the Traditional Pension Plan effective January 1, 2024. The Combined Plan is now tracked as a separate division within the Traditional Pension Plan. Throughout the annual report, the consolidation of these plans is reflected and disclosed and references to the Traditional Pension Plan are inclusive of the Combined Plan division, unless otherwise noted. As some Traditional Pension and Combined plan information continues to be reported separately in various sections of the annual report, this information is clearly marked as Combined Plan division, or as Traditional Pension Plan, excluding Combined Plan division.

The second key change, also previously discussed with the Board, is the inclusion of the Ohio Public Employees Deferred Compensation Program (ODC) in the OPERS financial statements as a component unit. As a reminder, during 2024, ODC established memorandums of understanding with OPERS to purchase various services, including, but not limited to, executive leadership services, as allowed by law. As a result, OPERS has financial accountability and significant influence over ODC, qualifying ODC as a fiduciary component unit of OPERS. ODC financial information, material disclosures and other information are included in various sections throughout the annual report.

Key results in 2024

The 2024 annual report reflects strong investment returns, despite challenging and volatile markets, with a net investment return for the total OPERS portfolio, excluding ODC, of \$10.2 billion compared to a \$12.1 billion gain in 2023. OPERS total investment portfolios reported a gain of 9.08% in 2024, compared to 11.72% in 2023.

The OPERS funded ratio decreased slightly to 83%, down from 84% for the previous three years, and the amortization period remained at 15 years in 2024. This stability, despite volatile markets, is due to actuarial smoothing, in which market gains and losses are recognized over a four-year period to reduce the impact of investment market volatility.

Health care funding actuarial valuation information reported in the annual report remains a year in arrears with the 2023 information as the most recent valuation. The health care funded ratio increased from 115.5% in 2022 to 118.6% in 2023, and solvency years improved from 21 years to 25 years.

While the total health care trust fund was \$13.2 billion at the end of 2024, a portion of the fund is restricted for notionally funded member health reimbursement arrangement accounts and retiree medical accounts. In total, these restricted funds were \$814.3 million as of December 31, 2024, including the notionally funded member account balances and the remaining net position in the Member-Directed health care program.

Other key results of financial activities for fiscal year 2024 include the following:

- Total net position increased by \$8.5 billion from \$134.1 billion in 2023 (as restated to include ODC) to \$142.6 billion in 2024.
- The OPERS defined benefit portfolio returned 8.82%, the health care portfolio returned 10.00%, and the defined contribution portfolio returned 13.74%.
- The OPERS member and employer contributions for the year increased by \$271.0 million, or 6.4%, compared to 2023.

- Health care expenses increased slightly by \$1.2 million, or 0.2%, in 2024 compared to 2023.
- The number of new retirees in 2024 increased by 5.7% to 7,385, compared to the 6,988 members who retired in 2023 (Traditional Pension Plan, including Combined Plan division).

Next Steps – The annual report is complete and will be distributed to the Board at the May meeting. The GASB 68 and GASB 75 reports will be made available to our employers later this month. The external audits of these reports have been completed.

Financial Presentation

May 20, 2025

Jenny Starr, Director—Finance

Erica Worley, Assistant Director—Financial Reporting



Objectives

Provide the Board an overview of the key financial statements and discussion of the key activities

Highlight the key information and changes in the Annual Comprehensive Financial Report

Provide the Board an opportunity to discuss questions with the external auditors

Annual Comprehensive Financial Report Content & Structure

- **Letter of Transmittal**
- **Management's Discussion and Analysis (MD&A)**
- **Financial Statements**
 - Combining Statement of Fiduciary Net Position
 - Assets, liabilities and deferred inflows or outflows as of a point in time (year-end)
 - Combining Statement of Changes in Fiduciary Net Position
 - Explains the changes in net position from year to year
- **Investment Returns**
- **Actuarial Results**
- **Statistical Section**
- **Plan Statement**

Review of Retirement Plans and Health Care Trust

Traditional Pension Plan	Defined Benefit (DB) Pension Plan Combined Plan Division: Member Contributions—Defined Contribution Employer Contributions—Defined Benefit
Member-Directed Plan	Defined Contribution (DC) Plan
115 Health Care Trust	All Health Care (HC) Programs
Fiduciary Component Unit: Ohio Deferred Compensation Program (ODC)	Defined Contribution (DC) Plan

Changes in Financial Reporting Entity

Combined Plan Consolidation

Effective January 1, 2024, the Combined Plan was consolidated into the Traditional Pension Plan for Financial Reporting purposes.

Effects on the Annual Report

- Financial Section (impact as determined by GASB)
 - Combined Plan included as part of the Traditional Pension Plan beginning 2024
 - MD&A was not impacted
 - Combining Statement of Changes in Net Position includes restated opening net position balance (footnote 2 provides details)
 - Historical information in RSI has not been restated

- Investment Section
 - No impact; investment information displayed at portfolio level (DB, DC, HC, and ODC)

Combined Plan Consolidation (con't.)

- Actuarial Section
 - The value in the historical trend tables is comparability. As such, tables have been restated to consolidate the Combined Plan into the Traditional Pension Plan for all years presented.

- Statistical Section
 - Financial tables have been restated to include the Combined Plan with the Traditional Pension Plan.
 - A reconciliation of the legacy Traditional Pension Plan and legacy Combined Plan is included for Statements of Net Position and Changes in Net Position to show the consolidation of the legacy plans.
 - Funding valuation tables continue to present the Combined Plan and Traditional Pension Plan separately, as well as on a consolidated basis.
 - Select membership data has been restated to present the Combined Plan with the Traditional Pension Plan.
 - Remaining tables continue to be presented separately.

- Plan Statement
 - Minor updates

Ohio Deferred Compensation (ODC) Fiduciary Component Unit

The agreement entered into in 2024 for OPERS to provide executive leadership services to ODC allows OPERS to significantly influence ODC activities. As a result, to comply with GASB requirements, OPERS must report ODC as a fiduciary component unit beginning in 2024.

Effects on the Annual Report

- Financial Section (impact as determined by GASB)
 - ODC included in the OPERS financial reporting entity beginning 2024 as a new fiduciary fund
 - MD&A significantly impacted as historical information was not restated
 - Combining Statement of Changes in Net Position includes restated opening net position balance (footnote 2 provides details)
 - Combining Statement of Fiduciary Net Position includes “Due from ODC” and “Due to OPERS” lines; these represent the lease agreement for the office space between the two entities
 - Existing footnotes significantly impacted based on materiality to OPERS financial statements
 - RSI was not impacted

Ohio Deferred Compensation (ODC) Fiduciary Component Unit (con't.)

- Investment Section
 - ODC information was added to the Investment Section where applicable and presented separately from the DB, DC and HC portfolios.
- Statistical Section
 - Total OPERS level financial information modified to include ODC information beginning in 2024. Historical information was not restated.
 - Select participant and contributing employer level data has been added.
- Plan Statement
 - No change

New Statement Presentation (example)

Financial Section

Combining Statement of Fiduciary Net Position (as of December 31, 2024)					
	Pension		115 Health Care Trust	Ohio Deferred Compensation Program	Total
	Traditional Pension Plan	Member-Directed Plan			
Assets					
Cash and Cash Equivalents	\$5,509,683,627	\$3,355,189	\$633,478,142	\$23,682,699	\$6,170,199,657
Receivables					
Members, Participants and Employers	354,743,698	13,911,310	2,983,226	2,886,435	374,524,669
Vendor and Other	3,030,653	—	1,300,458	346,382	4,677,493
Investment Sales Proceeds	765,164,466	1,359,033	118,003,312	—	884,526,811
Accrued Interest and Dividends	389,027,799	189,995	72,785,838	—	462,003,632
Total Receivables	1,511,966,616	15,460,338	195,072,834	3,232,817	1,725,732,605
Investments					
Fixed Income	26,841,278,982	172,440,426	5,287,425,840	—	32,301,145,248
Domestic Equities	23,057,508,949	778,705,278	4,008,002,342	1,318,105,224	29,162,321,793
Real Estate	12,045,443,795	5,882,796	—	—	12,051,326,591
Private Equity	15,389,808,625	7,516,128	—	—	15,397,324,753
International Equities	19,605,486,094	87,017,443	3,168,642,052	—	22,861,145,589
Private Credit	203,317,652	99,297	—	—	203,416,949
Risk Parity	907,854,278	443,381	113,857,218	—	1,022,154,877
Collective Trust Funds	505,369,448	1,019,578,452	—	10,103,389,977	11,628,337,877
Separate Accounts—ODC	—	—	—	5,603,290,434	5,603,290,434
Stable Value Option—ODC	—	—	—	4,787,295,735	4,787,295,735
Other Investments	34,574,466	16,886	3,006,198	7,226,825	44,824,375
Total Investments	98,590,642,289	2,071,700,087	12,580,933,650	21,819,308,195	135,062,584,221
Collateral on Loaned Securities	10,352,785,270	5,179,560	2,086,535,019	—	12,444,499,849



2024 Highlights

2024 Overall Highlights

(includes ODC as applicable, unless otherwise noted)

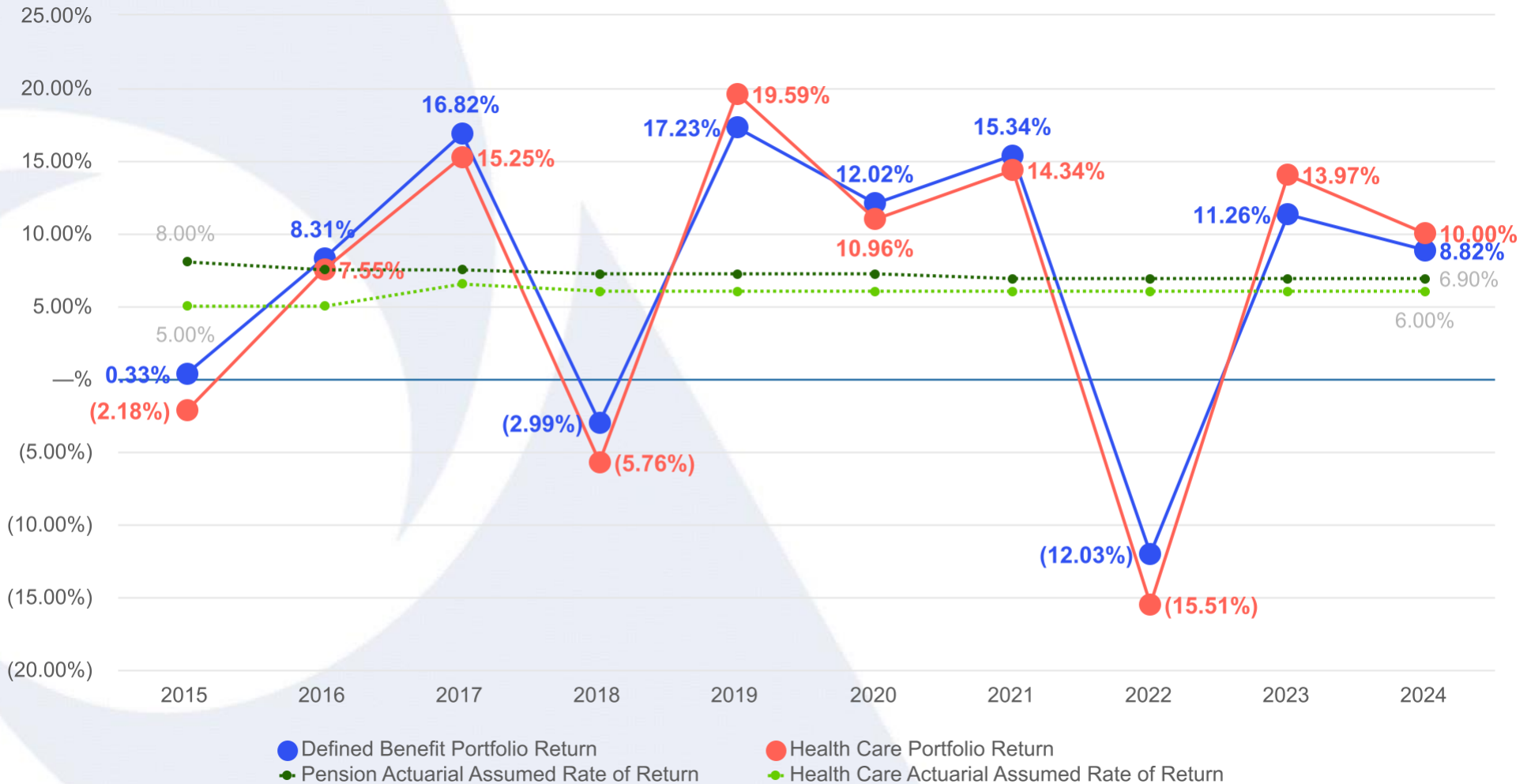
- Net increase in fiduciary net position of \$8.5 billion.
- Approximately \$13.2 billion in net income from investing activity.
- The OPERS investment portfolios (excluding ODC) reported a gain of 9.08% in 2024.
- Pension funded ratio decreased slightly to 83%; the amortization period remained at 15 years in 2024.
- Health care expenses increased \$1.2 million, or 0.2%, in 2024 compared to 2023.
- Health care funded ratio increased from 115.5% in 2022 to 118.6% in 2023; Health care solvency years increased from 21 years in 2022 to 25 years in 2023.



Financial Summary— Overall OPERS

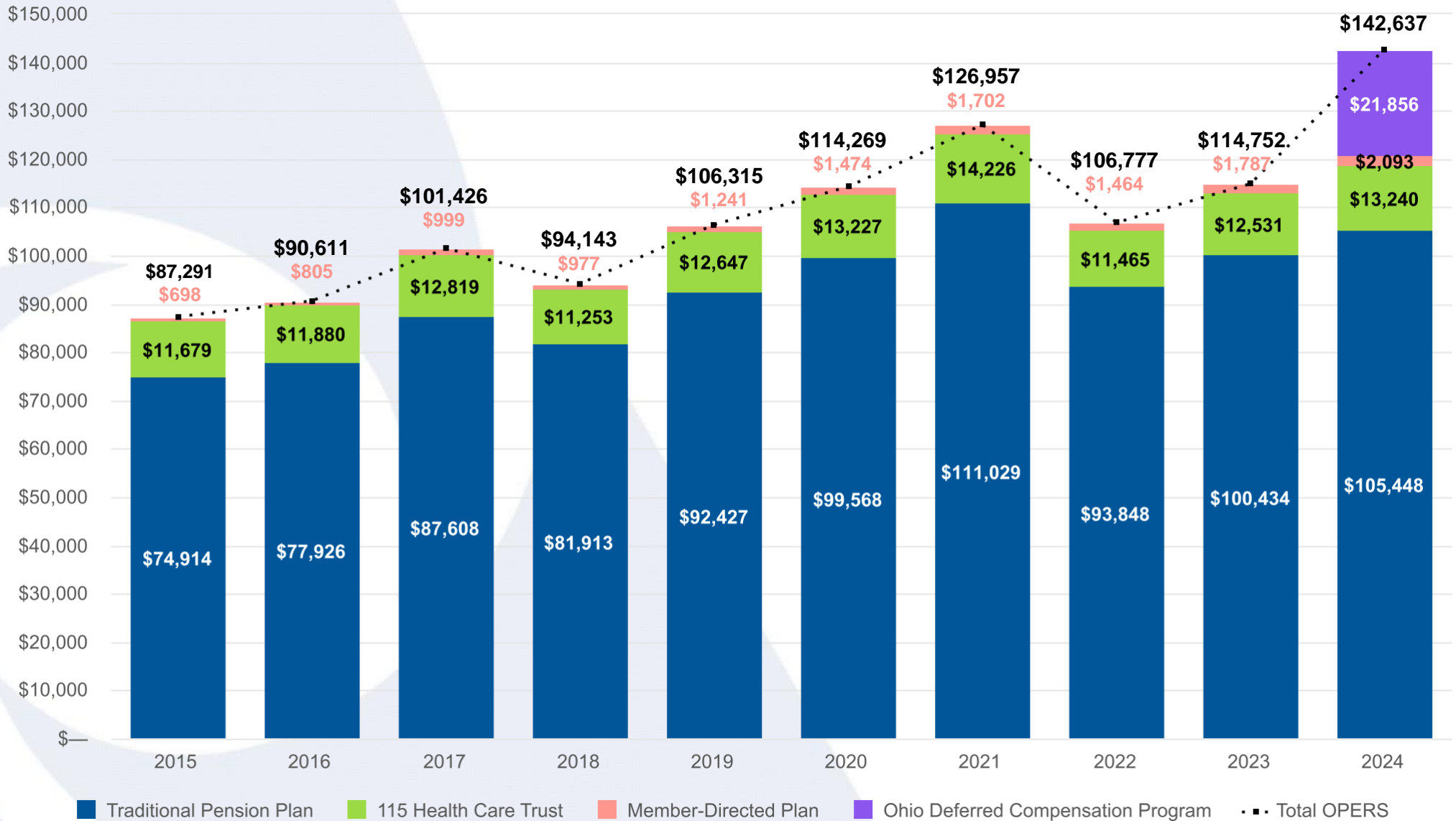
Historical Investment Returns

The defined benefit pension and health care portfolios experienced gains in 2024 that, once again, exceeded the actuarial assumed rates of return.



OPERS Net Position (Assets in \$M)

Net position trends closely follow investment returns.



OPERS (excluding ODC) Additions/Revenues By Source

Investment activity continues to have the most significant impact to our financial statements. Member and employer contributions increased as a result of a 6.2% increase in active member payroll, driven by a 2.5% increase in the number of active members and wage inflation.

	<u>2024</u>	<u>2023</u>
<u>Total System</u>		
Member Contributions	\$1,884,022,244	\$1,771,099,964
Employer Contributions	2,636,833,748	2,478,806,116
Contract and Other Receipts	85,683,398	76,478,623
Net Income/(Loss) from Investing Activity	10,168,921,065	12,078,361,904
Other Income, net	494,822	650,356
Interplan Activity	28,959,270	48,202,584
Total OPERS Additions	<u>\$14,804,914,547</u>	<u>\$16,453,599,547</u>

Note: ODC information to follow separately; This slide and the following slide present OPERS excluding ODC to present comparable information for 2023 and 2024.

OPERS (excluding ODC) Deductions By Type

Increasing pension benefits had the largest impact on the change in deductions year over year. Average pension benefits paid to retirees continue to increase, a 3% increase compared to 2023.

	<u>2024</u>		<u>2023</u>
<u>All OPERS Plans</u>			
Pension	\$7,476,971,013	↑	\$7,228,906,262
Health Care Expenses	546,121,726	↑	544,959,559
Refunds	647,391,778	↑	580,205,075
Interplan Activity	28,959,270		48,202,584
Subtotal	<u>8,699,443,787</u>		<u>8,402,273,480</u>
Administrative Expenses			
Non-Investment	76,811,859	↑	76,465,870
Investment (included in Net Income/(Loss) from Investing Activity on previous page)	53,950,783	↑	51,416,041
Total Administrative Expenses	<u>130,762,642</u>	↑	<u>127,881,911</u>
Total OPERS Deductions	<u><u>\$8,830,206,429</u></u>	↑	<u><u>\$8,530,155,391</u></u>

ODC Component Unit Activity

ODC was added as a Fiduciary Component Unit in 2024. Below is a summary of their financial activity for the year. As this is the first year ODC is included in the OPERS financial reporting entity, it is not include in the prior slides comparing current and historical financial data.

	<u>2024</u>
<u>ODC Component Unit</u>	
Participant Contributions	\$653,946,856
Contract and Other Receipts	103,569,926
Net Income/(Loss) from Investing Activity	3,069,611,589
Total ODC Additions	<u>\$3,827,128,371</u>
Distributions and Transfers	\$1,360,467,577
Administrative Expenses	14,867,461
Total ODC Deductions	<u>\$1,375,335,038</u>

Note: Contract and Other Receipts includes transfers from other plans and recordkeeping income. Distributions and Transfers includes distributions to participants and transfers to other plans.



Financial Summary— Benefit Plans

Excluding ODC

Pension Plan Summary

Strong investment results and rising contributions, partially offset by the increase in pension benefits, resulted in an overall increase of \$5.3 billion in the OPERS pension plans net position.

- Net Position increased \$5.3 billion from \$102.2 billion in 2023 to \$107.5 billion as of December 31, 2024.
- Net income from investing activity totaled \$8.9 billion in 2024, compared to net income from investing activity of \$10.5 billion in 2023.
- OPERS Member and employer contributions increased \$268.4 million compared to 2023, or 6.4%.
- Traditional Pension Plan benefits increased from \$7.2 billion in 2023 to \$7.5 billion in 2024, or 3.4%.

Health Care Summary

Health Care net position increased in 2024 due to strong investment returns for the second year in a row.

- The overall 115 Health Care Trust net position increased to \$13.2 billion in 2024 from \$12.5 billion in 2023. Net income from investment activity was \$1.2 billion.
- Net health care costs increased only 0.2% from \$545.0 million in 2023 to \$546.1 million in 2024.
- During 2024, no employer contributions from the Traditional Pension Plan were allocated to fund health care, except for the Combined Plan division, from which 2% of employer contributions were allocated to health care. Member-Directed RMAs contributions for 2024 remained at 4%.
- Account balances as of December 31, 2024 restricted for member HRA accounts were \$430.0 million, and balances restricted for member MD RMA accounts were \$384.3 million.



Pension Reporting— GASB 67

Excluding ODC

Pension Assets vs Pension Liabilities

Funding Basis asset valuation method smooths investment gain/(loss) impacts over four years. The Accounting Basis does not, recognizing all gains/(losses) in the year they occur.

Funding Basis (\$ in millions)		All Plans	
Year	2024	2023	
Pension Assets	\$106,873	\$105,133	
Accrued Liabilities	\$129,013	\$125,473	
Unfunded Liabilities	\$22,140	\$20,340	
Funded Ratio	82.84%	83.79%	
Amortization Years	15	15	
Net Unrealized Gains/(Losses)	(\$2,381)	(\$5,537)	

Accounting Basis (\$ in millions)		All Plans	
Year	2024	2023	
Plan Fiduciary Net Position	\$104,492	\$99,596	
Total Pension Liability	\$128,992	\$125,458	
Net Pension Liability	\$24,500	\$25,862	
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	81.01%	79.39%	

Sensitivity of Net Pension Liability to Changes in the Discount Rate

The investment discount rate assumption has a significant impact to the calculation of the Net Pension Liability.

Changes in the Discount Rate (\$ in millions)			
	1% Decrease 5.9%	Current Discount Rate 6.9%	1% Increase 7.9%
As of December 31, 2024			
Net Pension Liability (All Plans)	\$40,094	\$24,500	\$11,542



Other Post-Employment Benefits (OPEB) Reporting— GASB 74

Health Care Assets vs Liabilities

In addition to differences in asset valuation methods used in Funding versus Accounting basis, the GASB single discount rate can also cause differences in the calculations. These Funding basis values are reported a year in arrears.

Funding Basis		
Total Health Care Fund (\$ in millions)		
Year	2023	2022
Health Care Assets	\$12,823	\$12,841
Accrued Liabilities	\$10,808	\$11,119
Unfunded Liabilities/(Assets)	(\$2,015)	(\$1,722)
Funded Ratio	118.64%	115.49%
Solvency Period	25	21
Net Unrealized Gains/(Losses)	(\$293)	(\$1,376)
Actuarial Assumed Rate of Return	6.00%	6.00%

Accounting Basis (\$ in millions)		
Year	2024	2023
Plan Fiduciary Net Position	\$13,240	\$12,531
Total OPEB Liability	\$10,896	\$11,628
Net OPEB Liability/(Asset)	(\$2,344)	(\$903)
Plan Fiduciary Net Position as a Percentage of Total OPEB Liability	121.51%	107.76%
Single Discount Rate	6.00%	5.70%

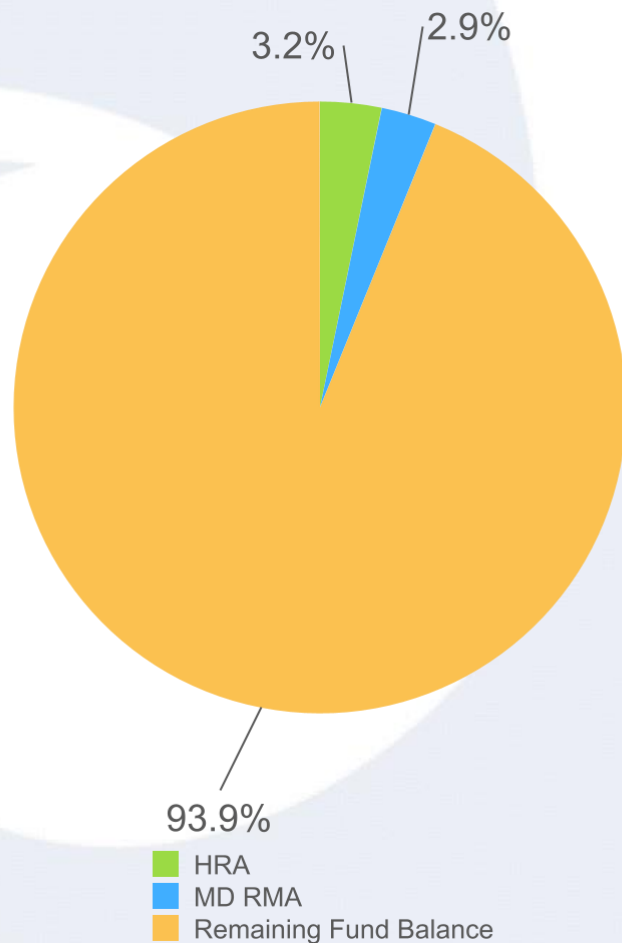
Sensitivity of Net OPEB Liability

The investment discount rate assumption has a significant impact to the calculation of the Net OPEB Liability.

Changes in the Discount Rate (\$ in millions)			
	1% Decrease 5.00%	Current Single Discount Rate 6.00%	1% Increase 7.00%
As of December 31, 2024			
Net OPEB Liability/(Asset)	(\$1,164)	(\$2,344)	(\$3,329)

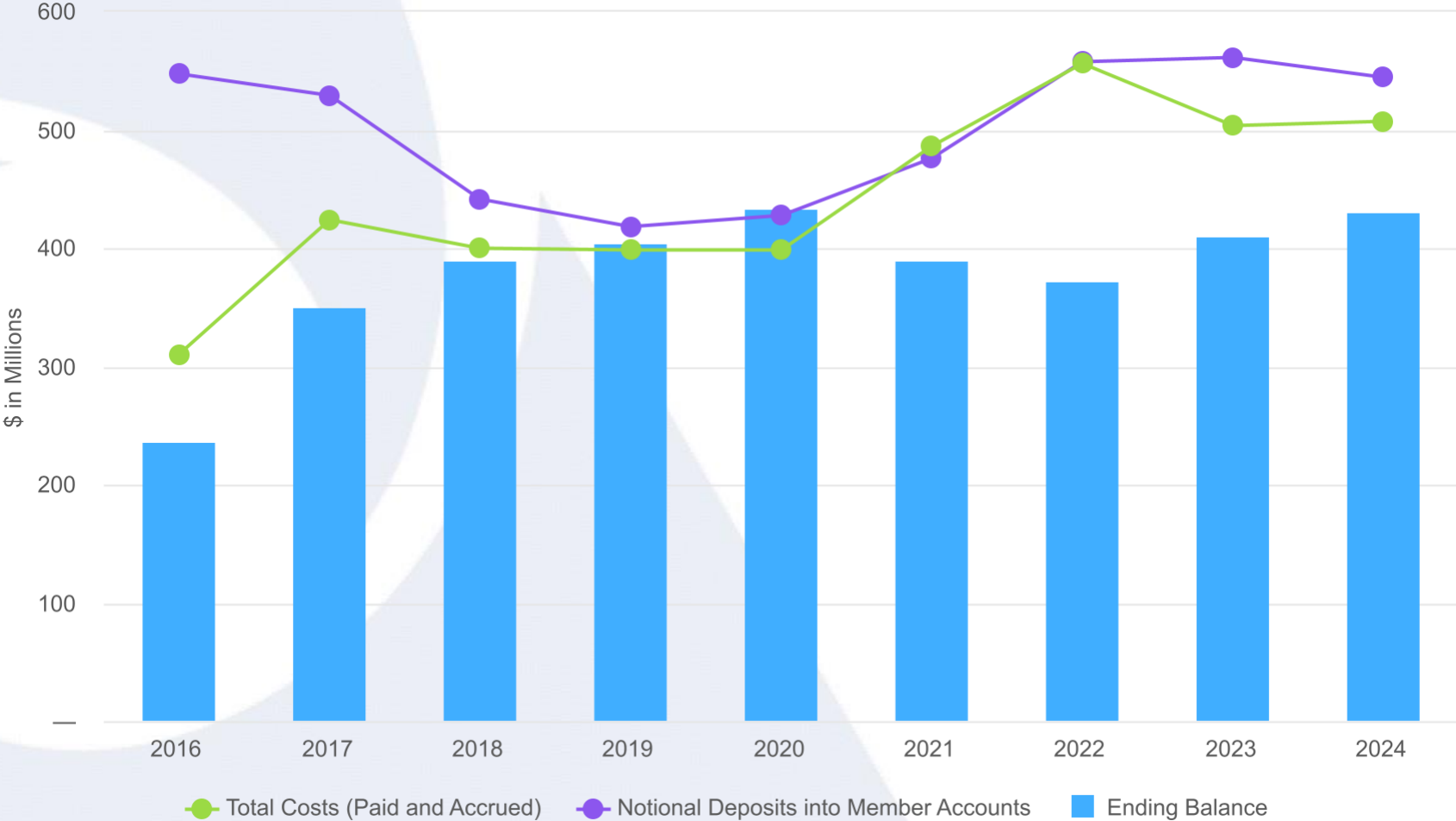
115 Trust Fund Balance

The 115 Trust Fund Balance is made up of notionally funded member accounts which include HRA and MD RMA activity.
















115 Trust Fund Balance	
HRA notional account balances	\$429,967,219
MD-RMA notional account balances	384,256,442
Remaining Fund Balance	12,426,082,016
Total	\$13,240,305,677

Health Reimbursement Arrangement (HRA) Accounts



Demographic Trends

Membership Statistics

	<u>2024</u>	<u>2024-2023</u> <u>Change</u>
Active		
Traditional Pension Plan	299,224 	7,421
Combined Plan Division	5,795 	(365)
Member-Directed Plan	11,195 	702
	316,214 	7,758
Inactive		
Traditional Pension Plan	776,532 	29,044
Combined Plan Division	2,596 	(43)
Member-Directed Plan	6,761 	131
	785,889 	29,132
Retirees / Beneficiaries		
Traditional Pension Plan	220,210 	481
Combined Plan Division	781 	95
Member-Directed Plan	507 	46
	221,498 	622
Total Members / Benefit Recipients	1,323,601 	37,512

New Retirees in 2024

There are fewer new retirees overall compared to 10 years ago. The new retiree population has more years of service and higher FAS, resulting in higher annual benefits.

Traditional Pension Plan	2024	2015
New Retirees with 25-30 years of service	1,178	1,248
New Retirees with 30+ years of service	2,868	2,586
Total New Retirees	7,385	8,273
Percentage of New Retirees with 30+ years of service	38.8%	31.3%
Average Final Average Salary (FAS) at retirement	\$67,077	\$50,121
Average Annual Benefit at Retirement	\$34,473	\$24,538

Changes in Active Members and Retirees

As a mature plan, the distribution of retirees and employees (active members) has shifted. The number of active members has declined over the past 10 years, while the number of retirees has increased.

Year	Active Members	Active Member Payroll (in millions)	Average Employee Payroll	Number of Retirees	Average Pension on Valuation Date
2024	316,214	\$17,788	\$56,253	221,498	\$33,045
2015	345,622	\$12,688	\$36,711	205,601	\$25,579
10-Year Change					
Increase/ (Decrease)	(8.5%)	40.2%	53.2%	7.7%	29.2%

Looking Ahead

- New GASB Standards (no significant impacts)
 - GASB 102—Certain Risk Disclosures, effective 2025
 - GASB 103—Financial Reporting Model Improvements, effective 2026
 - GASB 104—Disclosure of Certain Capital Assets, effective 2026



Questions?

Audit Committee III.A



OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM

277 EAST TOWN STREET, COLUMBUS, OH 43215-4642

1-800-222-PERS (7377)

www.opers.org

MEMORANDUM

DATE: May 7, 2024

TO: OPERS Retirement Board Members

FROM: Jenny Starr, Director – Finance
Caroline Stinziano, Director – Internal Audit

RE: **2024 External Audit Required Communications**

Plante & Moran, PLLC has issued **unmodified (clean) opinions** on the financial statements, GASB 68 report (schedules of collective pension amounts and employer allocations), and GASB 75 report (schedules of collective OPEB, or health care, amounts and employer allocations) of OPERS as of and for the year ended December 31, 2024. Please refer to the following two opinions that accompany this memo:

Combining Financial Statements

- Independent Auditors' Report on OPERS Combining Statement of Fiduciary Net Position as of December 31, 2024, and the related Combining Statement of Changes in Fiduciary Net Position for the year then ended and the related notes to the financial statements (included within the 2024 annual report)

Report on Internal Control

- Independent Auditors' Report on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*

Plante Moran has also issued the **required communications** under American Institute of Certified Public Accountants (AICPA) Professional Standards.

The required communications, which are discussed with the Board during the May Audit Committee meeting, also accompany this memorandum and as a reminder highlight the following:

- Significant accounting policies
- Significant accounting estimates
- Sensitive financial statement disclosures
- No difficulties encountered in dealing with management in performing the audit
- No uncorrected or corrected misstatements
- No disagreements with management
- Management representations
- Management did not consult with other independent accountants on the application of Accounting Principles Generally Accepted in the United States of America (GAAP) or audit standards
- No significant issues were discussed with management prior to engagement
- Auditors' role with respect to other information included in annual reports

Independent Auditor's Report

To the Board of Trustees
Ohio Public Employees Retirement System
and the Honorable Keith Faber, Auditor of State

Report on the Audit of the Financial Statements

Opinions

We have audited the financial statements of Ohio Public Employees Retirement System (OPERS) as of and for the year ended December 31, 2024 and the related notes to the financial statements, which collectively comprise OPERS' basic financial statements, as listed in the table of contents. We have also audited the Traditional Pension Plan, the Member-Directed Plan, and the 115 Health Care Trust of Ohio Public Employees Retirement System as of and for the year ended December 31, 2024, as displayed in OPERS' basic financial statements.

In our opinion, based on our audit and the report of other auditors, the accompanying financial statements referred to above present fairly, in all material respects, the fiduciary net position of Ohio Public Employees Retirement System, as well as the Traditional Pension Plan, the Member-Directed Plan, and the 115 Health Care Trust of OPERS, as of December 31, 2024 and the respective changes in fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

We did not audit the financial statements of the Ohio Public Employees Deferred Compensation Program, which represents 14.05 percent, 15.32 percent, and 20.54 percent, respectively, of the total assets, fiduciary net position, and total additions of the Ohio Public Employees Retirement System. Those financial statements were audited by other auditors, whose report has been furnished to us, and our opinion, insofar as it relates to the amounts included for the Ohio Public Employees Deferred Compensation Program, is based solely on the report of the other auditors.

Basis for Opinions

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS) and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are required to be independent of OPERS and to meet our other ethical responsibilities in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about OPERS' ability to continue as a going concern for 12 months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

To the Board of Trustees
Ohio Public Employees Retirement System
and the Honorable Keith Faber, Auditor of State

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and, therefore, is not a guarantee that an audit conducted in accordance with GAAS and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances but not for the purpose of expressing an opinion on the effectiveness of OPERS' internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about OPERS' ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and other required supplementary information, as identified in the table of contents, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, which considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

To the Board of Trustees
Ohio Public Employees Retirement System
and the Honorable Keith Faber, Auditor of State

Other Supplementary Information

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise Ohio Public Employees Retirement System's basic financial statements. The administrative expenses and schedule of investment expenses are presented for the purpose of additional analysis and are not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the administrative expenses and schedule of investment expenses are fairly stated in all material respects in relation to the basic financial statements as a whole.

Other Information

Management is responsible for the other information included in the Annual Comprehensive Financial Report. The other information comprises the introductory, investment, actuarial, statistical, plan statement, and annual report organization sections, as listed in the table of contents, but does not include the basic financial statements and our auditor's report thereon. Our opinions on the basic financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements or whether the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated May 7, 2025 on our consideration of Ohio Public Employees Retirement System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, grant agreements, and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of Ohio Public Employees Retirement System's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Ohio Public Employees Retirement System's internal control over financial reporting and compliance.



May 7, 2025

Report on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of
Financial Statements Performed in Accordance with *Government Auditing Standards*

Independent Auditor's Report

To Management and the Board of Trustees
Ohio Public Employees Retirement System
and the Honorable Keith Faber, Auditor of State

We have audited, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of Ohio Public Employees Retirement System (OPERS) as of and for the year ended December 31, 2024 and the related notes to the financial statements, which collectively comprise OPERS' basic financial statements, and have issued our report thereon dated May 7, 2025. Our report includes a reference to other auditors who audited the financial statements of the Ohio Public Employees Deferred Compensation Program, as described in our report on the Ohio Public Employees Retirement Systems' financial statements. This report does not include the results of the other auditors' testing of internal control over financial reporting or compliance and other matters that are reported on separately by those auditors. We have also audited the Traditional Pension Plan, the Member-Directed Plan, and the 115 Health Care Trust of OPERS as of December 31, 2024, as displayed in OPERS' basic financial statements.

Report on Internal Control Over Financial Reporting

In planning and performing our audits of the financial statements, we considered OPERS' internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinions on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of OPERS' internal control. Accordingly, we do not express an opinion on the effectiveness of OPERS' internal control.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A material weakness is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of OPERS' financial statements will not be prevented, or detected and corrected, on a timely basis. A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audits we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses or significant deficiencies may exist that were not identified.

Report on Compliance and Other Matters

As part of obtaining reasonable assurance about whether OPERS' financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the financial statements. However, providing an opinion on compliance with those provisions was not an objective of our audits, and, accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

To Management and the Board of Trustees
Ohio Public Employees Retirement System
and the Honorable Keith Faber, Auditor of State

Purpose of This Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of OPERS' internal control or on compliance. This report is an integral part of audits performed in accordance with *Government Auditing Standards* in considering OPERS' internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Plante & Moran, PLLC

May 7, 2025

May 7, 2025

To the Members of the Audit Committee
and the Board of Trustees
Ohio Public Employees Retirement System

We have audited the financial statements of Ohio Public Employees Retirement System (OPERS) as of and for the year ended December 31, 2024 and have issued our report thereon dated May 7, 2025. We have also audited OPERS' schedules of collective pension/OPEB amounts and related schedules of employer allocations (collectively, the "financial statements and schedules") and have issued our reports thereon dated May 7, 2025. Professional standards require that we provide you with the following information related to our audits.

Our Responsibility Under U.S. Generally Accepted Auditing Standards

As stated in our engagement letter dated February 5, 2025, our responsibility, as described by professional standards, is to express an opinion about whether the financial statements and schedules prepared by management with your oversight are fairly presented, in all material respects, in conformity with U.S. generally accepted accounting principles. Our audits of the financial statements and schedules do not relieve you or management of your responsibilities. Our responsibility is to plan and perform the audits to obtain reasonable, but not absolute, assurance that the financial statements and schedules are free of material misstatement.

As part of our audits, we considered the internal control of OPERS. Such considerations were solely for the purpose of determining our audit procedures and not to provide any assurance concerning such internal control.

We are responsible for communicating significant matters related to the audits that are, in our professional judgment, relevant to your responsibilities in overseeing the financial reporting process. However, we are not required to design procedures specifically to identify such matters.

Our audits of OPERS' financial statements and schedules have also been conducted in accordance with *Government Auditing Standards*, issued by the Comptroller General of the United States. Under *Government Auditing Standards*, we are obligated to communicate certain matters that come to our attention related to our audits to those responsible for the governance of OPERS, including compliance with certain provisions of laws, regulations, contracts, and grant agreements; certain instances of error or fraud; illegal acts applicable to government agencies; and significant deficiencies in internal control that we identify during our audits. Toward this end, we issued a separate letter dated May 7, 2025 regarding our consideration of OPERS' internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements.

Planned Scope and Timing of the Audits

We performed the audits according to the planned scope and timing previously communicated to you in our meeting about planning matters on November 19, 2024.

Significant Audit Findings

Qualitative Aspects of Accounting Practices

Management is responsible for the selection and use of appropriate accounting policies. In accordance with the terms of our engagement letter, we will advise management about the appropriateness of accounting policies and their application. The significant accounting policies used by OPERS are described in Note 3 to the financial statements and schedules

As described in Note 3, OPERS implemented GASB Statement No. 102, *Credit Risk Disclosures*, which did not have a significant impact to the financial statements.

Management has accounted for the treatment of the legacy deferred inflows and outflows previously disclosed related to the combined plan by recognizing these legacy deferred inflows and outflows related to the combined plan as pension expenses/(recoveries) within the traditional plan in the current year. Due to the fact that this type of transaction is new, no authoritative accounting principles for recognition of deferred inflows and outflows when a plan merger occurs have been issued. However, management believes that the transactions covered by GASB 68 paragraph 54 are analogous and that the standard is relevant to its circumstances. Therefore, management has used the standard to record the transaction. In addition, management has communicated with the Governmental Accounting Standards Board (GASB) and explained their position. GASB has communicated its agreement that there is no clear guidance related to this transaction and that OPERS' approach is likely one of several reasonable solutions. We discussed the accounting for this transaction with management and believe that the method selected is appropriate in this circumstance.

We noted no significant transactions that have been recognized in the financial statements and schedules in a different period than when the transaction occurred.

Accounting estimates are an integral part of the financial statements and schedules prepared by management and are based on management's knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive because of their significance to the financial statements and schedules and because of the possibility that future events affecting them may differ significantly from those expected.

The valuation of certain investments (nonpublicly traded investments, including alternative investments that do not have readily determinable fair values) constitutes a very sensitive and significant estimate affecting the financial statements and schedules. Management's estimates of these harder-to-value investments are based on capital statements, audited financial statements, and other information available to management. We believe management's estimates are in accordance with generally accepted accounting principles.

The financial statement and schedule disclosures and required supplementary information schedules contain information about OPERS' total pension and OPEB liabilities. In order to determine the total pension and OPEB liabilities, the actuary must apply certain assumptions, which are highly sensitive to estimation. The most sensitive estimates used in the valuation were as follows:

- **Assumed Long-term Rate of Return:** For the purpose of GASB Statement Nos. 67 and 74, as of December 31, 2024, OPERS is currently using 6.9 percent for the assumed long-term expected rate of return for pension and 6.0 percent for OPEB. The long-term expected rate of return was determined using a building-block method in which best-estimate ranges of expected future real rates of return are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage, adjusted for inflation. We believe the assumption used by OPERS for pension and OPEB to be in accordance with generally accepted accounting principles.
- **Mortality Assumption:** OPERS recently updated its mortality assumption as a result of an experience study performed for the period from 2016 through 2020. OPERS has adopted a version of the Pub-2010 tables. We believe the use of these mortality assumptions is in accordance with generally accepted accounting principles.

We evaluated the key factors and assumptions used to develop the estimates above and determined that they are reasonable in relation to the financial statements and schedules taken as a whole.

The disclosures in the financial statements and schedules are neutral, consistent, and clear. Certain financial statement disclosures are particularly sensitive because of their significance to financial statement users. The most sensitive disclosures affecting the financial statements and schedules are the disclosures related to GASB Statement Nos. 67 and 74, including the actuarial valuation results, and the GASB Statement No. 72 fair value disclosures.

Difficulties Encountered in Performing the Audits

We are required to inform those charged with governance of any significant difficulties encountered in the performance and completion of the audits. We are pleased to inform you that we encountered no significant difficulties in performing and completing our audits.

Disagreements with Management

For the purpose of this letter, professional standards define a disagreement with management as a financial accounting, reporting, or auditing matter, whether or not resolved to our satisfaction, that could be significant to the financial statements and schedules or the auditor's reports. We are pleased to report that no such disagreements arose during the course of our audits.

Corrected and Uncorrected Misstatements

Professional standards require us to accumulate all known and likely misstatements identified during the audits, other than those that are trivial, and communicate them to the appropriate level of management. We did not detect any misstatements as a result of audit procedures.

Significant Findings or Issues

We generally discuss a variety of matters, including the application of accounting principles and auditing standards, business conditions affecting OPERS, and business plans and strategies that may affect the risks of material misstatement, with management each year prior to our retention as OPERS' auditors. However, these discussions occurred in the normal course of our professional relationship, and our responses were not a condition of our retention.

During the 2024 audit period, there were two changes to the structure of OPERS that were the subject of correspondence with management prior to and during our audits. Effective January 1, 2024, the combined plan was consolidated into the traditional pension plan. Additionally, effective January 1, 2024, the Ohio Public Employees Deferred Compensation Program is included in OPERS' financial reporting as a fiduciary component unit.

Management Representations

We have requested certain representations from management that are included in the management representation letter dated May 7, 2025.

Management Consultations with Other Independent Accountants

In some cases, management may decide to consult with other accountants about auditing and accounting matters, similar to obtaining a second opinion on certain situations. If a consultation involves application of an accounting principle to OPERS' financial statements and schedules or a determination of the type of auditor's opinion that may be expressed on those statements and schedules, our professional standards require the consulting accountant to check with us to determine that the consultant has all the relevant facts. To our knowledge, there were no such consultations with other accountants.

Other Information Included in Annual Reports

Our responsibility for other information included in annual reports does not extend beyond the financial statements and schedules, and we do not express an opinion or any form of assurance on the other information. However, we read the introductory, investment, actuarial, statistical, plan statement, and annual report organization sections of OPERS' Annual Comprehensive Financial Report, and nothing came to our attention that caused us to believe that such information, or its manner of presentation, is materially misstated or materially inconsistent with the information or manner of its presentation appearing in the financial statements and schedules.

To the Members of the Audit Committee
and the Board of Trustees
Ohio Public Employees Retirement System

May 7, 2025

This information is intended solely for the use of the board of trustees, the audit committee, and management of OPERS and is not intended to be and should not be used by anyone other than these specified parties.

We would like to take this opportunity to thank OPERS' staff for the cooperation and courtesy extended to us during our audit. Their assistance and professionalism are invaluable.

We welcome any questions you may have regarding the above communications, and we would be willing to discuss these or any other questions that you might have at your convenience.

Very truly yours,

Plante & Moran, PLLC



Robert Dobrowsky, CPA



Michelle Watterworth, CPA



Spencer Tawa, CPA



Ohio Public Employees Retirement System

May 7, 2025

Plante & Moran, PLLC
1111 Superior Avenue
Suite 1250
Cleveland, OH 44114

Auditors:

We are providing this letter in connection with your audit of the basic financial statements of Ohio Public Employees Retirement System ("OPERS") as of December 31, 2024 and for the year ended December 31, 2024 for the purpose of expressing an opinion as to whether the basic financial statements present fairly, in all material respects, the fiduciary net position, and changes in fiduciary net position of OPERS as well as the Traditional Pension Plan, the Member-Directed Plan, and the 115 Health Care Trust of OPERS, in accordance with accounting principles generally accepted in the United States (U.S. GAAP).

This representation letter is also provided in connection with your audits of (1) the schedule of employer allocations and the net pension liability/(asset), total deferred outflows of resources, total deferred inflows of resources, and total employer pension expense/(income), included in the schedule of collective pension amounts, as of and for the year ended December 31, 2024, (2) the schedule of employer allocations and the net other post-employment benefits ("OPEB") liability/(asset), total deferred outflows of resources, total deferred inflows of resources, and total employer OPEB expense/(income), included in the schedule of collective OPEB amounts, as of and for the year ended December 31, 2024, and (3) the related notes, collectively referred to herein as "the schedules", for the purpose of expressing opinions on whether the schedules are presented fairly, in all material respects, in accordance with U.S. GAAP.

We accept responsibility for the preparation and fair presentation of the basic statements of fiduciary net position, and changes in fiduciary net position in accordance with U.S. GAAP. We also confirm that we are responsible for the presentation of any supplementary information (SI) for which you have provided an opinion in relation to the financial statements as a whole. We believe that this information, including its form and content, is fairly presented in accordance with the applicable criteria.

We acknowledge our responsibility for the completeness of the financial statements and the schedules, and the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements and schedules that are free from material misstatement, whether due to fraud or error, and for the design, implementation, and maintenance of internal control to prevent and detect fraud. We have disclosed to you the results of our assessment of the risk that the financial statements and schedules may be materially misstated as a result of fraud. We also acknowledge our responsibility for providing you with all relevant information and access.

Certain representations in this letter are described as being limited to matters that are material. Items are considered material, regardless of size, if they involve an omission or misstatement of accounting information that, in light of surrounding circumstances, makes it probable that the judgment of a reasonable person relying on the information would be changed or influenced by the omission or misstatement.

For purposes of disclosure in this letter, individual matters related to financial amounts, pension/OPEB allocations and disclosures should be considered material if they are in excess of the following:

OPERS Total Reporting Entity - \$230,000,000
Traditional Pension Plan - \$200,000,000
Member-Directed Plan - \$4,000,000
115 Health Care Trust - \$26,000,000

However, materiality limits do not apply to representations that are not directly related to amounts included in the financial statements and schedules or to any item regarding fraud by management or employees who have significant roles in internal control.

We confirm, to the best of our knowledge and belief, having made such inquiries as we considered necessary for the purpose of appropriately informing ourselves, as of the date of this letter, the following representations made to you during your audit.

Financial Statements

1. We have fulfilled our responsibilities, as set out in the terms of the audit engagement letter dated February 5, 2025, for the preparation and fair presentation of the financial statements in accordance with U.S. GAAP.
2. We are unaware of any violations of U.S. GAAP in OPERS' accounting principles and the practices and methods followed in applying them.
 - a. All appropriate component units, if any, have been included in the financial statements.
 - b. All reporting units have been properly classified in accordance with GASB Statement No. 84, and related Statements.
 - c. Capital assets, including leased and subscription-based technology arrangement assets under GASB 87 and 96, respectively, are properly capitalized, reported, and depreciated.
 - d. Net position components and reserves are properly categorized, calculated and/or disclosed (as applicable) in accordance with GASB Statements No. 67, 74 and 84.
 - e. Expenses have been appropriately allocated on a reasonable basis between reporting units and investment expenses appropriately include both internal and external investment-related expenses, in accordance with GASB 67 and 74.
 - f. Internal, and intra-entity activity and balances are appropriately classified and reported.
 - g. Deposits and investment securities, including derivative instruments, are properly classified and disclosed in the footnotes in accordance with GASB Statement No. 40 and GASB Statement No. 72.
 - h. Securities lending transactions are appropriately recorded and disclosed.
3. All events subsequent to the date of the financial statements and schedules and for which U.S. GAAP requires adjustment or disclosure have been adjusted or disclosed.
4. There have been no changes during the year in OPERS' accounting principles and practices or in the methods of applying them other than implementation of GASB 102, Certain Risk Disclosures.
5. We have disclosed to you all known actual or possible litigation, claims, and unasserted claims or assessments whose effects should be considered when preparing the financial statements. The effects of these have been accounted for and disclosed in accordance with U.S. GAAP.
6. OPERS has no plans or intentions that may materially affect the carrying value or classification of assets, liabilities, and net position.
7. There have been no communications from regulatory agencies concerning noncompliance with or deficiencies in financial reporting practices.


8. There are no:
 - a. Related party transactions and related amounts receivable or payable, including sales, purchases, loans, transfers, leasing agreements, guarantees, and pledges of OPERS' assets as collateral, including the provision of products or services without charge.
 - b. Guarantees and pledges whether written or oral, under which OPERS is contingently liable.
 - c. Arrangements with financial institutions involving compensating balances or other arrangements involving restrictions on cash balances.
 - d. Lines of credit or similar arrangements.
 - e. Agreements to repurchase assets previously sold.
 - f. Violations or possible violations of laws or regulations whose effect should be considered for disclosure in the financial statements and schedules or as a basis for recording a loss contingency.
 - g. Circumstances that we are aware of that make it reasonably possible that OPERS would be named a responsible party in the remediation of environmental contamination.
 - h. Asset retirement obligations required to be recorded or disclosed within the financial statements, in accordance with GASB Statement No. 83.
 - i. Other material liabilities or loss contingencies for which the risk that OPERS will suffer a loss in excess of the limits noted above is more than remote.
9. Significant assumptions used by us in making accounting estimates, including those measured at fair value, are reasonable including the fair value estimates used to measure investment valuation and the assumptions inherent in the actuarial valuations under GASB 67 and 74.
10. Estimates related to calculated IBNR liabilities were computed using methods that are reasonable and appropriately reflect claims experience and our understanding of potential claim losses.
11. We believe the methodologies utilized related to the calculations of the employer allocations under GASB 68 and 75 result in an appropriate basis to allocate the pension and OPEB liabilities, deferred outflows, deferred inflows and pension/OPEB expense to the participating employers.
12. We have reviewed the assumptions and methods used by the actuary to determine information related to OPERS' collective total net pension and OPEB liability (asset) and the categorization of components of the changes for the year ended December 31, 2024, from which the amounts reported on the schedule of collective pension amounts and schedule of collective OPEB amounts as of and for the year ended December 31, 2024, were derived, were appropriate.
13. Actuarial assumptions and methods used to determine the average of the expected remaining service lives of OPERS' participants as December 31, 2024, are appropriate and in accordance with accounting principles generally accepted in the United States of America.
14. We are not aware of any omissions of member data provided by the actuary for determining the actuarial estimates inherent in the actuarial valuations under GASB 67 and 74.
15. Adequate provision has been made to cover possible losses that may result from:
 - a. The collection of receivables.
 - b. Significant purchase or sales commitments.
 - c. Permanent declines in the value of investments.
 - d. Impairments of long-lived assets.
16. OPERS has satisfactory title to all owned assets and there are no liens or encumbrances on such assets nor has any asset been pledged.

17. All significant contracts and contracts not in the normal course of business entered into by the OPERS have been presented to you for your evaluation.
18. We have complied with all aspects of contractual agreements that would have a material effect on the financial statements and schedules in the event of noncompliance.
19. All significant estimates and material concentrations, as hereinafter defined, known to us have been disclosed to you. Significant estimates are those estimates used in the development of accounting information that could change materially within the next year. Material concentrations refer to concentrations in the volume of business, revenue sources, or the sources of supply that make us vulnerable to events that could occur within the next year that would have a significant disruptive effect on OPERS.
20. We have made an assessment of the fair value of the alternative investments held at year end. We believe that the valuation methods and assumptions used to estimate the fair value of these investments are reasonable and appropriate based on the different types of alternatives held.
21. There are no interim financial statements available as of a date subsequent to the date of the statements you are auditing.
22. Other information included in the annual comprehensive financial report (ACFR) comprises the introductory, actuarial, investment and statistical sections. We have provided you with the final version of all other information that we intend to include in the ACFR prior to its issuance.
23. If we publish our financial statements in any manner that includes your auditor's report or any other reference to Plante & Moran, PLLC, it is understood that we will allow you to review such publication prior to production.
24. Significant plan amendments adopted during the period or subsequent to the date of the financial statements and schedules have appropriately been reflected in the financial statements and actuarial calculations.
25. Required supplementary information (RSI) has been measured and presented within prescribed guidelines. Methods of measurement or presentation of the RSI or SI have not changed from those used in the prior period.
26. We have disclosed to you all significant assumptions or interpretations underlying the measurement or presentation of the RSI and SI.
27. We have provided you with all information you deemed necessary to identify affiliates of OPERS.

Information Provided

1. We have provided you with:
 - a. Access to all information, of which we are aware, that is relevant to the preparation and fair presentation of the financial statements and schedules such as records, documentation, and other matters and additional information that you have requested from us for the purpose of the audits.
 - b. Unrestricted access to persons within OPERS from whom you determined it necessary to obtain audit evidence.
 - c. Minutes of meetings of the legislative body held to the date of this letter, or summaries of actions of recent meetings for which minutes have not yet been prepared.
2. All material transactions have been recorded in the accounting records and are reflected in the financial statements and schedules.
3. We have no knowledge of any fraud or suspected fraud that affects OPERS and involves:
 - a. Management;
 - b. Employees who have significant roles in internal control; or

- c. Others when the fraud could have a material effect on the financial statements.
4. We have no knowledge of any allegations of fraud, or suspected fraud, affecting OPERS' financial statements and schedules communicated by employees, former employees, analysts, regulators, or others.
 5. There are no known instances of non-compliance or suspected non-compliance with laws and regulations whose effects should be considered when preparing financial statements and schedules, including Plan qualification status.
 6. We have disclosed the identity of all OPERS' related parties of which we are aware.
 7. Management has identified and disclosed to the auditor the requirements of laws, regulations and the provisions of contracts and grant agreements that are considered to have a direct and material effect on the determination of financial statement and schedule amounts. Management has made available all documentation related to the compliance requirements. Management's interpretations of any compliance requirements that have varying interpretations have been provided.
 8. Management identified and disclosed to the auditor violations (or possible violations) of laws, regulations, and provisions of contracts and grant agreements or questioned costs whose effects should be considered for disclosure in the financial statements and schedules, as a basis for recording a loss contingency or for the auditor reporting on noncompliance.



Karen E. Carraher, Executive Director



Jennifer H. Starr, CFO

OPERS Board

OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM
277 EAST TOWN STREET, COLUMBUS, OH 43215-4642
1-800-222-PERS (7377)
www.opers.org

Board Meeting

May 20, 2025
10:30 A.M.
OPERS Office

A G E N D A

- I. Roll Call 10:30 a.m.

- II. Consent agenda: 10:30-10:35 a.m.
 - A. [Minutes](#) – March 18, 2025
 - B. [Disability report](#)

- III. Committee Report:
 - A. Audit Committee 10:35-10:40 a.m.

- IV. Action Item:
 - A. [Certification of 2026 Local contribution Rates](#) – Lai Woo 10:40-10:45 a.m.

- V. Discussion Items:
 - A. [December 31, 2024 Pension Actuarial Valuation Results](#) – Gabriel, Roeder, Smith & Company – 10:45-11:30 a.m.
 - B. [50-year Actuarial Projections](#) – Gabriel, Roeder, Smith & Company 11:30-12:15 p.m.

- Lunch 12:15-12:35 p.m.
 - C. [IT Security/Fraud Update](#) (in executive session) – Stephen Kell and Don Clark 12:35-1:35 p.m.

The Board will recess on Tuesday, May 20, 2025, and reconvene on Wednesday, May 21, 2025, at 9:00 a.m.

- VI. Committee Report 9:00-9:05 a.m.
 - A. Personnel & Salary Review Committee

- VII. Discussion Items:
 - A. [1st Quarter 2025 Performance Review](#) – David Sancewich and Alli Wallace-Stone, Meketa 9:05-9:25 a.m.
 - B. [Trend Following, Alternate Risk Premia and Hedge Funds](#) – David Sancewich and Ryan Lobdell, Meketa 9:25-10:25 a.m.
 - C. [Asset Class Update - Aladdin Demonstration](#) - Dan German and Sean McCarthy 10:25-11:25 a.m.
 - D. CIO Update – Paul Greff 11:25-11:45 a.m.
 - E. [DC Plan Investment Update](#) – Lincoln Carnam 11:45-12:15 p.m.

- Lunch 12:15-12:35 p.m.
 - F. [Member-Directed Plan Statistical and Governance Review](#) – Allen Foster and Lauren Gresh 12:35-1:20 p.m.
 - G. [Executive Director Report](#) – Karen Carraher 1:20-1:35 p.m.

VIII. For Your Information:

- A. [2026 Health Care Rates](#) – HRA, Dental and Vision
- B. [Legal Update](#)
- C. [Staff Board Consultant Evaluations](#) – Gabriel, Roeder, Smith & Company, Meketa Investment Group and Mosaic Governance Advisors
- D. [July 2025 Strategic Planning](#)
- E. [Investment Performance](#)

Board Meeting II.A

Minutes of the

OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM

The monthly meeting of the Ohio Public Employees Retirement Board was held in the offices of the Board, Ohio Public Employees Retirement System building, 277 East Town Street, Columbus, Ohio at 9:00 a.m., Tuesday, March 18, 2025

Members present: Mr. James Kunk; Ms. Kathleen Madden; Mr. Stewart Smith; Mr. Tim Steitz; Mr. Steve Toth; and Mr. Chris Mabe. (Ms. Julie Albers and Mr. Ken Thomas entered the meeting later.)

Members absent: Mr. Scott Richter and Mr. Jim Tilling.

Also present: Ms. Tonya Brown, Deputy Executive Director; Ms. Karen Carraher, Executive Director; Mr. Allen Foster, Deputy Executive Director; Mr. Gordon Gatien, Director Government Relations; Ms. Lauren Gresh, Deputy Executive Director; Mr. Eric Harrell, General Counsel; Mr. Stephen Kell, Director Information Technology; Ms. Jenny Starr, Chief Financial Officer; Ms. Caroline Stinziano, Director Internal Audit; and Ms. Ciji Wilhelm, Director, Human Resources.

Mr. Toth moved, Mr. Kunk seconded, to approve the minutes of the meeting held February 18, 2025, and the disability report (see Appendix to the Minutes for report).

Roll call vote was taken as follows: Mr. Kunk, aye; Ms. Madden, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with all ayes.

Mr. Smith moved, Mr. Toth seconded, to enter executive session to discuss pending or imminent litigation.

Roll call vote was taken as follows: Mr. Kunk, aye; Ms. Madden, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with all ayes.

By acclimation, the Board came out of executive session.

Mr. Toth moved, Mr. Kunk seconded, to proceed as discussed in executive session.

Roll call vote was taken as follows: Mr. Kunk, aye; Ms. Madden, aye; Mr. Smith, abstain; Mr. Steitz, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with five ayes and one abstention.

(Ms. Albers and Mr. Thomas entered the meeting.)

Mr. Toth moved, Mr. Kunk seconded, to enter executive session to discuss the appointment of a public employee.

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Ms. Madden, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Thomas, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with all ayes.

By acclimation, the Board came out of executive session.

The Chair requested a voice vote of the Board:

Julie Albers - Sheri Meacham
James Kunk - Russell Smith
Kathleen Madden - Russell Smith
Stewart Smith - Russell Smith
Tim Steitz - Timothy Hess
Ken Thomas - Timothy Hess
Steve Toth - Timothy Hess
Chris Mabe - Russell Smith

There was not a majority for the selection, so a second voice vote was required between Mr. Timothy Hess and Mr. Russell Smith.

The Chair requested a voice vote of the Board:

Julie Albers - Russell Smith
James Kunk - Russell Smith
Kathleen Madden - Russell Smith
Stewart Smith - Russell Smith
Tim Steitz - Timothy Hess
Ken Thomas - Timothy Hess
Steve Toth - Timothy Hess
Chris Mabe - Russell Smith

Mr. Kunk moved, Mr. Smith seconded, to appoint Mr. Russell Smith to fill the open Non-Teaching College/University Employee Board seat.

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Ms. Madden, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Thomas, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with all ayes.

The Board recessed at 12:05 p.m. until Wednesday, March 19, 2025, at 9:30 a.m.

The Board reconvened at 9:35 a.m. March 19, 2025, and the Chair proceeded with the Board agenda.

All Board members from the previous day were present, except for Ms. Madden who entered the meeting later.

Also present: Ms. Tonya Brown, Deputy Executive Director; Ms. Karen Carraher, Executive Director; Mr. Allen Foster, Deputy Executive Director; Mr. Gordon Gatien, Director Government Relations; Mr. Paul Greff, Director, Investments; Ms. Lauren Gresh, Deputy Executive Director; Mr. Eric Harrell, General Counsel; Mr. Stephen Kell, Director Information Technology; Mr. Chuck Quinlan, Director Information Technology Strategy; Ms. Jenny Starr, Chief Financial Officer; Ms. Caroline Stinziano, Director Internal Audit; and Ms. Ciji Wilhelm, Director, Human Resources.

Ms. Albers, Chair of the Personnel and Salary Review Committee, reported that the Committee met on January 15, 2025, and provided a report out of the agenda item discussed as part of the meeting. During the Personnel and Salary

Review Committee meeting, Ms. Wilhelm reviewed the following action item and recommended approval by the full Board:

- The Proposed Appendix C of the 2025 Investment Division Incentive Compensation Plan.

Ms. Albers moved, Mr. Thomas seconded, to approve Appendix C of the 2025 Investment Division Incentive Compensation Plan as recommended by the Personnel and Salary Review Committee report.

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Thomas, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with all ayes.

Mr. Todd Richard addressed the Board to express his concerns regarding how a retiree's Health Reimbursement Arrangement is affected by re-employment and the Board's accessibility to members. Mr. Mabe thanked Mr. Richard for bringing his concerns to the Board.

Mr. Thomas moved, Ms. Albers seconded, to present the following Resolution to Mr. Desposito:

WHEREAS, Mr. Desposito served OPERS with distinction as the representative of Non-Teaching College/ University Employees from December 2017 to February 2025.

WHEREAS, during his tenure Mr. Desposito earnestly applied his ample experience and knowledge to participate in several Board committees.

WHEREAS, Mr. Desposito routinely helped to guide the system and advance sound public pension policy by upholding the principles of its Board, consistently fulfilling his fiduciary duty to the system, participating workers and their beneficiaries.

WHEREAS, Mr. Desposito will be remembered as a true ally of our retirement system who was consistently dedicated to the members that he

represented.

BE IT RESOLVED THAT *the OPERS Board of Trustees does hereby officially recognize Randy Desposito on this 19th day of March, 2025, for his honorable and loyal service to OPERS, its members and its retirees.*

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Thomas, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with all ayes.

Ms. Starr presented the 2025 board election schedule.

Ms. Albers moved, Mr. Thomas seconded, to approve the 2025 board election schedule as presented by staff.

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Thomas, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with all ayes.

Ms. Carraher discussed the potential merger of Ohio Deferred Compensation (ODC) and OPERS. The Boards have had recent discussions on the path forward to proceed with this merger and seek legislation.

Mr. Smith moved, Mr. Thomas seconded, to authorize staff to seek legislation to merge ODC with OPERS.

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Thomas, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with all ayes.

Mr. Harrell reviewed the Remote Meeting Attendance Policy that was discussed at the February meeting and indicated there were no additional changes to the policy based on the discussion at that meeting.

Mr. Smith moved, Ms. Albers seconded, to approve the Remote Meeting Attendance Policy as reviewed and discussed with staff.

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Thomas, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with all ayes.

Mr. Harrell reviewed the proposed changes to the Board Governance Policy Manual as discussed at the February meeting and indicated there were no additional changes to the policy based on the discussion at that meeting.

Ms. Albers moved, Mr. Kunk seconded, to approve the changes to the Board Governance Policy Manual as reviewed and discussed with staff.

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Thomas, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with all ayes.

Mr. Craig Hallermann, OPERS Actuary, reviewed the 2024 Health Care Rate Stabilization Fund transfer.

A component of the Health Care Preservation Plan (HCPP 3.0) adopted by the Board in September 2012 included the establishment of the Health Care Rate Stabilization Fund, separate from the Health Care Core Fund. These two sub funds are for recordkeeping only.

Mr. Thomas moved, Mr. Kunk seconded, to approve the December 31, 2024 health care transfer of \$391,844,315 to the Health Care Rate Stabilization Fund from the Health Care Core Fund as reviewed and discussed with staff.

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Thomas, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with all ayes.

Mr. David Sancewich and Ms. Alli Wallace Stone from Meketa discussed the establishment of new policy benchmarks and modifying an existing benchmark for both the Defined Benefit and Health Care Funds.

(Ms. Madden entered the meeting during the discussion.)

In late 2024 and early 2025, the Board, Staff, and Meketa conducted an asset liability study for the DB and HC Funds. This led to the introduction of Risk Mitigation Strategies (RMS) with a long-term target allocation of 10% for each fund. The HC Fund will reach this target in 2025, while the DB Fund will allocate 5% in 2025 and the remaining 5% in 2026. The RMS allocation includes Long Duration U.S. Treasury, Trend Following, and Alternative Risk Premia. Additionally, the standalone U.S. Treasury allocation within Fixed Income will be restructured to a shorter-duration portfolio.

Staff, in collaboration with Investment Advisor Meketa, has introduced an RMS allocation and restructured the U.S. Treasury portfolio.

They reviewed proposed policy benchmarks for the sub-asset classes of risk mitigating strategies and fixed income.

Ms. Albers moved, Mr. Kunk seconded, to approve the Investment Policy benchmark changes for the Defined Benefit and Health Care Funds as discussed with Meketa and staff.

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Ms. Madden, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Thomas, aye; Mr. Toth, abstain; Mr. Mabe, aye.

The motion passed with seven ayes and one abstention.

Mr. Prabu Kumaran, Lead Fund Manager, reviewed a staff request to change the target Defined Benefit and Health Care Policy benchmark allocations from quarterly to monthly for 2025, starting April 1st and ending December 31st.

Ms. Albers moved, Mr. Thomas seconded, to approve the monthly resetting of target benchmark allocations for the Defined Benefit and Health Care Funds due to the implementation of the new Risk Mitigation Strategies allocation.

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Ms. Madden, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Thomas, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with all ayes.

Mr. Kumaran reviewed the 2025 Annual Investment Plan, including the alpha targets.

Ms. Albers moved, Mr. Kunk seconded, to approve the 2025 Annual Investment Plan, including alpha targets, as reviewed and discussed with Meketa and staff.

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Ms. Madden, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Thomas, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with all ayes.

Mr. Kumaran reviewed the proposed changes to the OPERS Investment Policies.

Mr. Kunk moved, Mr. Smith seconded, to approve the Investment Policy changes as reviewed and discussed with Meketa and staff.

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Ms. Madden, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Thomas, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with all ayes.

The Board recessed for lunch.

After recess, the Chair proceeded with the agenda.

Mr. Sancewich and Ms. Stone reviewed 4th quarter 2024 investment returns and provided a market update.

Mr. Foster introduced Ms. Lori Mitchell Dixon, PhD. from Great Lakes Marketing Research to provide an overview of the communications preferences survey process, the survey's methodology, the audience surveyed, response rates and next steps.

The Executive Director report was included in the meeting materials.

Ms. Albers moved, Mr. Smith seconded, to enter executive session to discuss pending or imminent litigation.

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Ms. Madden, aye; Mr. Smith, aye; Mr. Steitz, aye; Mr. Thomas, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with all ayes.

By acclamation, the Board came out of executive session.

Mr. Smith moved, Mr. Toth seconded, to proceed as discussed in executive session.

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Ms. Madden, aye; Mr. Smith, aye; Mr. Steitz, nay; Mr. Thomas, aye; Mr. Toth, aye; Mr. Mabe, aye.

The motion passed with seven ayes and one nay.

Mr. Toth moved, Mr. Smith seconded, the meeting be adjourned until the next regular meeting to be held Tuesday, May 20, 2025, at 10:30 a.m.

The motion passed without dissent.

The meeting adjourned at 2:00 p.m.

Board Meeting IV.A



OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM
277 EAST TOWN STREET, COLUMBUS, OH 43215-4642
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www.opers.org

MEMORANDUM

DATE: May 12, 2025
TO: OPERS Retirement Board Members
FROM: Lai Yee Woo, Senior Financial Analyst
RE: **IV. Action Item:**
A. Certification of 2026 Local Contribution Rates

Action requested: _____ moved, _____ seconded to certify employer and member contribution rates to employers reporting under the local division for the calendar year 2026 representing the period January 1, 2026 through December 31, 2026 in accordance with Table 1 outlined below.

Background – The Ohio Revised Code provides that the Board shall certify employer and member contribution rates to all local division employers by July 15, of each year. The actuary recommended the following contribution rates:

Table 1
January 1, 2026 – December 31, 2026

	<u>Employer Rates</u>	<u>Member Rates</u>	<u>Total Rates</u>
Local (Non Law/Non P.S.)	14.00%	10.00%	24.00%
Law Enforcement	18.10%	13.00%	31.10%
Public Safety	18.10%	12.00%	30.10%

Rationale for Action – The rates recommended for certification remain unchanged from last year and are at the maximum level permitted by statute. The one exception is the member contribution for public safety and law

enforcement. The Board has discretion to establish the public safety rate and law enforcement member contribution rates. The contribution rates above reflect the recommended rates in the actuarial report for the year ended December 31, 2024.

The rate certification action requested is a recurring Board action in accordance with Section 145.12 of the Ohio Revised Code.



April 30, 2025

Ms. Karen E. Carraher
Executive Director
Ohio Public Employees Retirement System
277 East Town Street
Columbus, Ohio 43215

Re: Local Government Contribution Rates for Calendar Year 2026 by Division

Dear Ms. Carraher:

In accordance with the results of the last regular annual actuarial valuation as of December 31, 2023 (please see report dated August 28, 2024), the Local Government contribution rates by division (Public Safety, Law Enforcement and General) are as follows:

Contributions for	Contribution Rates as a % of Active Member Payroll		
	Law		General
	Public Safety	Law Enforcement	
Employer			
Pension Normal Cost	6.51%	7.33%	4.36%
Pension UAL / Retiree Health	<u>11.59%</u>	<u>10.77%</u>	<u>9.64%</u>
Total	18.10%	18.10%	14.00%
Member (Pension Contributions)	12.00%	13.00%	10.00%
TOTAL CONTRIBUTION RATE	30.10%	31.10%	24.00%
Prior Year Rate	30.10%	31.10%	24.00%
Rate Change	0.00%	0.00%	0.00%

Ms. Karen E. Carraher

April 30, 2025

Page 2

It is our understanding that OPERS policy is to establish employer and member contribution rates at the General department level (i.e., State division and Local Government division combined). Therefore, results presented in the table are based upon General valuation results.

The undersigned is a Member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Sincerely,

Gabriel, Roeder, Smith & Company

A handwritten signature in black ink that reads "Mita Drazilov". The signature is fluid and cursive, with the first name "Mita" and last name "Drazilov" clearly legible.

Mita D. Drazilov, ASA, FCA, MAAA

MDD:rl

cc: Craig Hallermann (OPERS)
Lai Yee Woo (OPERS)
James Sparks (GRS)
Jeff Tebeau (GRS)
Doug Harrington (GRS)



Board Meeting V.A



OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM
277 EAST TOWN STREET, COLUMBUS, OH 43215-4642
1-800-222-PERS (7377)
www.opers.org

MEMORANDUM

DATE: May 12, 2025

TO: OPERS Retirement Board Members

FROM: Craig Hallermann, Actuary

RE: **V. Discussion Items:**
A. December 31, 2024 Pension Actuarial Valuation Results

Purpose – The purpose of this discussion is to present the December 31, 2024 Pension Actuarial Valuation results to the Board.

Background – Section 145.22 of the Ohio Revised Code requires that the Board annually have the actuary prepare an actuarial valuation of the pension assets, liabilities, and funding requirements of the System. The Board is required to submit the complete actuarial report on an annual basis to the Ohio Retirement Study Council and the standing committees of the House of Representatives and the Senate with the primary responsibility for retirement legislation by September 1st of each year.

Representatives from Gabriel, Roeder, Smith and Company (GRS) will present to the Board the preliminary results of the pension actuarial valuation for the year ending December 31, 2024. This presentation is designed to provide the Board with a current update prior to the finalization of the December 31, 2024 actuarial valuation.

Issues – The December 31, 2024 actuarial valuation results indicate an amortization period of 15 years, which falls within the 30 year statutory requirement, and a funded ratio of 83%. The amortization years (15 years) remained the same as last year's 15 years while the funded ratio (83%) declined from 84% last year. The market value investment gain in 2024 (8.8%), along with last year's gain of 11.1%, offset much of the investment loss from 2022 (-12.3%) resulting in a recognized 2024 investment return of 5.2% on a funding (smoothed) value of assets basis. Asset smoothing delays the recognition of 75%

of the 2024 investment gain and recognizes 25% portions of each of the previous three years' investment gains/losses.

Since investment gains/losses are recognized over a four year period for funding purposes, approximately \$1.1 billion of the \$1.4 billion 2024 investment gain will be recognized in future years as part of a combined \$2.4 billion in net deferred investment loss (down from \$5.5 billion loss in 2023). Consequently, absent a 2025 investment gain, the funded ratio will decrease and the amortization period will increase in 2025 as the remaining 2022 investment loss is recognized. Beyond 2025, only unrecognized investment gains will remain unless future investment losses are experienced.

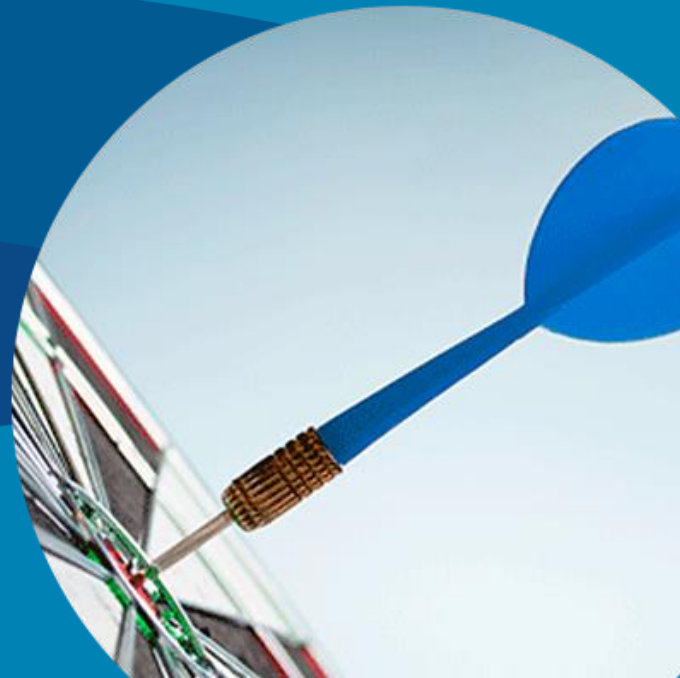
Next Steps – Following the May Board presentation, the December 31, 2024 Pension Actuarial Valuation results will be finalized. As required, the complete actuarial report will be submitted to the Ohio Retirement Study Council and the standing committees of the House of Representatives and the Senate with the primary responsibility for retirement legislation by September 1, 2025.



Ohio Public Employees Retirement System

Annual Actuarial Valuations as of
December 31, 2024
Defined Benefit Allowances – Traditional, Combined, and
Member-Directed Plans

May 2025 Board Meeting



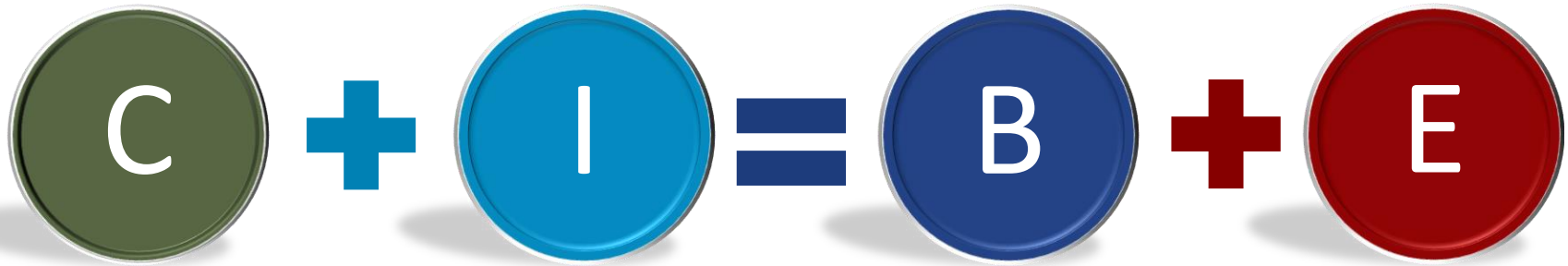
Purpose of the Actuarial Valuation

- Measure the financial position of Defined Benefit Allowances of OPERS
- Assist the Board in establishing employer and member contribution rates subject to statutory limits
 - Employer contributions rates for State are established for a two-year period based upon the results of odd-year valuations
 - The December 31, 2023 valuation was used to establish the contribution rates for the two-year period beginning July 1, 2025
 - Employer contribution rates for local governments are established annually
 - The December 31, 2024 valuation establishes employer contribution rates for calendar year 2027 for Local, Law Enforcement and Public Safety
- Assist the Board in establishing the employer contribution rate allocation between pension and retiree health
- Determine the number of years required to amortize the unfunded actuarial accrued liabilities, given the established contribution rates
- Provide disclosure information for the System's financial reporting
- Analyze experience over the last year

Benefit Provision Changes

- Effective January 1, 2024, the Combined Plan of OPERS was incorporated into the Traditional Plan of OPERS
 - Members with both Traditional Plan and Combined Plan Service may choose to aggregate their service credit to fulfill unreduced retirement eligibility requirements
- For slides in this presentation that refer to the Traditional Plan and Combined Plan separately, readers should assume the Traditional Plan results shown are excluding the Combined Plan

Basic Retirement Funding Equation



Contributions

- Funding Policy & Statute



Investment Income

- Investment Strategy



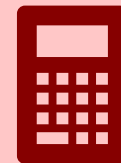
Benefits

- Plan Design



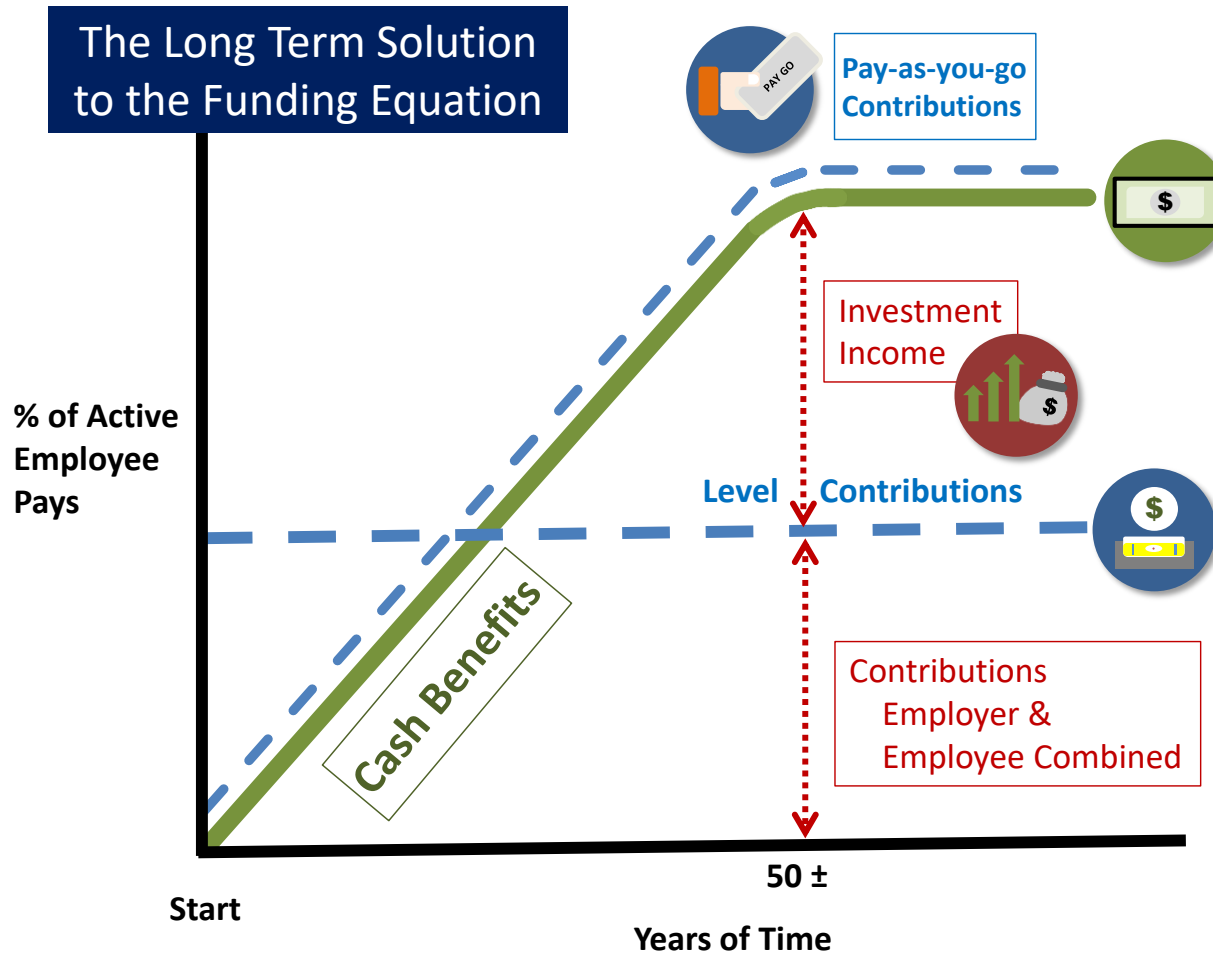
Expenses

- Administrative Policy

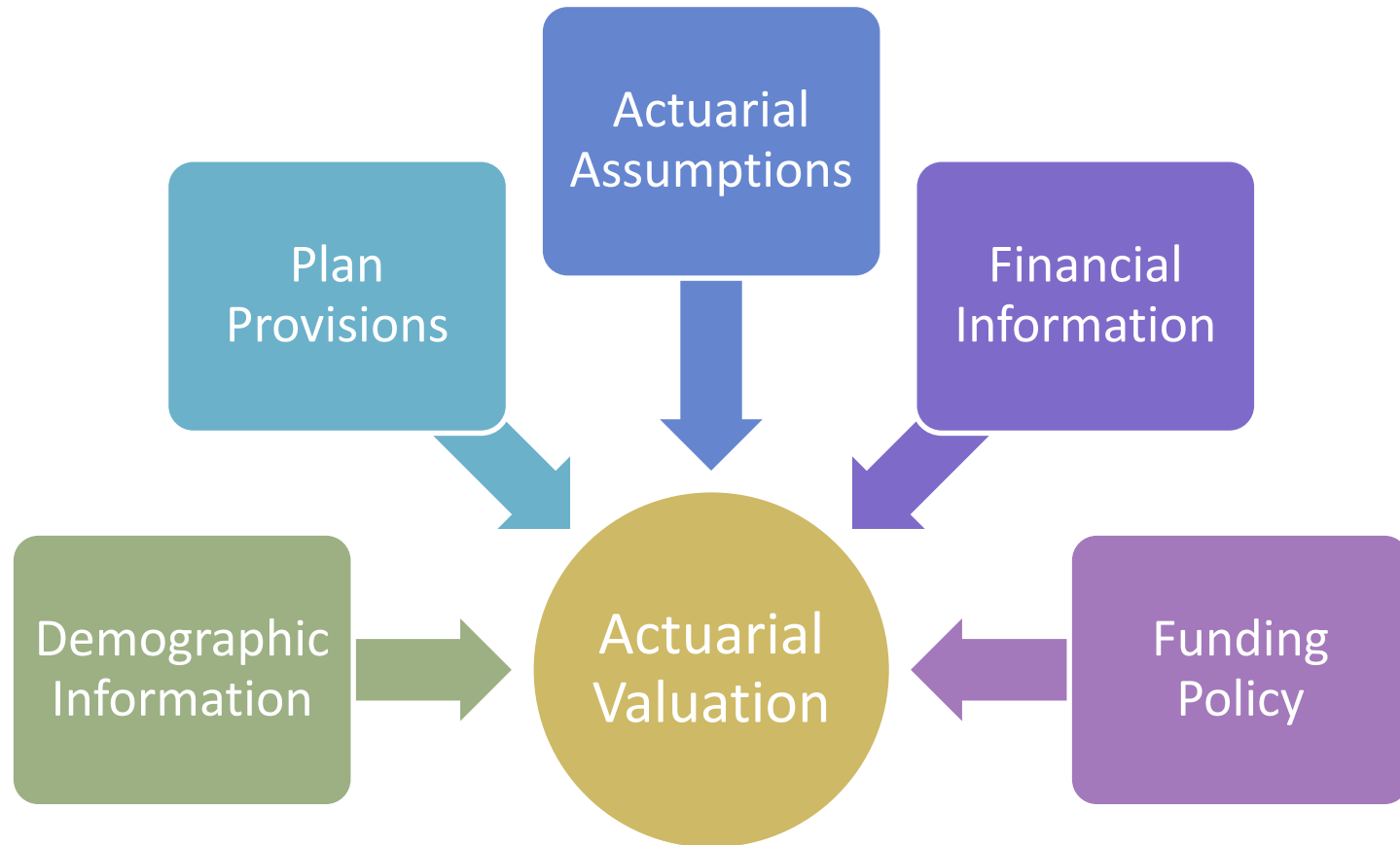


“Money In = Money Out”

Funding Philosophies



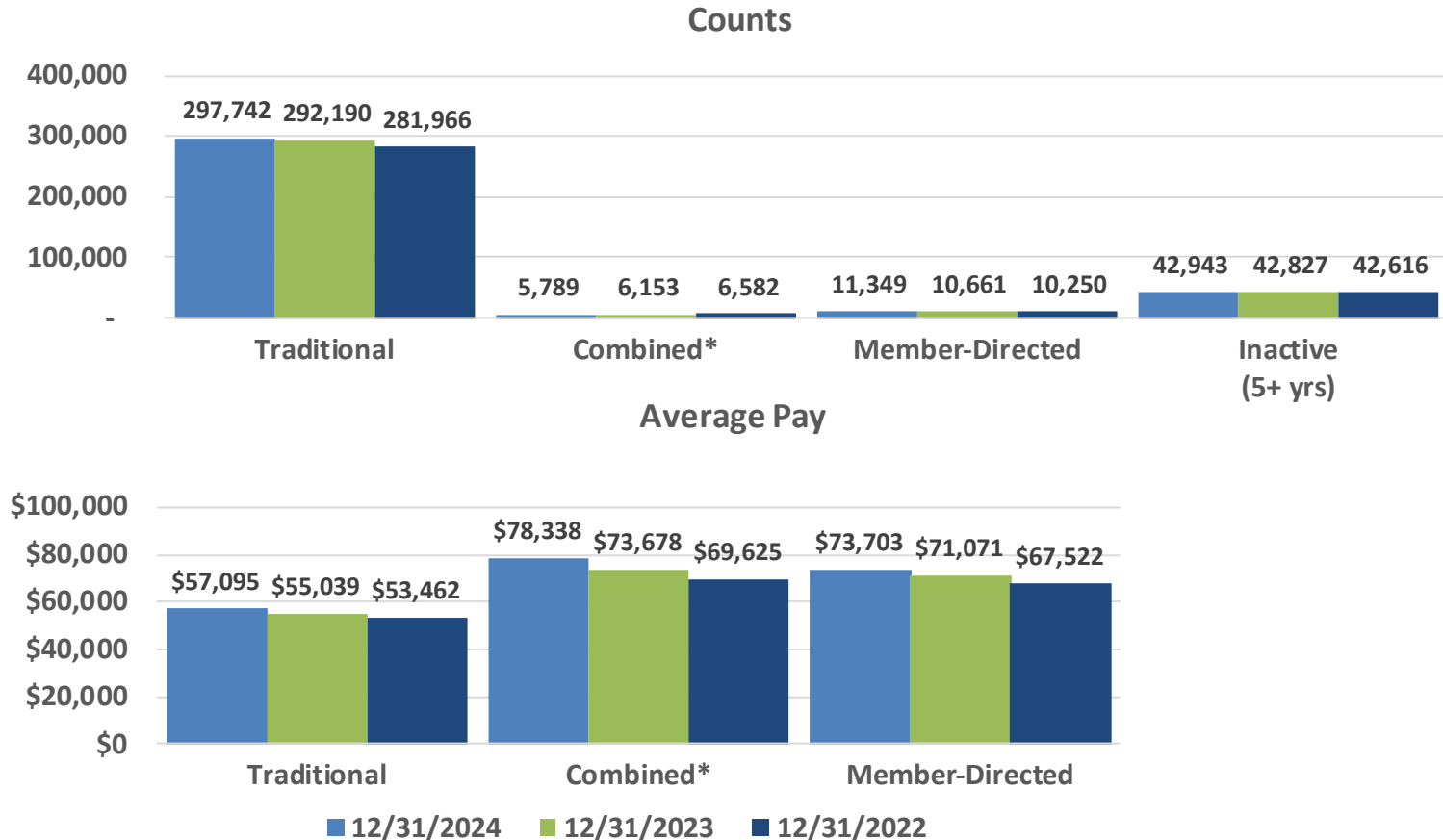
Items Required for Valuations



Demographic Information (\$ in Millions)

Demographic Information	December 31,							
	2024						2023	
	General			Law			Grand Total	Grand Total
	State	Local	Total General	Public Safety	Law Enforcement	Total Law		
1. Number Counts								
a. Active Members								
i. Traditional Plan (TP)	110,378	179,250	289,628	38	8,076	8,114	297,742	292,190
ii. Combined Plan (CP)	2,166	3,623	5,789	0	0	0	5,789	6,153
iii. Member-Directed Plan (MD)	4,287	7,062	11,349	0	0	0	11,349	10,661
iv. Total	<u>116,831</u>	<u>189,935</u>	<u>306,766</u>	<u>38</u>	<u>8,076</u>	<u>8,114</u>	314,880	309,004
b. Retired Number Counts	78,087	145,250	223,337	34	6,266	6,300	229,637	228,869
c. Deferred/Inactive Number Counts	<u>362,193</u>	<u>397,407</u>	<u>759,600</u>	<u>58</u>	<u>1,778</u>	<u>1,836</u>	761,436	733,828
d. Total Number Counts	<u>557,111</u>	<u>732,592</u>	<u>1,289,703</u>	<u>130</u>	<u>16,120</u>	<u>16,250</u>	1,305,953	1,271,701
2. Active Payroll (\$ in Millions)								
a. DB Active Members								
i. Traditional Plan (TP)	\$ 6,620	\$ 9,663	\$ 16,283	\$ 2	\$ 715	\$ 717	\$ 17,000	\$ 16,082
ii. Combined Plan (CP)	193	261	454	0	0	0	454	453
b. Other Payroll								
i. Reemployed Retirees	\$ 107	\$ 387	\$ 494	\$ 0	\$ 0	\$ 0	\$ 494	\$ 467
ii. Member-Directed Plan (MD)	324	513	836	0	0	0	836	758
iii. Alternative Retirement Plan (ARP)	669	0	669	0	0	0	669	635

Active and Inactive Members



* Combined Plan closed to new active participants as of 1/1/2022.



Senate Bill (SB) 343

- Effective January 7, 2013
- Retirees post-January 7, 2013 are affected
- Three transition groups for actives:
 - Group A: Eligible to retire on or before January 7, 2018
 - Group B: 20 or more years of service on January 7, 2013 or eligible to retire after January 7, 2018 but before January 7, 2023
 - Group C: Not eligible for groups A or B

Traditional & Combined Plans

Active & Inactive Members by Transition Group

	Traditional Plan		Combined Plan	
	December 31,		December 31,	
	2024	2023	2024	2023
Active Counts				
Transition Group A	8,750	11,092	150	199
Transition Group B	20,263	26,437	449	579
Transition Group C	268,729	254,661	5,190	5,375
Total	297,742	292,190	5,789	6,153
Payroll (\$ in Millions)				
Transition Group A	\$ 562	\$ 696	\$ 9	\$ 12
Transition Group B	1,523	1,923	36	44
Transition Group C	14,915	13,463	409	398
Total	\$ 17,000	\$ 16,082	\$ 454	\$ 453
Payroll Increase/(Decrease)	5.71%	6.68%	0.03%	(1.08)%
Inactive Counts				
Transition Group A	2,554	2,991	29	33
Transition Group B	5,836	7,324	100	112
Transition Group C	743,190	713,409	2,371	2,401
Other*	7,356	7,558	-	-
Total	758,936	731,282	2,500	2,546

* Inactive members with reported service of 0 years or Final Average Salary of \$0.

Combined & Member-Directed Plans

Defined Contribution Portion of Plans

	Combined Plan		Member-Directed Plan	
	December 31,		December 31,	
	2024	2023	2024	2023
Active Counts				
State	2,166	2,297	4,287	3,929
Local	3,623	3,856	7,062	6,732
Total	5,789	6,153	11,349	10,661
Payroll (\$ in Millions)				
State	\$ 193	\$ 192	\$ 324	\$ 288
Local	261	262	513	470
Total	\$ 454	\$ 453	\$ 836	\$ 758
Payroll Increase/(Decrease)	0.03%	(1.08)%	10.40%	9.48%
Assets (\$ in Millions)				
DC & AA*	\$ 1,008	\$ 882	\$ 2,040	\$ 1,744
Retired Counts (DC Accounts Annuitized)				
State	150	135	152	130
Local	353	308	360	334
Total	503	443	512	464
Average Annual Benefit	\$ 5,629	\$ 5,016	\$ 6,497	\$ 6,095

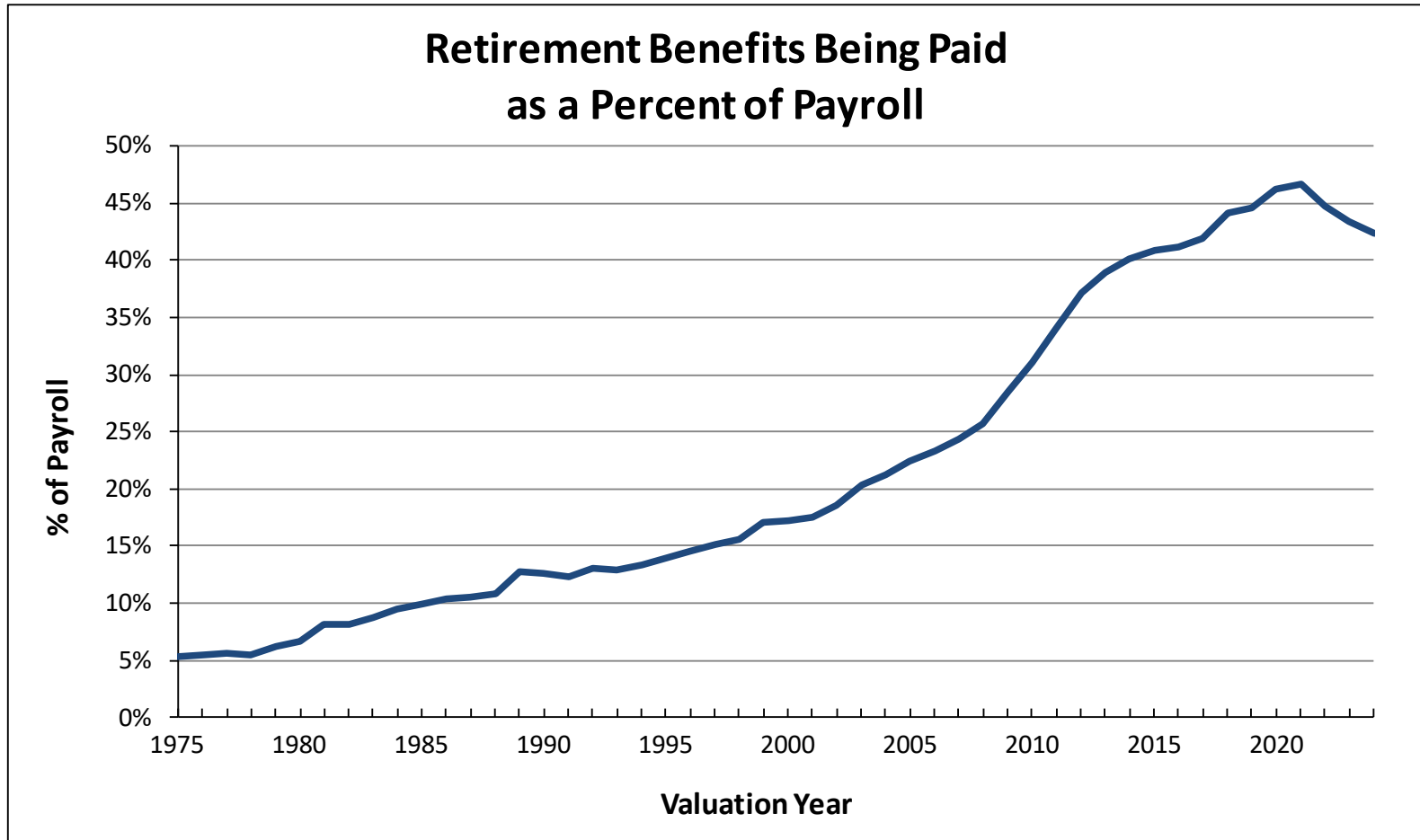
*Total reported Defined Contribution (DC) & Additional Annuity (AA) account balances that have not yet been annuitized as of December 31. Additionally includes forfeitures.



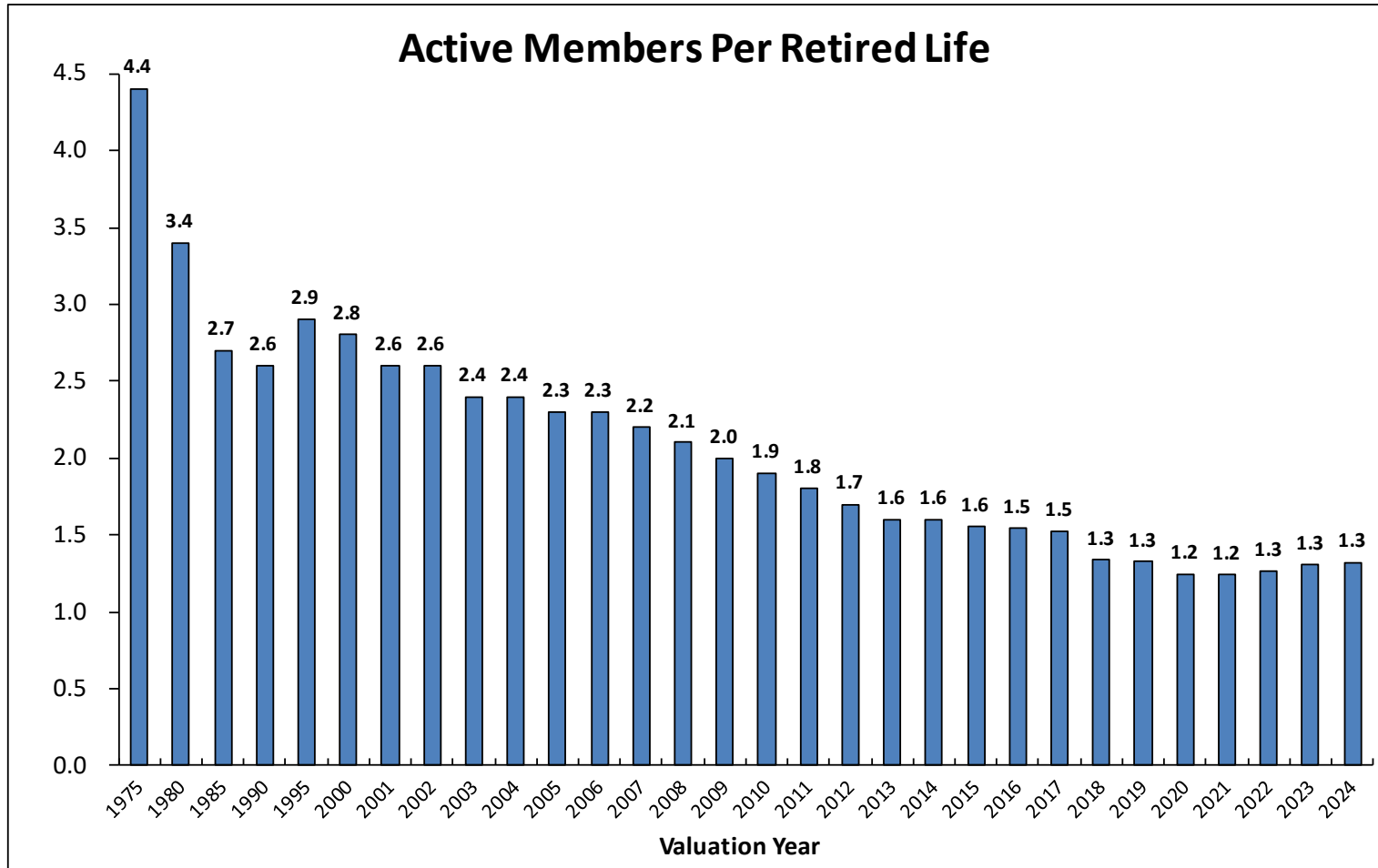
Retirees and Beneficiaries (\$ in Millions)

	December 31, 2024		December 31, 2023	
	Number Receiving	Monthly Benefits	Number Receiving	Monthly Benefits
By Division				
State	78,087	\$ 244.9	77,786	\$ 237.5
Local	145,250	347.9	144,881	337.3
Public Safety	34	0.1	188	0.4
Law Enforcement	6,266	24.2	6,014	22.9
Total	229,637	\$ 617.1	228,869	\$ 598.1
Increase/(Decrease)	0.34%	3.18%	0.17%	3.19%
By COLA Provision				
3% Fixed Simple COLA	126,385	\$ 356.2	131,960	\$ 361.2
CPI Indexed Simple COLA	98,923	258.9	92,567	235.0
No COLA (Money Purchase)	4,329	2.0	4,342	1.9
Total	229,637	\$ 617.1	228,869	\$ 598.1

Retirement Benefits as a % of Payroll



Ratio of Active Members to Retired Lives



Contribution Rate Schedule

Contribution rates (as a percentage of payroll) shown below are for calendar year 2025:

Division	Employer	Member	Total	Pension	Health*
State	14.00%	10.00%	24.00%	24.00%	0.00%
Local Government	14.00%	10.00%	24.00%	24.00%	0.00%
Law Enforcement	18.10%	13.00%	31.10%	31.10%	0.00%
Public Safety	18.10%	12.00%	30.10%	30.10%	0.00%

** Health portion of contribution rates is subject to change by the Board. Combined Plan health portion of the contribution rate is assumed to be 2% of payroll.*

Primary Valuation Assumptions / Methods

- The valuation results are based upon the following primary economic assumptions and Board authority benefit provisions:
 - 6.90% investment return; 2.75% payroll growth
 - 1.00% future interest credits on refunds
- The employer and member contribution rates presented hereafter are recommended for Board adoption at a later date
 - The recommended rates are the maximum rates in accordance with the Ohio Revised Code
- Computed amortization periods as of December 31, 2024 are based upon calendar year 2025 contribution rates and employer and member contribution rates recommended for Board adoption later in the calendar year

Funding Value of Assets (FVA)

- Funding value of assets recognizes assumed investment return fully each year
- Differences between market return and assumed return are phased in over a closed 4-year period
- Funding value of assets is not permitted to deviate from the market value of assets by more than 12%
 - The funding value of assets for the DB Portion of the Member-Directed Plan (annuitized MD accounts) is set equal to the market value of assets

Funding Value of Assets (FVA)

Traditional Plan (Excluding the Combined Plan)

Reconciliation of Assets	2024
A. Funding Value Beginning of Year	\$ 104,040,950,980
B. Market Value End of Year	103,324,988,031
C. Market Value Beginning of Year	98,554,813,299
D. Non-Investment Net Cash Flow	
D1. Member Contributions	1,754,585,548
D2. Employer and other Non-Member Contributions	2,585,842,170
D3. Refund of Member Accounts	(536,904,733)
D4. Retirement Benefits	(7,454,447,284)
D5. Member Balance Transfers / Intraplan Transfers / Other	5,832,204
D6. Admin Expenses	(55,898,356)
D7. Total Net Cash Flow: D1+D2+D3+D4+D5+D6	(3,700,990,451)
E. Investment Return	
E1. Market Total: B-C-D7	8,471,165,183
E2. Assumed Rate of Return	6.90%
E3. Assumed Amount of Return	7,051,141,447
E4. Amount Subject to Phase-In: E1-E3	1,420,023,736
F. Phased-In Recognition of Investment Return	
F1. Current Year: 0.25 x E4	355,005,934
F2. First Prior Year	774,920,100
F3. Second Prior Year	(4,976,143,390)
F4. Third Prior Year	2,141,388,800
F5. Total Phase-Ins	(1,704,828,556)
G. Funding Value End of Year	
G1. Preliminary Funding Value End of Year: A+D7+E3+F5	\$ 105,686,273,420
G2. Upper Corridor Limit: 112% x B	115,723,986,595
G3. Lower Corridor Limit: 88% x B	90,925,989,467
G4. Funding Value End of Year	\$ 105,686,273,420
H. Difference Between Market and Funding Value	(2,361,285,389)
I. Recognized Rate of Return	5.23 %
J. Market Rate of Return	8.76 %
K. Ratio of Funding Value to Market Value	102 %

- FVA as of 1/1/2024 was **\$104.0B (row A)**
- Non-Investment net cash flow during the year (i.e., dollars in less dollars out) was **-\$3.7B (D7)**
- Market value investment return was **+\$8.5B (E1)** versus an assumed investment return of **+\$7.1B (E3)**
- This investment gain of **\$1.4B (E4)** is to be phased-in to the FVA over the next 4 years
- 25% of the current year's investment income above expectations and 25% of the prior 3 years' unrecognized investment income are recognized in the FVA totaling **-\$1.7B (F5)**
- **A+D7+E3+F5** equals Preliminary Funding Value of Assets of **\$105.7B (G1)**
- The 12% corridor is then applied, if necessary, resulting in the final 12/31/2024 Funding Value of Assets equal to **\$105.7B (G4)**



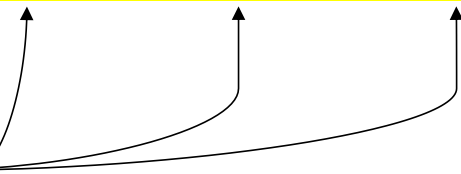
Funding Value of Assets (FVA)

Traditional Plan (Excluding the Combined Plan)

Reconciliation of Assets		2024
A. Funding Value Beginning of Year		\$ 104,040,950,980
B. Market Value End of Year		103,324,988,031
C. Market Value Beginning of Year		98,554,813,299
D. Non-Investment Net Cash Flow		
D1. Member Contributions		1,754,585,548
D2. Employer and other Non-Member Contributions		2,585,842,170
D3. Refund of Member Accounts		(536,904,733)
D4. Retirement Benefits		(7,454,447,284)
D5. Member Balance Transfers / Intraplan Transfers / Other		5,832,204
D6. Admin Expenses		(55,898,356)
D7. Total Net Cash Flow: D1+D2+D3+D4+D5+D6		(3,700,990,451)
E. Investment Return		
E1. Market Total: B-C-D7		8,471,165,183
E2. Assumed Rate of Return		6.90%
E3. Assumed Amount of Return		7,051,141,447
E4. Amount Subject to Phase-In: E1-E3		1,420,023,736
F. Phased-In Recognition of Investment Return		
F1. Current Year: 0.25 x E4		355,005,934
F2. First Prior Year		774,920,100
F3. Second Prior Year		(4,976,143,390)
F4. Third Prior Year		2,141,388,800
F5. Total Phase-Ins		(1,704,828,556)
G. Funding Value End of Year		
G1. Preliminary Funding Value End of Year: A+D7+E3+F5		\$ 105,686,273,420
G2. Upper Corridor Limit: 112% x B		115,723,986,595
G3. Lower Corridor Limit: 88% x B		90,925,989,467
G4. Funding Value End of Year		\$ 105,686,273,420
H. Difference Between Market and Funding Value		(2,361,285,389)
I. Recognized Rate of Return		5.23 %
J. Market Rate of Return		8.76 %
K. Ratio of Funding Value to Market Value		102 %

- As of 12/31/2024 the Market Value is less than the Funding Value by **\$2.4B (row H)**:
 - \$3.9B loss scheduled to be phased-in CY 2025 (F5)
 - \$1.1B gain scheduled to be phased-in CY 2026 (F5)
 - \$0.4B gain scheduled to be phased-in CY 2027 (F5)
- The Funding Value of Assets is **102% (row K)** of the Market Value of Assets

	2025	2026	2027
F1. Current Year: 0.25 x E4			
F2. First Prior Year	355,005,934		
F3. Second Prior Year	774,920,100	355,005,934	
F4. Third Prior Year	(4,976,143,391)	774,920,100	355,005,934
F5. Total Phase-Ins	(3,846,217,357)	1,129,926,034	355,005,934



Funding Value of Assets (FVA)

Combined Plan

Reconciliation of Assets		2024		
A. Funding Value Beginning of Year	\$ 1,048,020,696			
B. Market Value End of Year	1,114,078,531			
C. Market Value Beginning of Year	997,307,777			
D. Non-Investment Net Cash Flow				
D1. Member Contributions	-			
D2. Employer and other Non-Member Contributions	39,332,536			
D3. Refund of Member Accounts	(6,446,946)			
D4. Retirement Benefits	(8,501,808)			
D5. Member Balance Transfers / Intraplan Transfers / Other	4,275,897			
D6. Admin Expenses	-			
D7. Total Net Cash Flow: D1+D2+D3+D4+D5+D6	28,659,679			
E. Investment Return				
E1. Market Total: B-C-D7	88,111,075			
E2. Assumed Rate of Return	6.90%			
E3. Assumed Amount of Return	73,302,187			
E4. Amount Subject to Phase-In: E1-E3	14,808,888			
F. Phased-In Recognition of Investment Return				
F1. Current Year: 0.25 x E4	3,702,222			
F2. First Prior Year	7,486,247	3,702,222		
F3. Second Prior Year	(45,547,672)	7,486,247	3,702,222	
F4. Third Prior Year	17,923,683	(45,547,671)	7,486,247	3,702,222
F5. Total Phase-Ins	(16,435,520)	(34,359,202)	11,188,469	3,702,222
G. Funding Value End of Year				
G1. Preliminary Funding Value End of Year: A+D7+E3+F5	\$ 1,133,547,042			
G2. Upper Corridor Limit: 112% x B	1,247,767,955			
G3. Lower Corridor Limit: 88% x B	980,389,107			
G4. Funding Value End of Year	\$ 1,133,547,042			
H. Difference Between Market and Funding Value	(19,468,511)			
I. Recognized Rate of Return	5.35 %			
J. Market Rate of Return	8.71 %			
K. Ratio of Funding Value to Market Value	102 %			



Funding Value of Assets (FVA)

Traditional, Combined & Member-Directed Plans

DB Assets by Plan	2024
Traditional Plan - Funding Value End of Year	\$ 105,686,273,420
Combined Plan - Funding Value End of Year	1,133,547,042
Member-Directed Plan - Funding Value End of Year*	53,030,034
Total Funding Value of Assets as of December 31, 2024	\$ 106,872,850,496

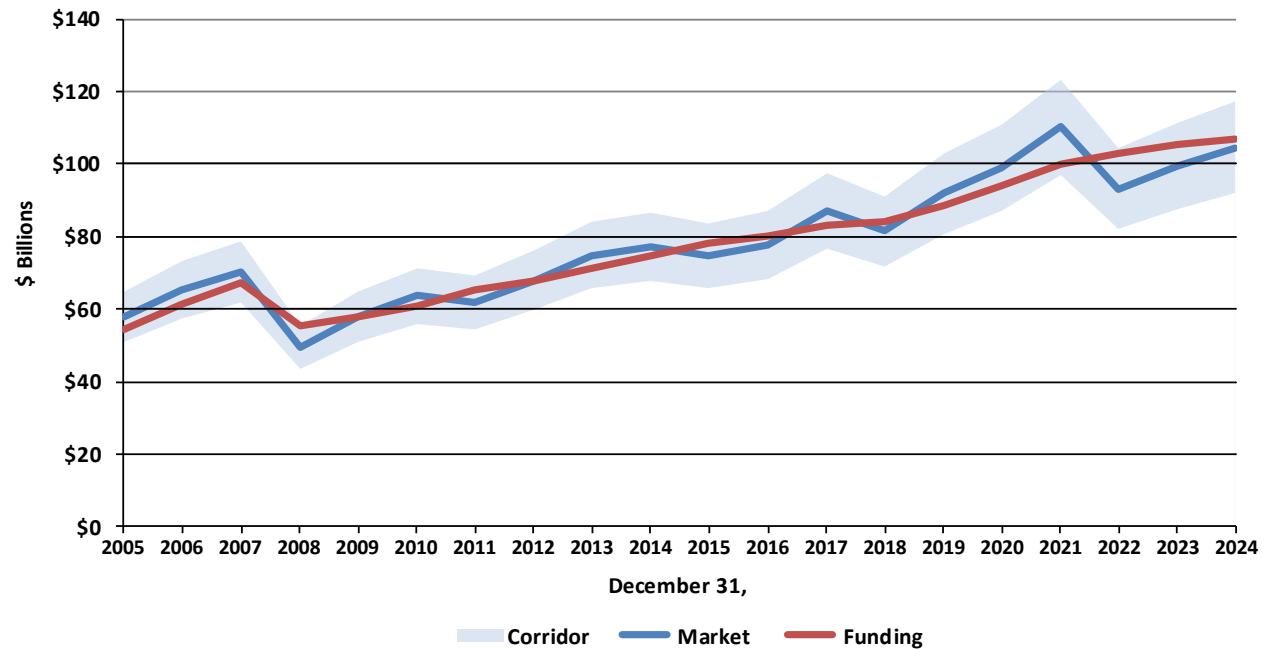
** Funding value of assets for the DB Portion of the Member-Directed Plan (annuitized MD accounts) is set equal to the market value of assets.*

Market Value vs. Funding Value of Assets

Traditional, Combined & Member-Directed Plans

Year	(\$ in Billions)	
	Market Value	Funding Value
2005	\$ 57.7	\$ 54.5
2006	65.4	61.3
2007	70.0	67.2
2008	49.4	55.3
2009	57.7	57.6
2010	63.6	60.6
2011	61.8	65.4
2012	67.9	67.9
2013	74.9	71.4
2014	77.3	74.9
2015	74.6	78.1
2016	77.5	80.3
2017	87.1	83.3
2018	81.4	84.3
2019	91.8	88.6
2020	98.9	94.0
2021	110.2	99.7
2022	93.2	102.9
2023	99.6	105.1
2024	104.5	106.9

Comparison of Asset Values



Asset Rates of Returns

Traditional, Combined & Member-Directed Plans

Year Ended December 31	Inflation	Rate of Return	
	CPI-W	Funding Value	Market Value
2005	3.4 %	9.4 %	9.1 %
2006	2.4 %	14.2 %	14.8 %
2007	4.4 %	11.3 %	8.8 %
2008	(0.5)%	(15.8)%	(27.9)%
2009	3.4 %	6.9 %	20.1 %
2010	1.7 %	13.6 %	13.4 %
2011	3.2 %	6.1 %	0.4 %
2012	1.7 %	7.4 %	13.7 %
2013	1.5 %	8.9 %	14.1 %
2014	0.3 %	8.7 %	6.8 %
2015	0.4 %	8.4 %	0.3 %
2016	2.0 %	6.9 %	8.2 %
2017	2.2 %	7.8 %	16.7 %
2018	1.8 %	5.1 %	(3.0)%
2019	2.3 %	9.1 %	17.1 %
2020	1.4 %	10.2 %	11.6 %
2021	7.8 %	10.2 %	15.5 %
2022	6.3 %	7.0 %	(12.3)%
2023	3.3 %	5.9 %	11.1 %
2024	2.8 %	5.2 %	8.8 %

Average	Inflation	Rate of Return	
	CPI-W	Funding Value	Market Value
Last 5 Years	4.3 %	7.7 %	6.4 %
Last 10 Years	3.0 %	7.6 %	7.0 %
Last 15 Years	2.6 %	8.0 %	7.8 %
Last 20 Years	2.6 %	7.1 %	6.7 %

Gain-Loss Analysis for Year Ended December 31 (\$ in Millions)

Traditional, Combined & Member-Directed Plans

Gains /(Losses) From Decrement Experience	2024	% of AAL	2023	2022	2021
Service Retirement	\$ (21)	(0.02)%	\$ (16)	\$ (79)	\$ (100)
Death During Employment	47	0.04 %	42	41	36
Disability Retirement	65	0.05 %	63	46	61
Other Separations	(18)	(0.01)%	34	165	101
Retiree COLA Experience	(210)	(0.17)%	(57)	(203)	(179)
Retiree Mortality	62	0.05 %	98	219	140
Total	\$ (75)	(0.06)%	\$ 164	\$ 188	\$ 59

Gains /(Losses) In Economic Risk Areas	2024	% of AAL	2023	2022	2021
Pay Increases	\$ (475)	(0.38)%	\$ (196)	\$ (1,351)	\$ (428)
Investment Return (Funding Value)	(1,720)	(1.37)%	(1,033)	106	3,024
Total	\$ (2,196)	(1.75)%	\$ (1,228)	\$ (1,245)	\$ 2,596

Results of December 31, 2024 and 2023 Annual Actuarial Valuations Normal Cost and Actuarial Accrued Liability

	December 31,				
	2024			2023	
Defined Benefit Actuarial Results	Total General	Public Safety	Law Enforcement	Grand Total	Grand Total
Total Normal Cost as a % of Payroll	14.01%	18.74%	20.22%	14.28%	14.30%
Actuarial Accrued Liability (AAL) (\$ in Millions)					
a. Active	\$ 42,635	\$ 8	\$ 2,430	\$ 45,073	\$ 43,238
b. Retired	76,499	15	3,581	80,096	78,549
c. Deferred/Inactive	3,778	1	65	3,845	3,686
d. Total	<u>\$ 122,912</u>	<u>\$ 24</u>	<u>\$ 6,076</u>	<u>\$ 129,013</u>	<u>\$ 125,473</u>

Total Normal Cost presented above is a blended rate of all active Traditional Plan and Combined Plan members in the System. The Actuarial Accrued Liability presented above includes liabilities associated with the Traditional Plan and the defined benefit portion of the Combined and Member-Directed Plans.

Results of December 31, 2024 and 2023 Annual Actuarial Valuations Contribution Rates for Calendar Years 2027 and 2026

	CY 2027			CY 2026	
	Total General	Public Safety	Law Enforcement	Grand Total	Grand Total
Total Contribution Rates					
Pension Contribution Rate					
a. Employer Normal Cost	4.30%	6.74%	7.22%	4.43%	4.48%
b. Member Contribution Rate	9.71%	12.00%	13.00%	9.85%	9.82%
c. UAAL Contribution Rate	9.65%	11.36%	10.88%	9.69%	9.64%
d. Total	<u>23.66%</u>	<u>30.10%</u>	<u>31.10%</u>	23.97%	23.94%
Retiree Health Contribution Rate	0.05%	0.00%	0.00%	0.05%	0.05%

UAAL – Unfunded Actuarial Accrued Liability

The member contribution rate for the General group is for the defined benefit portion of the System. Therefore, it is a weighted average of 10.00% for the Traditional Plan and 0.00% for the Combined Plan. The retiree health contribution rates shown above are the assumed retiree health contribution rates at the time of the valuation (blending Traditional Plan: 0% and Combined Plan: 2%).

Results of December 31, 2024 Annual Actuarial Valuation

Amortization Years for Pension UAAL

Division	Active Members		2027 Total Pension Contribution Rate	Amortization Years for Pension UAAL based upon Funding Value of Assets	
	Number	Annual Payroll (\$ in Millions)		This Year	Prior Year
General	306,766	\$ 16,736	23.66%		
Law Enforcement	8,076	715	31.10%		
Public Safety	38	2	30.10%		
Totals	314,880	\$ 17,453		15	15

The statutory 30-year funding requirement is based upon the total amortization period, rather than the period for each Division or Plan separately.

The 2027 Total Pension Contribution Rate is the sum of the scheduled 2027 employer and member rates for the defined benefit portions of the Traditional and Combined Plans reduced by the amount assumed to be allocated to the retiree health plan (which for 2027 is 0.0% for Traditional Plan and 2.0% for Combined Plan).

Schedule of Funding Progress

(\$ in Millions)

Valuation Year	Actuarial Accrued Liabilities (AAL)	Funding Value of Assets (FVA)	Unfunded Actuarial Accrued Liabilities (UAAL)	Ratio of Assets to AAL	Active Member Payroll	UAAL as a % of Active Member Payroll	Pension Amortization Years	Pension UAAL Contribution Rate
2015	\$91,832	\$78,061	\$ 13,771	85 %	\$12,950	106 %	19	6.94%
2015*	97,177	78,061	19,116	80 %	12,950	148 %	20	10.07%
2016	100,166	80,280	19,886	80 %	13,446	148 %	19	10.12%
2017	102,656	83,292	19,364	81 %	13,746	141 %	18	10.09%
2017*	106,090	83,292	22,797	79 %	13,746	166 %	25	9.32%
2018	108,705	84,287	24,418	78 %	13,572	180 %	27	9.32%
2019	111,371	88,572	22,800	80 %	13,967	163 %	23	9.38%
2020	113,372	93,969	19,402	83 %	13,938	139 %	18	9.45%
2020*	115,241	93,969	21,272	82 %	13,938	153 %	21	9.54%
2021	118,517	99,710	18,807	84 %	14,383	131 %	16	9.52%
2022	122,463	102,852	19,611	84 %	15,806	124 %	16	9.57%
2023	125,473	105,133	20,340	84 %	16,752	121 %	15	9.64%
2024	129,007	106,873	22,134	83 %	17,788	124 %	15	9.69%
2024^	129,013	106,873	22,140	83 %	17,788	124 %	15	9.69%

* Illustrative results under revised actuarial assumptions.

^ After benefit provision changes. Effective January 1, 2024 the Combined Plan of OPERS was incorporated into the Traditional Plan of OPERS.

The above results are based upon the Traditional Plan and the defined benefit portion of the Combined and Member-Directed Plans. The Pension UAAL Contribution Rate shown is based upon the anticipated contribution rates for the calendar year that begins 2 years after the valuation date.



Risk Measures

- The determination of the actuarial accrued liability and the amortization period requires the use of assumptions regarding future economic and demographic experience
- Risk measures are intended to aid in the understanding of the effects of future experience differing from the assumptions
- Risk measures may also help with illustrating the potential volatility in the actuarial accrued liability and the amortization period

Risk Measures

1. **Funded Ratio (Funding Value of Assets basis)**
 - This is the most widely known measure of a plan's financial strength. The trend in the funded ratio is much more important than the absolute ratio. A trend approaching 100% is desirable.
2. **Funded Ratio (Market Value of Assets basis)**
 - This is similar to the above, except that the asset value used is the market value.
3. **Unfunded Actuarial Accrued Liability (UAAL) Amortization Period**
 - Periods above about 17 to 23 years indicate that the UAAL payment is less than the interest on the UAAL. This situation is referred to as “negative amortization.” Negative amortization is increasingly viewed as undesirable.
4. **UAAL / Total Payroll**
 - The ratio of unfunded actuarial accrued liabilities (UAAL) to payroll gives an indication of the plan sponsors’ ability to pay off the UAAL. A declining ratio is desirable. A ratio above approximately 3.0 or 4.0 may indicate difficulty in discharging the unfunded liability in some circumstances.

Risk Measures

5. Funding Value of Assets / Payroll

- The ratio of assets to payroll gives an indication of both maturity and volatility. Many systems have ratios between 5.0 and 7.0. Social Security Replacement Plans may fall above that range. A high ratio can indicate volatility of contribution rates or amortization period.

6. Actuarial Accrued Liability (AAL) / Payroll

- This is similar to above. It illustrates the expected ratio of assets to payroll when the plan is fully funded.

7. Standard Deviation of Investment Return / Payroll

- The portfolio standard deviation measures the volatility of investment return. When divided by payroll it gives the effect of a one standard deviation asset gain or loss as a percent of payroll. A market value asset loss of this magnitude or larger has roughly a 16% chance of occurring in any particular year.

Summary of Risk Measures

Traditional Plan

Valuation Year	(1) Funded Ratio Based on Funding Value of Assets (FVA)	(2) Funded Ratio Based on Market Value of Assets (MVA)	(3) UAAL Amortization Period (FVA basis)	(4) UAAL Amortization Period (MVA basis) [@]	(5) UAAL / Total Payroll	(6) Funding Value of Assets / Total Payroll	(7) Total AAL / Total Payroll	(8) Standard Deviation of Inv. Return / Total Payroll
2015*	80%	77%	20		1.5	6.2	7.7	83%
2016	80	77	20		1.5	6.1	7.7	72
2017	81	85	19		1.5	6.2	7.7	78
2018	77	75	28		1.9	6.4	8.2	75
2019	79	82	23		1.7	6.5	8.2	82
2020*	81	85	22		1.6	6.9	8.5	92
2021	84	93	17		1.4	7.1	8.5	100
2022	84	76	16		1.3	6.8	8.1	78
2023	83	79	15		1.3	6.5	7.8	78
2024^	83	81	15	18	1.3	6.1	7.4	76

* Reflects revised actuarial assumptions.

^ After benefit provision changes. Effective January 1, 2024 the Combined Plan of OPERS was incorporated into the Traditional Plan of OPERS.

@ Beginning with the December 31, 2024 valuation, provided for Funding Policy Framework purposes (see the Appendix for more information).

Summary

- OPERS experienced an overall actuarial loss in both demographic and economic risk areas during the 2024 calendar year
- Calendar year 2024 investment return on a market value basis was estimated to be 8.8%, exceeding the assumed rate of investment return of 6.9%
- However, given the continued recognition in the funding value of assets of the calendar year 2022 market value investment loss, the calendar year 2024 investment return on a funding value basis was 5.2%, resulting in an actuarial loss in the investment risk area

Summary

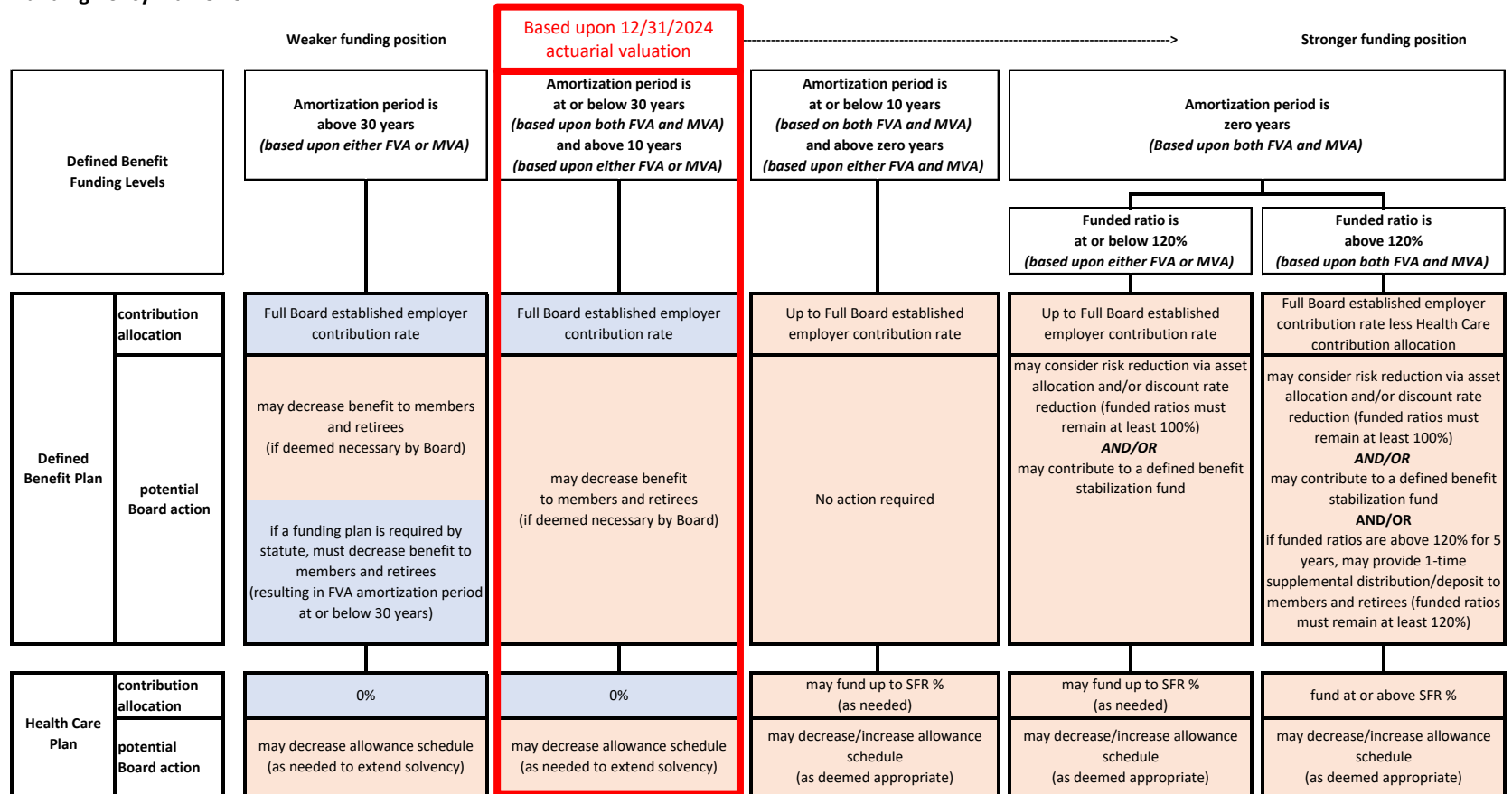
- As previously stated, the main objectives of the valuation process are to measure the financial position of the Retirement System and assist the Board in establishing employer and member contribution rates subject to statutory limits
- As of the December 31, 2024 valuation, based upon the funding value of assets, the funded ratio of the defined benefit portion of OPERS is 83% and the number of years needed to amortize the unfunded actuarial accrued liability is 15 years for *all plans (Traditional, Combined and Member-Directed)* in total

APPENDIX



Funding Policy Framework

Funding Policy Framework



Funding priority order:

1. DB Funded Ratio on both an FVA and MVA basis are at least 100% (i.e., Amortization Years are zero)
2. DB fund asset allocation at target risk/return level (with appropriate discount rate (DR))
3. Health Care plan funded at the Self-Funding Rate (SFR)
4. Health Care allowance increase (base allowance increase or 1-time extra payment)
5. One time supplemental distribution/deposit

Notes:

1. Any base allowance change (including a 1-time payment) is considered an allowance schedule change
2. Board actions cannot result in a weaker Defined Benefit Funding Level (unless otherwise stated (i.e., DB discount rate reduction))

Color legend:

- Board must do
- Board has discretion



Plan Summary

The provisions summarized in this Appendix reflect plan changes adopted under the Alternative Plan Design. Benefit changes apply differently to the following transition groups:

- Group A
 - Eligible to retire on or before January 7, 2018
- Group B
 - 20 or more years of service on January 7, 2013 or eligible to retire after January 7, 2018 but before January 7, 2023
- Group C
 - Not eligible for groups A or B

Traditional Plan Summary

- **General (State and Local Government):** 2.2% of FAS times 30 years (35 for Group C) plus 2.5% of FAS times excess years
- **Law Enforcement:** 2.5% of FAS times 25 years plus 2.1% of FAS times excess years
- **Public Safety:** 2.5% of FAS times 25 years plus 2.1% of FAS times excess years
- FAS is a three-year average for Groups A and B and a five-year average for Group C
- Early retirement benefits are reduced using actuarially neutral reduction factors for Groups B and C
- Plus Retiree Health Plan

Combined Plan Summary

- 1.0% of FAS times 30 years (35 for Group C) plus 1.25% of FAS times excess years
- Plus value of Defined Contribution Account
- FAS is a three-year average for Groups A and B and a five-year average for Group C
- Early retirement benefits are reduced using actuarially neutral reduction factors for Groups B and C
- Plus Retiree Health Plan

Member-Directed Plan Summary

- Value of Member-Directed Account
- Plus Value of Employer Match Account
- Plus Retiree Medical Account

Retirement Conditions by Group (Traditional and Combined Plans)

UNREDUCED	Group A		Group B		Group C	
	Age	Service	Age	Service	Age	Service
State/Local	Any	30	52	31	55	32
			Any	32		
Law Enforcement	65	5	66	5	67	5
	48	25	50	25	52	25
Public Safety	62	15	64	15	64	15
	52	25	54	25	56	25
Law and Public Safety (public safety benefit)	62	15	64	15	64	15
Law and Public Safety (public safety benefit)	52	25	54	25	56	25

REDUCED	Group A		Group B		Group C	
	Age	Service	Age	Service	Age	Service
State/Local	55	25	55	25	57	25
	60	5	60	5	62	5
Law Enforcement	52	15	52	15	56	15
	N/A	N/A	48	25	48	25
Public Safety	52	15	52	15	56	15
	48	25	48	25	52	25
Law and Public Safety (public safety benefit)	48	25	48	25	52	25

Disclosures

- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- Mita D. Drazilov, James R. Sparks and Jeffrey T. Tebeau are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.
- This is one of multiple documents comprising the actuarial report. Additional information regarding actuarial assumptions and methods, and important additional disclosures are provided in the report titled “Actuarial Valuation of Defined Benefit Allowances – Traditional, Combined and Member-Directed Plans as of December 31, 2024”.
- If you need additional information to make an informed decision related to the contents of this presentation, or if anything appears to be missing or incomplete please contact us before using this presentation.

Board Meeting V.B



OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM
277 EAST TOWN STREET, COLUMBUS, OH 43215-4642
1-800-222-PERS (7377)
www.opers.org

MEMORANDUM

DATE: May 12, 2025

TO: OPERS Retirement Board Members

FROM: Craig Hallermann, Actuary

RE: **V. Discussion Items:**
B. 50-Year Actuarial Projections of Defined Benefit Retirement Allowances Beginning January 1, 2025

Purpose – Gabriel, Roeder, Smith & Company (GRS) will present to the Board the 50-Year Actuarial Projections of Defined Benefit Retirement Allowances beginning January 1, 2025.

Background – GRS, OPERS’ actuarial consultant, annually performs and reports two sets of actuarial projections. The 50-Year Actuarial Projections of Defined Benefit Retirement Allowances (pension projections) is performed and reported as a separate report from the pension actuarial valuation results at the May meeting. The Projections of Retiree Health Benefits is performed and reported in conjunction with the Annual Actuarial Valuation of Retiree Health Benefits in a single report at a later meeting. These projection reports project liabilities, assets and cash flows for a 50-year period beginning January 1, 2025.

The projections are based on the same census data, financial information and actuarial assumptions used in the annual actuarial valuation as of December 31, 2024. Like the pension valuation report, the pension projection report assumes a 6.90% long-term actuarial rate of return and all other economic and demographic assumptions adopted following the 2016 – 2020 Experience Study. The baseline projection assumes a stable active population (no active population growth/decline) throughout the projection period.

The pension projection report shows the projection of the Unfunded Actuarial Accrued Liability (UAAL), Funded Ratio (assets / liabilities), and the number of years required to amortize the UAAL (Amortization Period) at each year in the future. Under the baseline projection, the funded ratio is expected to trend

downward in 2025 and the amortization period is expected to trend higher in 2025 as the final deferred portion of the large 2022 investment loss is fully recognized as of 12/31/25. Thereafter, the funded ratio is expected to trend upward and the amortization period downward as the 2023 and 2024 deferred investment gains are recognized. Overall, the amortization period is expected to remain below the 30 year statutory limit (estimated maximum of 19 years as of 12/31/2025) in the absence of future investment losses.

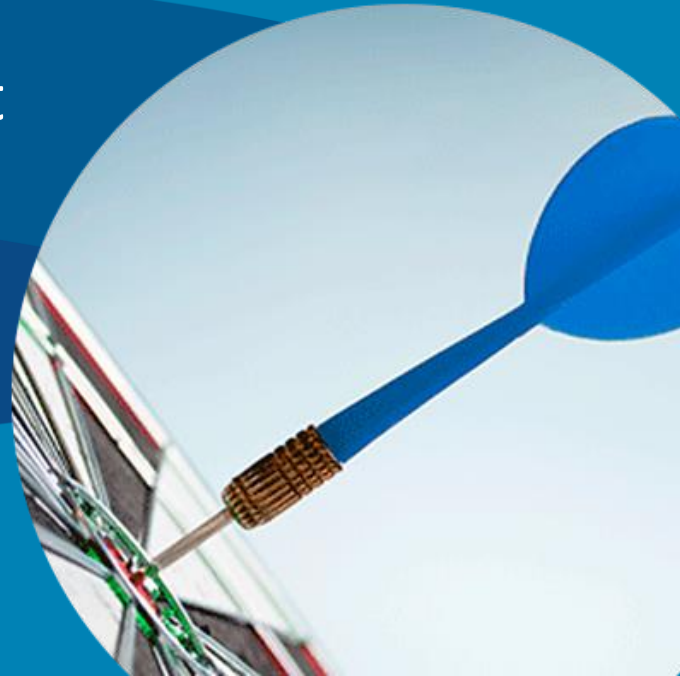
In addition to the baseline projection that assumes 6.90% market return on assets in 2025 and beyond, and a constant future active population, the pension projection report includes projections under several alternative market return scenarios, excess inflation scenarios, and population growth scenarios, some of which show the 30 year statutory limit exceeded in a future year.



Ohio Public Employees Retirement System

50-Year Population and Cash Flow
Actuarial Projections of Base Retirement
Benefits Beginning January 1, 2025

Summary Report
May 2025 Board Meeting



Agenda

- Section I Introduction
- Section II Baseline Population Projection
- Section III Baseline Cash Flow Projection
- Section IV Baseline Projection Results
- Section V Amortization Period Sensitivity
(A Precursor to the Alternative Projection Scenarios)
- Section VI Alternative Market Return Scenarios
- Section VII Excess Inflation & Alternative Market Return Scenarios
- Section VIII Alternative Population Growth Scenarios

Section I

Introduction



Introduction – Regular Valuation

- Quantifies commitments with present value liability calculations
- Contains an implied plan for meeting cash flows
- Does not disclose specifics of the implied plan well
- Does not illustrate the evolving impact of Senate Bill (SB) 343 provisions
 - For example, effects of different benefit provisions for Transition Groups A, B and C

Introduction – Projection

- Quantifies commitments by projecting year-by-year cash flows
- Demonstrates how the plan for meeting cash flows is expected to work
- Can test alternative hypotheses
- Reveals emerging patterns
- Not a prediction
- Projection is designed to draw attention to long-term trends

Section II

Baseline Population Projection

Baseline Population Projection

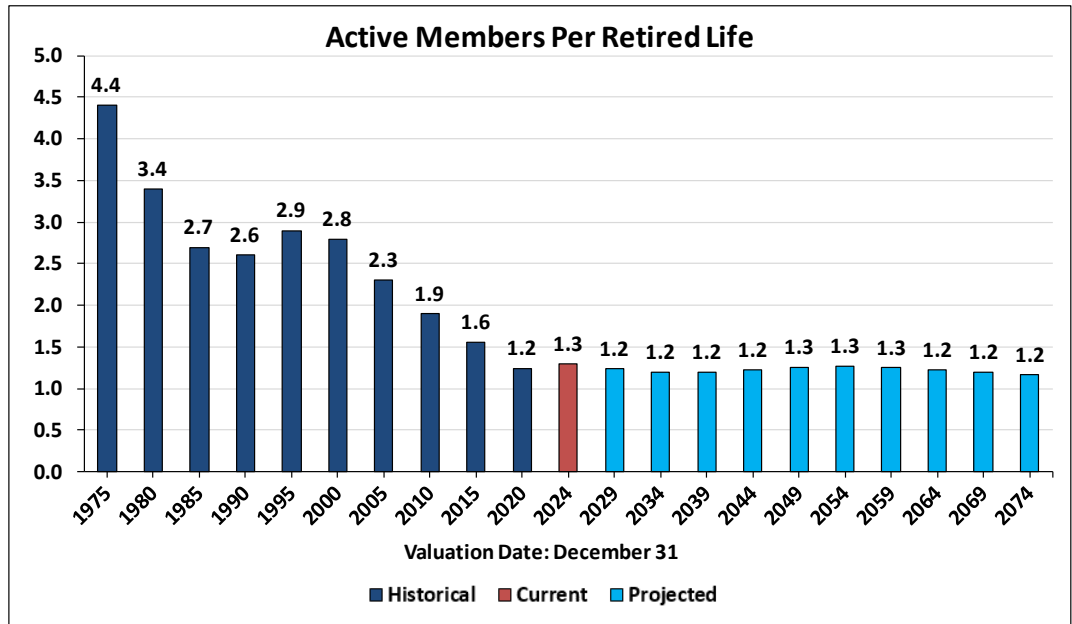
- In the first phase, the development of the active and retired groups in coming decades is forecasted
- The results of the projection from 2025 through 2074 are based on a continuation of present demographic patterns
- Active members participating in the Traditional Plan (TP) and Combined Plan (CP) are included
- The number of total active members is assumed to remain constant in the future
 - Since the CP is closed to new hires, the number of active members participating in the TP is therefore assumed to increase in the future
 - Alternative population growth scenarios are examined in Section VIII

Baseline Population Projection

Ratio of Active Members to Retirees

Active Members			
December 31	Present	Future	Total
2024	303,531	0	303,531
2034	126,252	177,279	303,531
2044	57,992	245,539	303,531
2054	17,180	286,351	303,531
2064	1,637	301,894	303,531
2074	82	303,449	303,531

Retired Members			
December 31	Present	Future	Total
2024	229,637	0	229,637
2034	166,125	87,516	253,641
2044	89,978	156,912	246,890
2054	30,670	208,114	238,784
2064	7,597	240,345	247,942
2074	2,413	256,839	259,252



For baseline projection results, a constant active population is assumed. Retirees include people who retire directly from active service as well as those who terminate service with a vested deferred benefit and retire upon attaining eligibility.

The ratio of active members to retirees as of December 31, 2024 is 1.3. Based upon a constant active member population in the future, the ratio of active members to retirees is expected to remain fairly level.



Section III

Baseline Cash Flow Projection

Baseline Cash Flow Projection

Funding Value of Assets

DB Assets by Plan	2024
Traditional Plan - Funding Value End of Year	\$ 105,686,273,420
Combined Plan - Funding Value End of Year	1,133,547,042
Member-Directed Plan - Funding Value End of Year*	53,030,034
Total Funding Value of Assets as of December 31, 2024	\$ 106,872,850,496

** Funding value of assets for the DB Portion of the Member-Directed Plan (annuitized MD accounts) is set equal to the market value of assets.*

Baseline Cash Flow Projection

Contribution Rates

- Projection results are based upon regular valuation assumptions, unless otherwise noted, including:
 - The long-term actuarial assumed investment return rate of 6.90%
 - Long-term payroll growth of 2.75%
- Scheduled employer and member contribution rates shown below:

Division	Employer	Member	Total	Pension ¹	Health ²
State	14.00%	10.00%	24.00%	24.00%	0.00%
Local Government	14.00%	10.00%	24.00%	24.00%	0.00%
Law Enforcement	18.10%	13.00%	31.10%	31.10%	0.00%
Public Safety	18.10%	12.00%	30.10%	30.10%	0.00%

¹ The Traditional Plan additionally receives mitigating contributions of 3.50% from Combined & Member Directed plans and 2.24% from Alternative Retirement Plan (ARP) members.

² Health portion of contribution rates is subject to change by the Board. Combined Plan members contribute 2.00% per year to Retiree Health.

Section IV

Baseline Projection Results

Baseline Projection Results

As OPERS matures, how will the relationship between contributions, benefit payments and investment return be affected? This section explores the expected emerging patterns over the next half century.

Baseline Projection Results

Funding Value of Assets Earning 6.9% Annually

December 31	\$ in Billions		
	Actuarial Accrued Liability (AAL)	Funding Value of Assets (FVA)	Unfunded Actuarial Accrued Liability (UAAL)
2024	\$ 129.0	\$ 106.9	\$ 22.1
2029	146.1	126.6	19.4
2034	164.7	150.9	13.8
2039	186.4	182.7	3.7
2044	214.0	214.0	0.0
2049	250.2	250.2	0.0
2054	296.2	296.2	0.0
2059	352.0	352.0	0.0
2064	416.1	416.1	0.0
2069	487.5	487.5	0.0
2074	566.2	566.2	0.0

Fiscal Year	\$ in Billions				
	Contributions*	Benefits	Admin Expenses	Net External Cash Flow	Assumed Investment Income
2025	\$ 4.4	\$ (7.9)	\$ (0.1)	\$ (3.6)	\$ 7.3
2030	5.3	(9.3)	(0.1)	(4.2)	8.6
2035	6.2	(10.7)	(0.1)	(4.6)	10.3
2040	7.2	(11.9)	(0.1)	(4.8)	12.4
2045	5.1	(13.0)	(0.1)	(8.0)	14.5
2050	5.9	(14.3)	(0.2)	(8.6)	17.0
2055	6.8	(16.3)	(0.2)	(9.7)	20.1
2060	7.8	(19.3)	(0.2)	(11.7)	23.9
2065	9.0	(23.2)	(0.2)	(14.5)	28.2
2070	10.3	(27.9)	(0.3)	(17.9)	33.0
2075	11.8	(33.1)	(0.3)	(21.6)	38.3

* Excludes contributions in excess of normal cost contributions once the UAAL is fully amortized (i.e., 100% funded ratio). In the above projection, a 100% funded ratio is projected to occur during the 2041 fiscal year.

Baseline Projection Results – Nominal vs Real

Funding Value of Assets Earning 6.9% Annually

December 31	Funding Value of Assets (\$ in Billions)	
	Nominal	Real
2024	\$ 106.9	\$ 106.9
2034	150.9	115.1
2044	214.0	124.4
2054	296.2	131.2
2064	416.1	140.6
2074	566.2	145.8

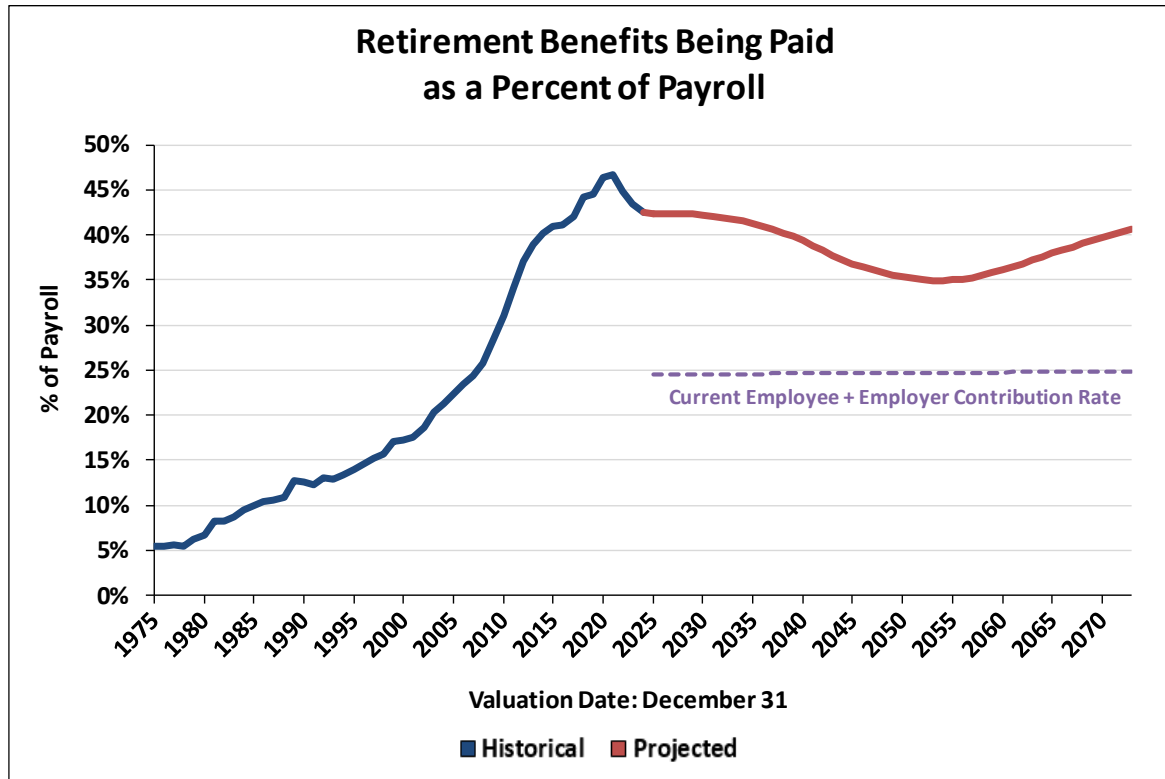
Fiscal Year	Net External Cash Flow* (\$ in Billions)		% of Assets
	Nominal	Real	
2025	\$ (3.6)	\$ (3.5)	(3.3)%
2035	(4.6)	(3.4)	(3.1)%
2045	(8.0)	(4.5)	(3.7)%
2055	(9.7)	(4.2)	(3.3)%
2065	(14.5)	(4.8)	(3.5)%
2075	(21.6)	(5.4)	(3.8)%

* Excludes contributions in excess of normal cost contributions once the UAAL is fully amortized (i.e., 100% funded ratio).

- In nominal terms, pension assets will increase by a factor of approximately 5x during the projection period
- In real terms, pension assets are projected to increase by 30-40% by the end of the projection period
 - If OPERS were 100% funded, the increase in real terms would be only 10-15%, consistent with the projected increase (in real terms) of liabilities
- The increasing proportion of members being covered by APD Group C benefit provisions has a downward effect on projected assets (and liabilities)
- In the longer term, expected future improvements in life expectancy has an upward pressure on projected assets (and liabilities)

Baseline Projection Results

Projected Retiree Benefits as a Percentage of Payroll



- Projected retiree benefits currently are 44% of payroll
- This percentage has declined in recent years and is expected to continue to decline until the mid-2050s, where it bottoms around 35% of payroll
- This decline on a forward looking basis in the medium-term is a result of:
 - Baby boom generation being in their retirement phase
 - Transition Group C emergence
- In the longer-term, this percentage is expected to settle around 40-45% of payroll

Section V

Amortization Period Sensitivity

(A Precursor to the Alternative Projection Scenarios)

Amortization Period Sensitivity

(A Precursor to the Alternative Projection Scenarios)

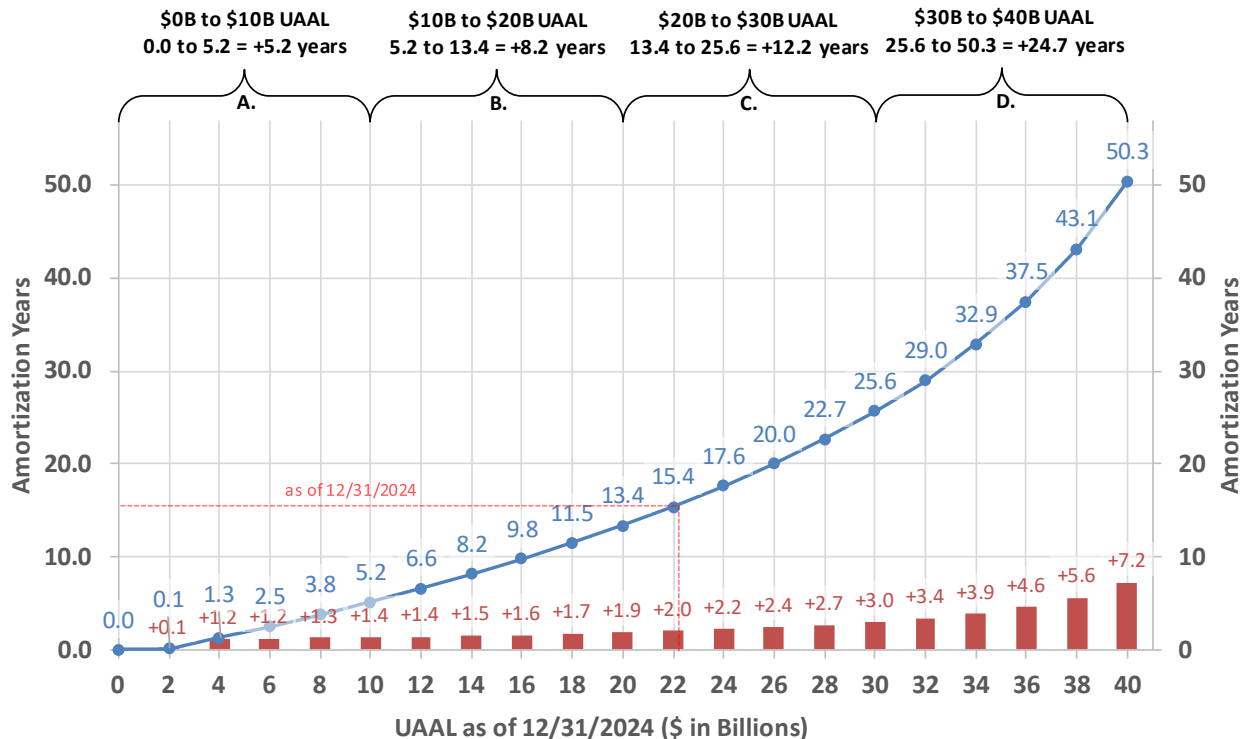
- The Amortization Period for OPERS is the number of years required to amortize the Unfunded Actuarial Accrued Liability (UAAL) based upon the System's fixed employee and employer contribution rates
- The calculation is based upon the following inputs:
 - UAAL \$ amount (\$22.14B as of 12/31/2024 – FVA basis)
 - UAAL contributions (\$1.85B estimated for CY 2025)
 - Assumed rate of investment return (6.90%)
 - Assumed rate of wage inflation (2.75%)
- The higher the current Amortization Period, the more sensitive the Amortization Period is to future experience and/or changes to the above mentioned inputs

Amortization Period Sensitivity to UAAL

(A Precursor to the Alternative Projection Scenarios)

Amortization Period Sensitivity to UAAL

(Based Upon CY 2025 UAAL Contribution of \$1.85B - Assumed to Grow at 2.75%)



■ Amortization Period Increase For Each Additional \$2B of UAAL

—● Amortization Period Computed from December 31, 2025

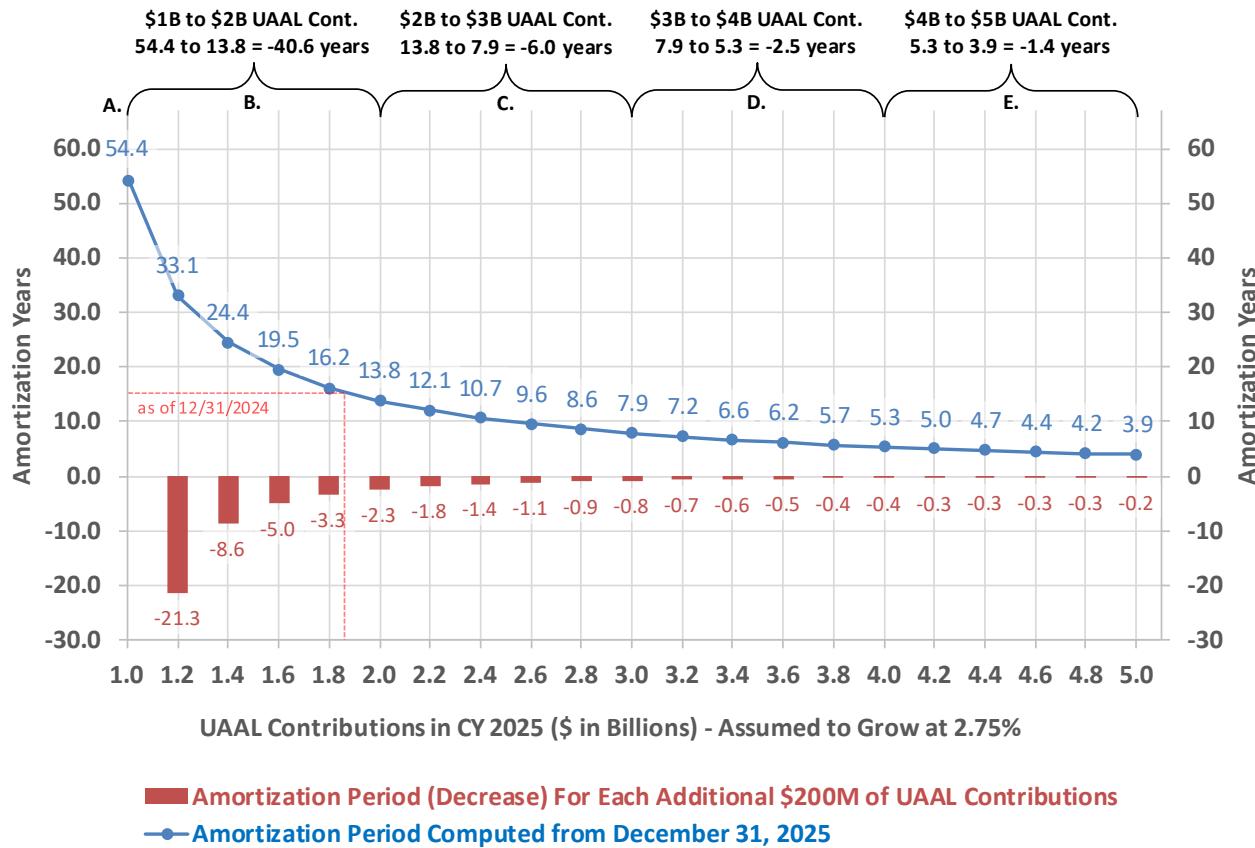
- A. UAAL increase from \$0B to \$10B increases Amortization Period from 0.0 to 5.2 years (+5.2 years)
- B. UAAL increase from \$10B to \$20B increases Amortization Period from 5.2 to 13.4 years (+8.2 years)
- C. UAAL increase from \$20B to \$30B increases Amortization Period from 13.4 to 25.6 years (+12.2 years)
- D. UAAL increase from \$30B to \$40B increases Amortization Period from 25.6 to 50.3 years (+24.7 years)



Amortization Period Sensitivity to UAAL Contributions

(A Precursor to the Alternative Projection Scenarios)

Amortization Period Sensitivity to UAAL Contributions
(Based Upon 12/31/2024 UAAL of \$22.14B)



- A. UAAL contributions of \$1B in CY 2025 results in an Amort. Period of 54.4 years
- B. UAAL contribution increase from \$1.0B to \$2.0B decreases Amort. Period from 54.4 to 13.8 years (-40.6 years)
- C. UAAL contribution increase from \$2.0B to \$3.0B decreases Amort. Period from 13.8 to 7.9 years (-6.0 years)
- D. UAAL contribution increase from \$3.0B to \$4.0B decreases Amort. Period from 7.9 to 5.3 years (-2.5 years)
- E. UAAL contribution increase from \$4.0B to \$5.0B decreases Amort. Period from 5.3 to 3.9 years (-1.4 years)



Section VI

Alternative Market Return Scenarios

Alternative Market Return Scenarios in 2025

- As of 12/31/2024 the Funding Value of Assets (\$106.9B) exceeds the Market Value of Assets (\$104.5B) by \$2.4B:
 - \$3.9B loss scheduled to be phased-in CY 2025
 - \$1.1B gain scheduled to be phased-in CY 2026
 - \$0.4B gain scheduled to be phased-in CY 2027
- The following three slides show pension results based upon alternative market return scenarios for calendar year 2025:
 - -12.00% market rate of return in 2025, and 6.9% thereafter
 - -1.50% market rate of return in 2025, and 6.9% thereafter
 - 6.90% market rate of return in all future years
 - 10.00% market rate of return in 2025, and 6.9% thereafter

Alternative Market Return Scenarios in 2025

(UAAL \$ in Billions)

December 31,	-12.00% in 2025 6.90% Thereafter				-1.50% in 2025 6.90% Thereafter				6.90% Market Return in All Future Years				10.00% in 2025 6.90% Thereafter			
	UAAL	Funded Ratio	Amortization Period		UAAL	Funded Ratio	Amortization Period		UAAL	Funded Ratio	Amortization Period		UAAL	Funded Ratio	Amortization Period	
			FVA Basis	MVA Basis			FVA Basis	MVA Basis			FVA Basis	MVA Basis			FVA Basis	MVA Basis
2024	\$22	83%	15 yrs	18 yrs	\$22	83%	15 yrs	18 yrs	\$22	83%	15 yrs	18 yrs	\$22	83%	15 yrs	18 yrs
2025	33	75%	30	68	28	79%	22	30	26	81%	19	18	25	81%	18	14
2026	37	73%	36	66	29	79%	22	29	24	82%	17	17	23	83%	15	13
2027	42	70%	45	65	31	78%	24	28	24	83%	16	15	21	85%	13	12
2028	46	68%	58	62	33	77%	26	26	23	84%	14	14	20	86%	11	11
2029	48	67%	58	59	34	77%	25	25	23	84%	13	13	19	87%	10	10
2030	49	67%	57	57	34	77%	24	24	22	85%	12	12	18	88%	9	9
2031	50	67%	56	56	34	78%	23	23	21	86%	11	11	17	89%	8	8
2032	51	67%	54	54	34	78%	22	22	21	87%	10	10	15	90%	7	7
2033	53	67%	53	53	34	79%	21	21	20	88%	9	9	14	91%	6	6
2034	54	67%	51	51	34	79%	19	19	18	89%	8	8	13	92%	5	5

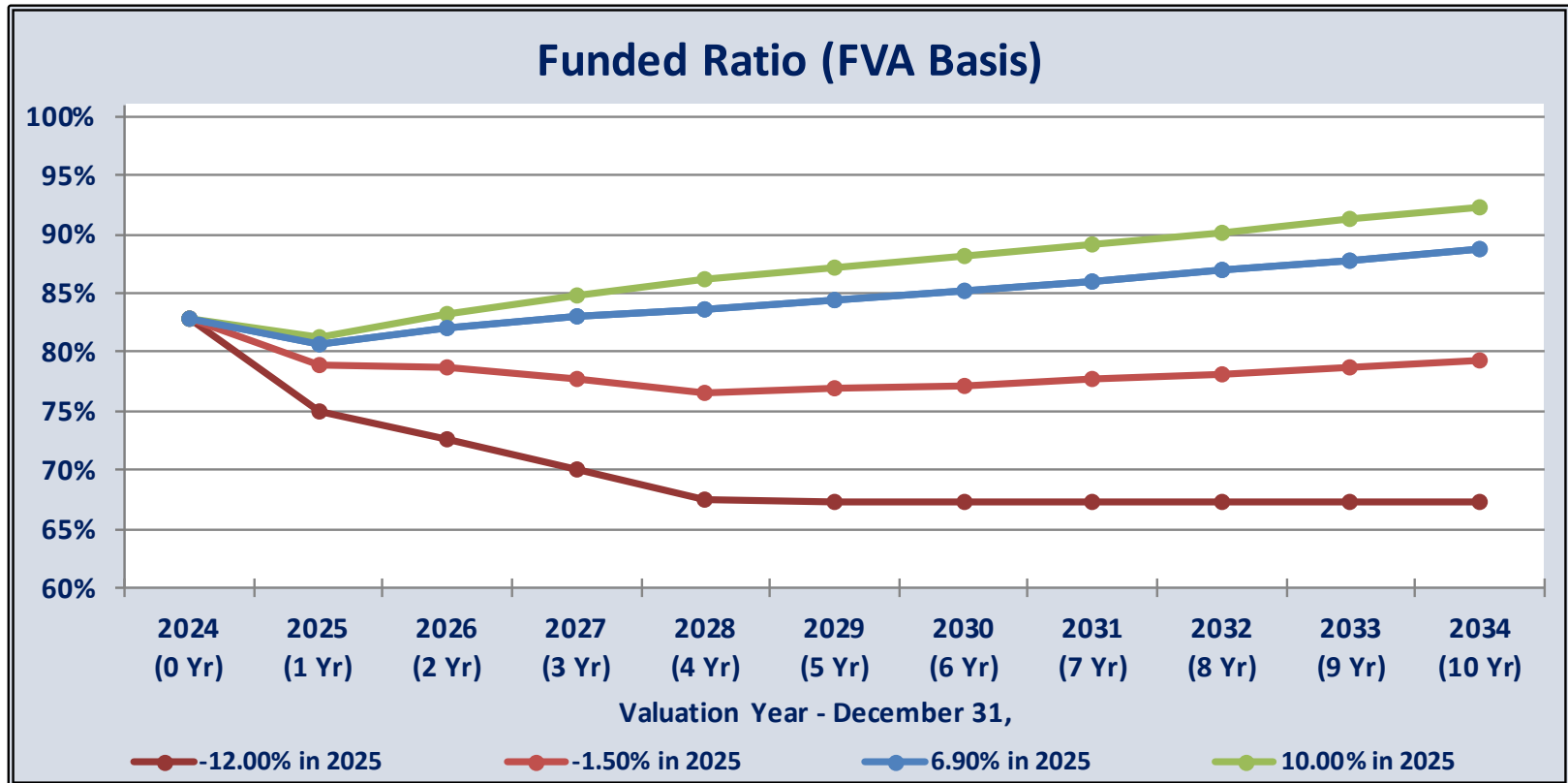
NOTE: UAAL and Funded Ratio are based upon the Funding Value of Assets. Results are based on a 0% retiree health contribution for Traditional Plan members in 2025 and thereafter.

- There is upward pressure on the Amortization Period (FVA basis) in the near term due to unrecognized investment losses on the Funding Value of Assets
- One bad year of investment return could result in the Amortization Period reaching 30 years
 - -1.50% market return in 2025: 12/31/2025 Amortization Period on a MVA basis is 30 years
 - -12.00% market return in 2025: 12/31/2025 Amortization Period on a FVA basis is 30 years
- A 10.00% return in 2025 keeps the Amortization Period on a FVA basis “on track”
 - In other words, the 15 year Amortization Period (FVA basis) as of 12/31/2024 is down to 5 years by 12/31/2034



Alternative Market Return Scenarios in 2025

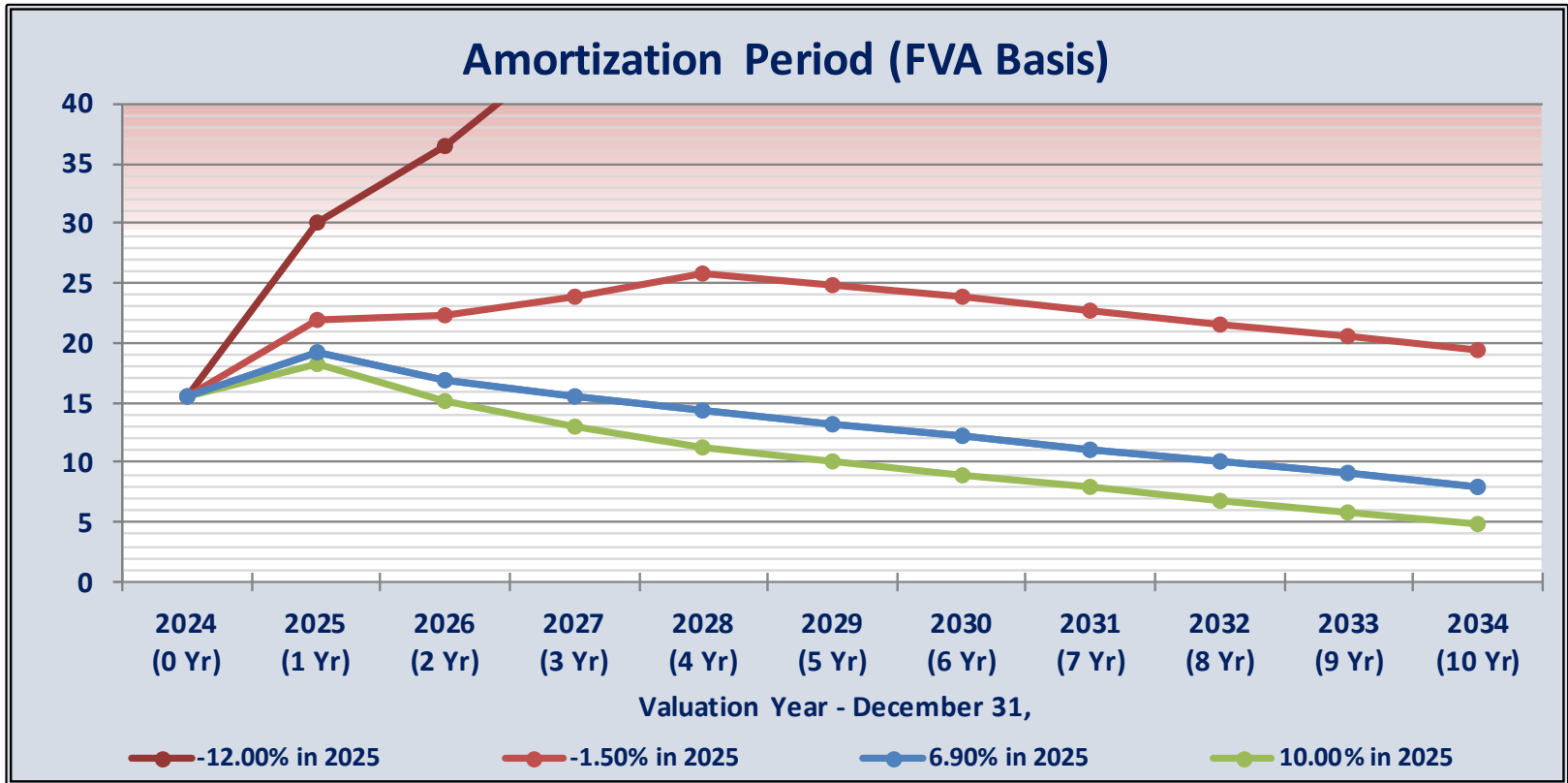
Funded Ratio Projection



NOTE: Results are based on a 0% retiree health contribution for Traditional Plan members in 2025 and thereafter.

Alternative Market Return Scenarios in 2025

Amortization Period Projection



NOTE: Results are based on a 0% retiree health contribution for Traditional Plan members in 2025 and thereafter.

Alternative Market Return Scenarios in 2025-2034

- The following three slides show pension results based upon alternative investment return scenarios for each of the next 10 years:
 - 5.90% market rate of return in 2025-2034
 - 6.90% market rate of return in 2025-2034
 - 7.90% market rate of return in 2025-2034

Alternative Market Return Scenarios in 2025-2034 (UAAL \$ in Billions)

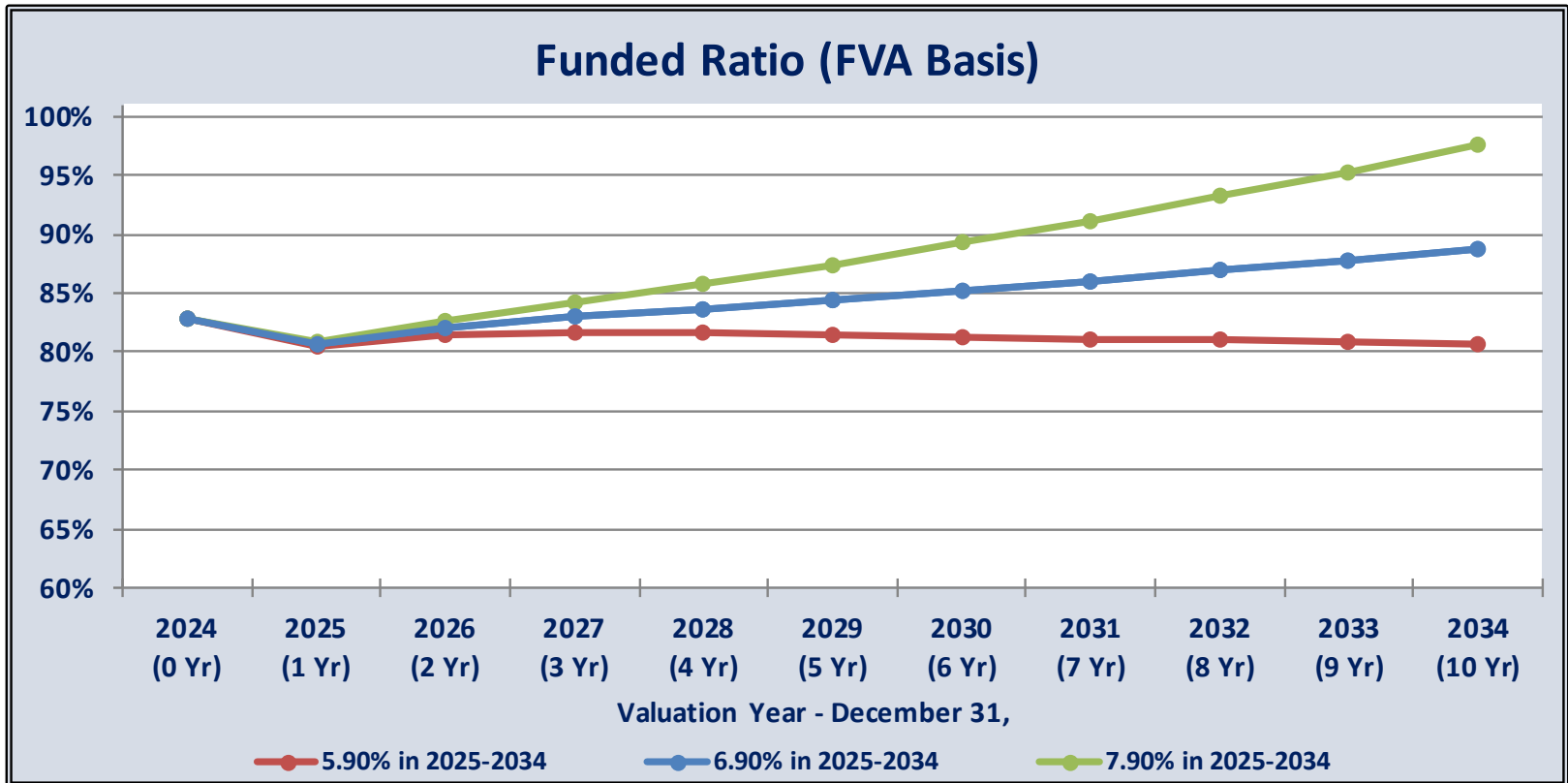
December 31,	5.90% Market Return in 2025-2034				6.90% Market Return in All Future Years				7.90% Market Return in 2025-2034			
	UAAL	Funded Ratio	Amortization Period		UAAL	Funded Ratio	Amortization Period		UAAL	Funded Ratio	Amortization Period	
			FVA Basis	MVA Basis			FVA Basis	MVA Basis			FVA Basis	MVA Basis
2024	\$22	83%	15 yrs	18 yrs	\$22	83%	15 yrs	18 yrs	\$22	83%	15 yrs	18 yrs
2025	26	80%	19	19	26	81%	19	18	25	81%	19	16
2026	25	81%	18	19	24	82%	17	17	24	83%	16	14
2027	25	82%	17	19	24	83%	16	15	22	84%	14	12
2028	26	82%	17	19	23	84%	14	14	20	86%	12	10
2029	27	81%	17	19	23	84%	13	13	18	87%	10	8
2030	28	81%	17	19	22	85%	12	12	16	89%	8	7
2031	29	81%	17	19	21	86%	11	11	14	91%	6	5
2032	30	81%	17	19	21	87%	10	10	11	93%	4	3
2033	31	81%	17	19	20	88%	9	9	7	95%	2	1
2034	32	81%	17	19	18	89%	8	8	4	98%	1	0

NOTE: UAAL and Funded Ratio are based upon the Funding Value of Assets. Results are based on a 0% retiree health contribution for Traditional Plan members in 2025 and thereafter.

- 5.90% in 2025-2034: Amortization Period remains about level (vs. declining by 1 each valuation year)
- 7.90% in 2025-2034: Amortization Period declines by about 2 years for every valuation year

Alternative Market Return Scenarios in 2025-2034

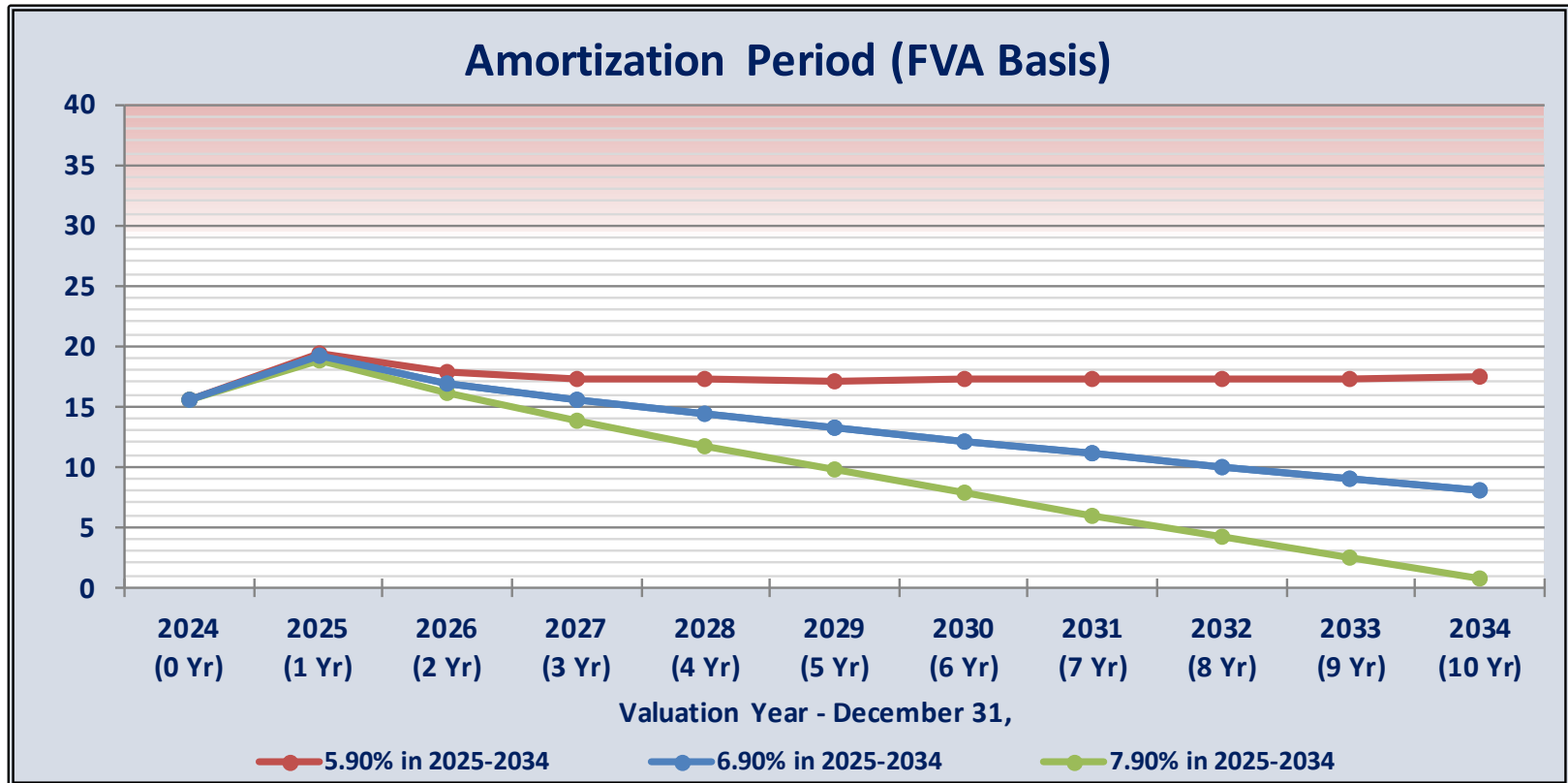
Funded Ratio Projection



NOTE: Results are based on a 0% retiree health contribution for Traditional Plan members in 2025 and thereafter.

Alternative Market Return Scenarios in 2025-2034

Amortization Period Projection



NOTE: Results are based on a 0% retiree health contribution for Traditional Plan members in 2025 and thereafter.

Section VII

Excess Inflation & Alternative Market Return Scenarios

Excess Inflation & Alternative Market Return Scenarios

- In recent years, the United States (and OPERS) has experienced elevated levels of inflation
- The impact to OPERS of higher inflation than assumed is primarily the following:
 - A higher CPI-W Index results in higher Cost-of-Living-Adjustment (COLA) increases for CPI-Indexed COLA retirees (capped at 3.0%)
 - Higher pays than assumed results in higher computed benefits upon retirement
 - Higher total payroll in the System increases contributions to fund the System, offsetting some of the above increased costs
- Looking forward, elevated levels of inflation remain a potential concern

Excess Inflation & Alternative Market Return Scenarios

- The current assumption for price inflation is 2.35%
- The following three slides show pension results assuming there is 2% excess inflation (4.35%) for each of the next 5 years (2025-2029) in addition to alternative market return scenarios:
 - -1.50% market rate of return in 2025, and 6.9% thereafter
 - 6.90% market rate of return in all future years
- For the purposes of these scenarios:
 - the COLA for calendar years 2026-2030 is assumed to be 3.0% for retirees who receive a CPI-Indexed COLA
 - the active member payroll is assumed to grow 2% faster than otherwise assumed

Excess Inflation & Alternative Market Return Scenarios (UAAL \$ in Billions)

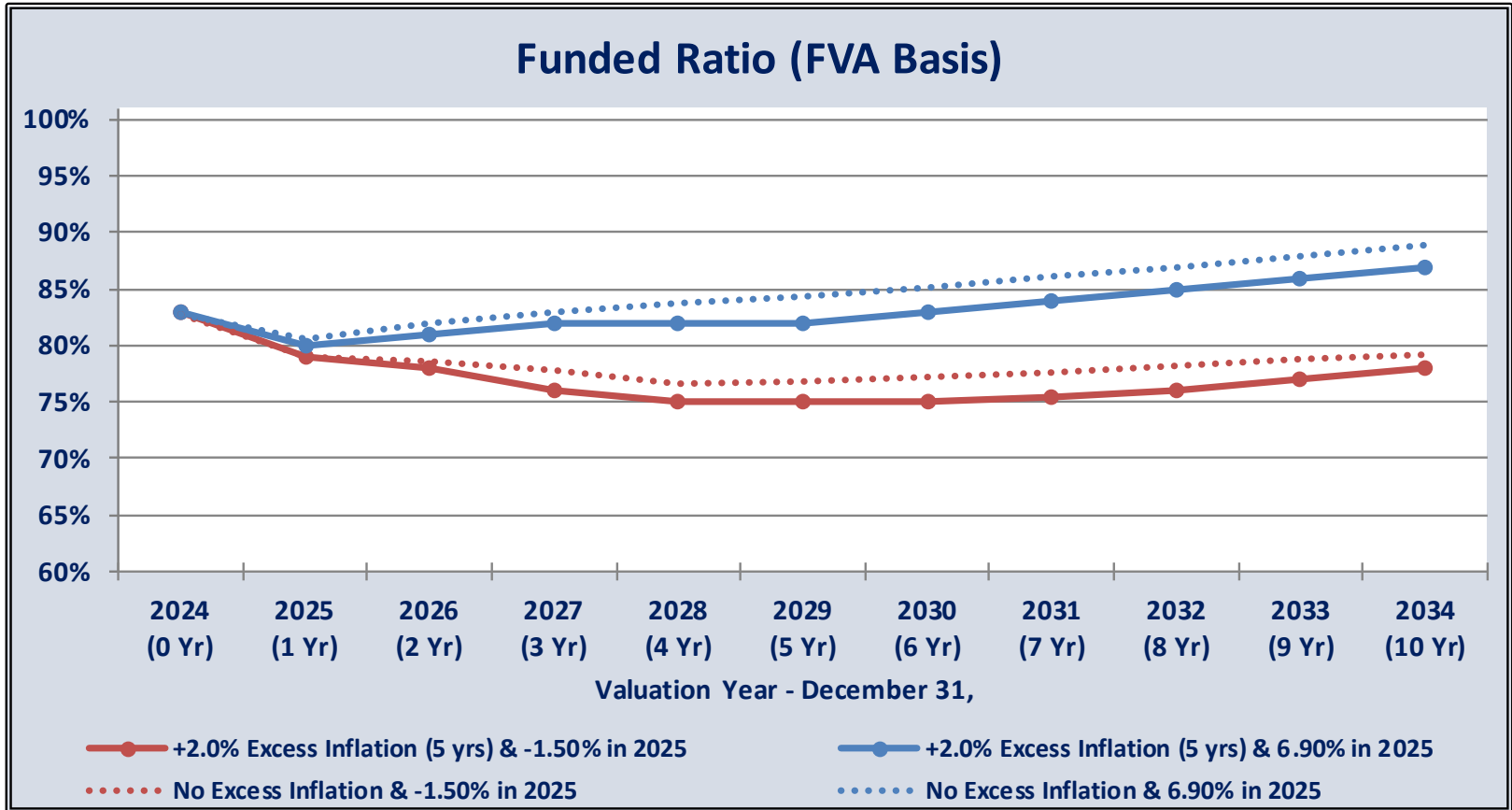
December 31,	+2.0% Excess Inflation for 5 Years -1.50% in 2025 6.90% Thereafter				+2.0% Excess Inflation for 5 Years 6.90% Market Return in All Future Years			
	UAAL	Funded Ratio	Amortization Period		UAAL	Funded Ratio	Amortization Period	
			FVA Basis	MVA Basis			FVA Basis	MVA Basis
2024	\$22	83%	15 yrs	18 yrs	\$22	83%	15 yrs	18 yrs
2025	29	79%	22	30	26	80%	20	18
2026	31	78%	23	29	26	81%	18	17
2027	33	76%	25	28	26	82%	17	17
2028	37	75%	27	27	27	82%	16	16
2029	38	75%	26	26	27	82%	15	15
2030	39	75%	25	25	27	83%	14	14
2031	39	76%	24	24	26	84%	13	13
2032	39	76%	23	23	25	85%	12	12
2033	39	77%	21	21	24	86%	10	10
2034	39	78%	20	20	23	87%	9	9

NOTE: UAAL and Funded Ratio are based upon the Funding Value of Assets. Results are based on a 0% retiree health contribution for Traditional Plan members in 2025 and thereafter.

While excess inflation places upward pressure on liabilities in the short term, the increased contributions as a result of higher projected payroll in the System offsets this impact over the long term. Generally speaking, System sensitivity to excess inflation is significantly lower than the sensitivity to future investment returns.

Excess Inflation & Alternative Market Return Scenarios

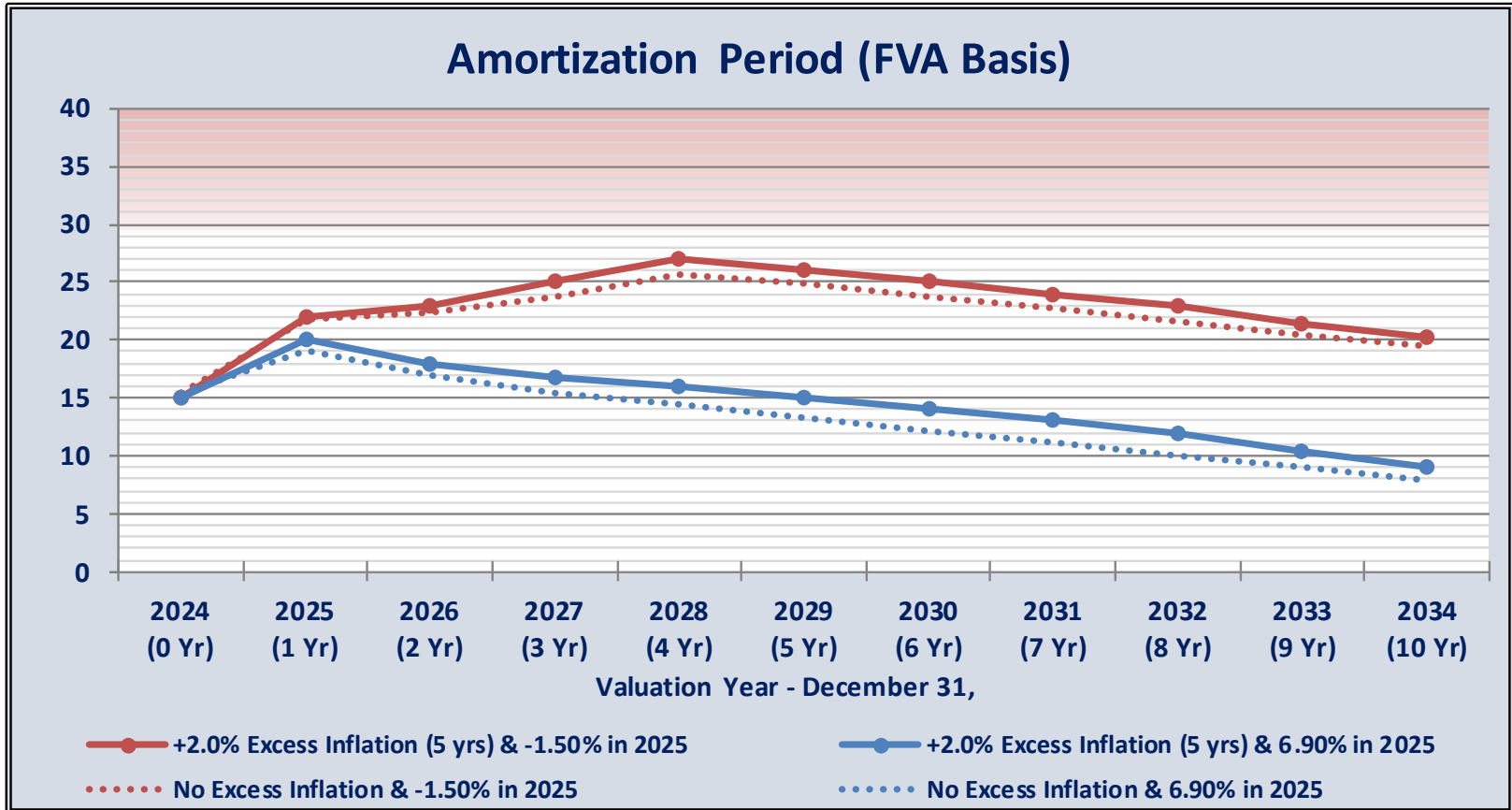
Funded Ratio Projection



NOTE: Results are based on a 0% retiree health contribution for Traditional Plan members in 2025 and thereafter.

Excess Inflation & Alternative Market Return Scenarios

Amortization Period Projection



NOTE: Results are based on a 0% retiree health contribution for Traditional Plan members in 2025 and thereafter.

Section VIII

Alternative Population Growth Scenarios

Alternative Population Growth Scenarios

- The following three slides show certain projection results under the following alternative population growth assumptions at various investment return scenarios:
 - Constant active population
 - 1% decrease in active population per year in CYs 2025-2029
 - 3% decrease in active population per year in CYs 2025-2029
- A decreasing active population is a particular risk area for a fixed rate plan such as OPERS that has a UAAL
 - The magnitude of the risk is dependent upon the size of the UAAL, both now and in the future

Alternative Population Growth Scenarios

6.9% Market Return for All Future Years (UAAL \$ in Billions)

December 31,	3%/Year Decrease in Actives to 2029				1%/Year Decrease in Actives to 2029				Constant Active Population			
	UAAL	Funded Ratio	Amortization Period		UAAL	Funded Ratio	Amortization Period		UAAL	Funded Ratio	Amortization Period	
			FVA Basis	MVA Basis			FVA Basis	MVA Basis			FVA Basis	MVA Basis
2024	\$22	83%	15 yrs	18 yrs	\$22	83%	15 yrs	18 yrs	\$22	83%	15 yrs	18 yrs
2025	26	81%	21	19	26	81%	20	18	26	81%	19	18
2026	25	82%	20	19	24	82%	18	17	24	82%	17	17
2027	24	83%	19	19	24	83%	17	17	24	83%	16	15
2028	24	83%	19	19	24	83%	16	16	23	84%	14	14
2029	24	84%	18	17	23	84%	15	15	23	84%	13	13
2030	24	84%	16	16	23	85%	13	13	22	85%	12	12
2031	23	85%	15	15	22	86%	12	12	21	86%	11	11
2032	23	85%	14	14	21	86%	11	11	21	87%	10	10
2033	22	86%	13	13	21	87%	10	10	20	88%	9	9
2034	22	87%	12	12	20	88%	9	9	18	89%	8	8
2024 Active Members	303,531				303,531				303,531			
2029+ Active Members	260,652				288,654				303,531			
Active Pop. Change:	-14%				-5%				0%			

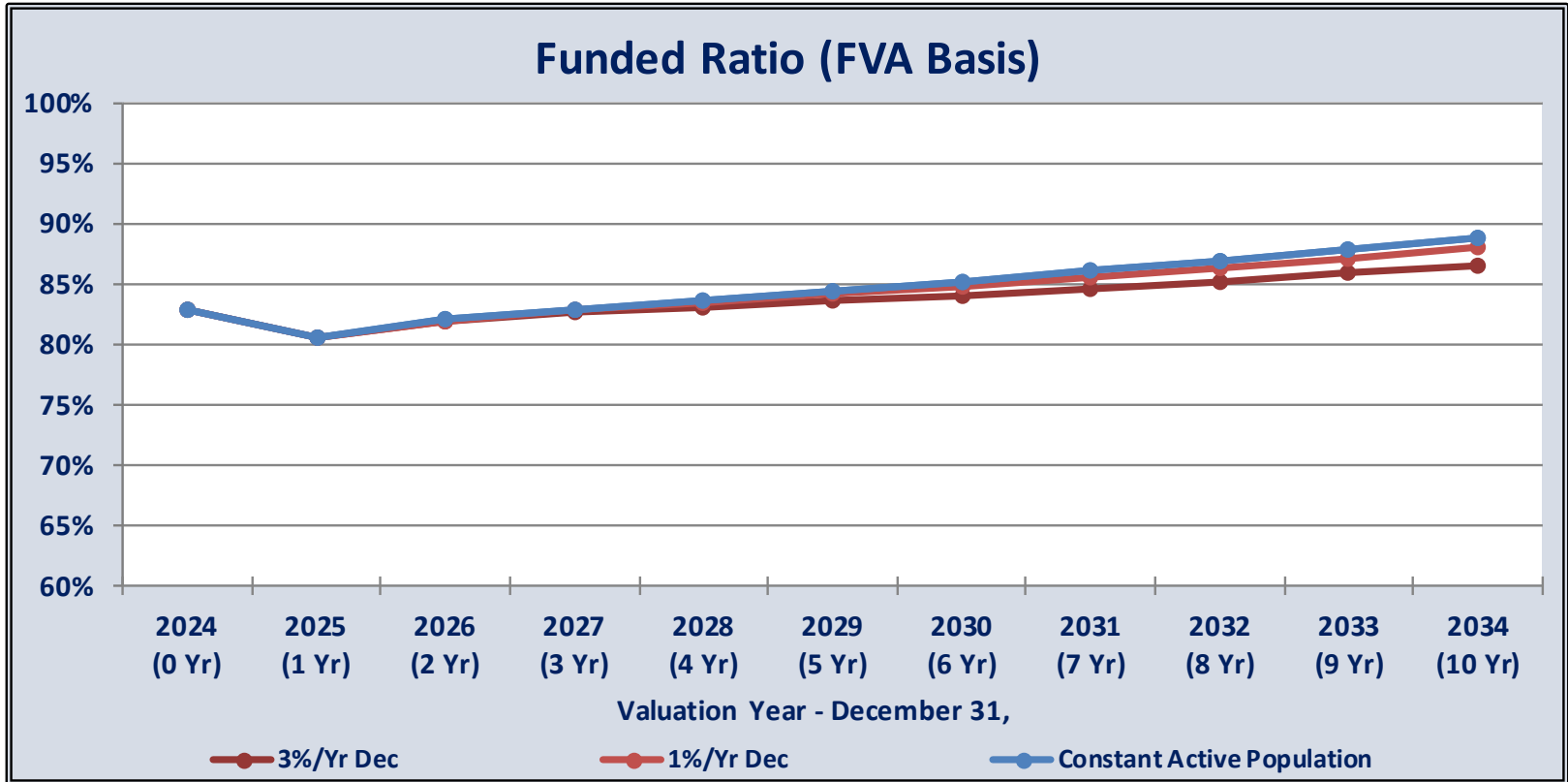
NOTE: UAAL and Funded Ratio are based upon the Funding Value of Assets. Results are based on a 0% retiree health contribution for Traditional Plan members in 2025 and thereafter.

A constant (or increasing) active population count helps to amortize unfunded liabilities faster than a decreasing active population count. Small changes in the active population count do not affect results materially. Generally speaking, System sensitivity to future changes in active population is significantly lower than the sensitivity to future investment returns.



Alternative Population Growth Scenarios

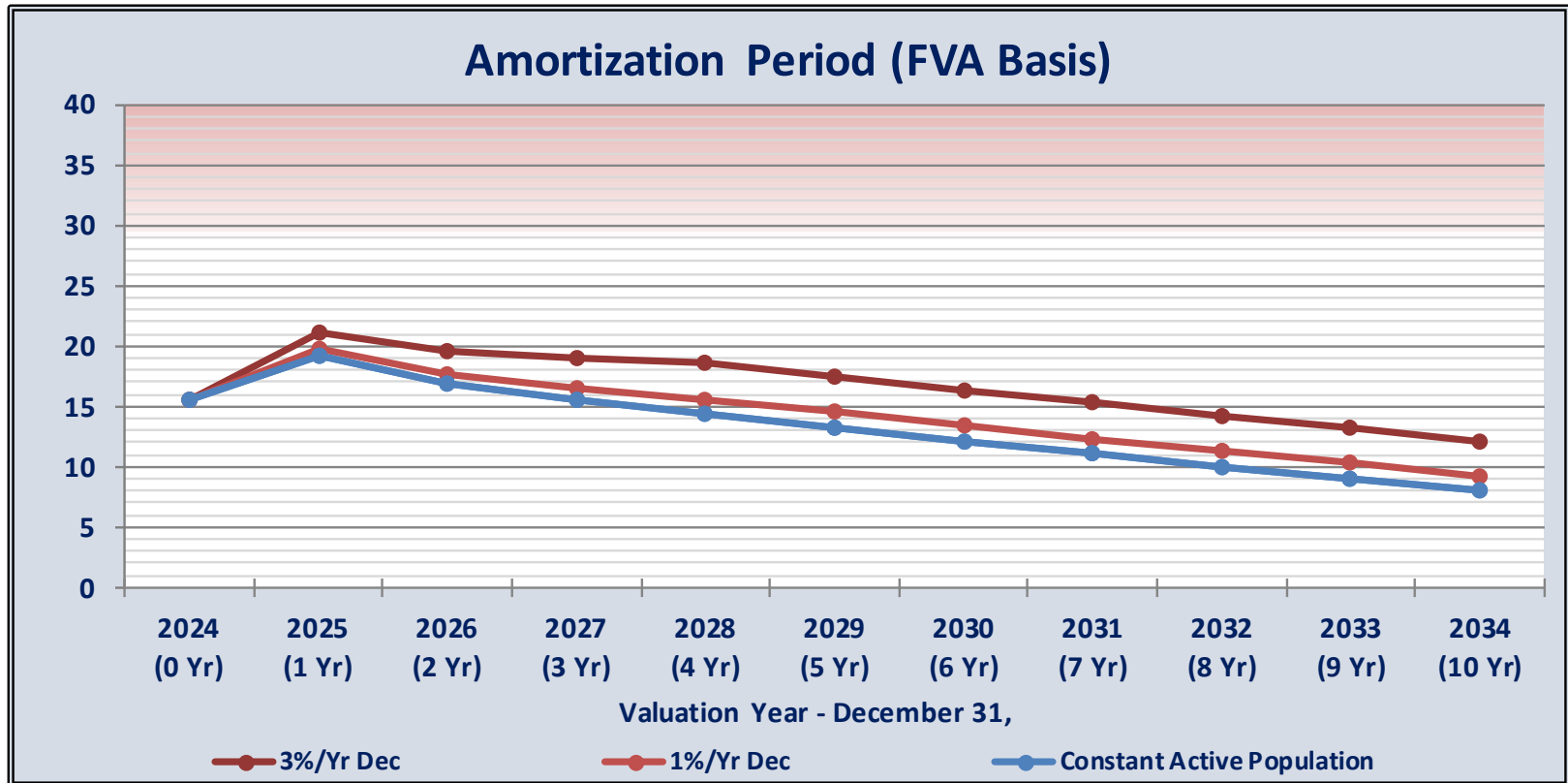
Funded Ratio Projection



NOTE: Results are based on a 0% retiree health contribution for Traditional Plan members in 2025 and thereafter.

Alternative Population Growth Scenarios

Amortization Period Projection



NOTE: Results are based on a 0% retiree health contribution for Traditional Plan members in 2025 and thereafter.

Summary

- As of January 1, 2025, unrecognized investment losses will exert downward pressure on the System's funded status
- Based upon the modeled investment return scenarios, the System exceeding an Amortization Period of 30 years or greater in the future remains a significant risk

Disclosures

- This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- The actuaries submitting this presentation (Mita D. Drazilov, James R. Sparks and Jeffrey T. Tebeau) are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.
- The purposes of the actuarial valuation are to measure the financial position of OPERS, assist the Board in establishing employer contribution rates necessary to fund the retiree health and Medicare benefits provided by OPERS, and provide actuarial reporting and disclosure information for the System's financial report.

Disclosures

- The actuarial valuation and projections of pension benefits were based upon information furnished by the Executive Director and staff, concerning Retirement System benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided.
- This is one of multiple documents comprising the actuarial report. Additional information regarding actuarial assumptions and methods, and important additional disclosures are provided in the Actuarial Valuation of Defined Benefit Allowances Report as of December 31, 2024 and the report titled “50-Year Actuarial Projections of Base Retirement Benefits Beginning January 1, 2025.”
- If you need additional information to make an informed decision related to the contents of this presentation, or if anything appears to be missing or incomplete, please contact us before using this presentation.

Disclosures

- Future actuarial measurements may differ significantly from the current and projected measurements presented in this presentation due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

Board Meeting VII.A

MEMORANDUM

TO: OPERS Board of Retirement
FROM: Meketa Investment Group (Meketa)
DATE: May 12, 2025
RE: **VII. Discussion Items**
A. Market and Performance Update: 1Q2025 DB, HC and DC Plans

Market Commentary:

In the first quarter of 2025, investment flows rotated out of US stocks to non-US stocks while bond markets rallied on uncertainty related to tariffs and growth.

Looking ahead, continued uncertainty related to the US administration's tariff policies and their impact on the economy, inflation, and Fed policy will be key. The path of China's economy and relations with the US, as well as concerns over elevated valuations and technology driven concentration in the US equity market will also be important focuses of 2025.

Equities:

After a strong start to the year, US equities ended the quarter lower. In late January China's DeepSeek introduced an AI model comparable to market leaders but at a much lower cost. This took investors by surprise and heavily weighed on technology stocks, particularly the "Magnificent 7". Renewed trade tensions between the US and its trading partners also caused investors to lower expectations.

Growth stocks were harder hit than value stocks across the market cap spectrum. In the large cap space, this dynamic was driven by technology stocks (NVIDIA, Broadcom, Microsoft, Apple), along with Tesla. In the small cap space, where the divergence was less pronounced, technology stocks were again the driver, mainly due to software and semiconductor stocks.

Small cap stocks (Russell 2000) trailed large cap stocks (Russell 1000) over the quarter as recession fears grew.

By contrast to the US, developed market equities rose in the first quarter benefiting from the rotation away from US technology companies. Eurozone stocks saw the highest returns, driven by plans in Germany to increase defense and infrastructure spending, strong gains in the financial sector (particularly banks), and continued rate cuts from the ECB. The UK followed closely behind, with gains led by returns in large cap energy and financials. Japan saw moderate losses, due to global trade uncertainties hurting exporters.

Emerging markets saw modest gains in the first quarter, driven largely by China. China's gains were a combination of improving sentiment towards tech following DeepSeek's promising AI debut and the announcement of additional stimulus measures. Brazil was another strong performer in Q1, benefitting from strong commodity gains and a strengthening currency. India saw declines due to slowing growth and weakening demand for their exports.

Fixed Income:

Uncertainty related to tariffs and growing worries about economic growth drove investors to high quality bonds over the quarter.

The broad US bond market (Bloomberg Aggregate) rose 2.8% with both short- (+3.0%) and longer-dated (+4.2%) TIPS outperforming as inflation risks rose modestly. Long-term Treasuries (+4.7%) particularly benefited in this environment of uncertainty and falling interest rates.

High yield bonds (+1.0%) rose the least during the quarter as uncertainty and risk aversion grew ahead of the planned tariff announcement from the US in early April.

OPERS Funds Review:

Defined Benefit Plan (DB)

The OPERS total DB portfolio had an aggregate value of \$104 billion as of March 31, 2025. This includes positive performance over the most recent quarter of 1.4%. In addition, the DB plan returned 6.5% and 4.0% over the most recent 1-year and 3-year periods. The portfolio has outperformed its policy benchmark over all longer time periods. Over the past 5 years the DB plan returned 9.6% net of fees and outperformed the policy benchmark by 0.3% over this period.

For the most part asset class performance has been positive with particularly strong returns from the public equity markets. Private market performance for the DB portfolio continues to be mixed with Private Equity returning 9.1% for the latest 1-year period.

Health Care Trust (HC 115):

The health care trust returned 1.7% net of fees for the quarter ending March 31, 2025, outperforming the policy benchmark by 20 basis points with plan assets at roughly \$13.5 billion. For the latest 1-year period the HC portfolio was up 7.2% net of fees and outperformed its policy benchmark by 30 basis points. Over longer periods the HC trust has outperformed its policy benchmark and provided positive annualized returns.

Allocations to public equities and high yield fixed income benefited the portfolio over the quarter, 1,3-,5-, and 10-year periods.

Defined Contribution Plan:

As of March 31, 2025, the defined contribution portfolio had assets of roughly \$2.9 billion. This total market value was slightly below the value as of December 31, 2024. Performance for the DC funds was mixed during the quarter with most turning negative.

Ohio Public Employees Retirement System

Q1 2025

DB, HC and DC Plan Performance

- 1. Economic and Market Update as of March 31, 2025**
- 2. Defined Benefit Plan Performance**
- 3. Health Care Trust 115 Performance**
- 4. Defined Contribution Performance**
- 5. Disclaimer**

Economic and Market Update

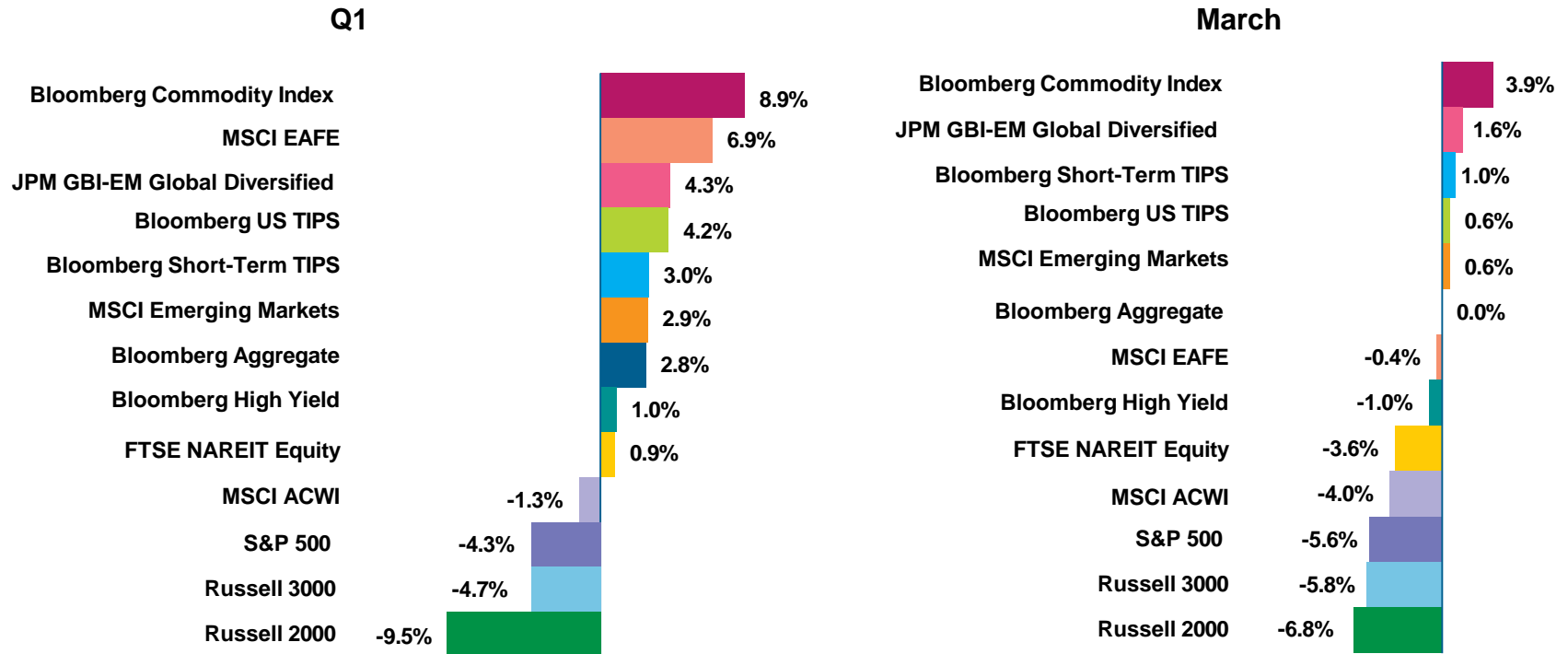
Data as of March 31, 2025

Commentary

In the first quarter of 2025, investment flows rotated out of US stocks to non-US stocks while bond markets rallied on uncertainty related to tariffs and growth.

- Domestic equities sold off in the first quarter (Russell 3000: -4.7%) with growth underperforming value, small-cap trailing large-cap, and defensive sectors outperforming.
- Non-US developed market stocks (MSCI EAFE: +6.9%) outperformed US markets at the start of the year, supported by rate cuts from the ECB, EU planned increases in defense spending, and a weakening US dollar.
- Emerging market equities returned +2.9% in the first quarter, largely supported by a rally in Chinese stocks (they rose an impressive +15.0%) on DeepSeek AI enthusiasm.
- In February, the Federal Reserve held rates steady with inflation, while improving, remaining above target and with the unemployment rate at near historic lows.
- Most fixed income markets posted positive returns in the first quarter with the broad bond market (Bloomberg Aggregate) up 2.8%. Long Treasuries (+4.7%) were the best performer in the falling rate environment while high yield bonds (+1.0%) produced the smallest gains given the economic uncertainty in the US.
- Looking ahead, continued uncertainty related to the US administration's tariff policies and their impact on the economy, inflation, and Fed policy will be key. The path of China's economy and relations with the US, as well as concerns over elevated valuations and technology-driven concentration in the US equity market will also be important focuses of 2025.

Index Returns¹



- At the end of the first quarter, global investors rotated away from the US, with domestic equities in negative territory (particularly small cap), while other asset classes were positive.
- Commodities led the way during the quarter due to safe havens like gold, while non-US developed markets followed, driven by strong results in Europe.
- In March, ahead of tariff announcements in the US, riskier assets generally sold off.

¹ Source: Bloomberg. Data is as of March 31, 2025.

Domestic Equity Returns¹

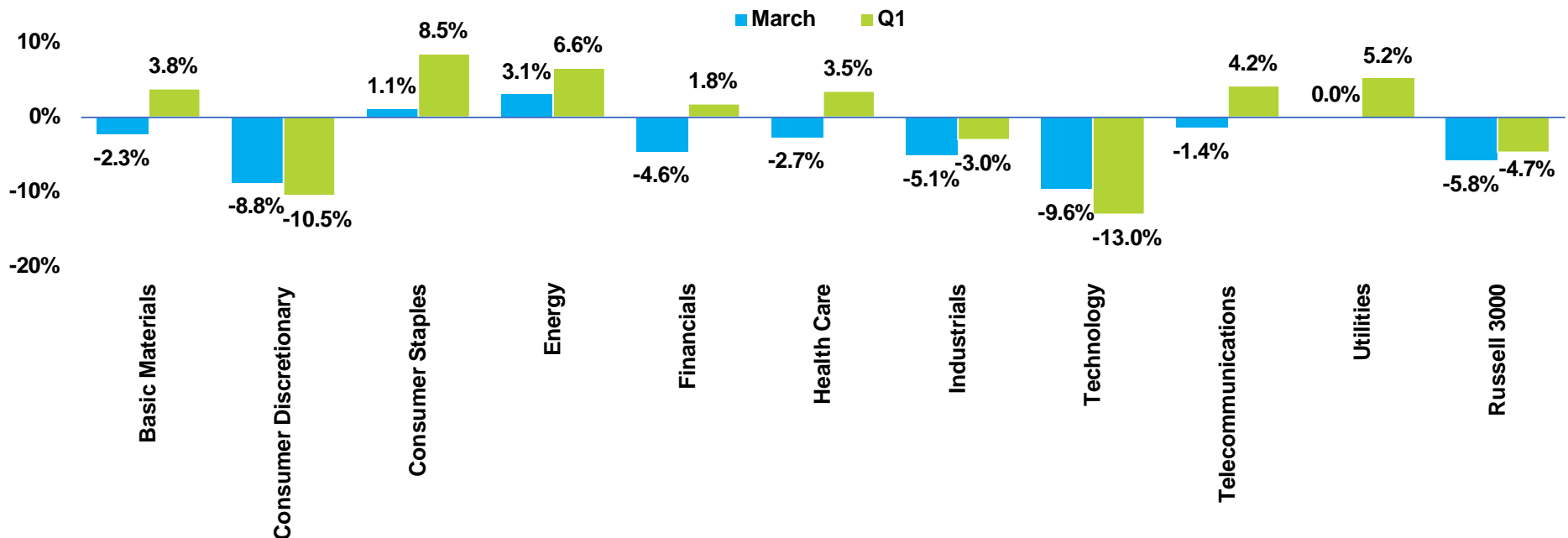
Domestic Equity	March (%)	Q1 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	-5.6	-4.3	8.3	9.1	18.6	12.5
Russell 3000	-5.8	-4.7	7.2	8.2	18.2	11.8
Russell 1000	-5.8	-4.5	7.8	8.6	18.4	12.2
Russell 1000 Growth	-8.4	-10.0	7.8	10.1	20.1	15.1
Russell 1000 Value	-2.8	2.1	7.2	6.6	16.1	8.8
Russell MidCap	-4.6	-3.4	2.6	4.6	16.3	8.8
Russell MidCap Growth	-7.4	-7.1	3.6	6.2	14.8	10.1
Russell MidCap Value	-3.7	-2.1	2.3	3.8	16.7	7.6
Russell 2000	-6.8	-9.5	-4.0	0.5	13.3	6.3
Russell 2000 Growth	-7.6	-11.1	-4.9	0.8	10.8	6.1
Russell 2000 Value	-6.0	-7.7	-3.1	0.0	15.3	6.1

US Equities: In the first quarter the Russell 3000 fell -4.7%.

- After a strong start to the year, US equities ended the quarter lower. In late January China's DeepSeek introduced an AI model comparable to market leaders but at a much lower cost. This took investors by surprise and heavily weighed on technology stocks, particularly the "Magnificent 7". Renewed trade tensions between the US and its trading partners also caused investors to lower expectations.
- Growth stocks were harder hit than value stocks across the market cap spectrum. In the large cap space, this dynamic was driven by technology stocks (NVIDIA, Broadcom, Microsoft, Apple), along with Tesla. In the small cap space, where the divergence was less pronounced, technology stocks were again the driver, mainly due to software and semiconductor stocks.
- Small cap stocks (Russell 2000) trailed large cap stocks (Russell 1000) over the quarter as recession fears grew.

¹ Source: Bloomberg. Data is as of March 31, 2025.

Russell 3000 Sector Returns¹



- There was wide performance dispersion among sectors in the first quarter, from -13.0% (technology) to +8.5% (consumer staples). Overall, the defensive sectors performed better than growth-oriented sectors.
- The so-called “Magnificent 7” stocks came under pressure weighing on both the technology and consumer discretionary sectors. The announcement of DeepSeek out of China and weak results from Tesla and Amazon drove results.
- Consumer staples was a bright spot as more defensive, dividend-paying stocks, such as Coca-Cola and Philip Morris International, fared relatively well. Energy and utilities also performed well due to broader growth and inflation concerns.

¹ Source: Bloomberg. Data is as of March 31, 2025.

Foreign Equity Returns¹

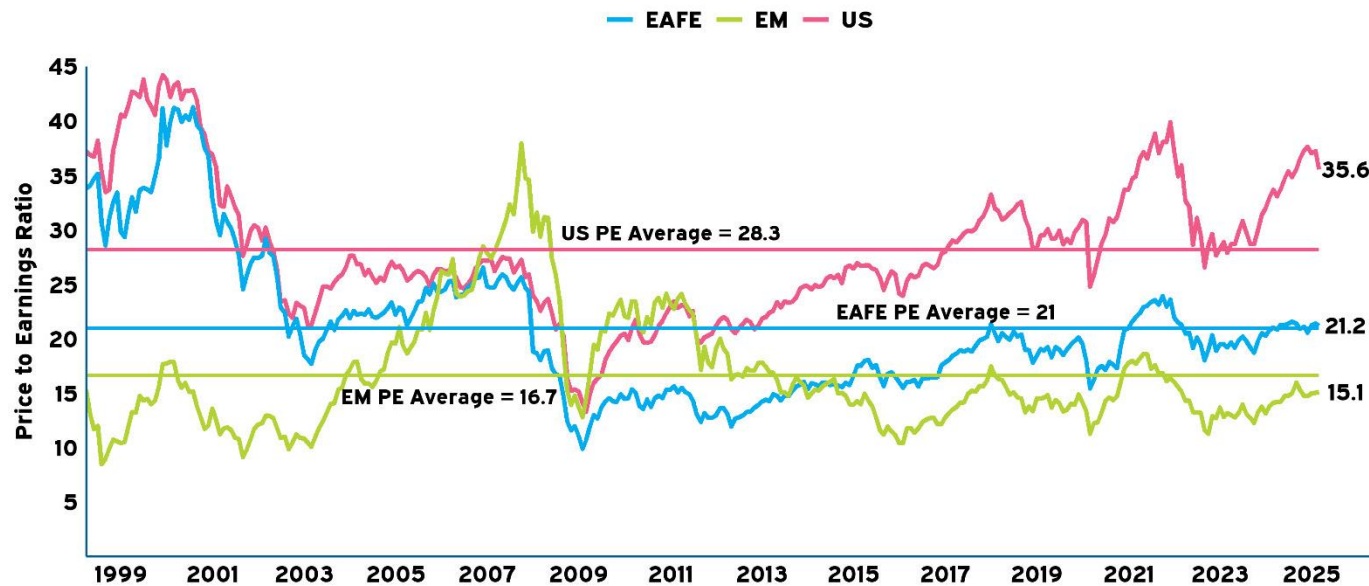
Foreign Equity	March (%)	Q1 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI Ex US	-0.2	5.2	6.1	4.5	10.9	5.0
MSCI EAFE	-0.4	6.9	4.9	6.0	11.8	5.4
MSCI EAFE (Local Currency)	-2.8	2.9	4.1	8.7	13.2	6.3
MSCI EAFE Small Cap	0.5	3.7	3.1	0.9	9.9	5.3
MSCI Emerging Markets	0.6	2.9	8.1	1.4	7.9	3.7
MSCI Emerging Markets (Local Currency)	0.3	2.7	11.1	4.7	9.6	5.7
MSCI EM ex China	0.0	-1.7	-2.1	0.7	12.0	4.5
MSCI China	2.0	15.0	40.4	3.5	1.5	2.5

Foreign Equity: Developed international equities (MSCI EAFE) returned 6.9% in the first quarter and emerging market equities (MSCI Emerging Markets) rose 2.9%.

- By contrast to the US, developed market equities rose in the first quarter benefiting from the rotation away from US technology companies. Eurozone stocks saw the highest returns, driven by plans in Germany to increase defense and infrastructure spending, strong gains in the financial sector (particularly banks), and continued rate cuts from the ECB. The UK followed closely behind, with gains led by returns in large cap energy and financials. Japan saw moderate losses, due to global trade uncertainties hurting exporters.
- Emerging markets saw modest gains in the first quarter, driven largely by China. China’s gains were a combination of improving sentiment towards tech following DeepSeek’s promising AI debut and the announcement of additional stimulus measures. Brazil was another strong performer in Q1, benefitting from strong commodity gains and a strengthening currency. India saw declines due to slowing growth and weakening demand for their exports.

¹ Source: Bloomberg. Data is as of March 31, 2025.

Equity Cyclically Adjusted P/E Ratios¹



- Valuations in US stocks came down over the quarter but remained at a significant premium to non-US developed and emerging market stocks.
- US equities, priced at 35.6 times earnings, continued to trade well above their long-run P/E average of 28.3.
- Non-US developed market valuations (21.2 times) increased over the quarter due in part to strong results in Europe and are trading slightly above their long-term average. Emerging market valuations (15.1 times) also increased in Q1 but remain below their long-run average.

¹ US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E Source: Bloomberg. Earnings figures represent the average of monthly "as reported" earnings over the previous ten years. Data is as of March 2025. The average line is the long-term average of the US, EM, and EAFE P/E values from April 1998 to the recent month-end, respectively.

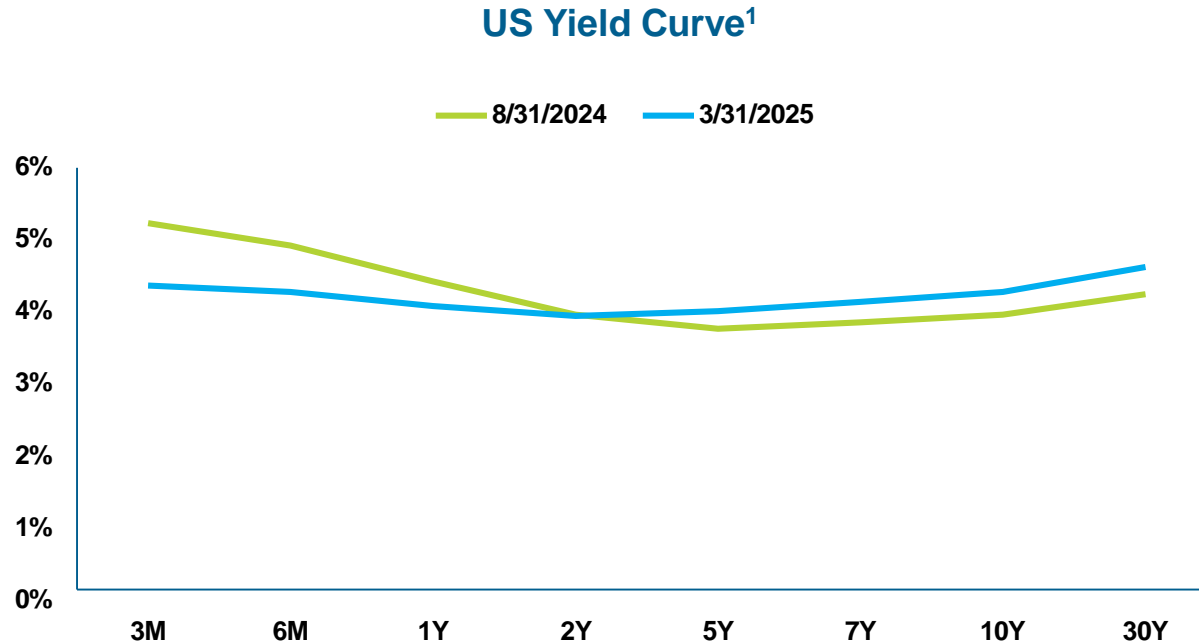
Fixed Income Returns¹

Fixed Income	March (%)	Q1 (%)	1 Yr (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	0.0	2.7	5.2	1.0	0.3	1.8	4.9	5.9
Bloomberg Aggregate	0.0	2.8	4.9	0.5	-0.4	1.5	4.6	6.1
Bloomberg US TIPS	0.6	4.2	6.2	0.1	2.4	2.5	4.2	6.8
Bloomberg Short-term TIPS	1.0	3.0	7.0	3.2	4.1	2.8	4.1	2.4
Bloomberg US Long Treasury	-0.9	4.7	1.3	-7.2	-7.9	-0.6	4.6	14.9
Bloomberg High Yield	-1.0	1.0	7.7	5.0	7.3	5.0	7.7	3.5
JPM GBI-EM Global Diversified (USD)	1.6	4.3	4.0	2.7	2.3	1.3	--	--

Fixed Income: The Bloomberg Universal index rose 2.7% in the first quarter.

- Uncertainty related to tariffs and growing worries about economic growth drove investors to high quality bonds over the quarter.
- The broad US bond market (Bloomberg Aggregate) rose 2.8% with both short- (+3.0%) and longer-dated (+4.2%) TIPS outperforming as inflation risks rose modestly. Long-term Treasuries (+4.7%) particularly benefited in this environment of uncertainty and falling interest rates.
- High yield bonds (+1.0%) rose the least during the quarter as uncertainty and risk aversion grew ahead of the planned tariff announcement from the US in early April.

¹ Source: Bloomberg. Data is as of March 31, 2025. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration, respectively. JPM GBI-EM data is from J.P. Morgan. Current yield and duration data is not available.

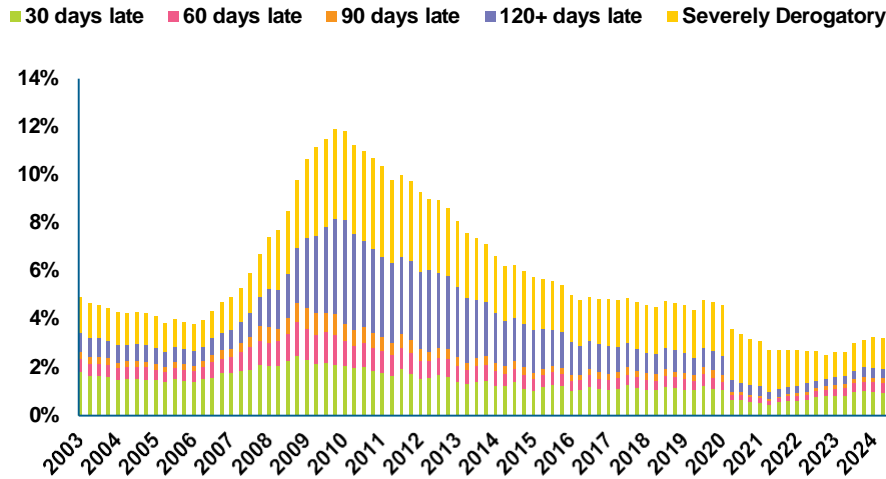


- US Treasury yields declined significantly over the quarter, as investors expressed concerns about the potential policies of the new US administration, economic data related to consumers weakened, and overall growth expectations fell.
- The more policy sensitive 2-year Treasury yield fell from 4.24% to 3.89%, while the 10-year Treasury yield declined from 4.57% to 4.21%.
- After the Fed started reducing interest rates in September 2024, the yield curve stopped being inverted (short-term interest rates higher than long-term interest rates) given expectations for inflation to continue to decline and policy rates to continue lower.

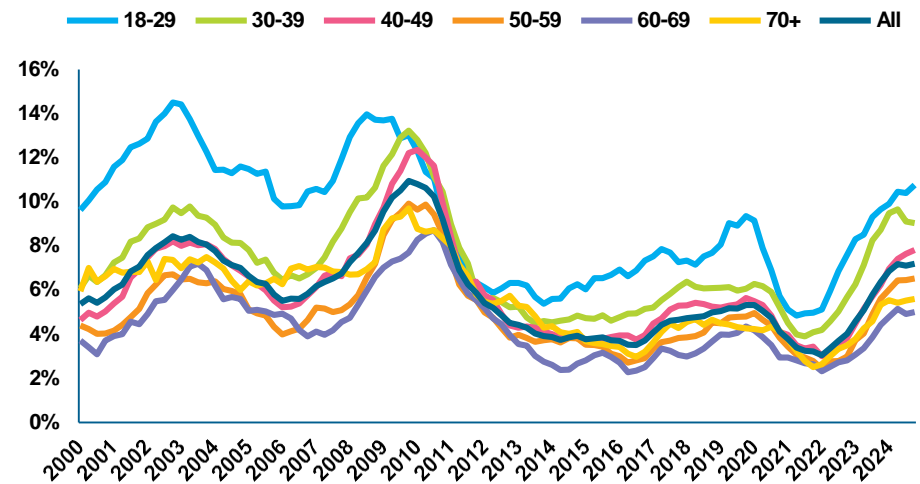
¹ Source: Bloomberg. Data is as of March 31, 2025. The August 2024 Treasury yields are shown as a reference before the first interest rate cut.

Stress is Building on US Consumers

Total Balance by Delinquency Status¹



Transition into Serious Delinquency for Credit Cards by Age²

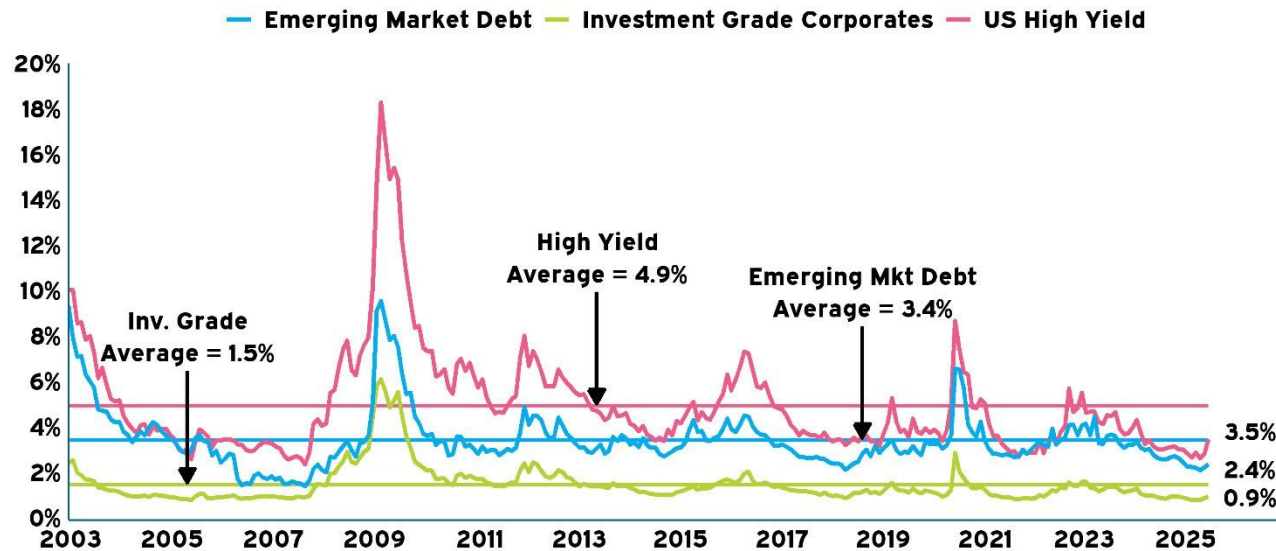


- Some signs of stress on the US consumer have started to emerge given persistently higher prices and interest rates.
- After falling to historic lows during the pandemic, loan delinquencies recently started rising.
- While some segments of the credit market have started to show signs of stress, total delinquencies remain well below pre-pandemic levels.
- While total delinquency rates are below pre-pandemic levels, the credit card segment is showing more signs of distress where borrowers are subject to variable and higher borrowing costs.
- Credit card delinquencies are rising rapidly, especially for borrowers under the age of forty.

¹ Source: New York Federal Reserve, Quarterly Household Debt and Credit Report, February 2025. See also FRED. Data is as of February 28, 2025.

² Source: FRED. Data is as of February 28, 2025.

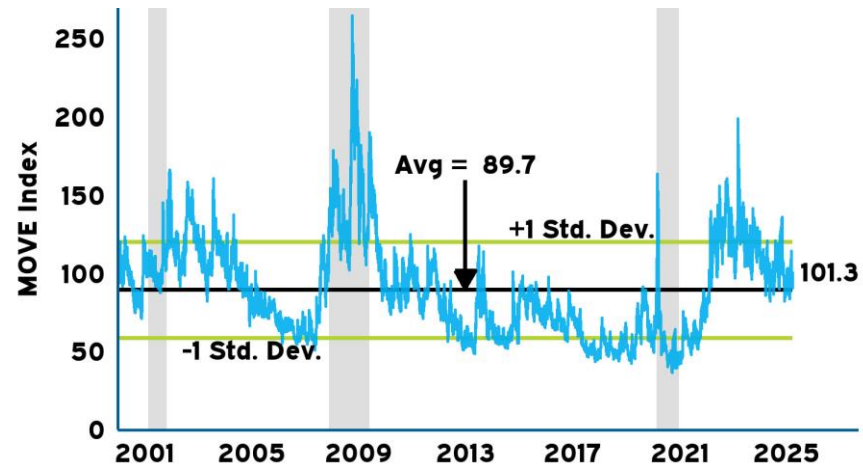
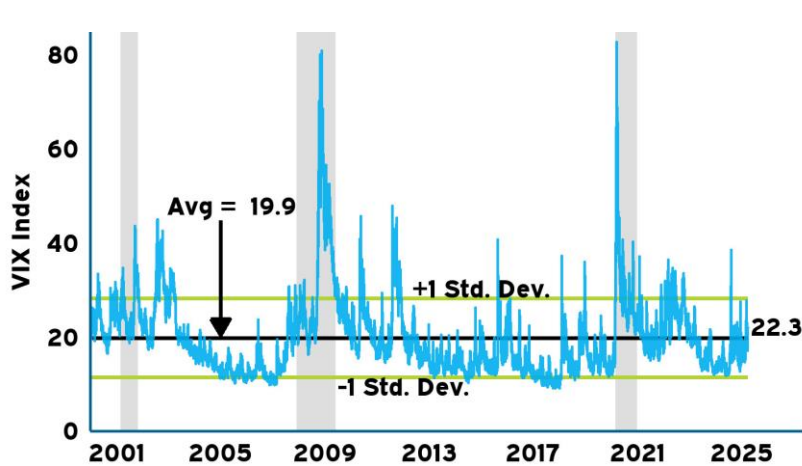
Credit Spreads vs. US Treasury Bonds¹



- Given all the uncertainty, spreads (the yield above a comparable maturity Treasury) widened in the first quarter.
- High yield spreads moved the most (2.9% to 3.5%) due to the concerns related to the US economy.
- All yield spreads remained below their respective long-run averages, particularly high yield (3.5% versus 4.9%).
- Although spreads are tight, absolute bond yields remain at above-average levels compared to the last two decades.

¹ Source: Bloomberg. Data is as March 31, 2025. Average lines denote the average of the investment grade, high yield, and emerging market spread values from September 2002 to the recent month-end, respectively.

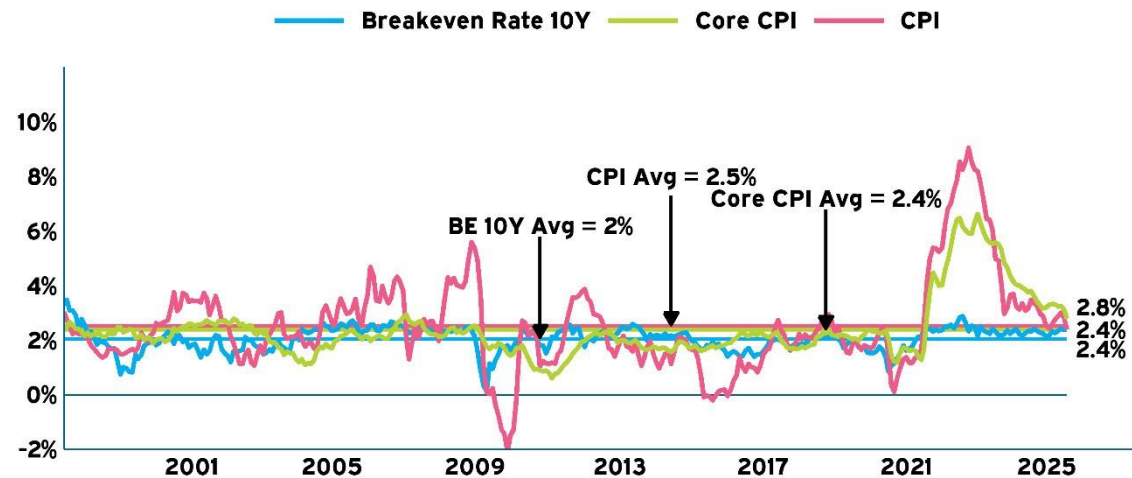
Equity and Fixed Income Volatility¹



- Bond and equity volatility rose in the first quarter driven mainly by policy and trade uncertainty.
- Volatility levels (VIX) in the US stock market and bond market (MOVE) finished the quarter above their respective long-run averages.

¹ Equity Volatility – Source: FRED. Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of March 31, 2025. The average line indicated is the average of the VIX and MOVE values between January 2000 and March 2025.

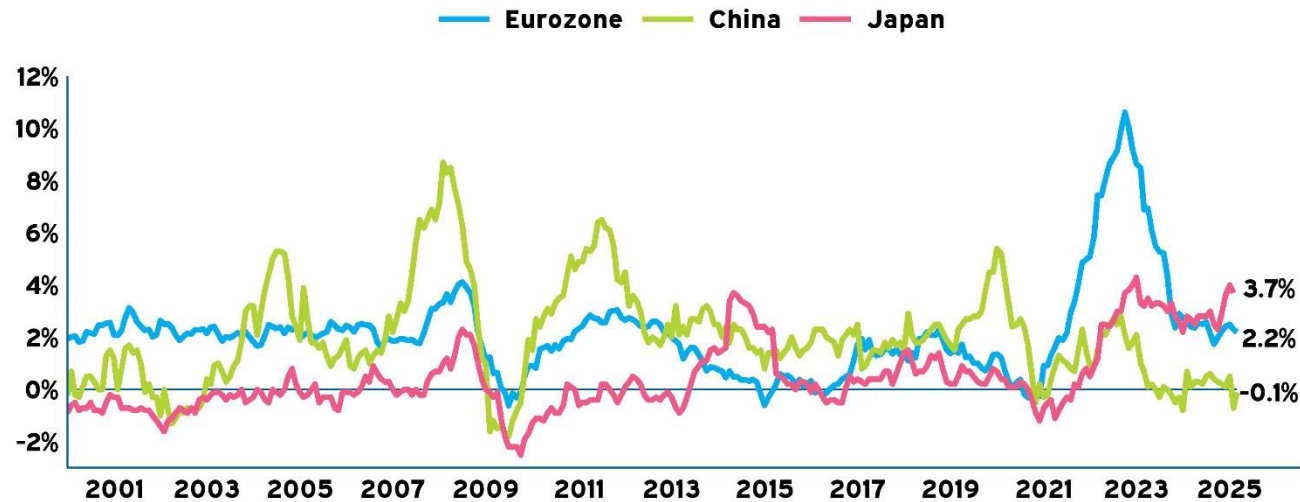
US Ten-Year Breakeven Inflation and CPI¹



- While inflation has been slow to return to the Fed’s 2% average target, over the quarter the year-over-year rate fell from 2.9% to 2.4%. The month-over-month rate moved into negative territory at quarter-end (-0.1%). A slowing in the rate of increase in the services sector along with a drop in energy prices contributed to the recent decline.
- Core inflation year-over-year also declined over the quarter (3.2% to 2.8%) with the month-over-month rate slowing to 0.1%. A decline in the pace of shelter price increases drove results.
- Inflation expectations (breakevens) stayed relatively stable over the quarter as investors continued to evaluate the potential inflationary impacts of the new US administration’s policies.

¹ Source: FRED. Data is as of March 2025. The CPI and 10 Year Breakeven average lines denote the average values from February 1997 to the present month-end, respectively. Breakeven values represent month-end values for comparative purposes.

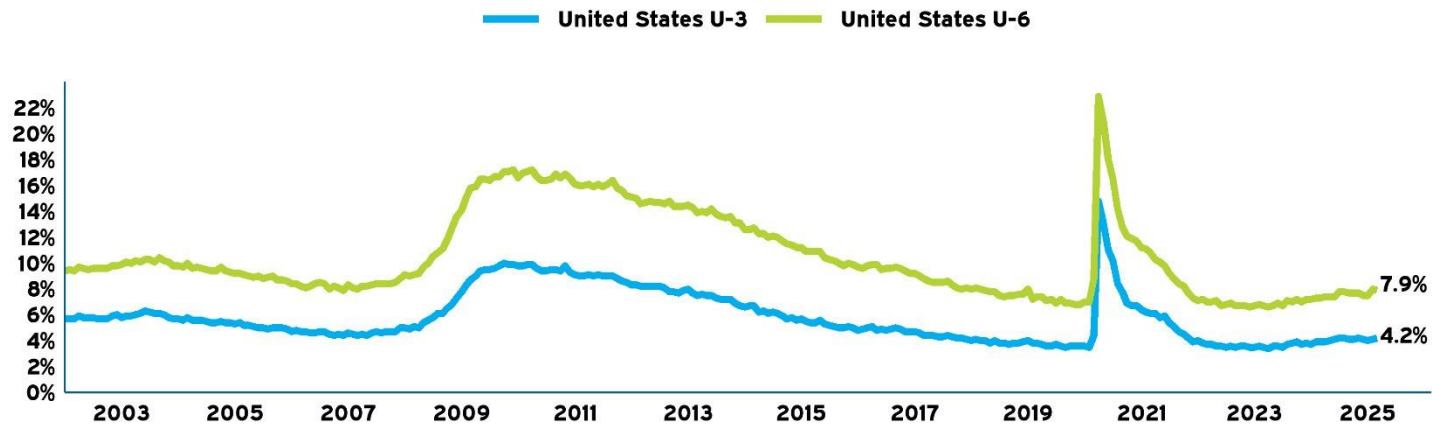
Global Inflation (CPI Trailing Twelve Months)¹



- Inflation in the eurozone fell over the quarter (2.4% to 2.2%), due largely to declines in energy costs and services. Levels remain slightly below the US.
- The latest reading of inflation in Japan dropped from 4.0% to 3.7% as energy subsidies were reintroduced.
- In China, despite record policy stimulus consumer prices moved back into negative territory over the quarter. In March, prices fell by 0.1% compared to a year prior, a lower decline than the February reading of -0.7%. Despite years of policy stimulus to counter the real estate crisis and economy, the Chinese consumer has remained weak.

¹ Source: Bloomberg. Data is as March 2025, except Japan which is as of February 2025.

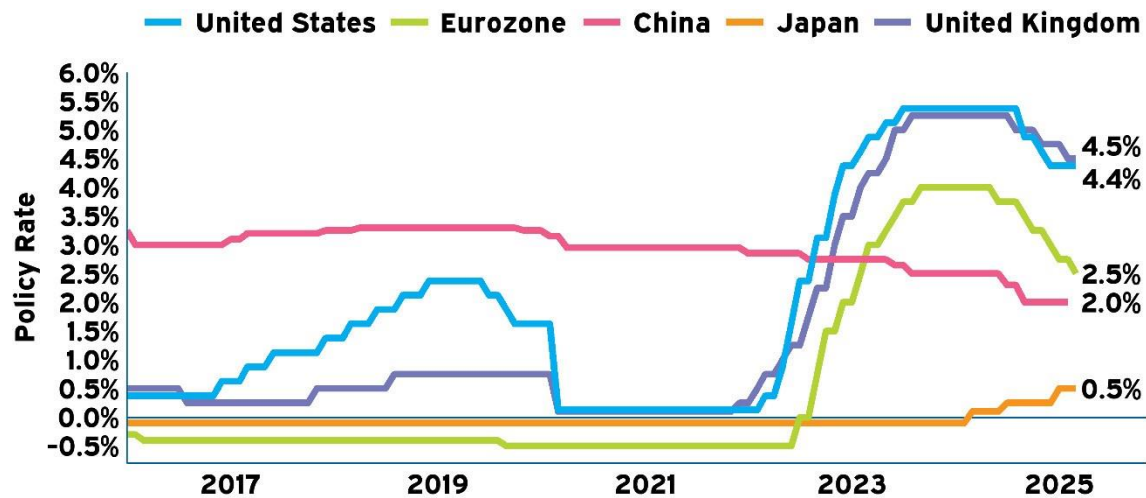
US Unemployment¹



- In March, the US added 228,000 jobs (above expectations of 140,000). The unemployment rate rose slightly to 4.2% but remained in the tight range of 4.0% to 4.2% it has been in since May of last year. There were 7.1 million jobseekers (little changed from the prior reading) of which 1.5 million have been without work for more than 27 weeks.
- A broader measure of total unemployed (U-6) that includes those marginally attached to the labor force and employed part-time for economic reasons, fell slightly to 7.9%.
- Health care (+54k), social assistance (+24k), retail (+24k), and transportation (+23k) added jobs in March while the Federal government lost 4,000 jobs adding to the 11,000 lost in February.
- The last reading of job opening fell slightly to 7.6 million, a level well below the pandemic highs (>12 million); the number of openings exceeded the number of unemployed workers looking for work (7.1 million).
- Separations (5.3 million) and hires (5.4 million) remained steady and average hourly wages continued to grow at approximately 4.0% annually.

¹ Source: FRED and BLS. Data is as of March 31, 2025.

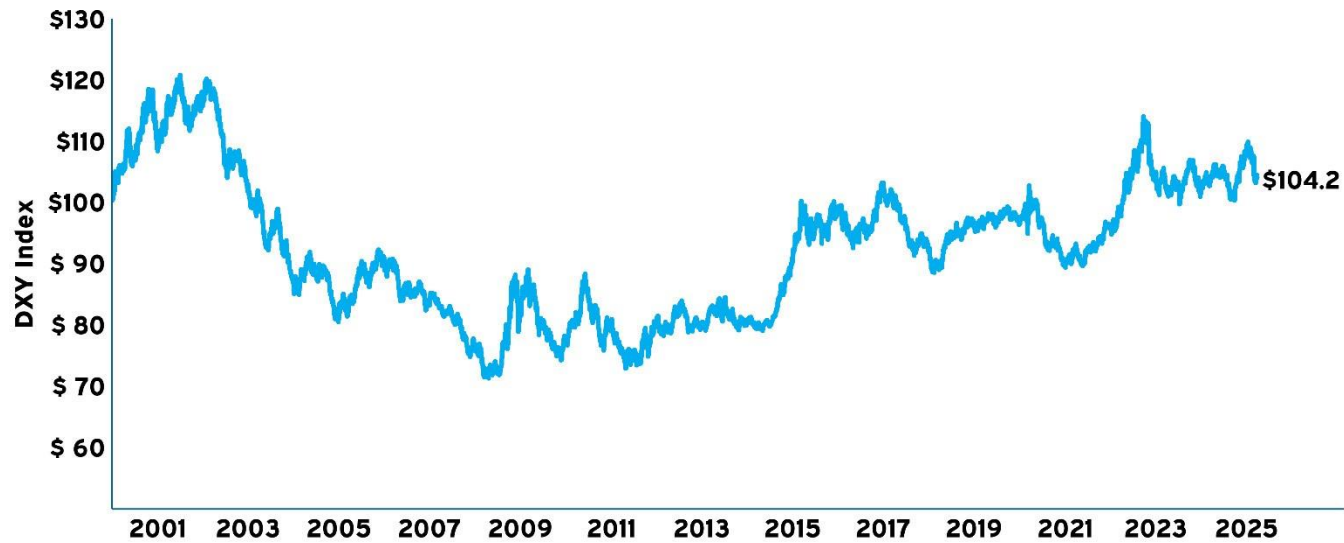
Policy Rates¹



- The Fed kept US interest rates steady at their March meeting after reducing rates by 0.25% twice over the final quarter of 2024 to a range of 4.25% to 4.50%. Given growing concerns about growth, markets recently increased expectations for the number of rate cuts in 2025 to over three.
- In February, the Bank of England cut interest rates for the third time by 0.25% to 4.5%, while in March the European Central Bank cut rates by another 0.25% to 2.5%. In addition to cutting interest rates, the People's Bank of China has also reduced reserve requirements, lowered mortgage rates, and supported the stock market.
- In contrast to many other central banks, the Bank of Japan increased interest rates in January to 0.5%, in the face of persistent inflation. Rate cutting by other major central banks are complicating prospects for further policy rate hikes in Japan.

¹ Source: Bloomberg. Data is as of March 31, 2025. United States rate is the mid-point of the Federal Funds Target Rate range. Eurozone rate is the ECB Deposit Facility Announcement Rate. Japan rate is the Bank of Japan Unsecured Overnight Call Rate Expected. China rate is the China Central Bank 1-Year Medium Term Interest Rate. UK rate is the UK Bank of England Official Bank Rate.

US Dollar vs. Broad Currencies¹



- After largely strengthening through 2024, the US dollar recently started to weaken.
- Concerns over changing US administration policies, slower growth, and corresponding lower yields have recently weighed on the value of the dollar.

¹Source: Bloomberg. Data as of March 31, 2025.

Summary

Key Trends:

- According to the International Monetary Fund's (IMF) January report, global growth in 2025 is expected to be slightly higher than 2024 (3.3% versus 3.2%). Growth forecast in the US (+2.7%) and China (+4.6%) are lower for this year compared to last, while growth in the EU (+1.0%) is projected to be slightly higher in 2025.
- Elevated levels of uncertainty along with higher tariffs could weigh on growth while at the same time fan inflation. Inflation levels will likely lead to a slower pace of interest rate cuts by the Fed. Uncertainty in the US and the potential for slower growth could continue the rotation out of US assets and the pressure on the dollar.
- Signs of stress have started to emerge on the US consumer with sentiment weakening. Consumers are particularly concerned about losing their jobs and the potential for higher prices. Overall risk to economic growth and to inflation from tariffs, as well as elevated borrowing costs, could put further pressure on consumers and lead to a weaker job market.
- US equities have recently come under pressure. A focus going forward will be whether earnings can remain resilient if growth slows. Also, the future paths of the large technology companies that have driven market gains will continue to be important.
- Trade tensions between the US and China will remain a key focus. As tariffs have soared on both sides, China has allowed its currency to weaken against the dollar. Outside of tariffs, China continues to focus on supporting its economy/asset prices with a suite of fiscal and financial policy stimulus measures. Advances in AI technologies have also contributed to some optimism. Despite the policy support, consumer spending is still weak and issues remain in the real estate sector.

Defined Benefit Plan Performance

Allocation vs. Targets				
	Balance	Current Allocation (%)	Policy (%)	Policy Range (\$)
Aggressive Growth	27,746,621,720	27	27	17 - 37
Private Equity	15,728,714,741	15	15	10 - 20
Private Real Estate	12,017,906,979	11	12	7 - 17
Traditional Growth	42,871,082,523	41	40	30 - 50
US Equity	21,045,014,454	20	20	15 - 25
Equity ex-US	20,986,151,186	20	20	15 - 25
REITS	839,916,883	1	1	0 - 5
Stabilized Growth	12,412,423,229	12	10	0 - 20
Private Credit	244,260,479	0	4	0 - 8
Public Credit (SD/EMD/HY/IGC)	10,105,396,643	10	6	1 - 11
Risk Parity	2,061,253,976	2	1	0 - 5
Legacy Hedge Funds	1,512,130	0	0	0 - 5
Principal Protection	13,166,565,850	13	10	0 - 20
Core Fixed Income	10,269,858,579	10	5	3 - 8
Treasuries	2,896,707,271	3	2	0 - 10
Inflation	7,710,516,133	7	4	0 - 14
Inflation Assets (TIPS/Commodities)	7,710,516,133	7	4	1 - 11
Risk Mitigating Strategies		0	10	0 - 20
Cash	738,826,314	1	0	0 - 5
Cash	738,826,314	1	0	0 - 0
Total	104,646,035,770	100	100	

Cash is not included in Total Policy allocation.
Numbers may not sum due to rounding.

Performance Summary | As of March 31, 2025

Trailing Period Performance									
	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund (DB)	104,646,035,770	100.0	1.5	6.5	4.0	9.6	7.0	7.0	Jan-96
<i>Policy Index DB</i>			1.2	5.9	3.2	9.3	6.8	--	
Over/Under			0.3	0.6	0.8	0.3	0.3	--	
Aggressive Growth	27,746,621,720	26.5	1.4	4.3	3.0	9.0	10.0	11.4	Jun-12
Private Equity	15,728,714,741	15.0	2.1	9.1	5.0	13.2	12.8	14.0	Jan-96
<i>Custom Private Equity Benchmark</i>			1.0	5.4	2.2	12.9	12.0	--	
Over/Under			1.1	3.7	2.8	0.2	0.7	--	
Private Real Estate	12,017,906,979	11.5	0.6	-1.3	0.5	4.1	6.8	8.8	Jun-12
<i>Custom Real Estate Benchmark</i>			1.2	-1.4	-2.3	2.8	5.8	7.3	
Over/Under			-0.6	0.1	2.8	1.3	1.0	1.5	
Traditional Growth	42,031,165,640	40.2	0.1	7.2	6.9	15.3	9.1	10.6	Jun-12
US Equity	21,045,014,454	20.1	-4.7	7.1	8.3	18.2	11.7	9.4	Jan-96
<i>Domestic Equity Blend BM</i>			-4.7	7.2	8.2	18.2	11.8	10.0	
Over/Under			0.0	-0.1	0.1	0.1	-0.1	-0.6	
Equity ex-US	20,986,151,186	20.1	5.2	6.8	5.2	12.0	6.1	5.7	Jan-96
<i>Custom Int'l Eq Benchmark</i>			4.4	5.8	3.8	10.9	5.0	--	
Over/Under			0.8	0.9	1.4	1.1	1.1	--	
Stabilized Growth	13,250,827,982	12.7	1.9	5.8	1.1	4.6	3.2	4.2	Jun-12
Risk Parity	2,061,253,976	2.0	2.5	3.3	-3.9	4.0	3.0	3.5	Mar-13
<i>Custom Risk Parity</i>			2.4	3.0	-4.5	3.4	3.0	3.9	
Over/Under			0.0	0.4	0.6	0.6	0.0	-0.4	
Private Credit	244,260,479	0.2	1.7	--	--	--	--	0.5	Jul-24
<i>Credit Suisse Leveraged Loans</i>			0.6	--	--	--	--	5.1	
Over/Under			1.1	--	--	--	--	-4.6	

Performance Summary | As of March 31, 2025

	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Public Credit	10,105,396,643	9.7	1.9	6.7	3.9	5.0	3.3	4.0	Jun-12
50% BBg US Agg 50% BBg US High Yield			1.9	6.3	2.8	3.4	3.3	3.7	
Over/Under			0.0	0.4	1.1	1.6	0.0	0.3	
Global High Yield	3,521	0.0	0.0	0.0	-18.9	-9.9	9.2	8.4	Apr-12
Blmbg. Global High Yield Index			1.8	8.9	5.5	7.1	4.7	5.1	
Over/Under			-1.8	-8.9	-24.4	-17.0	4.5	3.4	
REITS	839,916,883	0.8	1.1	9.6	-1.4	--	--	0.8	Mar-22
Dow Jones U.S. Select RESI			1.2	9.7	-1.5	--	--	0.7	
Over/Under			0.0	-0.1	0.1	--	--	0.1	
Principal Protection	10,269,858,579	9.8	2.9	5.2	0.5	0.0	1.7	2.1	Jun-12
Core Fixed Income	10,269,858,579	9.8	2.9	5.2	0.5	0.0	1.7	4.3	Jan-96
Blmbg. U.S. Aggregate Index			2.8	4.9	0.5	-0.4	1.5	4.2	
Over/Under			0.1	0.3	0.0	0.4	0.3	0.1	
Inflation Assets	7,710,516,133	7.4	6.6	16.0	9.3	9.2	5.8	4.4	Jan-13
Inflation	7,710,516,133	7.4	6.6	16.0	9.3	9.2	5.8	4.4	Jan-13
Blmbg. U.S. TIPS Index			4.2	6.2	0.1	2.4	2.5	1.7	
Over/Under			2.4	9.8	9.2	6.8	3.3	2.7	
Risk Mitgating Strategies	2,912,544,945	2.8	2.9	4.3	-0.1	0.2	0.8	--	Jun-12
Risk Mitgating	1,512,130	0.0	0.0	0.0	0.7	6.8	3.3	3.7	Jan-11
Custom Hedge Fund Benchmark			0.2	6.9	5.2	8.2	4.6	5.0	
Over/Under			-0.2	-6.9	-4.5	-1.4	-1.3	-1.3	
Treasuries	2,896,707,271	2.8	2.9	4.3	-0.2	-1.7	0.9	1.0	Mar-15
Blmbg. U.S. Treasury Index			2.9	4.5	0.0	-1.7	1.0	1.0	
Over/Under			0.0	-0.2	-0.2	0.0	0.0	0.0	

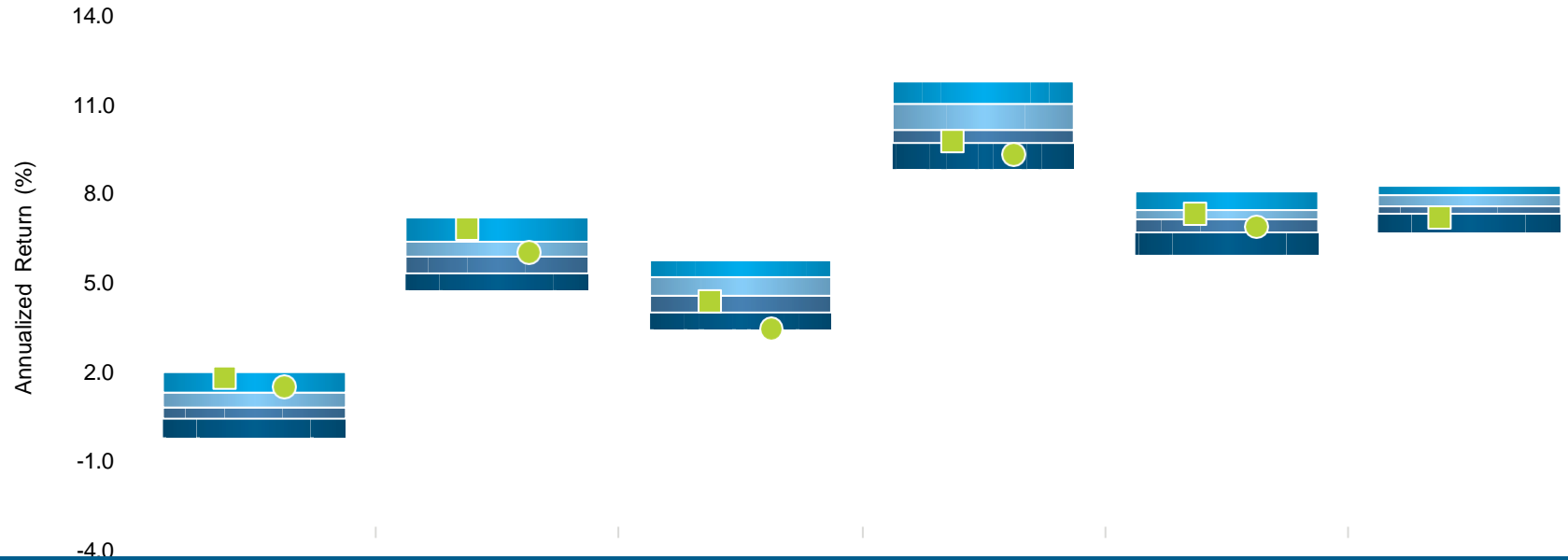
Performance Summary | As of March 31, 2025

	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Additional Annuity	14,325,201	0.0	0.7	2.9	2.6	2.2	2.1	2.6	Jan-05
<i>90 Day U.S. Treasury Bill</i>			1.0	5.0	4.2	2.6	1.9	1.7	
Over/Under			-0.3	-2.1	-1.7	-0.4	0.3	0.9	
Other Pension Assets	342	0.0							
Cash Equivalents	724,500,771	0.7	1.2	5.4	4.6	2.9	2.2	1.6	Jan-05
<i>90 Day U.S. Treasury Bill</i>			1.0	5.0	4.2	2.6	1.9	1.7	
Over/Under			0.2	0.4	0.4	0.4	0.3	-0.1	

Risk Adjusted Return vs Peers				
	1 Yr	3 Yrs	5 Yrs	10 Yrs
OPERS DB Total Plan - Net	6.46	4.05	9.59	7.04
Risk Adjusted Median	4.74	4.04	9.79	8.14
Excess Return	1.72	0.01	-0.20	-1.10

The risk-adjusted median normalizes the median fund to the ERS's exhibited volatility. Calculated as: Risk-adjusted median = unadjusted median return *(ERS volatility/peer volatility)

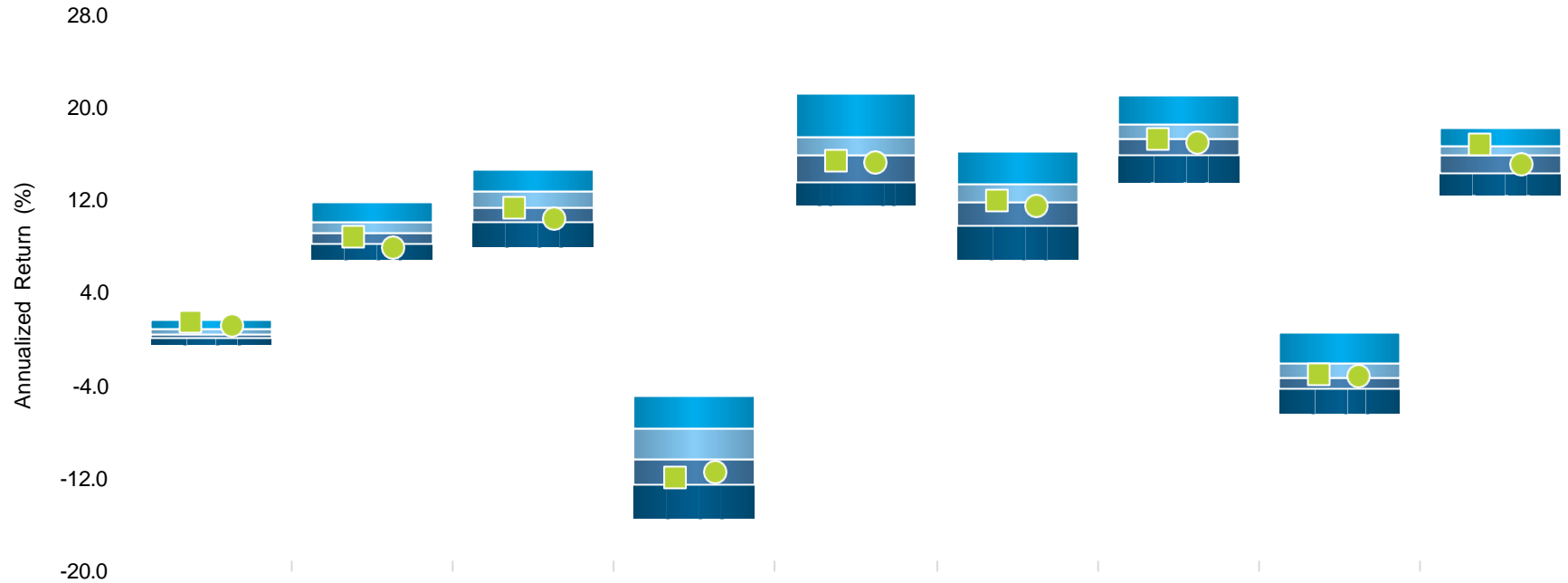
InvMetrics Public DB > \$1B (gross)



	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception (%)
■ Total Fund (DB)	1.5 (11)	6.6 (9)	4.2 (62)	9.7 (65)	7.2 (36)	7.1 (84)
● Policy Index DB	1.2 (19)	5.9 (46)	3.2 (96)	9.3 (90)	6.8 (60)	-
5th Percentile	1.7	7.0	5.6	11.8	7.9	8.1
1st Quartile	1.0	6.2	5.0	11.0	7.3	7.8
Median	0.5	5.7	4.3	10.1	7.0	7.4
3rd Quartile	0.1	5.1	3.8	9.6	6.5	7.2
95th Percentile	-0.5	4.5	3.2	8.8	5.8	6.5
Population	60	60	58	57	57	17

Parentheses contain percentile rankings.
 Calculation based on monthly periodicity.
 Since inception return is as of 1/1/1996.

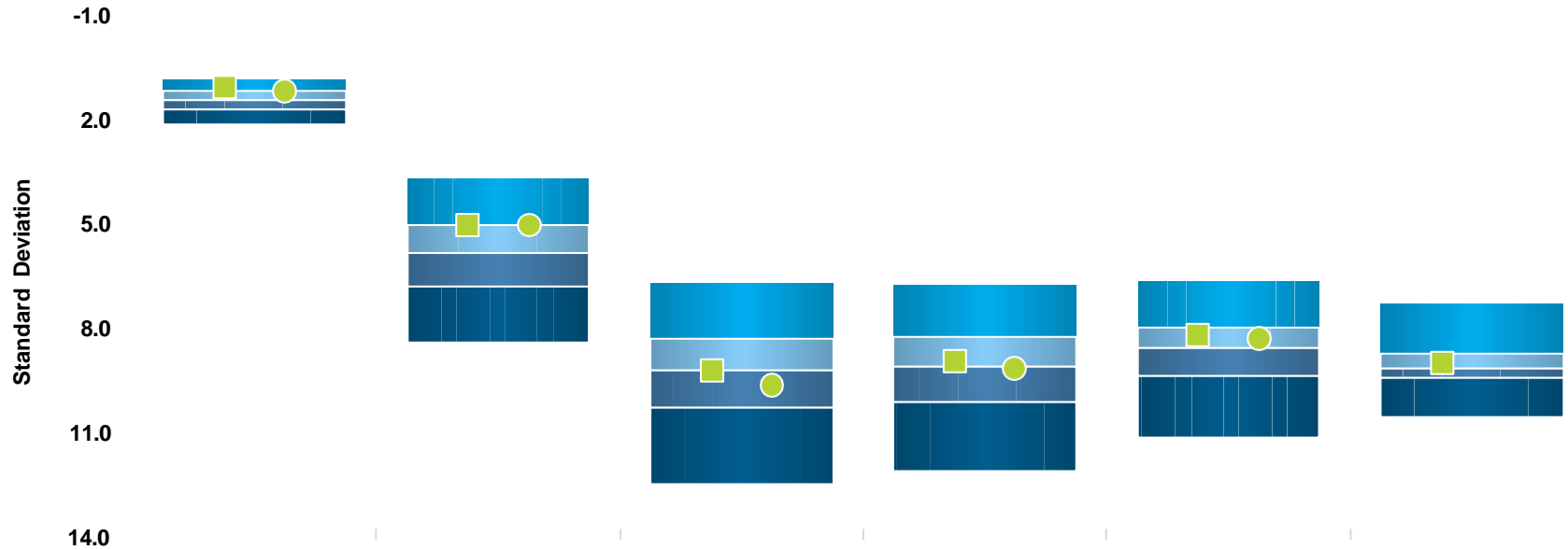
InvMetrics Public DB > \$1B (gross)



	2025 (%)	2024 (%)	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)
Total Fund (DB)	1.5 (11)	9.0 (57)	11.4 (51)	-11.9 (72)	15.4 (56)	12.1 (47)	17.3 (50)	-2.9 (41)	16.9 (21)
Policy Index DB	1.2 (19)	8.0 (81)	10.5 (72)	-11.4 (65)	15.3 (57)	11.6 (52)	17.1 (55)	-3.1 (45)	15.2 (60)
5th Percentile	1.7	11.9	14.7	-4.9	21.3	16.3	21.1	0.7	18.3
1st Quartile	1.0	10.2	12.8	-7.7	17.6	13.5	18.6	-2.0	16.8
Median	0.5	9.2	11.4	-10.3	16.0	11.8	17.3	-3.2	15.9
3rd Quartile	0.1	8.3	10.2	-12.5	13.7	9.9	16.0	-4.1	14.4
95th Percentile	-0.5	6.8	8.1	-15.5	11.6	6.8	13.7	-6.4	12.6
Population	60	181	194	192	225	234	195	172	183

Parenteses contain percentile rankings.
Calculation based on monthly periodicity.

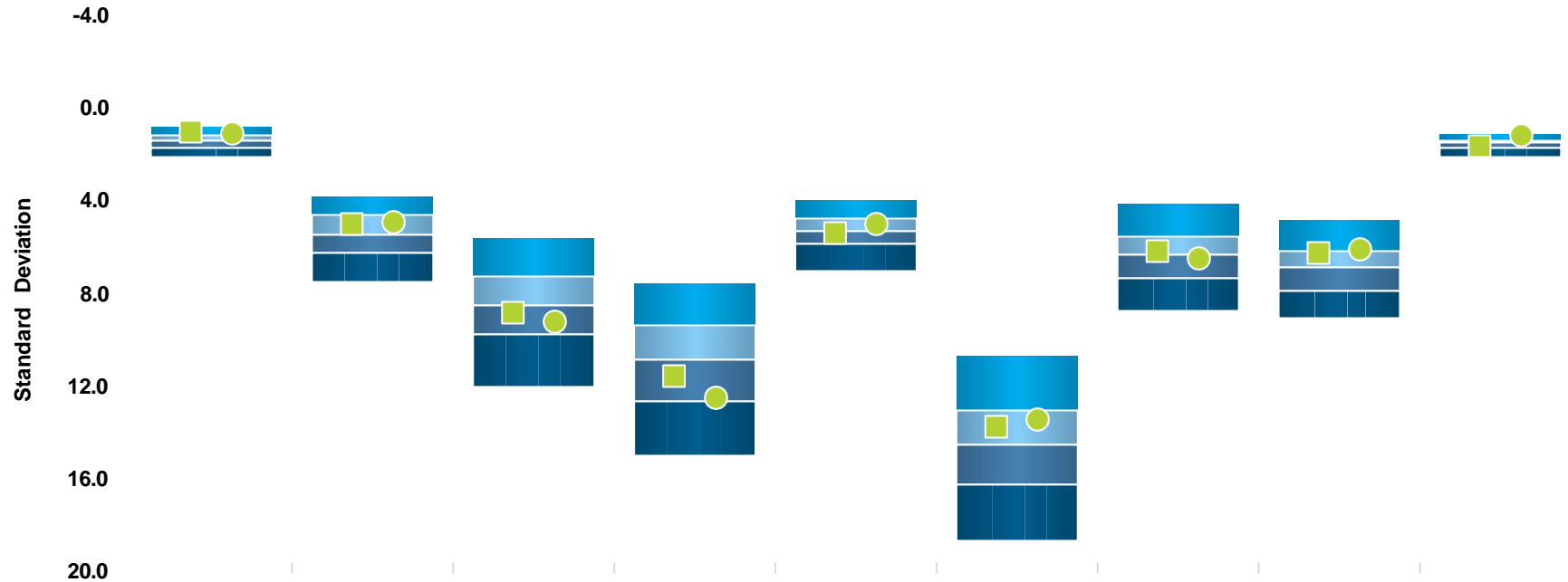
InvMetrics Public DB > \$1B (gross)



	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception (%)
■ Total Fund (DB)	1.0 (13)	5.0 (23)	9.2 (49)	8.9 (42)	8.1 (33)	9.0 (30)
● Policy Index DB	1.1 (20)	5.0 (24)	9.6 (67)	9.1 (52)	8.3 (41)	-
5th Percentile	0.8	3.7	6.7	6.7	6.6	7.3
1st Quartile	1.2	5.0	8.2	8.2	8.0	8.7
Median	1.4	5.8	9.2	9.1	8.6	9.1
3rd Quartile	1.7	6.8	10.3	10.1	9.3	9.4
95th Percentile	2.1	8.4	12.4	12.1	11.1	10.5
Population	60	60	58	57	57	17

Parenteses contain percentile rankings.
 Calculation based on monthly periodicity.
 Since inception return is as of 1/1/1996.

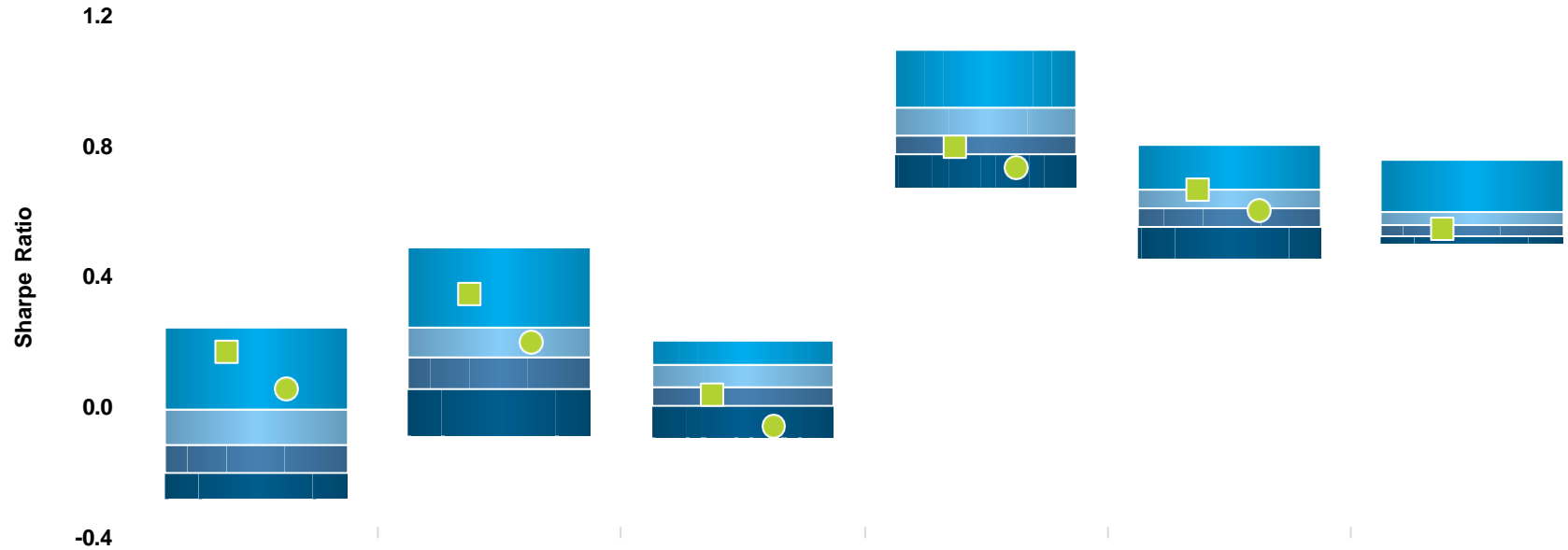
InvMetrics Public DB > \$1B (gross)



	2025 (%)	2024 (%)	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)
Total Fund (DB)	1.0 (13)	5.0 (32)	8.8 (55)	11.6 (62)	5.4 (56)	13.7 (36)	6.1 (41)	6.3 (27)	1.6 (63)
Policy Index DB	1.1 (20)	4.9 (31)	9.2 (64)	12.5 (72)	5.0 (32)	13.5 (31)	6.5 (53)	6.1 (24)	1.2 (12)
5th Percentile	0.8	3.8	5.6	7.5	4.0	10.7	4.1	4.9	1.1
1st Quartile	1.2	4.6	7.3	9.4	4.7	13.1	5.5	6.2	1.4
Median	1.4	5.5	8.5	10.8	5.3	14.5	6.3	6.8	1.5
3rd Quartile	1.7	6.2	9.7	12.7	5.9	16.3	7.3	7.9	1.7
95th Percentile	2.1	7.5	12.0	15.0	7.0	18.6	8.8	9.1	2.1
Population	60	181	194	192	225	234	195	172	183

Parenteses contain percentile rankings.
Calculation based on monthly periodicity.

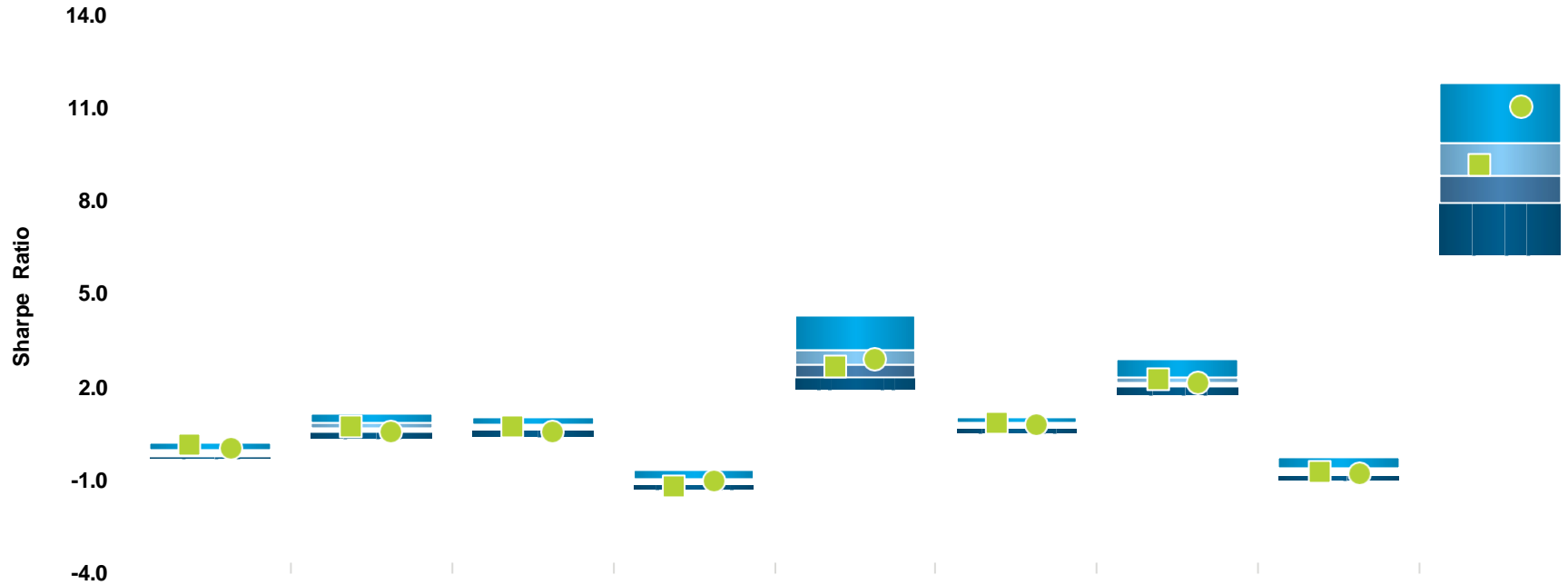
InvMetrics Public DB > \$1B (gross)



	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception (%)
■ Total Fund (DB)	0.2 (11)	0.3 (12)	0.0 (57)	0.8 (65)	0.7 (27)	0.5 (70)
● Policy Index DB	0.1 (19)	0.2 (40)	-0.1 (91)	0.7 (82)	0.6 (51)	-
5th Percentile	0.2	0.5	0.2	1.1	0.8	0.8
1st Quartile	0.0	0.2	0.1	0.9	0.7	0.6
Median	-0.1	0.2	0.1	0.8	0.6	0.6
3rd Quartile	-0.2	0.1	0.0	0.8	0.6	0.5
95th Percentile	-0.3	-0.1	-0.1	0.7	0.5	0.5
Population	60	60	58	57	57	17

Parentheses contain percentile rankings.
 Calculation based on monthly periodicity.
 Since inception return is as of 1/1/1996.

InvMetrics Public DB > \$1B (gross)

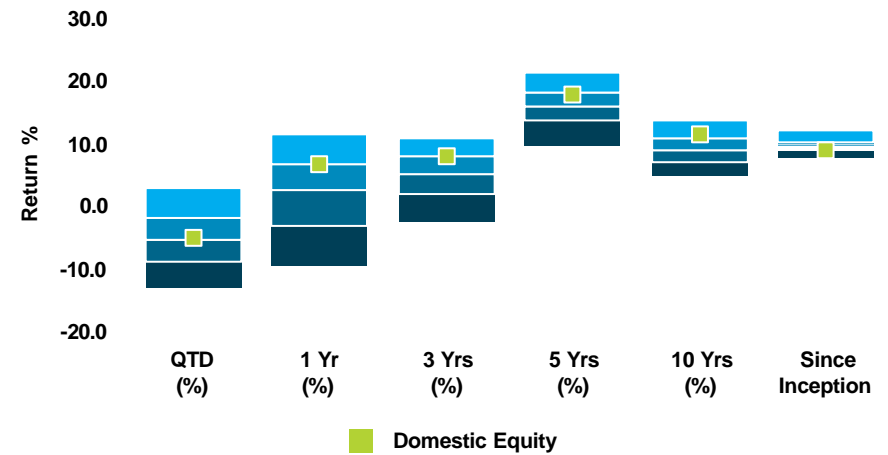
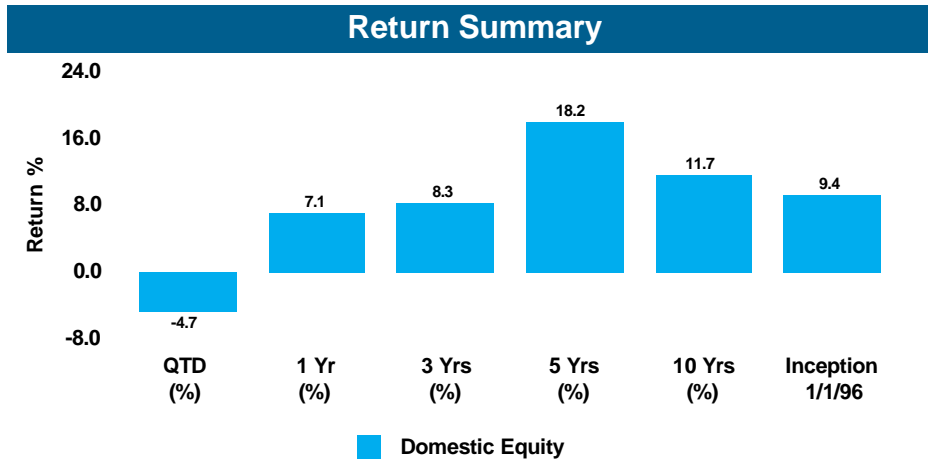


	2025 (%)	2024 (%)	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)
■ Total Fund (DB)	0.2 (11)	0.7 (44)	0.7 (55)	-1.2 (84)	2.7 (54)	0.8 (37)	2.3 (35)	-0.7 (58)	9.2 (43)
● Policy Index DB	0.1 (19)	0.6 (81)	0.6 (83)	-1.0 (44)	2.9 (42)	0.8 (42)	2.1 (57)	-0.8 (68)	11.1 (9)
5th Percentile	0.2	1.2	1.0	-0.7	4.3	1.0	2.9	-0.2	11.8
1st Quartile	0.0	0.9	0.8	-0.9	3.2	0.9	2.4	-0.6	9.9
Median	-0.1	0.7	0.7	-1.0	2.7	0.8	2.2	-0.7	8.8
3rd Quartile	-0.2	0.6	0.6	-1.1	2.3	0.7	2.0	-0.8	7.9
95th Percentile	-0.3	0.3	0.4	-1.3	1.9	0.5	1.8	-1.0	6.3
Population	60	181	194	192	225	234	195	172	183

Parenteses contain percentile rankings.
Calculation based on monthly periodicity.

Domestic Equity (DB)

Domestic Equity Composite Characteristics | As of March 31, 2025



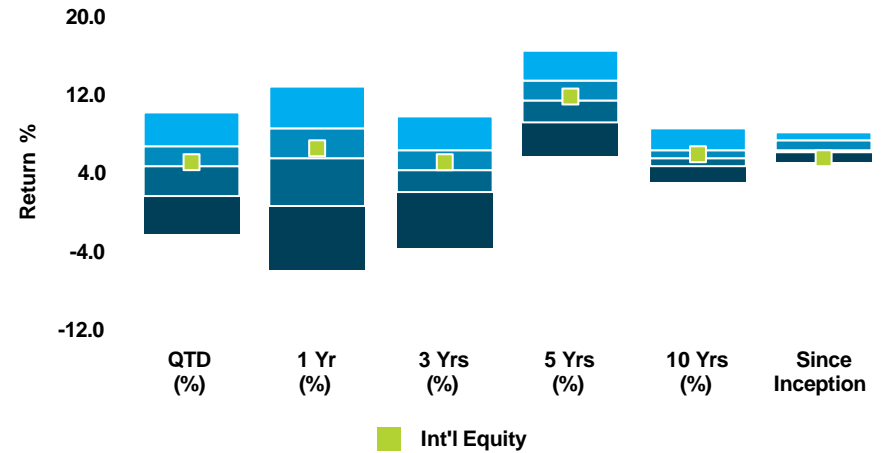
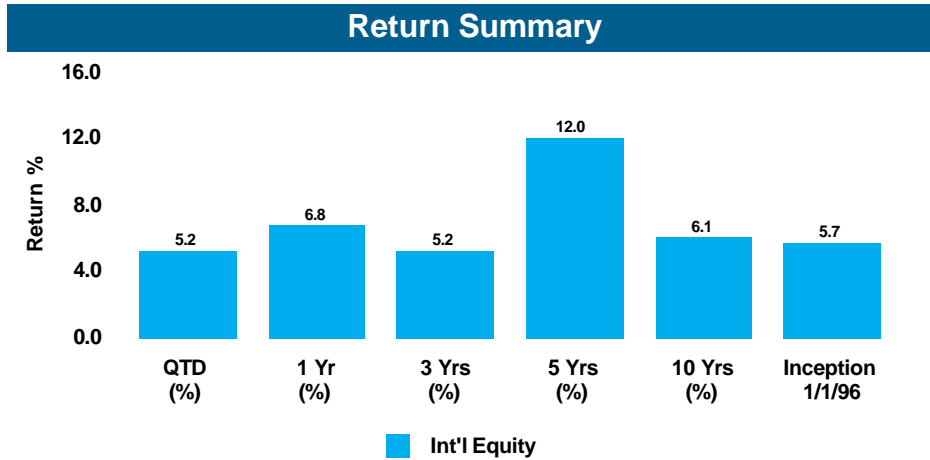
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Domestic Equity	-4.7	7.1	8.3	18.2	11.7	9.4	01/01/1996
Domestic Equity Blend BM	-4.7	7.2	8.2	18.2	11.8	10.0	
Excess Return	0.0	-0.1	0.1	0.1	-0.1	-0.6	
eV All US Equity Median	-5.2	2.9	5.5	16.4	9.2	9.9	



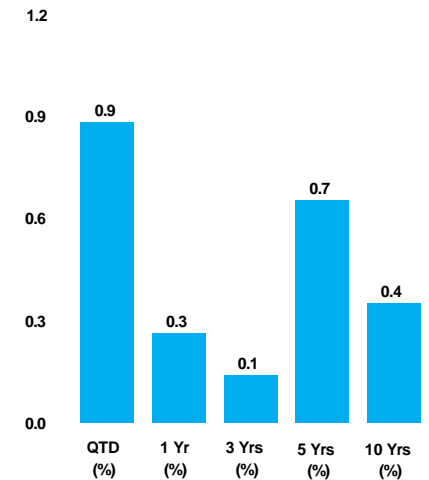
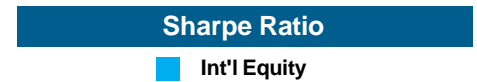
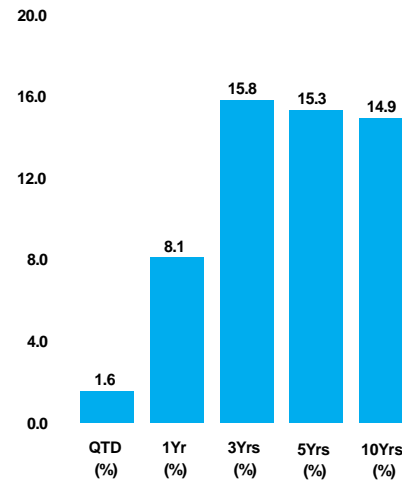
Performance is net of management fees.
Peer Universe: eV All U.S. Equity (net)

International Equity (DB)

International Equity Composite Characteristics | As of March 31, 2025



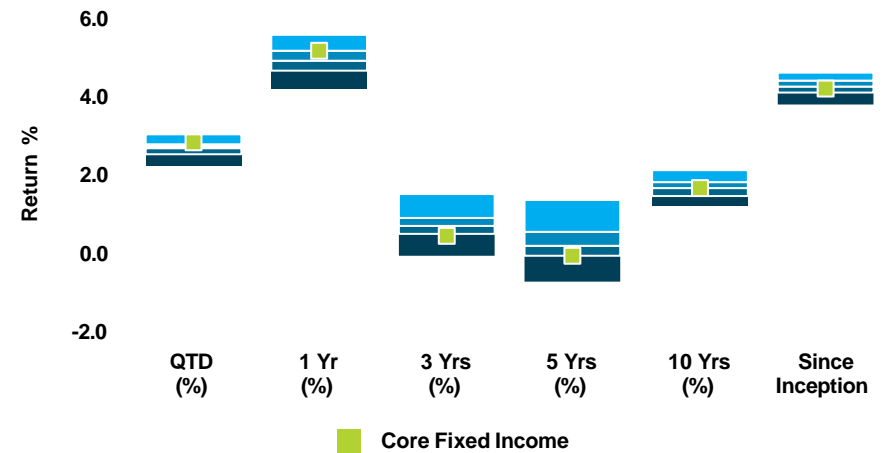
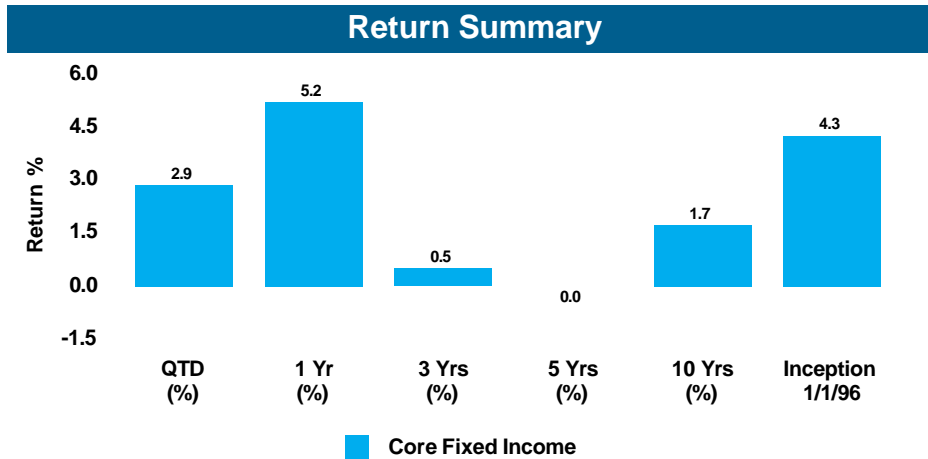
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Int'l Equity	5.2	6.8	5.2	12.0	6.1	5.7	01/01/1996
Custom Int'l Eq Benchmark	4.4	5.8	3.8	10.9	5.0	-	
Excess Return	0.8	1.0	1.4	1.1	1.1	-	
eV All ACWI ex-US Equity Median	5.0	5.6	4.6	11.6	5.7	6.5	



Performance is net of management fees.
Peer Universe: eV All ACWI ex-US Equity.

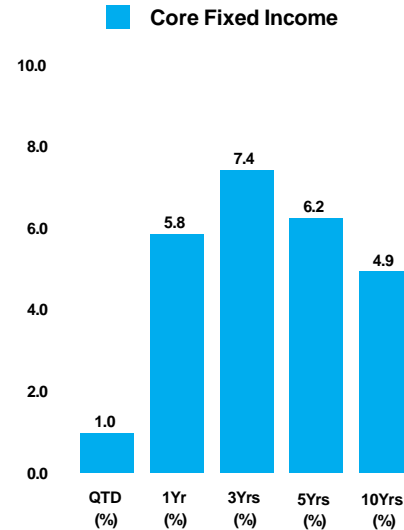
Core Fixed Income (DB)

Core Fixed Income Composite Characteristics | As of March 31, 2025

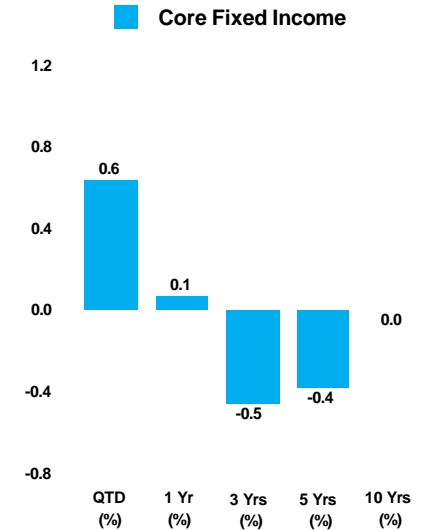


	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Core Fixed Income	2.9	5.2	0.5	0.0	1.7	4.3	01/01/1996
Bloomberg U.S. Aggregate Index	2.8	4.9	0.5	-0.4	1.5	4.2	
Excess Return	0.1	0.3	0.0	0.4	0.3	0.1	
eV US Core Fixed Inc Median	2.7	5.0	0.7	0.2	1.7	4.3	

Annualized Standard Deviation



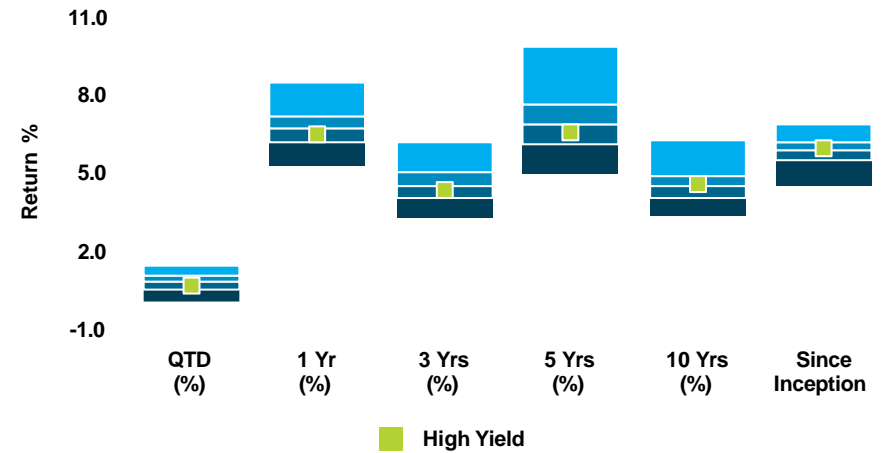
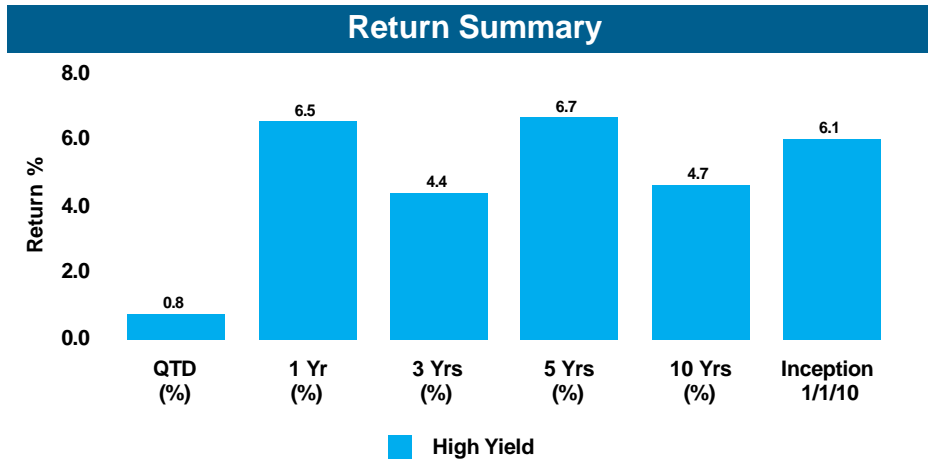
Sharpe Ratio



Performance is net of management fees.
Peer Universe: eV US Core Fixed Inc (Net).

High Yield (DB)

High Yield Composite Characteristics | As of March 31, 2025



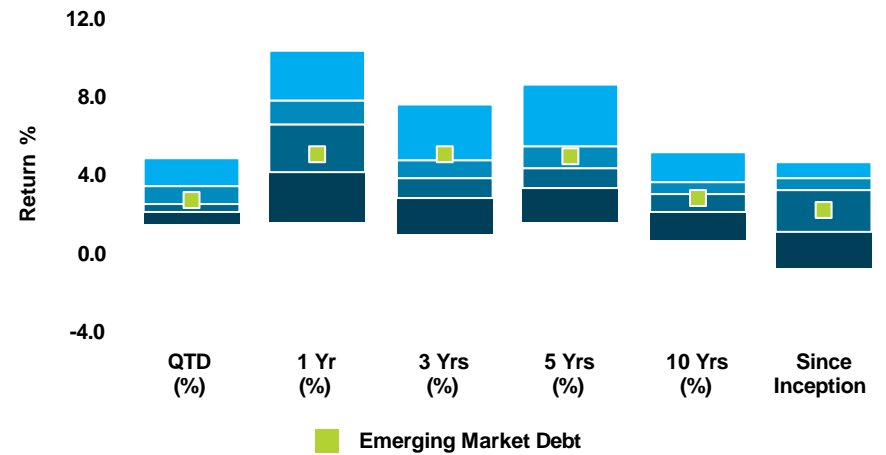
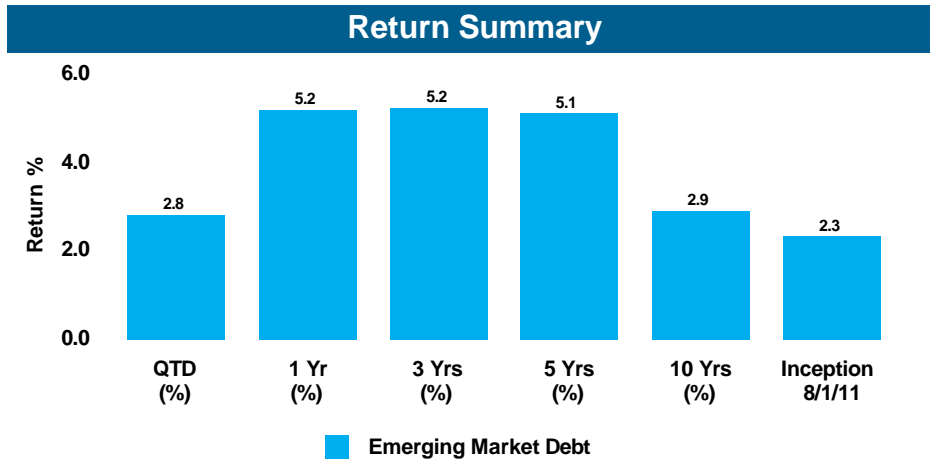
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
High Yield	0.8	6.5	4.4	6.7	4.7	6.1	01/01/2010
Bimbg. U.S. Corp: High Yield Index	1.0	7.7	5.0	7.3	5.0	6.4	
Excess Return	-0.3	-1.1	-0.6	-0.6	-0.3	-0.3	
eV US High Yield Fixed Inc Median	0.9	6.8	4.6	6.9	4.6	6.0	



Performance is net of management fees.
Peer Universe: eV US High Yield Fixed Inc (Net).

Emerging Market Debt (DB)

Emerging Market Debt Composite Characteristics | As of March 31, 2025



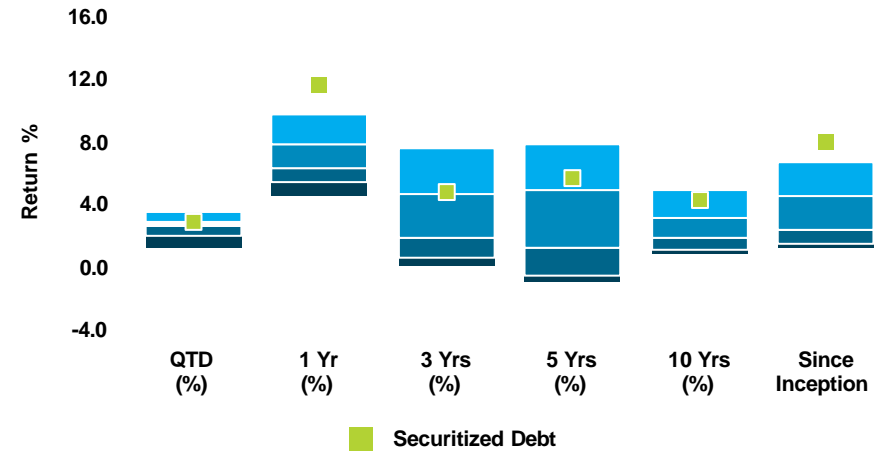
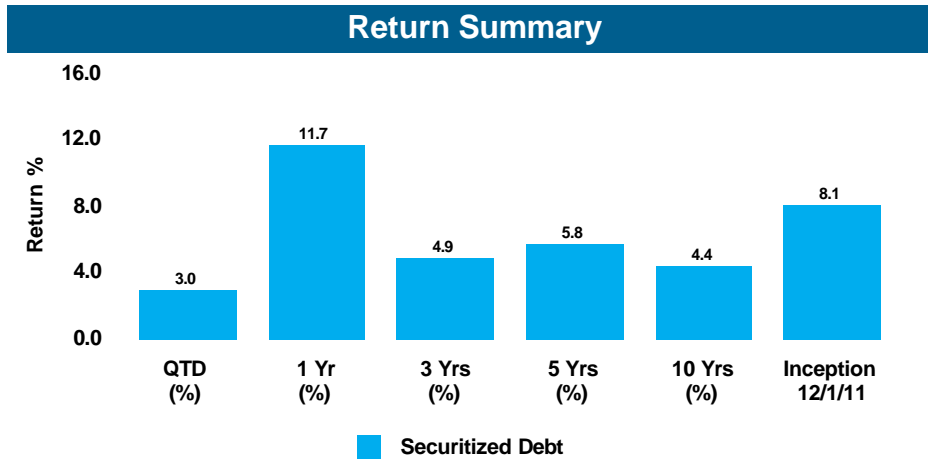
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Emerging Market Debt	2.8	5.2	5.2	5.1	2.9	2.3	08/01/2011
Custom 50/50 JPM EMB and Govt	3.3	5.4	3.0	2.9	2.2	1.8	
Excess Return	-0.5	-0.2	2.2	2.3	0.7	0.5	
eV All Emg Mkts Fixed Inc Median	2.6	6.7	3.9	4.5	3.1	3.4	



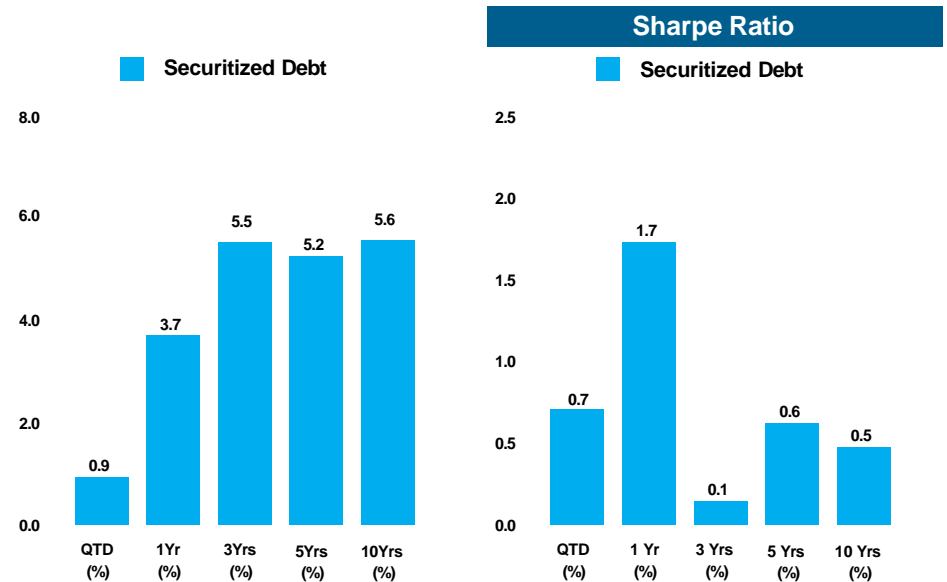
Performance is net of management fees.
Peer Universe: eV All Emg Mkts Fixed Inc (Net).

Securitized Debt (DB)

Securitized Debt Composite Characteristics | As of March 31, 2025



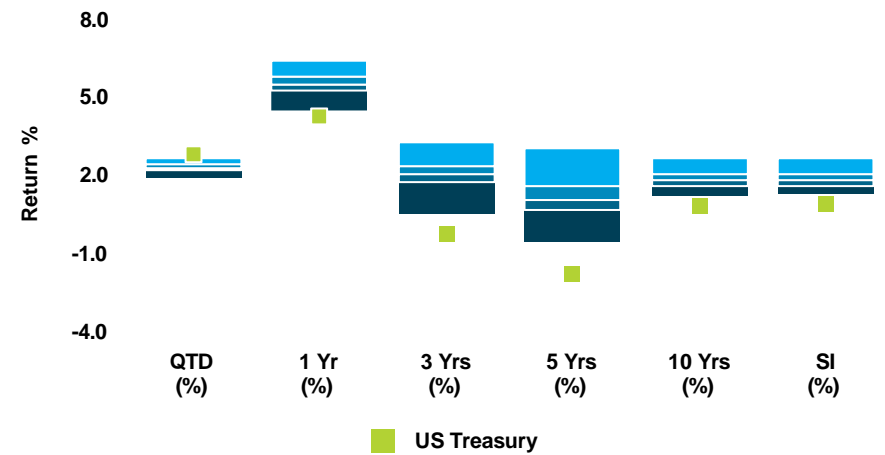
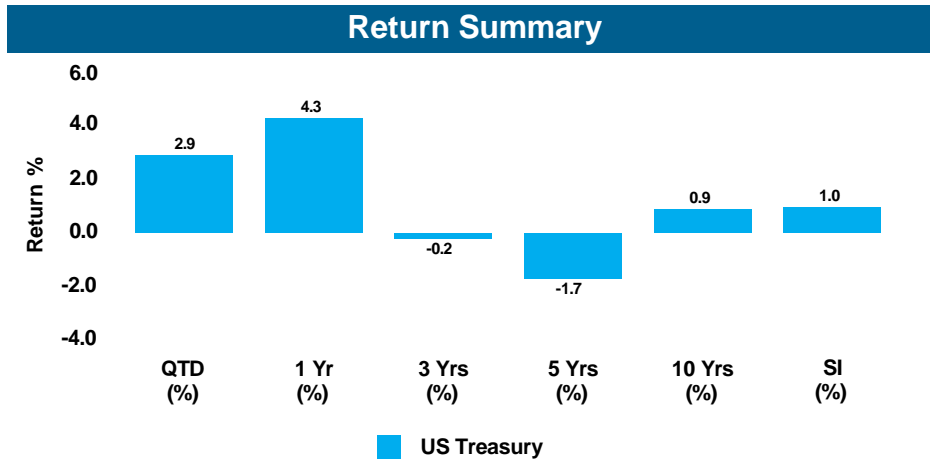
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Securitized Debt	3.0	11.7	4.9	5.8	4.4	8.1	12/01/2011
Custom Securitized Debt Benchmark	3.0	10.8	2.6	3.7	3.3	4.2	
Excess Return	0.0	0.9	2.3	2.0	1.1	3.9	
eV US Securitized Fixed Inc Median	2.8	6.5	2.0	1.4	2.0	2.5	



Performance is net of management fees.
Peer Universe: eV US Securitized Fixed Inc.

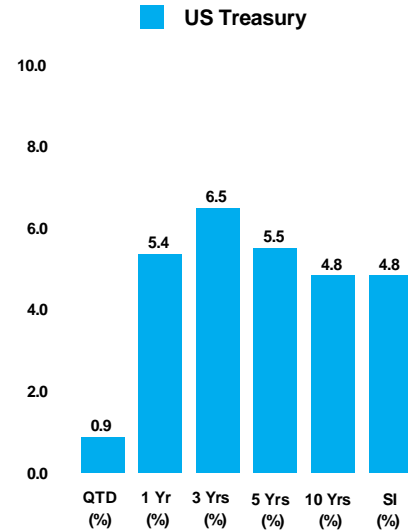
US Treasury (DB)

US Treasury Composite Characteristics | As of March 31, 2025



	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	SI (%)	Inception Date
US Treasury	2.9	4.3	-0.2	-1.7	0.9	1.0	03/01/2015
Bimbg. U.S. Treasury Index	2.9	4.5	0.0	-1.7	1.0	1.0	
Excess Return	0.0	-0.2	-0.2	0.0	0.0	0.0	
eV US Interm Duration Fixed Inc Median	2.4	5.5	2.1	1.1	1.9	1.9	

Annualized Standard Deviation



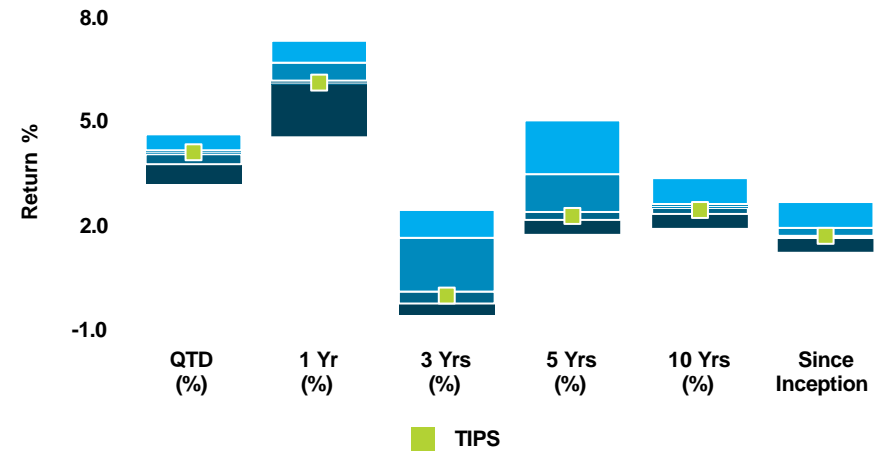
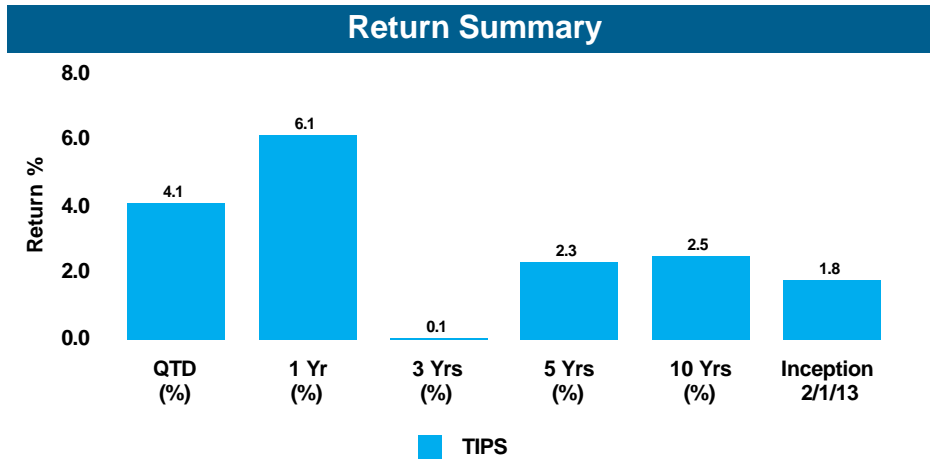
Sharpe Ratio



Performance is net of management fees.
Peer Universe: eV US Interm Duration Fixed Inc (Net).

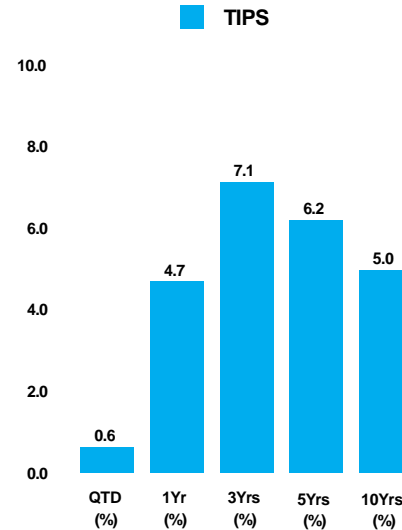
Tips (DB)

TIPS Composite Characteristics | As of March 31, 2025

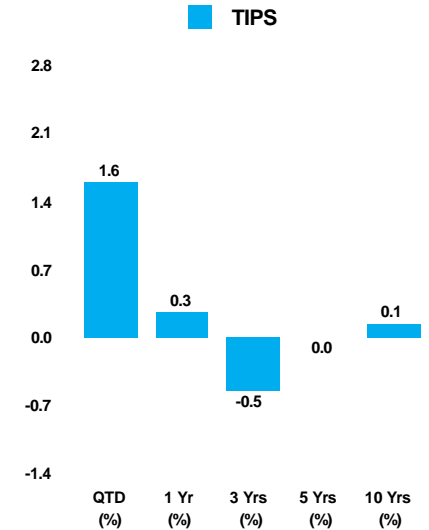


	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
TIPS	4.1	6.1	0.1	2.3	2.5	1.8	02/01/2013
Bimbg. U.S. TIPS Index	4.2	6.2	0.1	2.4	2.5	1.8	
Excess Return	0.0	0.0	0.0	0.0	0.0	0.0	
eV US TIPS / Inflation Fixed Inc Median	4.1	6.2	0.1	2.4	2.5	1.8	

Annualized Standard Deviation



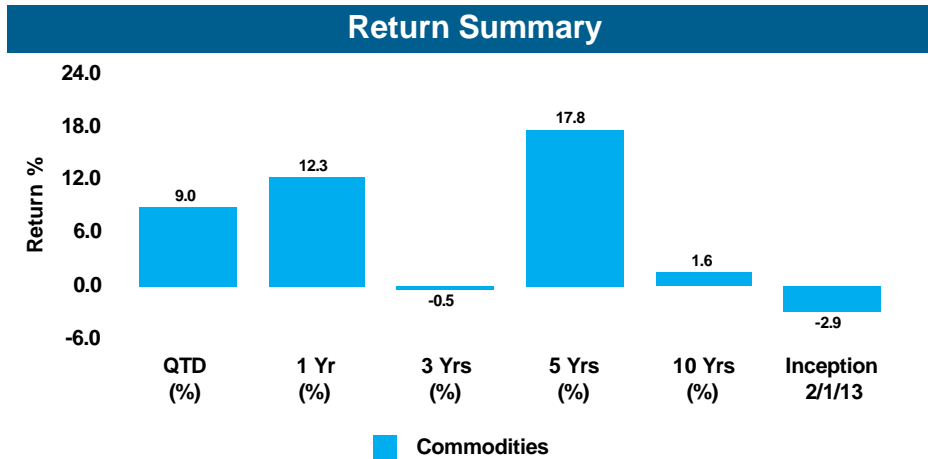
Sharpe Ratio



Performance is net of management fees.
Peer Universe: eV US TIPS / Inflation Fixed Inc (Net).

Commodities (DB)

Commodities Composite Characteristics | As of March 31, 2025



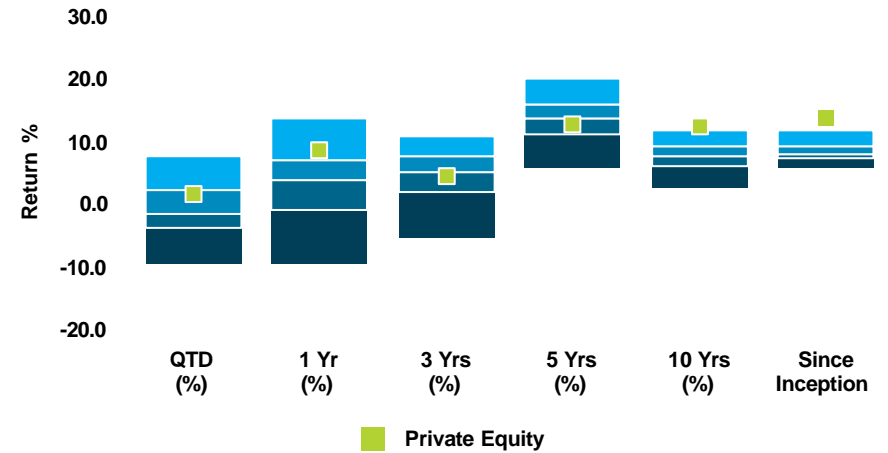
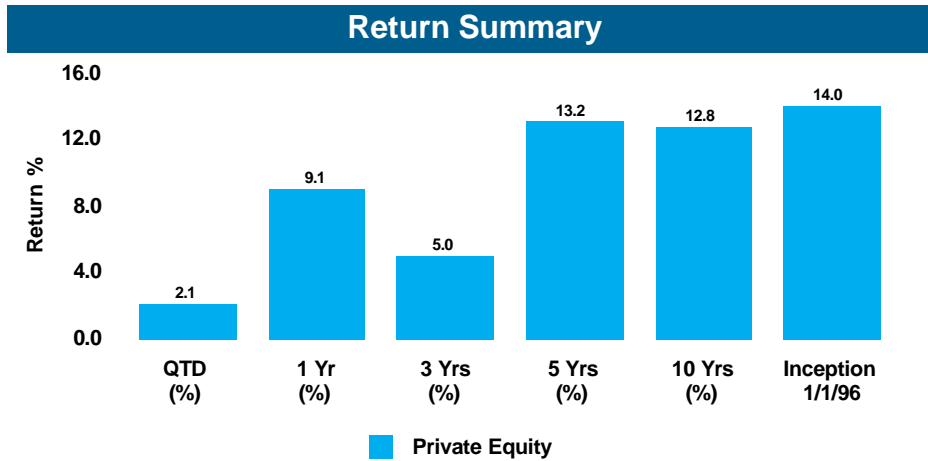
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Commodities	9.0	12.3	-0.5	17.8	1.6	-2.9	02/01/2013
Custom Commodities Benchmark	8.9	12.3	-0.8	17.1	1.0	-3.6	
Excess Return	0.1	0.1	0.3	0.7	0.6	0.6	



Performance is net of management fees.
Peer Universe: eV Alt Commodities - Multi-Market (Net).

Private Equity (DB)

Private Equity Composite Characteristics | As of March 31, 2025



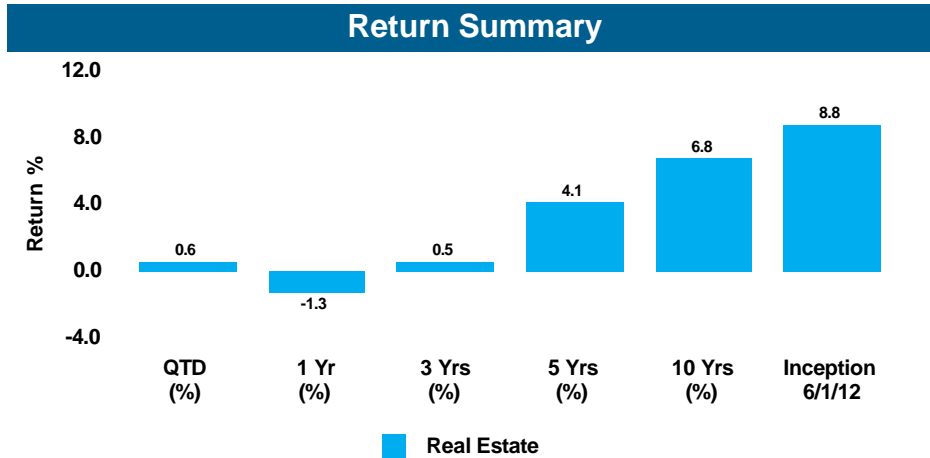
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Private Equity	2.1	9.1	5.0	13.2	12.8	14.0	01/01/1996
Custom Private Equity Benchmark	1.0	5.4	2.2	12.9	12.0	-	
Excess Return	1.1	3.7	2.8	0.2	0.7	-	



Performance is net of management fees.
Peer Universe: eV All Global Equity (Net).

Real Estate (DB)

Real Estate Composite Characteristics | As of March 31, 2025



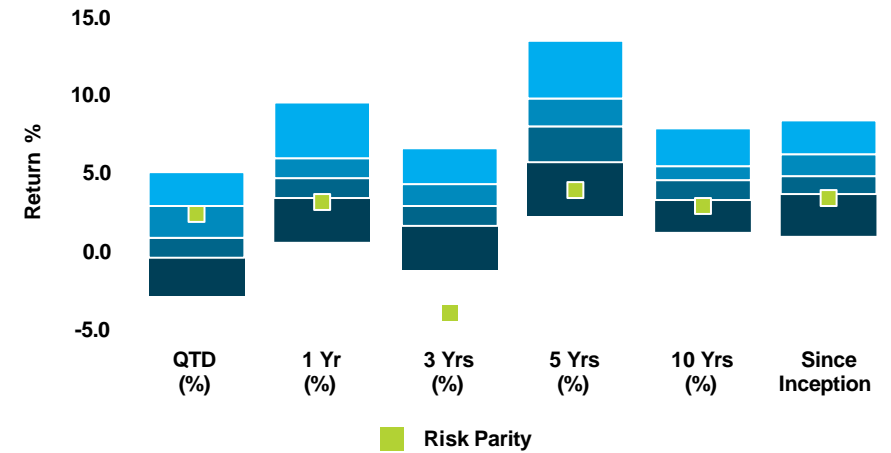
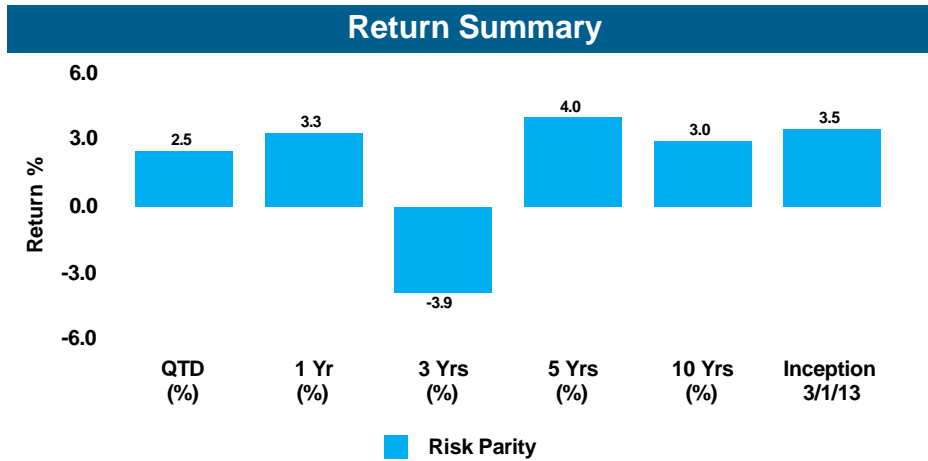
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Real Estate	0.6	-1.3	0.5	4.1	6.8	8.8	06/01/2012
Custom Real Estate Benchmark	1.2	-1.4	-2.3	2.8	5.8	7.3	
Excess Return	-0.6	0.1	2.8	1.3	1.0	1.5	



Performance is net of management fees.
Peer Universe: eV US REIT (Net).

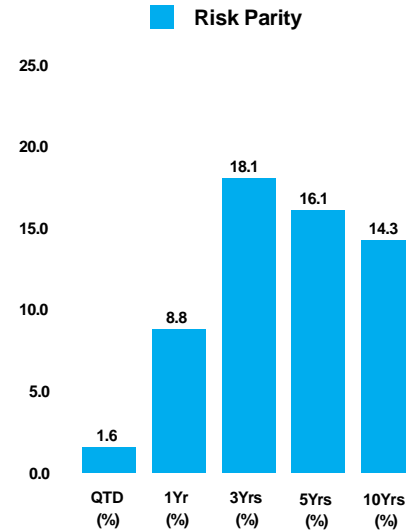
Risk Parity (DB)

Risk Parity Composite Characteristics | As of March 31, 2025

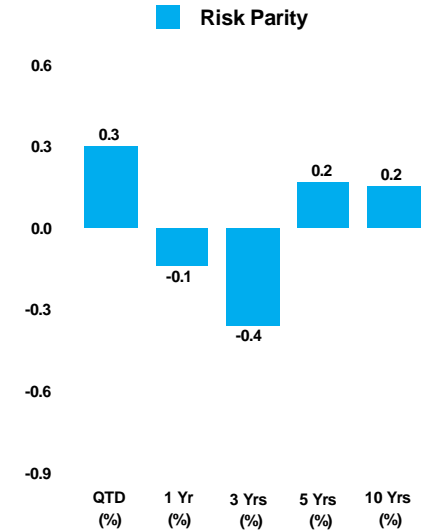


	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Risk Parity	2.5	3.3	-3.9	4.0	3.0	3.5	03/01/2013
Custom Risk Parity	2.4	3.0	-4.5	3.4	3.0	3.9	
Excess Return	0.0	0.4	0.6	0.6	0.0	-0.4	

Annualized Standard Deviation



Sharpe Ratio



Performance is net of management fees.
Peer Universe: eV Global TAA (Net).

Health Care Trust 115 Performance

Allocation vs. Targets				
	Balance (\$)	Current Allocation (%)	Policy (%)	Policy Range (%)
Traditional Growth	7,210,546,929	54	47	37 - 57
U.S. Equity	3,182,164,443	24	22	17 - 27
Non-U.S. Equity	3,386,510,153	25	23	18 - 28
REIT's	641,872,333	5	2	0 - 5
Stabilized Growth	2,308,088,181	17	21	15 - 25
Public Credit (SD/EMD/HY/IGC)	1,654,905,306	12	16	0 - 100
U.S. Treasury	257,654,341	2	2	0 - 5
Hedge Fund	915,964	0	0	0 - 1
Risk Parity	394,612,570	3	3	0 - 5
Principal Protection	2,189,578,569	16	15	10 - 20
Core Fixed	2,189,578,569	16	15	10 - 19
Inflation	1,699,145,086	13	7	2 - 12
TIPS	983,826,273	7	4	0 - 6
Opportunistic (Gold)	258,722,584	2	0	0 - 2
Commodities	456,596,230	3	3	0 - 5
RMS		0	10	0 - 15
Cash	53,852,372	0	0	0 - 100
Cash	53,852,372	0	0	0 - 5
Total	13,461,211,137	100	100	

Cash is not included in Total Policy allocation.
High Yield contains both High Yield and Global High Yield.

Performance Summary | As of March 31, 2025

Trailing Period Performance									
	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Health Care 115 Trust Fund	13,461,211,137	100.0	1.7	7.2	4.0	9.9	6.2	6.2	Jan-05
<i>Policy Index Health Care 115 Trust Fund</i>			1.5	6.9	3.6	9.5	5.9	6.0	
Over/Under			0.2	0.3	0.4	0.4	0.3	0.2	
Traditional Growth	7,210,546,929	53.6	0.3	7.5	6.0	14.7	8.5	8.3	Mar-15
U.S. Equity	3,182,164,443	23.6	-4.7	7.1	8.3	18.2	11.7	9.7	Jan-05
<i>Domestic Equity Blend BM</i>			-4.7	7.2	8.2	18.2	11.8	9.8	
Over/Under			0.0	-0.1	0.1	0.1	-0.1	-0.1	
Non-U.S. Equity	3,386,510,153	25.2	5.2	6.8	5.3	12.1	6.1	6.0	Jan-05
<i>Custom Int'l Eq Benchmark</i>			4.4	5.8	3.8	10.9	5.0	5.1	
Over/Under			0.8	1.0	1.5	1.1	1.1	0.9	
REIT's	641,872,333	4.8	1.1	9.6	-1.4	10.9	4.5	6.6	Jan-05
<i>Custom REIT Benchmark</i>			1.2	9.7	-1.5	10.8	4.5	6.4	
Over/Under			0.0	-0.1	0.1	0.1	0.0	0.2	
Stabilized Growth	2,049,517,876	15.2	2.0	6.5	2.5	5.9	3.9	3.7	Mar-15
Risk Parity	394,612,570	2.9	2.5	3.3	-3.9	4.0	3.0	3.5	Mar-13
<i>Custom Risk Parity</i>			2.4	3.0	-4.5	3.4	3.0	3.9	
Over/Under			0.0	0.4	0.6	0.6	0.0	-0.4	
Public Credit	1,654,905,306	12.3	1.9	7.3	4.0	6.1	3.8	3.7	Mar-15
High Yield	676,921,911	5.0	0.8	6.5	4.4	6.7	4.7	6.1	Jan-10
<i>Blmbg. U.S. Corp: High Yield Index</i>			1.0	7.7	5.0	7.3	5.0	6.4	
Over/Under			-0.3	-1.1	-0.6	-0.6	-0.3	-0.3	

Returns are net of fees.

Performance Summary | As of March 31, 2025

	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Investment Grade Credit	408,187,341	3.0	2.5	5.2	--	--	--	12.3	Apr-23
<i>Blmbg. U.S. Corporate Investment Grade Index</i>			2.3	4.9	1.1	1.5	2.4	4.7	
Over/Under			0.2	0.3	--	--	--	7.6	
Emerging Market Debt	138,414,700	1.0	2.8	5.2	5.2	5.1	2.9	3.8	Oct-07
<i>Custom 50/50 JPM EMB and Govt</i>			3.3	5.4	3.0	2.9	2.2	3.7	
Over/Under			-0.5	-0.2	2.2	2.3	0.7	0.2	
Securitized Debt	431,363,690	3.2	3.0	11.7	4.9	5.8	4.4	8.1	Dec-11
<i>Custom Securitized Debt Benchmark</i>			3.0	10.8	2.6	3.7	3.3	4.2	
Over/Under			0.0	0.9	2.3	2.0	1.1	3.9	
Global High Yield	17,665	0.0	0.0	0.0	-18.9	-9.9	9.2	8.4	Apr-12
<i>Blmbg. Global High Yield Index</i>			1.8	8.9	5.5	7.1	4.7	5.1	
Over/Under			-1.8	-8.9	-24.4	-17.0	4.5	3.4	
Principal Protection	2,189,578,569	16.3	2.9	5.2	0.5	0.0	1.7	1.8	Mar-15
Core Fixed	2,189,578,569	16.3	2.9	5.2	0.5	0.0	1.7	3.2	Jan-05
<i>Blmbg. U.S. Aggregate Index</i>			2.8	4.9	0.5	-0.4	1.5	3.1	
Over/Under			0.1	0.3	0.0	0.4	0.3	0.1	
Inflation	1,699,145,086	12.6	5.3	9.4	1.1	8.0	3.5	3.3	Mar-15
TIPS	983,826,273	7.3	4.1	6.1	0.1	2.4	2.5	3.6	Mar-05
<i>Blmbg. U.S. TIPS Index</i>			4.2	6.2	0.1	2.4	2.5	3.5	
Over/Under			0.0	0.0	0.0	0.0	0.0	0.1	
Commodities	456,596,230	3.4	9.0	12.3	-0.5	17.8	1.6	-1.6	Jan-10
<i>Custom Commodities Benchmark</i>			8.9	12.3	-0.8	17.1	1.0	--	
Over/Under			0.1	0.1	0.3	0.7	0.6	--	

Performance Summary | As of March 31, 2025

	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Opportunistic	258,722,584	1.9	3.4	18.8	10.1	--	--	9.8	Nov-20
<i>OPERS Custom Opportunistic</i>			4.8	17.2	8.5	--	--	9.7	
Over/Under			-1.5	1.6	1.7	--	--	0.0	
RMS	258,570,305	1.9	2.9	4.3	-0.2	0.1	0.7	0.8	Mar-15
US Treasury	257,654,341	1.9	2.9	4.3	-0.2	-1.7	0.9	1.0	Feb-15
<i>Blmbg. U.S. Treasury Index</i>			2.9	4.5	0.0	-1.7	1.0	0.8	
Over/Under			0.0	-0.2	-0.2	-0.1	0.0	0.1	
Hedge Fund	915,964	0.0	0.0	0.0	0.7	6.8	3.3	3.7	Jan-11
<i>Custom Hedge Fund Benchmark</i>			0.2	6.9	5.2	8.2	4.6	5.0	
Over/Under			-0.2	-6.9	-4.5	-1.4	-1.3	-1.3	
Cash	53,852,372	0.4	1.2	5.3	4.7	2.9	2.2	2.1	Jan-05
Cash	53,852,372	0.4	1.2	5.3	4.7	2.9	2.2	2.1	Jan-05
<i>90 Day U.S. Treasury Bill</i>			1.0	5.0	4.2	2.6	1.9	1.7	
Over/Under			0.1	0.4	0.4	0.4	0.3	0.4	

Returns are net of fees.

Calendar Year Performance									
	2025 (%)	2024 (%)	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)
Health Care 115 Trust Fund	1.7	10.0	14.0	-15.5	14.3	11.0	19.6	-5.8	15.2
<i>Policy Index Health Care 115 Trust Fund</i>	1.5	9.5	13.6	-15.5	13.8	10.1	19.2	-6.0	14.3
Over/Under	0.2	0.5	0.3	0.0	0.6	0.8	0.4	0.2	0.9
Traditional Growth	0.3	14.5	20.8	-19.1	21.2	12.0	26.6	-8.8	22.8
U.S. Equity	-4.7	23.7	25.9	-19.0	26.3	19.6	30.7	-5.1	21.2
<i>Domestic Equity Blend BM</i>	-4.7	23.8	26.0	-19.2	25.7	20.9	31.0	-5.2	21.1
Over/Under	0.0	-0.1	0.0	0.2	0.6	-1.3	-0.3	0.2	0.1
Non-U.S. Equity	5.2	7.0	17.3	-17.7	8.7	14.5	22.9	-14.4	31.3
<i>Custom Int'l Eq Benchmark</i>	4.4	5.5	15.1	-16.9	7.9	11.9	21.1	-14.7	29.2
Over/Under	0.8	1.5	2.1	-0.9	0.8	2.6	1.8	0.3	2.0
REIT's	1.1	8.0	14.0	-25.9	46.0	-11.4	23.2	-4.1	3.8
<i>Custom REIT Benchmark</i>	1.2	8.0	14.0	-26.0	45.9	-11.2	23.1	-4.2	3.8
Over/Under	0.0	0.0	0.0	0.2	0.1	-0.2	0.1	0.1	0.0
Stabilized Growth	2.0	7.0	10.1	-15.6	4.0	5.9	19.3	-6.0	13.3
Risk Parity	2.5	5.8	8.5	-29.8	11.9	6.0	30.3	-9.9	18.5
<i>Custom Risk Parity</i>	2.4	5.1	7.6	-30.3	11.6	5.2	29.9	-10.1	11.5
Over/Under	0.0	0.7	0.9	0.5	0.4	0.7	0.4	0.1	7.0
Public Credit	1.9	7.3	10.7	-12.1	2.1	6.2	13.3	-4.0	10.9
High Yield	0.8	7.1	12.5	-10.6	5.0	7.2	14.6	-2.3	7.0
<i>Blmbg. U.S. Corp: High Yield Index</i>	1.0	8.2	13.4	-11.2	5.3	7.1	14.3	-2.1	7.5
Over/Under	-0.3	-1.1	-0.9	0.6	-0.3	0.1	0.3	-0.2	-0.5
Investment Grade Credit	2.5	2.0	--	--	--	--	--	--	--
<i>Blmbg. U.S. Corporate Investment Grade Index</i>	2.3	2.1	8.5	-15.8	-1.0	9.9	14.5	-2.5	6.4
Over/Under	0.2	-0.1	--	--	--	--	--	--	--

Returns are net of fees.

Performance Summary | As of March 31, 2025

	2025 (%)	2024 (%)	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)
Emerging Market Debt	2.8	4.0	16.6	-13.8	-5.0	5.1	13.2	-6.0	13.2
<i>Custom 50/50 JPM EMB and Govt</i>	3.3	1.6	11.6	-14.1	-5.2	4.3	14.0	-5.3	12.3
Over/Under	-0.5	2.4	5.0	0.3	0.2	0.7	-0.8	-0.7	0.9
Securitized Debt	3.0	13.7	7.4	-13.2	5.2	7.4	11.7	3.2	7.5
<i>Custom Securitized Debt Benchmark</i>	3.0	14.7	-0.4	-13.2	4.5	1.2	10.7	2.8	5.8
Over/Under	0.0	-1.0	7.8	-0.1	0.7	6.2	1.0	0.4	1.8
Global High Yield	0.0	0.0	-43.3	-5.9	14.4	2.1	203.2	-18.0	44.3
<i>Blmbg. Global High Yield Index</i>	1.8	9.2	14.0	-12.7	1.0	7.0	12.6	-4.1	10.4
Over/Under	-1.8	-9.2	-57.4	6.8	13.5	-4.9	190.6	-14.0	33.8
Principal Protection	2.9	1.4	5.3	-12.9	-1.0	9.1	8.7	-0.1	3.8
Core Fixed	2.9	1.4	5.3	-12.9	-1.0	9.1	8.7	-0.1	3.8
<i>Blmbg. U.S. Aggregate Index</i>	2.8	1.3	5.5	-13.0	-1.5	7.5	8.7	0.0	3.5
Over/Under	0.1	0.2	-0.3	0.1	0.6	1.6	0.0	-0.1	0.2
Inflation	5.3	6.0	1.2	-2.3	17.9	2.4	10.4	-4.0	3.7
TIPS	4.1	1.8	3.9	-11.8	6.0	10.9	8.4	-1.3	2.9
<i>Blmbg. U.S. TIPS Index</i>	4.2	1.8	3.9	-11.8	6.0	11.0	8.4	-1.3	3.0
Over/Under	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1
Commodities	9.0	5.6	-7.5	15.9	37.0	-22.0	17.5	-13.6	6.4
<i>Custom Commodities Benchmark</i>	8.9	5.4	-7.9	16.1	35.5	-23.7	17.6	-13.8	5.8
Over/Under	0.1	0.2	0.4	-0.2	1.5	1.8	-0.1	0.2	0.6
Opportunistic	3.4	27.0	15.2	-14.4	11.6	--	--	--	--
<i>OPERS Custom Opportunistic</i>	4.8	18.8	16.8	-15.1	12.6	--	--	--	--
Over/Under	-1.5	8.2	-1.6	0.8	-1.0	--	--	--	--
RMS	2.9	0.4	3.8	-12.3	-0.5	2.1	7.1	-1.2	6.6

Performance Summary | As of March 31, 2025

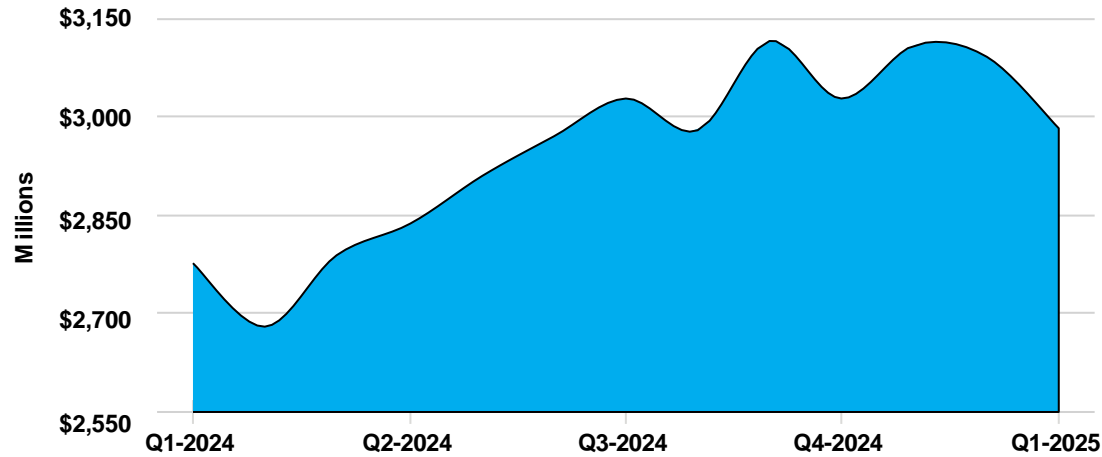
	2025 (%)	2024 (%)	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)
US Treasury	2.9	0.4	3.8	-12.4	-2.3	8.1	6.8	0.8	2.3
<i>Blmbg. U.S. Treasury Index</i>	2.9	0.6	4.1	-12.5	-2.3	8.0	6.9	0.9	2.3
Over/Under	0.0	-0.2	-0.2	0.0	0.1	0.1	0.0	0.0	0.0
Hedge Fund	0.0	0.6	3.2	3.6	9.8	3.6	7.7	-1.5	7.3
<i>Custom Hedge Fund Benchmark</i>	0.2	9.2	9.4	-3.4	10.7	6.1	8.5	-3.2	7.4
Over/Under	-0.2	-8.6	-6.2	7.0	-0.9	-2.4	-0.8	1.7	-0.1
Cash	1.2	5.6	5.4	1.9	0.3	0.8	2.5	2.2	1.2

Returns are net of fees.

Defined Contribution Plan Performance

Allocation vs. Targets				
Current				
	Balance (\$)	Allocation (%)	Policy Range (%)	Within IPS Range?
Target Date Funds	1,531,419,203	51	0 - 100	Yes
Domestic Equity Funds	1,019,406,701	34	0 - 100	Yes
International Equity Funds	125,451,781	4	0 - 100	Yes
Fixed Income Funds	245,041,597	8	0 - 100	Yes
Stable Value Funds	156,400,902	5	0 - 100	Yes
Investment Grade Bond Funds	88,640,695	3	0 - 100	Yes
Schwab Self-Directed Brokerage	62,466,395	2	0 - 100	Yes
Total	2,983,785,677	100		

Market Value History 1 Year Ending March 31, 2025



Summary of Market Values

	QTD	3Q24	2Q24	1Q24
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Total Plan				
Beginning Market Value	3,029,288,061	2,838,862,748	2,778,220,535	2,409,004,653
Net Change	-45,502,385	191,395,879	60,642,213	369,215,882
Ending Market Value	2,983,785,677	3,030,258,627	2,838,862,748	2,778,220,535

Trailing Period Performance							
	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Total Plan	2,983,785,677	100.0					
Target Date Funds	1,531,419,203	51.3					
BlackRock LifePath Index Retirement Fund N	161,831,208	5.4	1.5	6.1	2.8	6.0	4.6
<i>Blackrock LifePath Retirement N-L Custom Index</i>			1.4	6.0	2.8	6.0	4.6
<i>Target-Date Retirement Median</i>			1.3	5.3	2.8	5.2	3.8
<i>Target-Date Retirement Rank</i>			37	10	47	21	9
BlackRock LifePath Index 2030 Fund N	229,480,042	7.7	1.0	6.2	3.7	9.2	6.2
<i>Blackrock LifePath 2030 Non-Lendable Custom Bmk</i>			0.9	6.1	3.6	9.2	6.1
<i>Target-Date 2030 Median</i>			0.6	5.4	3.9	9.7	6.4
<i>Target-Date 2030 Rank</i>			26	15	65	71	60
BlackRock LifePath Index 2035 Fund N	280,206,084	9.4	0.4	6.4	4.4	11.0	7.0
<i>Blackrock LifePath 2035 Non-Lendable Custom Bmk</i>			0.3	6.2	4.3	10.9	6.9
<i>Target-Date 2035 Median</i>			0.2	5.4	4.7	11.3	7.0
<i>Target-Date 2035 Rank</i>			31	13	62	73	53
BlackRock LifePath Index 2040 Fund N	331,193,680	11.1	0.0	6.6	5.2	12.6	7.7
<i>Blackrock LifePath 2040 Non-Lendable Custom Bmk</i>			-0.2	6.4	5.0	12.6	7.6
<i>Target-Date 2040 Median</i>			-0.2	5.5	5.3	12.6	7.6
<i>Target-Date 2040 Rank</i>			34	9	56	48	44
BlackRock LifePath Index 2045 Fund N	254,527,962	8.5	-0.5	6.7	5.9	14.0	8.3
<i>Blackrock LifePath 2045 Non-Lendable Custom Bmk</i>			-0.8	6.5	5.6	13.9	8.1
<i>Target-Date 2045 Median</i>			-0.5	5.5	5.6	13.5	7.9
<i>Target-Date 2045 Rank</i>			51	9	37	17	30

At the close of 3/11/2022, the OPERS target date funds were replaced by the BlackRock Lifepath Index N funds. Time periods longer than 3/11/2022 are shown for illustrative purposes and represents the class O shares. BlackRock LifePath Index 2025 Fund N ended 10/31.

Performance Summary | As of March 31, 2025

	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
BlackRock LifePath Index 2050 Fund N	147,952,992	5.0	-1.0	6.8	6.3	14.8	8.6
<i>Blackrock LifePath 2050 Non-Lendable Custom Bmk</i>			-1.2	6.6	6.1	14.7	8.4
<i>Target-Date 2050 Median</i>			-0.6	5.4	5.8	13.7	8.0
<i>Target-Date 2050 Rank</i>			65	8	18	6	19
BlackRock LifePath Index 2055 Fund N	67,691,760	2.3	-1.2	6.8	6.5	15.0	8.6
<i>Blackrock LifePath 2055 Non-Lendable Custom Bmk</i>			-1.5	6.6	6.3	14.9	8.5
<i>Target-Date 2055 Median</i>			-0.7	5.3	5.9	13.8	8.1
<i>Target-Date 2055 Rank</i>			66	8	13	7	16
BlackRock LifePath Index 2060 Fund N	33,160,035	1.1	-1.2	6.9	6.5	15.0	8.6
<i>Blackrock LifePath 2060 Non-Lendable Custom Bmk</i>			-1.5	6.6	6.3	14.9	8.5
<i>Target-Date 2060 Median</i>			-0.8	5.4	5.9	13.9	8.4
<i>Target-Date 2060 Rank</i>			64	6	14	7	24
BlackRock LifePath Index 2065 Fund N	25,358,762	0.8	-1.2	6.9	6.6	14.9	--
<i>Blackrock LifePath 2065 Non-Lendable Custom Benchm</i>			-1.5	6.6	6.3	14.9	--
<i>Target-Date 2065+ Median</i>			-0.7	5.3	5.9	13.9	--
<i>Target-Date 2065+ Rank</i>			63	6	16	5	--
BlackRock LifePath Index 2070 Fund N	16,678	0.0	--	--	--	--	--
<i>BlackRock LifePath 2070 Non-Lendable Custom Benchm</i>			-1.5	--	--	--	--
Core Options	1,389,900,079	46.6					
Invesco Stable Value Trust - Class B1	156,400,902	5.2	0.7	2.9	2.6	2.2	2.1
<i>ICE BofA 3 Month U.S. T-Bill</i>			1.0	5.0	4.2	2.6	1.9
<i>eV US Stable Value Fixed Inc Median</i>			0.7	3.0	2.4	2.0	1.9
<i>eV US Stable Value Fixed Inc Rank</i>			58	60	35	29	22

At the close of 3/11/2022, the OPERS target date funds were replaced by the BlackRock Lifepath Index N funds. Time periods longer than 3/11/2022 are shown for illustrative purposes and represents the class O shares.

Performance Summary | As of March 31, 2025

	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
BlackRock U.S. Debt Index Fund J	84,046,297	2.8	2.8	5.0	0.6	-0.3	1.5
<i>Blmbg. U.S. Aggregate Index</i>			2.8	4.9	0.5	-0.4	1.5
<i>Intermediate Core Bond Median</i>			2.7	4.9	0.4	0.0	1.4
<i>Intermediate Core Bond Rank</i>			33	40	36	68	40
BlackRock Russell 3000 Index Fund J	415,478,695	13.9	-4.7	7.2	8.3	18.2	11.9
<i>Russell 3000 Index</i>			-4.7	7.2	8.2	18.2	11.8
<i>Large Blend Median</i>			-4.4	6.3	8.1	17.7	11.3
<i>Large Blend Rank</i>			63	36	47	33	28
BlackRock Russell 1000 Index Fund J	423,916,306	14.2	-4.5	7.8	8.7	18.5	12.2
<i>Russell 1000 Index</i>			-4.5	7.8	8.7	18.5	12.2
<i>Large Blend Median</i>			-4.4	6.3	8.1	17.7	11.3
<i>Large Blend Rank</i>			56	26	36	23	15
BlackRock Russell 2000 Index Fund J	165,275,936	5.5	-9.5	-4.0	0.6	13.4	6.4
<i>Russell 2000 Index</i>			-9.5	-4.0	0.5	13.3	6.3
<i>Small Blend Median</i>			-8.4	-3.6	1.6	14.7	6.5
<i>Small Blend Rank</i>			75	56	63	72	54
BlackRock MSCI ACWI ex-US Index Fund J	122,402,549	4.1	6.2	6.9	5.2	11.2	5.3
<i>MSCI AC World ex USA (Net)</i>			5.2	6.1	4.5	10.9	5.0
<i>Foreign Large Blend Median</i>			6.8	5.8	5.5	11.6	5.2
<i>Foreign Large Blend Rank</i>			64	33	59	61	46
Fisher US Total Return	9,717,036	0.3	-6.6	--	--	--	--
<i>Russell 1000 Index</i>			-4.5	7.8	8.7	18.5	12.2
<i>eV US Large Cap Core Equity Median</i>			-4.1	5.8	8.1	17.2	11.1
<i>eV US Large Cap Core Equity Rank</i>			90	--	--	--	--

At the close of 3/11/2022, the BlackRock Russell 3000 index, BlackRock Russell 2000 index, BlackRock Russell 1000 index, and BlackRock MSCI ACWI ex-US index moved to lending shares. The J shares were launched by OPERS, as other investors join, the administrative expenses will lower the total fee. At the close of 3/11/2022 the BlackRock U.S Debt Index moved to the M share class and the Invesco Stable Value Trust moved to the B1 Share class. Time periods longer than 3/11/2022 are shown for illustrative purposes and represents the combined return from the share class conversions.

Performance Summary | As of March 31, 2025

	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
JPMorgan Core Bond R6	4,594,398	0.2	3.0	--	--	--	--
<i>Blmbg. U.S. Aggregate Index</i>			2.8	4.9	0.5	-0.4	1.5
<i>Intermediate Core Bond Median</i>			2.7	4.9	0.4	0.0	1.4
<i>Intermediate Core Bond Rank</i>			12	--	--	--	--
Lazard ACW ex-US Equity CIT	3,049,232	0.1	7.4	--	--	--	--
<i>MSCI AC World ex USA index</i>			5.4	6.6	5.0	11.5	5.5
<i>eV ACWI ex-US All Cap Core Eq Median</i>			5.4	6.0	5.0	12.0	5.7
<i>eV ACWI ex-US All Cap Core Eq Rank</i>			13	--	--	--	--
T.Rowe Price Intergrated US Small-Mid Cap Core Eq	5,018,728	0.2	-5.4	--	--	--	--
<i>Russell 2500 Index</i>			-7.5	-3.1	1.8	14.9	7.5
<i>eV US Small-Mid Cap Core Equity Median</i>			-7.1	-2.9	3.4	15.7	8.1
<i>eV US Small-Mid Cap Core Equity Rank</i>			28	--	--	--	--
Schwab Self-Directed Brokerage	62,466,395	2.1					

	Calendar Year Performance							
	2025 (%)	2024 (%)	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)
Total Plan								
Target Date Funds								
BlackRock LifePath Index Retirement Fund N	1.5	7.1	11.2	-14.6	7.0	12.0	15.6	-3.5
<i>Blackrock LifePath Retirement N-L Custom Index</i>	1.4	7.1	11.1	-14.5	7.0	11.8	15.6	-3.5
BlackRock LifePath Index 2030 Fund N	1.0	9.1	14.3	-16.0	11.4	12.9	20.8	-5.7
<i>Blackrock LifePath 2030 Non-Lendable Custom Bmk</i>	0.9	9.1	14.2	-15.9	11.5	12.7	20.7	-5.8
BlackRock LifePath Index 2035 Fund N	0.4	10.9	16.3	-16.7	13.8	13.6	22.9	-6.5
<i>Blackrock LifePath 2035 Non-Lendable Custom Bmk</i>	0.3	10.9	16.3	-16.7	13.9	13.4	22.8	-6.6
BlackRock LifePath Index 2040 Fund N	0.0	12.6	18.3	-17.3	16.0	14.1	24.7	-7.2
<i>Blackrock LifePath 2040 Non-Lendable Custom Bmk</i>	-0.2	12.6	18.3	-17.4	16.0	14.0	24.6	-7.3
BlackRock LifePath Index 2045 Fund N	-0.5	14.3	20.2	-17.9	17.7	14.8	26.0	-7.8
<i>Blackrock LifePath 2045 Non-Lendable Custom Bmk</i>	-0.8	14.3	20.1	-18.0	17.7	14.6	26.0	-8.0
BlackRock LifePath Index 2050 Fund N	-1.0	15.6	21.3	-18.2	18.7	15.2	26.6	-8.1
<i>Blackrock LifePath 2050 Non-Lendable Custom Bmk</i>	-1.2	15.7	21.2	-18.3	18.6	15.1	26.5	-8.3
BlackRock LifePath Index 2055 Fund N	-1.2	16.2	21.6	-18.3	18.8	15.3	26.7	-8.1
<i>Blackrock LifePath 2055 Non-Lendable Custom Bmk</i>	-1.5	16.3	21.6	-18.4	18.8	15.2	26.6	-8.3

At the close of 3/11/2022, the OPERS target date funds were replaced by the BlackRock Lifepath Index N funds. Time periods longer than 3/11/2022 are shown for illustrative purposes and represents the class O shares.

Performance Summary | As of March 31, 2025

	2025 (%)	2024 (%)	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)
BlackRock LifePath Index 2060 Fund N	-1.2	16.3	21.6	-18.3	18.8	15.3	26.7	-8.1
<i>Blackrock LifePath 2060 Non-Lendable Custom Bmk</i>	-1.5	16.4	21.6	-18.4	18.8	15.2	26.6	-8.3
BlackRock LifePath Index 2065 Fund N	-1.2	16.4	21.6	-18.3	18.8	15.1	--	--
<i>Blackrock LifePath 2065 Non-Lendable Custom Benchm</i>	-1.5	16.4	21.6	-18.4	18.8	15.2	--	--
BlackRock LifePath Index 2070 Fund N	--	--	--	--	--	--	--	--
<i>BlackRock LifePath 2070 Non-Lendable Custom Benchm</i>	-1.5	--	--	--	--	--	--	--
Core Options								
Invesco Stable Value Trust - Class B1	0.7	2.9	2.7	1.6	1.4	2.1	2.5	2.4
<i>ICE BofA 3 Month U.S. T-Bill</i>	1.0	5.3	5.0	1.5	0.0	0.7	2.3	1.9
BlackRock U.S. Debt Index Fund J	2.8	1.4	5.7	-13.0	-1.6	7.6	8.8	0.1
<i>Blmbg. U.S. Aggregate Index</i>	2.8	1.3	5.5	-13.0	-1.5	7.5	8.7	0.0
BlackRock Russell 3000 Index Fund J	-4.7	23.8	26.1	-19.2	25.7	21.0	31.1	-5.2
<i>Russell 3000 Index</i>	-4.7	23.8	26.0	-19.2	25.7	20.9	31.0	-5.2
BlackRock Russell 1000 Index Fund J	-4.5	24.5	26.6	-19.1	26.4	20.9	31.5	-4.7
<i>Russell 1000 Index</i>	-4.5	24.5	26.5	-19.1	26.5	21.0	31.4	-4.8
BlackRock Russell 2000 Index Fund J	-9.5	11.5	17.1	-20.4	14.9	20.0	25.7	-10.9
<i>Russell 2000 Index</i>	-9.5	11.5	16.9	-20.4	14.8	20.0	25.5	-11.0
BlackRock MSCI ACWI ex-US Index Fund J	6.2	5.4	15.6	-15.7	7.9	11.0	21.8	-14.0
<i>MSCI AC World ex USA (Net)</i>	5.2	5.5	15.6	-16.0	7.8	10.7	21.5	-14.2

At the close of 3/11/2022, the BlackRock Russell 3000 index, BlackRock Russell 2000 index, BlackRock Russell 1000 index, and BlackRock MSCI ACWI ex-US index moved to lending shares. The J shares were launched by OPERS, as other investo the administrative expenses will lower the total fee. At the close of 3/11/2022 the BlackRock U.S Debt Index moved to the M share class and the Invesco Stable Value Trust moved to the B1 Share class. Time periods longer than 3/11/2022 are show illustrative purposes and represents the combined return from the share class conversions.

Annual Investment Expense Analysis		
	Expense Ratio (%)	Morningstar Category Avg. Expense Ratio (%)
Index Funds	0.02	-
BlackRock Russell 1000 Index Fund J	0.02	0.76
BlackRock Russell 2000 Index Fund J	0.02	0.97
BlackRock Russell 3000 Index Fund J	0.02	0.76
BlackRock U.S. Debt Index Fund J	0.03	0.56
BlackRock MSCI ACWI ex-US Index Fund J	0.06	0.88
Invesco Stable Value Trust - Class B1	0.31	0.40

BlackRock LifePath Index 2025 Fund N ended 10/31.

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Board Meeting VII.B. Meketa Presentation

MEKETA

INVESTMENT GROUP



Ohio Public Employees Retirement System| Trend Following, Alternative Risk Premia and Hedge Funds

May 2025

Hedge Fund Overview

What are Hedge Funds?

- General term used to describe a broad array of strategies.
- Private investment pools available to individuals and institutions.
- Represent a portfolio construction and management method, not an asset class.
- Can invest in traditional asset classes and non-traditional securities.
- Ability to utilize leverage, short-selling, derivatives, and illiquid securities.
- May or may not be directional in nature and are often granted significant flexibility.
- Like other managers, they accept risks to generate returns.
- Some charge high fees and invest in illiquid securities, others charge low fees and offer daily liquidity.
- Hedge funds should be thought of as a unique type of fund structure but not a strategy type.

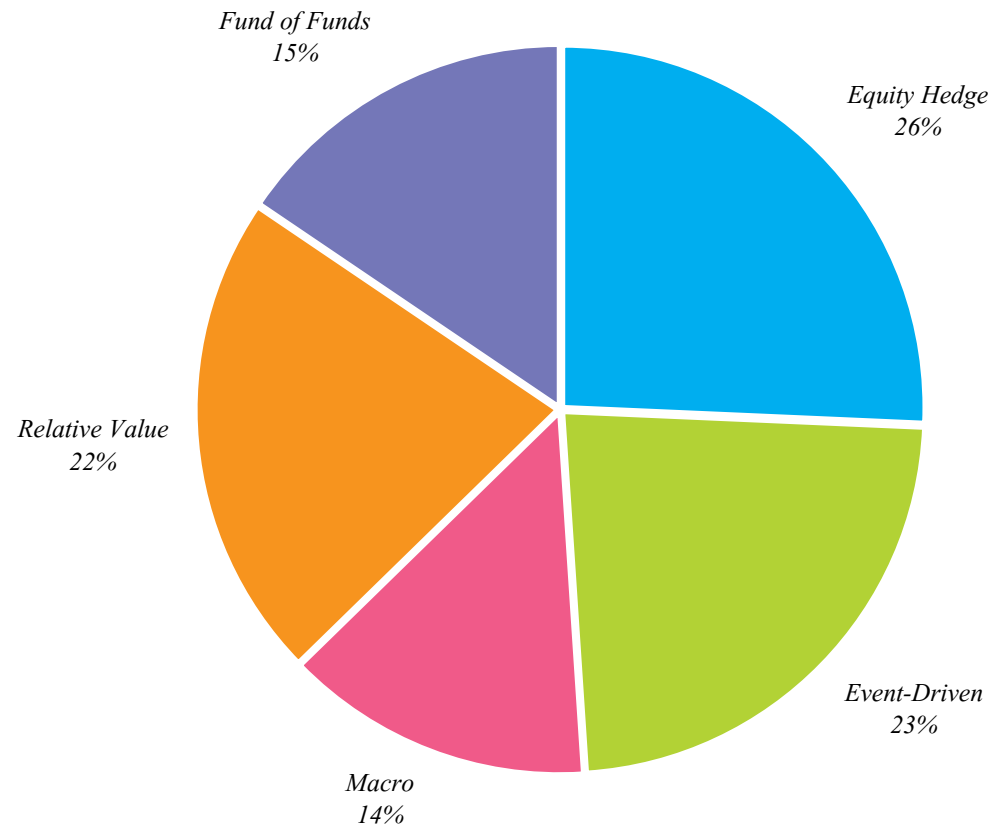
Hedge Fund Tools

- The flexibility afforded hedge funds is often touted as a key advantage.
- However, like many of the other tools used by hedge funds, complete discretion is a two edged sword.

<i>Tool</i>	<i>Benefit</i>	<i>Risk</i>
Short selling	Being able to profit from an asset declining in value.	Unlimited loss potential if the security price increases.
Leverage	Enables taking positions greater than the amount of capital on hand, thus amplifying gains.	Amplifies losses and introduces complexity.
Derivatives	Can cost-effectively gain exposures to various drivers of return, and it can also hedge or amplify exposures.	Adds complexity, and introduces new risks, including potentially larger losses.
Illiquid Assets	Access to assets with potentially higher returns.	Makes it harder to exit the fund in the event of needing liquidity.
Arbitrage	Can efficiently exploit price discrepancies.	May need high amounts of leverage to get meaningful return.
Limited Constraints	A broader opportunity set increases the potential for finding alpha.	Managers may lack expertise in complex markets.

Hedge Fund Types*

→ Hedge funds are estimated to be a \$5+ trillion industry with thousands of underlying funds



* Definitions of these strategies can be found on page 30

Hedge Fund Return Profiles

→ Different strategies (tools) generate distinctly different outcomes as show below.

Risk Mitigating Strategies

Primary Role: Variable returns with low to negative levels of on-going beta exposure to traditional markets

Considerations:

- Absolute return expectations
- Equity drawdown mitigation reliability
- Liquidity / cost

Common Strategies: Long Volatility, Tail Risk Strategies, Trend Following, Alternative Markets Trend, Alternative Risk Premia, Global Macro, Insurance Linked Strategies, Relative Value, Equity Market Neutral, Multi-Strategy, etc.

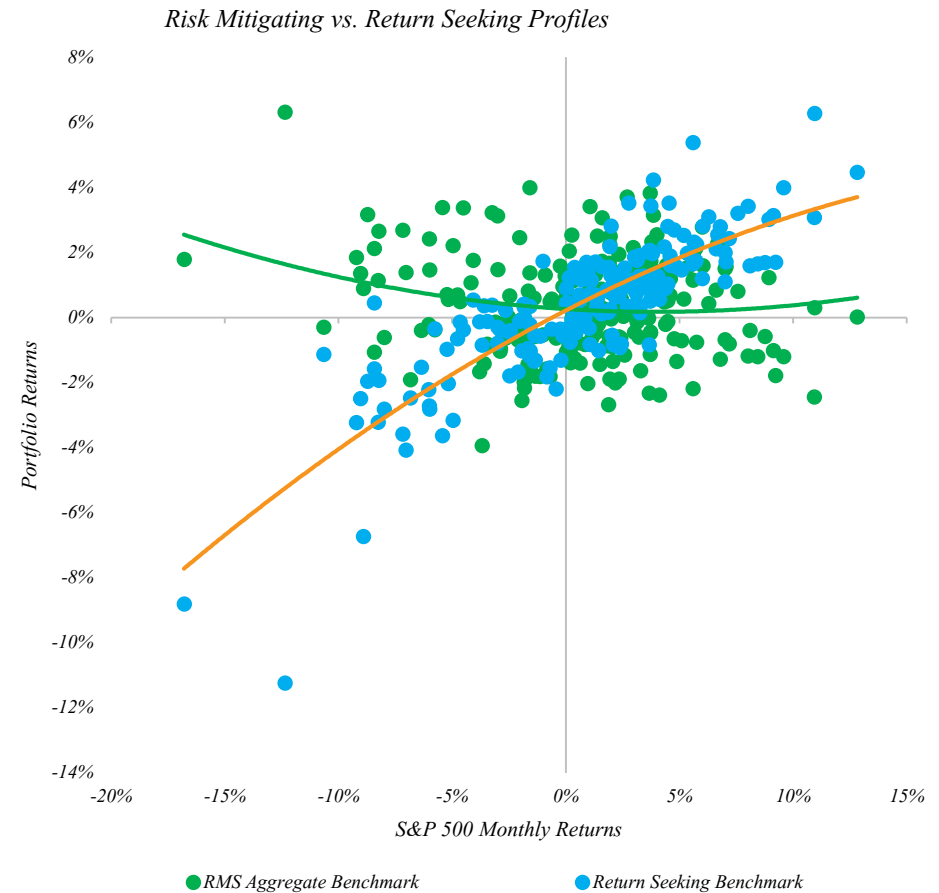
Return Seeking Strategies

Role / Description: High absolute returns with moderate to high levels of on-going beta exposure to traditional markets

Considerations:

- Paying for beta or alpha
- Return drivers
- Liquidity / cost

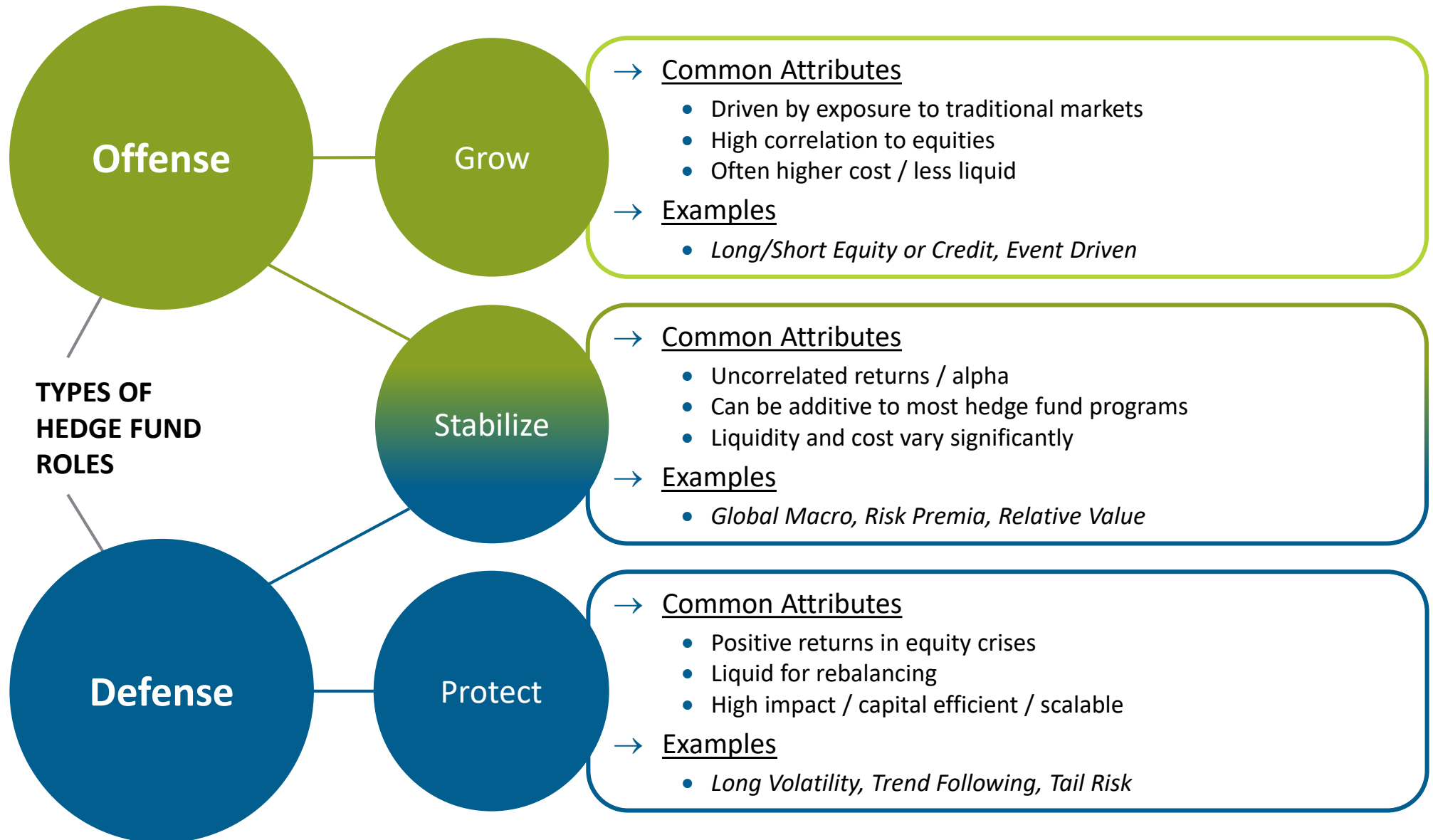
Common Strategies Used: Equity Long / Short, Quantitative Directional, Sector Specific, Short Bias, Activist, Credit Arbitrage, Distressed, Merger Arbitrage, Special Situations, Fund of Funds, Fixed Income, Commodities, Currencies, etc.



* Monthly data points from January 2008 through January 2024. RMS Aggregate Benchmark is an equally capital weighted combination rebalanced annually of RMS 1st Responders Benchmark (1/3 CBOE EH Tail Risk, 1/3 CBOE EH Long Volatility, 1/3 Bloomberg US Long Treasury), RMS 2nd Responders Benchmark (SG Trend Index) and RMS Diversifiers Benchmark (25% HFRI Macro, 25% HFRI Relative Value, 25% HFRI Event Driven, 25% HFRI EH: Equity Market Neutral). Return Seeking Benchmark is an equally capital weighted combination rebalanced annually of HFRI Equity Hedge (Total Index, HFRI Credit Index, and HFRI Event Driven Index).

Hedge Fund Allocation Roles

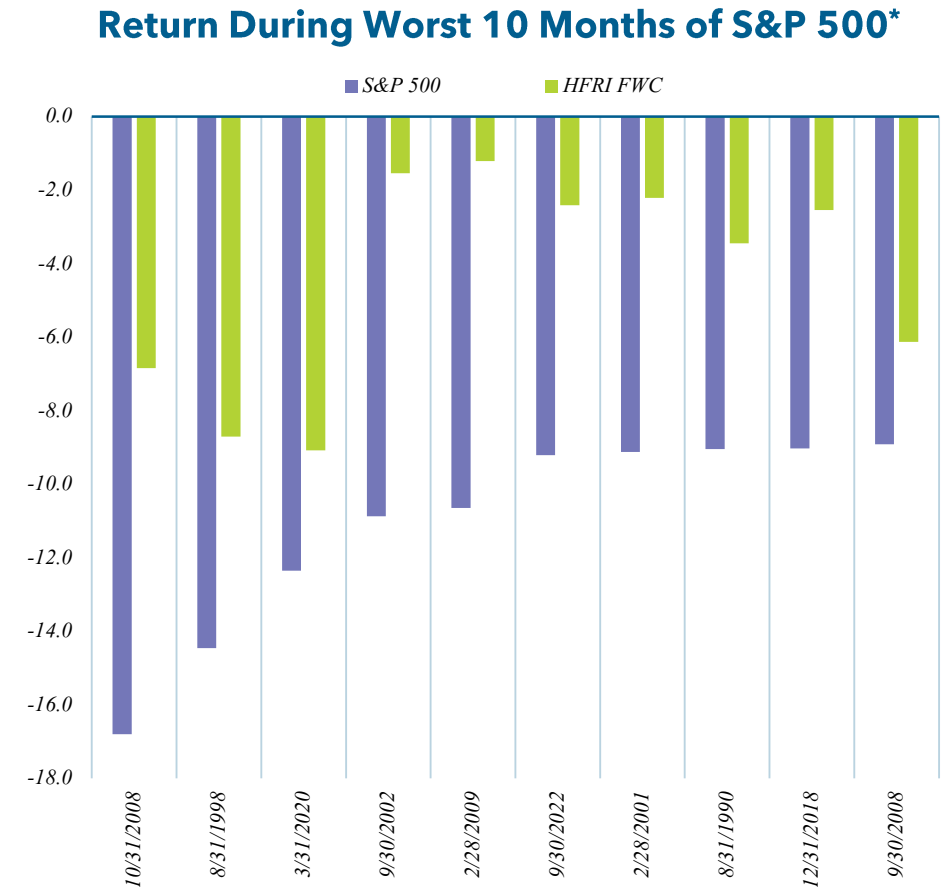
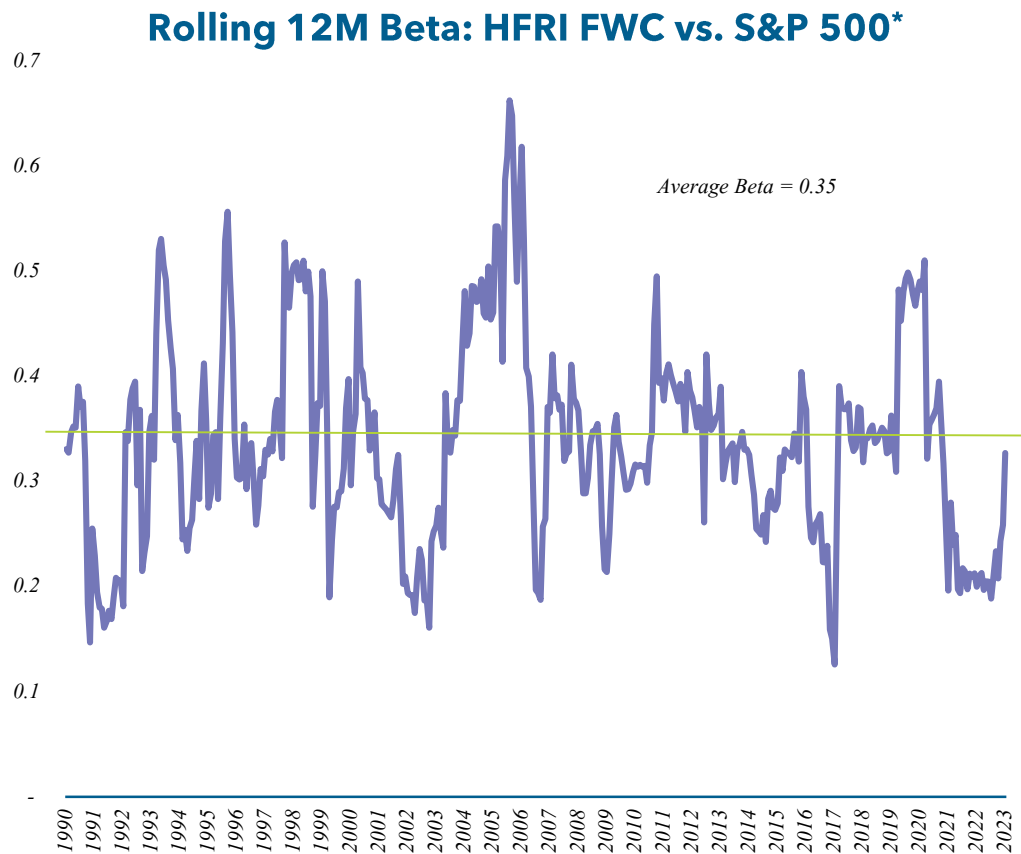
→ If there is no clear objective, hedge fund allocations often produce disappointing results.



Shortcomings of Typical Hedge Fund Programs

Embedded Beta: about 35% of the return from the broad hedge fund universe comes from equity markets.

Downside Protection: lack of positive absolute returns during the worst equity drawdowns.



*Source: FactSet. January 1990 through December 2023. HFRI FWC = HFRI Fund Weighted Composite

Fees of Typical Hedge Funds

- Hedge fund fees are much higher than for traditional public market investments
- Hedge fund managers charge fees both on the amount of assets in the fund and the amount of profit they make.
 - The average rates are a management fee of 1.5% of AUM in addition to a 17% performance fee.
- The high fees charged by hedge funds present a larger hurdle for producing positive returns than investors face with traditional managers.
 - Further, the incentive fee (i.e., the carry) is asymmetrical in its reward structure.
 - Additionally, incentive fees may encourage the manager to accept excess risk.

*Source: FactSet, January 1990 through December 2023. HFR EWC - HFR Fund Weighted Composite.
Source: Preqin. Investors with smaller assets and/or less negotiating power are more likely to pay the traditional industry standard of "2 and 20" (i.e., 2% on AUM and 20% of profits).

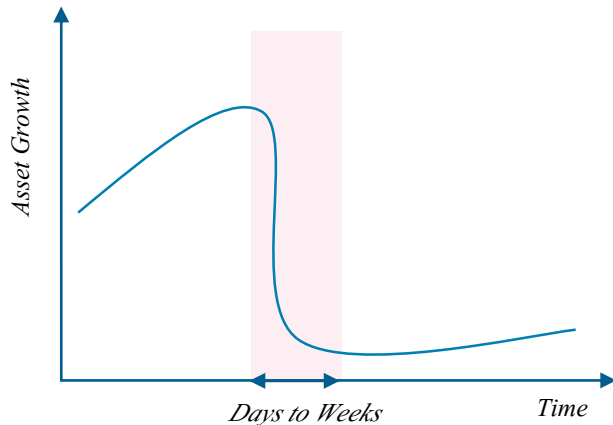
Risk Mitigating Strategies Overview

RMS Program Building Blocks

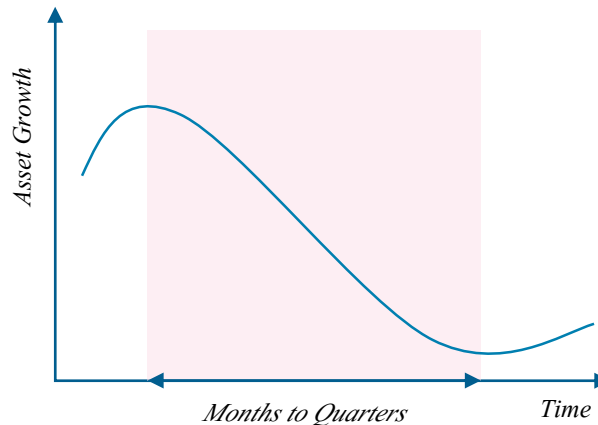
RMS Programs are designed to:

- Provide diversification properties that are difficult to achieve in traditional asset classes
- Have a positive long-term expected return, particularly during equity drawdowns
- Be scalable and capital efficient to have a material impact to asset allocation
- Provide liquidity for rebalancing and improve probabilities of meeting spending requirements
- Provide customization to meet the specific needs of investors

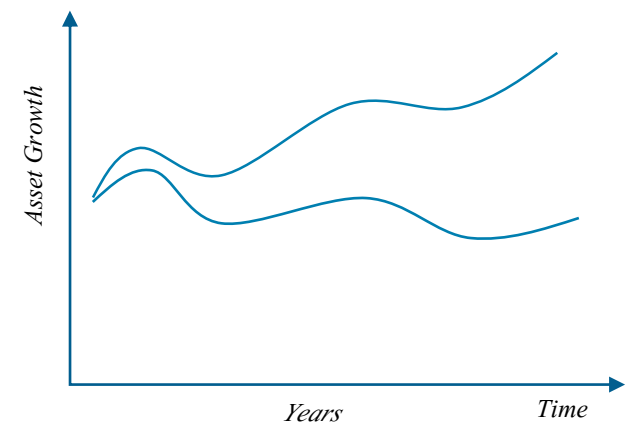
Sharp Drawdown



Extended Drawdown



Bull & Flat Markets



First Responders

Primary Role: First line of protection in an equity drawdown

Strategy Examples: Long Volatility, Long Duration US Treasuries, Tail Risk Strategies

Second Responders

Primary Role: Second line of protection in an equity drawdown

Strategy Examples: Trend Following, CTAs, Managed Futures

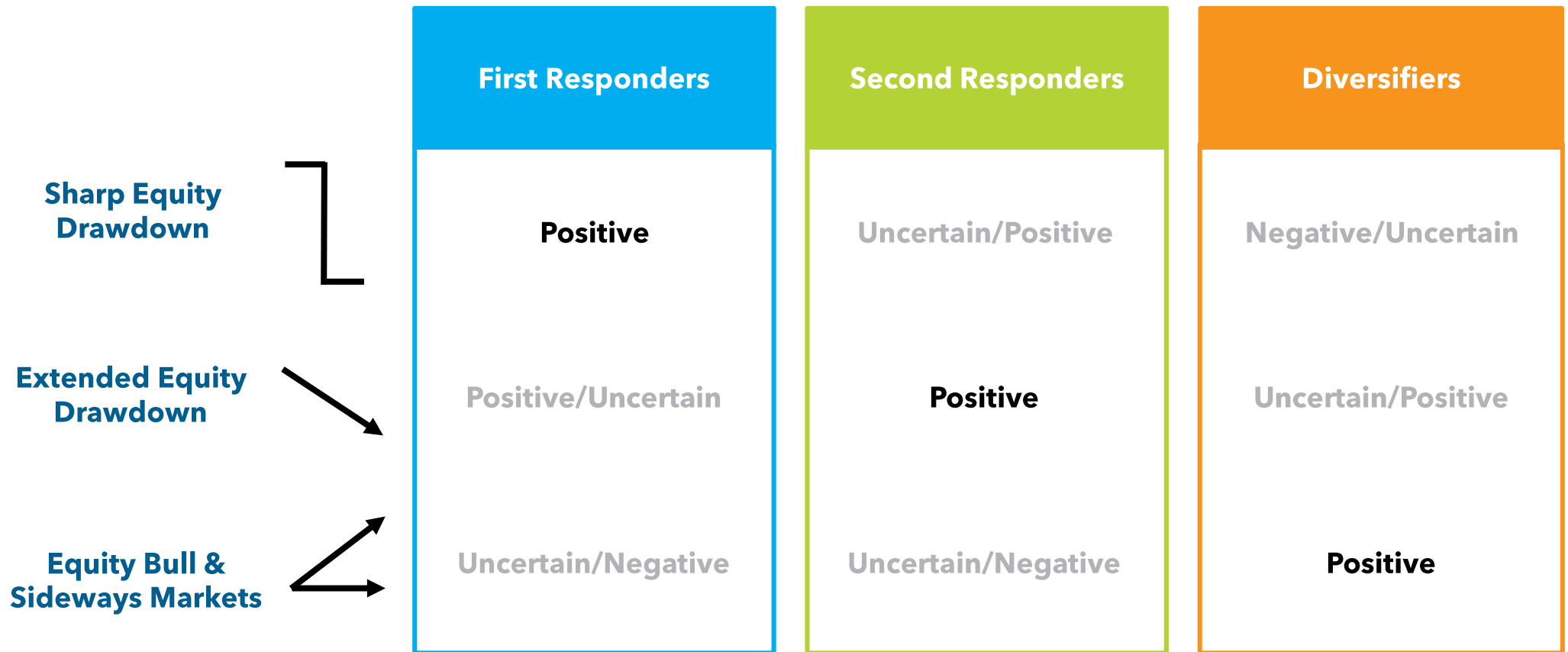
Diversifiers

Primary Role: Provide uncorrelated returns to stabilize 1st and 2nd responders

Strategy Examples: Global Macro, Multi-Strategy, Equity Market Neutral, Relative Value, Event-Driven, Insurance Linked, Alternative Risk Premia, etc.

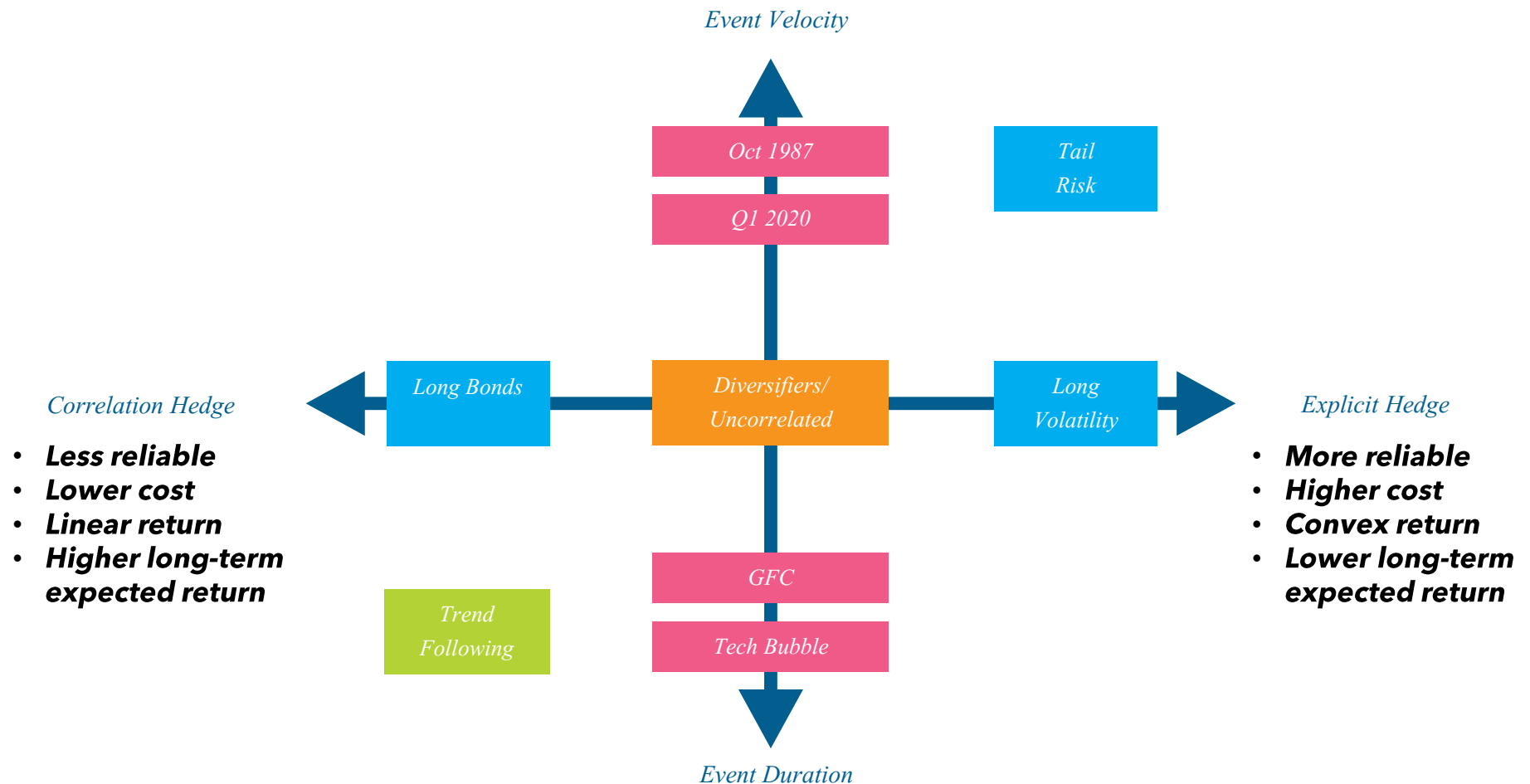
RMS Components and Expected Outcomes

→ Allocating across multiple components increases the probability of achieving a desired result

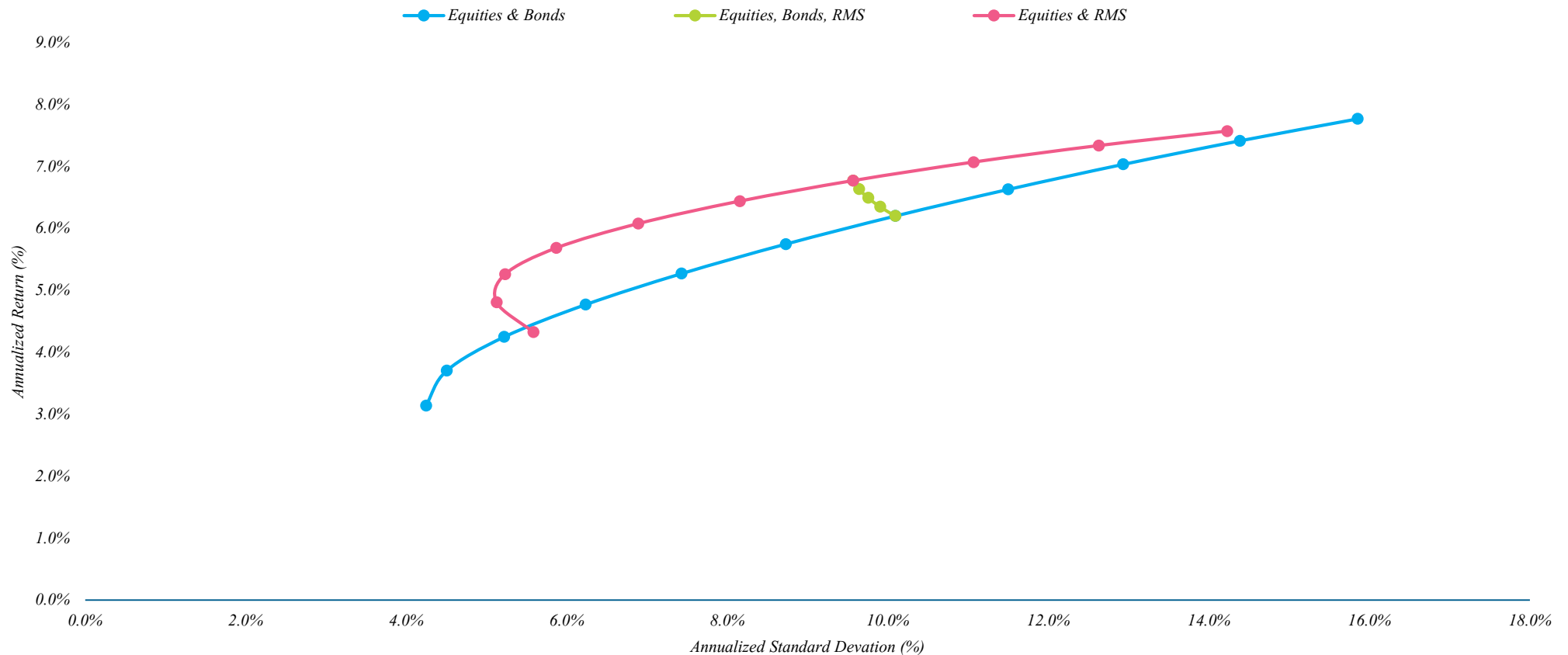


Diversifying Portfolio Considerations

- There are key tradeoffs to consider when selecting complements to equity exposure, which revolve around cost, capital efficiency, convexity and asset class coverage



Efficient Frontier Impact (Jan. '05 - Feb. '25)*



- RMS has the potential to increase return and reduce risk through reduction of bonds.
- By reducing equities, RMS may further reduce risk while maintaining higher levels of return, up to a point.
- Factors such as liquidity, RMS program design, and overall client objectives need to be considered.

*Source: Please see "RMS Benchmark" methodology in the Appendix.

Trend Following Overview

What is Trend Following?

Trend following strategies attempt to profit by identifying global market trends and taking long or short positions based on the direction of those trends

- Buy what is going up; sell what is going down.
- Trades based on market price movement, not market fundamentals

Strategy summary:

- Systematic rules-based implementation
- Scalable at the institutional level
- Strategy volatilities range from ~8-20% (equity volatility is ~15-20%)
- Trades futures and forwards across; equities, fixed income, currencies, and commodities
- May also be referred to as managed futures or CTAs (commodity trading advisors)
- Positive expected return
- No structural long- or short-bias
- Historically provide positive returns during large equity drawdowns
- Uncorrelated to equity risk and other major market risks (correlation based hedge)
- Highly liquid and low fee options are available
- Live track records of 20+ years for some managers

Characteristics of Trend Following

Trend following strategies are managed using a systematic repeatable process with no structural long or short-bias to equities, fixed income, currencies, or commodities



History of Trend Following

Trend following strategies have been utilized for decades

- *“Cut short your losses, let your profits run on” – David Ricardo, The Great Metropolis, 1838*
- Dow Theory, originated by Charles Dow through a series of articles from 1899 to 1902
- *“big money was not in the individual fluctuations but in ... sizing up the entire market and its trend” – Jesse Livermore, Lefevre, 1923*

Example Manager Live Track Records

- Millburn Diversified = 1977
- Chesapeake Diversified = 1988
- Transtrend = 1992
- Winton Diversified = 1997
- AHL Alpha = 1995
- Aspect Diversified = 1998
- SG Trend Index = 2000
- Systematica BlueTrend = 2004
- Graham Tactical Trend = 2006
- AQR Managed Futures = 2009

Why do Markets Trend?

Behavioral Perspective:

- Informational access or processing differences
- Confirmation bias
- Under / over reaction to news
- Feedback loops
- Herding

Economic Perspective:

- Companies hedging price risks
- Government and central bank policies used to influence economic growth
- Time varying risk premia

Institutional Perspective:

- Hedge fund risk systems (e.g., stop-losses) may exacerbate price declines
- Delta hedging (buying more of assets as the price goes up and selling more as prices decline)
- Flows or rebalancing driven triggers

How are trends identified?

- Moving average crossovers are the most common basic example of trend following
- Loses money when trends reverse and makes money as they continue

Moving Average Crossover Example: S&P 500



History of Trend Following

There has been a significant amount of academic research completed which reviews and assesses the efficacy of trend following strategies across 100+ years

- “*...time-series momentum has been consistently profitable throughout the past 137 years.*” – A Century of Evidence on Trend-Following Investing, Hurst, Brian and Ooi, Yao Hua and Pedersen, Lasse Heje,
- “*...time series momentum profits are positive, not just on average across these assets, but for every asset contract we examine...*” – Time series momentum, Tobias J. Moskowitz, Yao Hua Ooi, Lasse Heje Pedersen, Journal of Financial Economics 2012

Historically were only available through a traditional 2% / 20% hedge fund structure

- What was once thought to be “alpha” can now be obtained as “beta”
- Managers are primarily hired due to strategy design and implementation

A wide array of implementation is now available through liquid low fee structures

Large scale institutions have been investing in trend following for over two decades

US Pension Plans have invested billions of dollars into trend following strategies as a part of Risk Mitigating Strategies portfolios

Performance Characteristics: Full Cycle Returns

- SG Trend Index = Manager index / composite of 10 largest trend followers
- Trend Following has historically provided diversification to equities

Growth of \$1 from 2000 to March 2024



Source: Societe Générale, MSCI. Global Equity = MSCI ACWI.

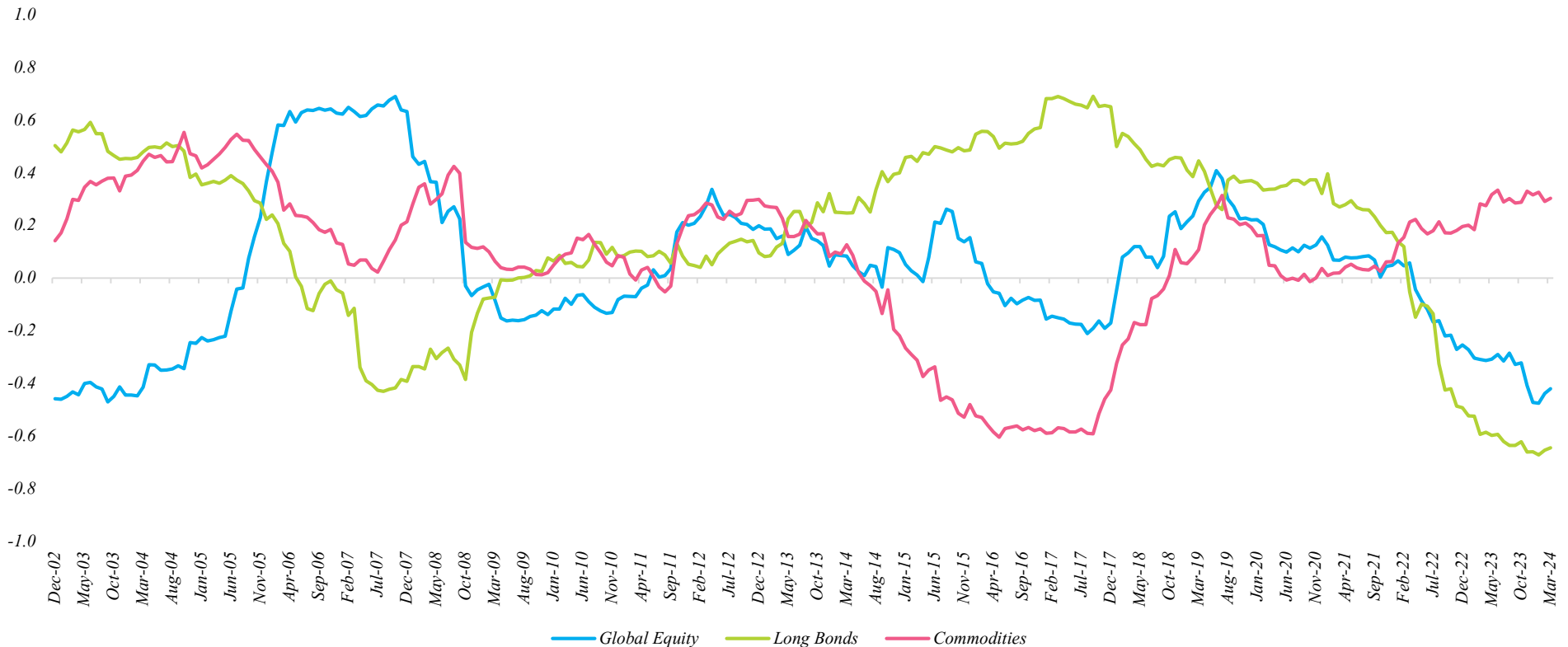
Year	Global Equity	SG Trend Index
2000	-14%	12%
2001	-16%	0%
2002	-19%	26%
2003	35%	12%
2004	16%	3%
2005	11%	1%
2006	22%	8%
2007	12%	9%
2008	-42%	21%
2009	35%	-5%
2010	13%	13%
2011	-7%	-8%
2012	17%	-4%
2013	23%	3%
2014	5%	20%
2015	-2%	0%
2016	9%	-6%
2017	25%	2%
2018	-9%	-8%
2019	27%	9%
2020	17%	6%
2021	19%	9%
2022	-18%	27%
2023	-4%	22%
Q1 2024	12%	8%

Ann. Return	5.6%	6.1%
Monthly StDev	16.1%	13.5%
Sharpe Ratio	0.24	0.32

Performance Characteristics: Correlations

- With no structural long or short bias, trend following in aggregate exhibits low to no correlation on average to major market risks
- Correlations to equities are also commonly negative during periods of equity drawdowns

Rolling 36-month Correlation to SG Trend Index



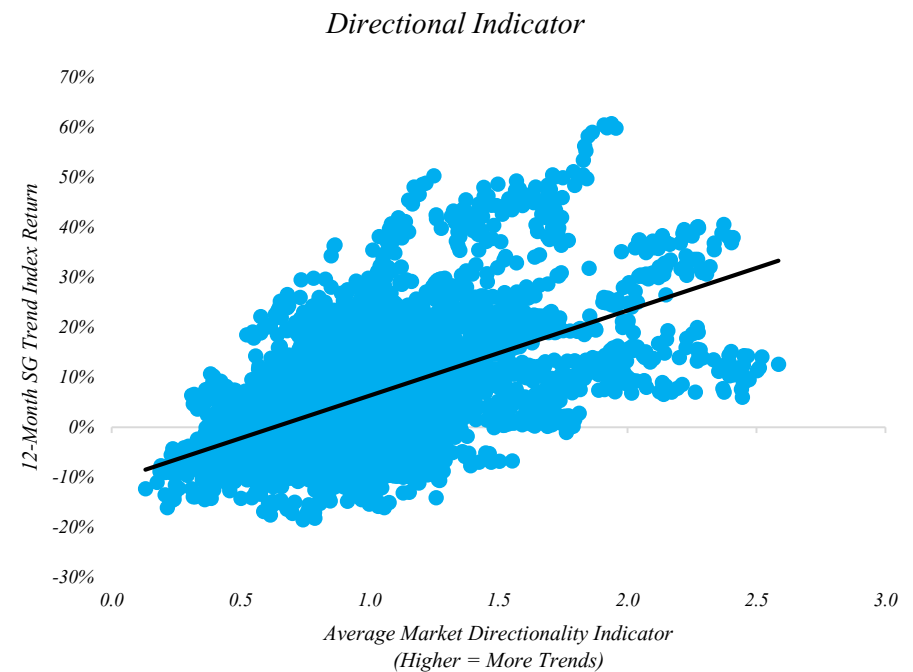
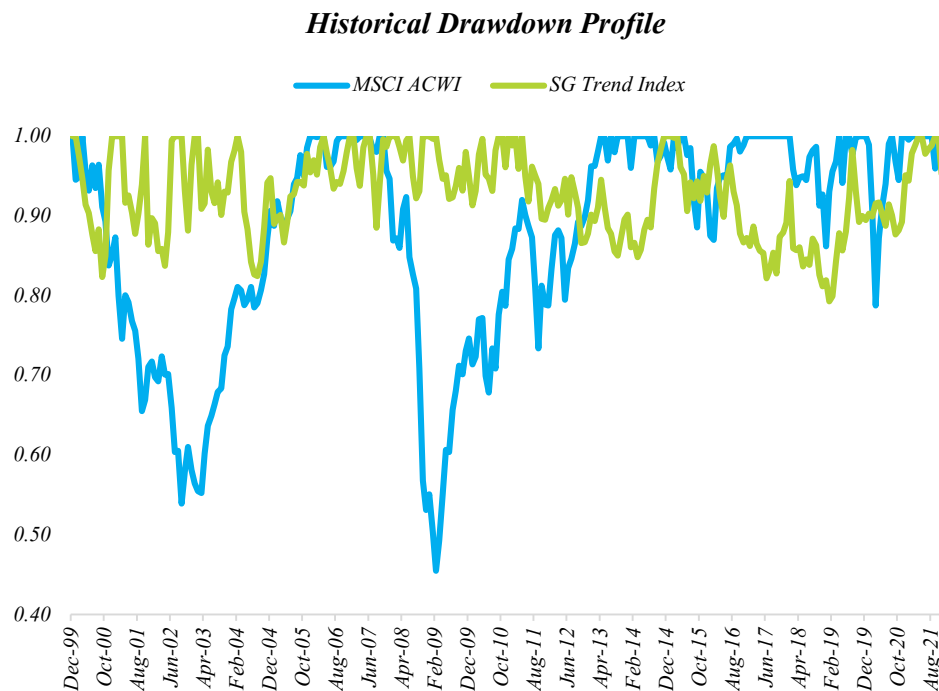
Source: Meketa, Societe Générale, MSCI, Bloomberg. Global Equity = MSCI ACWI, Long Bonds = BB US Treasury 20yr+, Commodities = S&P GSCI.

When does trend underperform?

Trend following typically underperforms in sideways markets or at fulcrum points when markets reverse up (or down) after a sustained trend, creating a drawdown profile that is complimentary to equities

When volatility is high and returns are range-bound, trend following strategies struggle

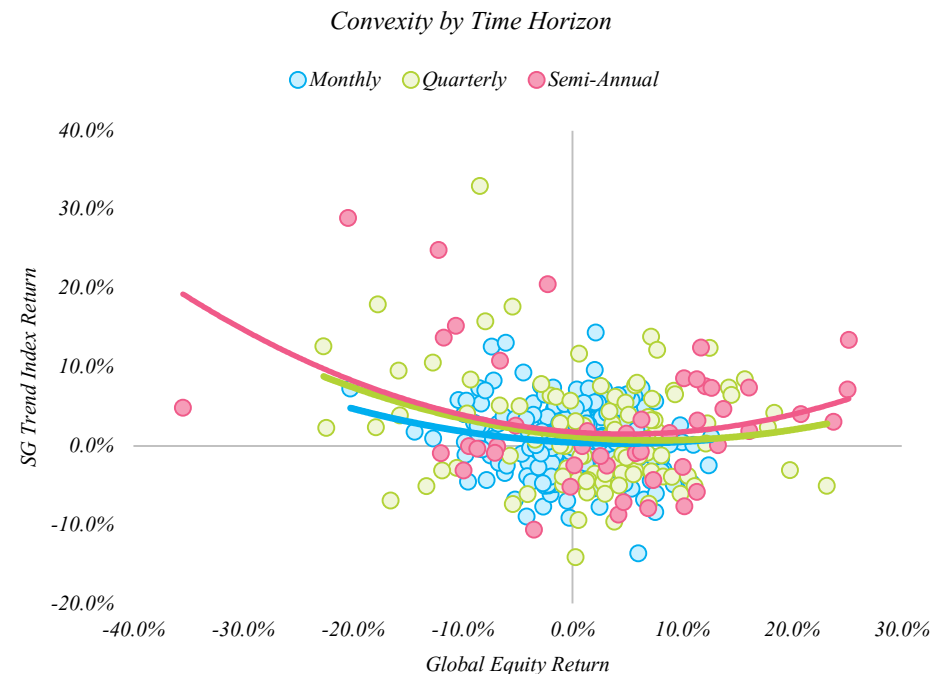
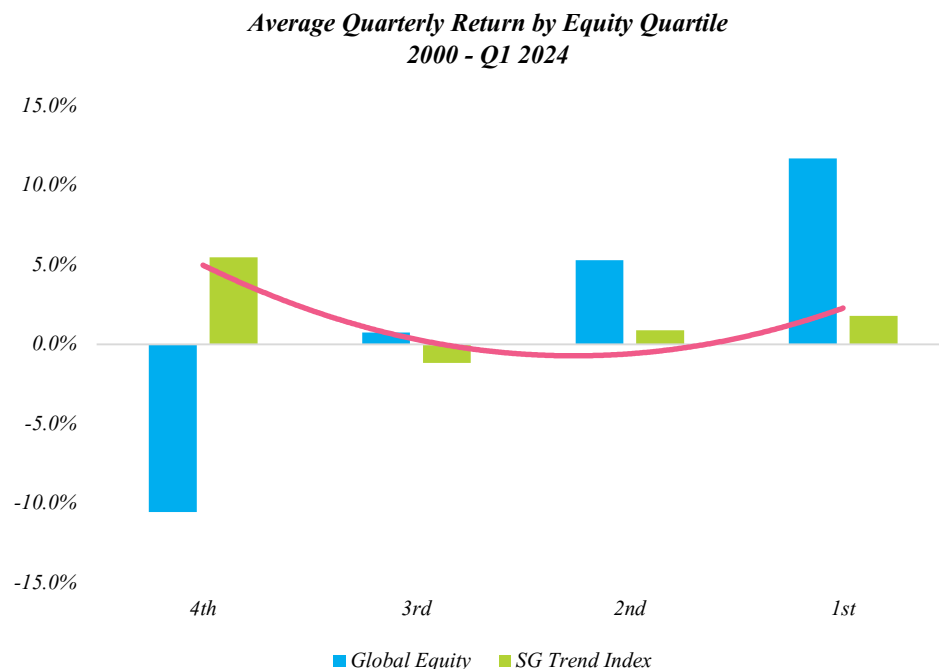
→ This is observed by plotting an average directional market indicator (average across equities, fixed income, and currencies and commodities) versus trend following returns where a higher value is the result of larger market moves (long or short) and / or low volatility during the move.



Source: Societe Générale, MSCI, Bloomberg, Graham Capital

Performance Characteristics: Crisis Alpha

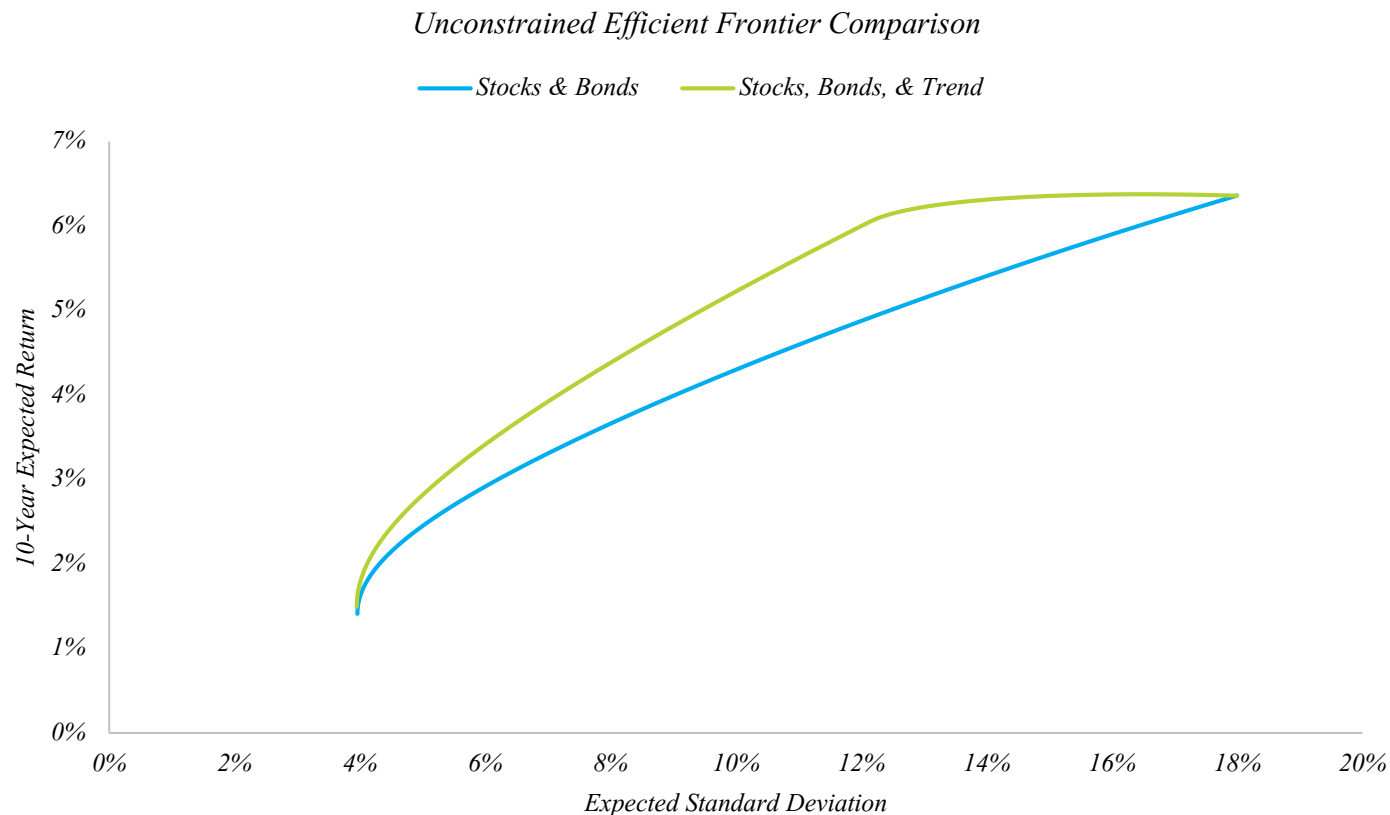
- Trend following has exhibited a negative conditional correlation to equity markets during drawdown periods resulting in a convex return profile
- The best returns for trend following strategies have typically occurred during the best and worst periods for equities
- Given trend following focuses on medium-to-long-term trends (6- to 12-months) the convexity profile of trend following is more attractive at longer time horizons, during trends that are more sustained than 1- to 3-month oscillations



Source: Meketa, Societe Générale, MSCI. Global Equity = MSCI ACWI. The depicted trend lines are second-degree polynomial functions.

Trend Following Role In Asset Allocation

- By reducing both the left and right tails of the distribution, the inclusion of trend following is expected to provide a more efficient set of portfolio for investors consider when compared to the traditional equity and fixed income opportunity set.



Trend Following Summary

- At the most basic level trend following strategies buy assets that have been going up and sell (short) those that have been going down.
- Strategies follow pre-defined rules to trade futures/forwards across global equity indices, interest rates/bonds, currencies, and commodities.
- Trend following strategies have been used for decades.
- With no structural long or short bias, trend following exhibits low-to-no correlation on average to major market risks.
- The best returns for trend following strategies have typically occurred during the best and worst periods for equities.
- Trend following typically underperforms in sideways markets or at fulcrum points when markets reverse up (or down) after a sustained trend.
- Strategies are highly liquid and cost-effective options are available.
- Trend following strategies are highly correlated but do experience significant dispersion.

Summary

Summary



- Hedge funds should be thought of as a unique type of fund structure but not a strategy type.
- Some Hedge Funds charge high fees and are illiquid, others charge low fees and offer daily liquidity.
- Without a defined role or objective, generic Hedge Fund allocations will often disappoint.
- Trend following strategies trade highly liquid securities and thus offer monthly or better liquidity.
- Trend following managers offer low flat fee options and incentive fee options depending on expected excess returns and on-going research investment at the firm.
- Large scale institutions have been investing in trend following for over two decades including many US Pension Plans that have invested billions of dollars as a part of Risk Mitigating Strategies portfolios.
- Trend following strategies are highly correlated but do experience significant dispersion so allocating to multiple strategies and / or approaches is recommended.

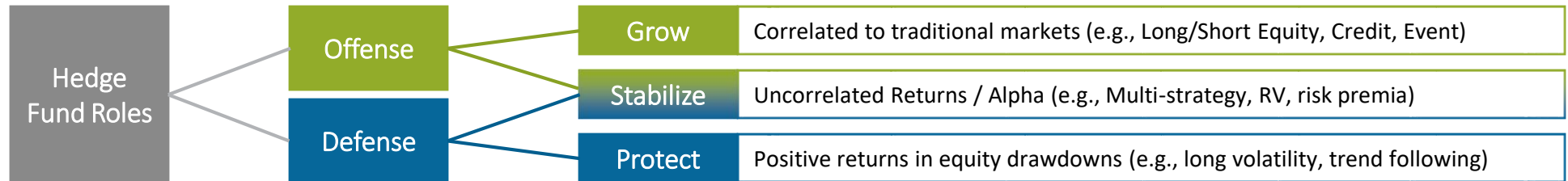
Appendix

Hedge Fund Strategies

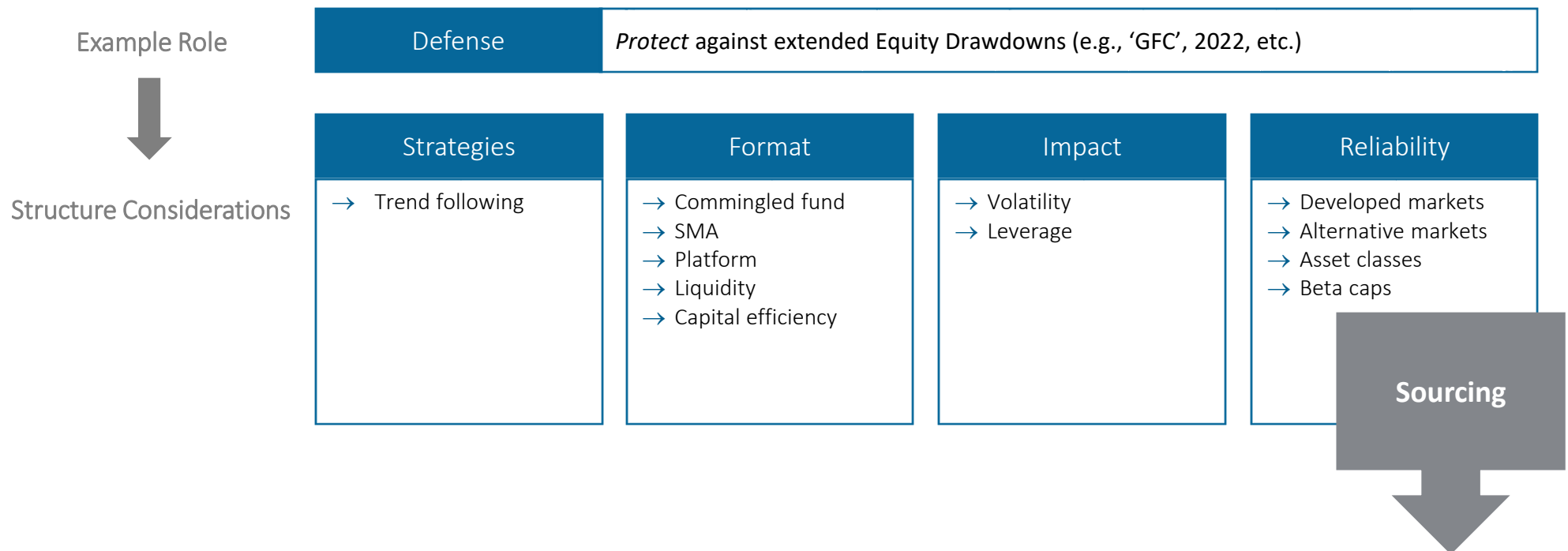
- **Equity hedge (aka long-short equity)** - attempts to create value by investing in undervalued stocks and shorting overvalued stocks.
- **Event-driven** - invests in the securities of companies that are expected to change in price due to an unusual event, such as a bankruptcy or corporate restructuring (e.g., divestiture, merger).
- **Global Macro** - employs a top-down approach to investing. This broad investment spectrum translates into a very large investable universe that can include almost any tradable asset in the world.
 - A sub-group of macro strategies is trend-following. These strategies invest based on both short-term and long-term trends (e.g., momentum) and the subsequent reversals of those trends.
- **Relative value** - attempts to exploit discrepancies in securities that have similar characteristics without taking on directional exposure.
 - A sub-group of relative value strategies is Arbitrage. These strategies seek to exploit inefficiencies in a market by trading a hedged portfolio of offsetting long and short positions, often using leverage to magnify gains.
- **Hedge fund of funds** - select a variety of individual hedge funds, usually with differing strategies, to construct a diversified portfolio.
- **Multi-strategy funds** - incorporate multiple hedge fund strategies under one money manager's umbrella.

Considering Hedge Fund Allocations

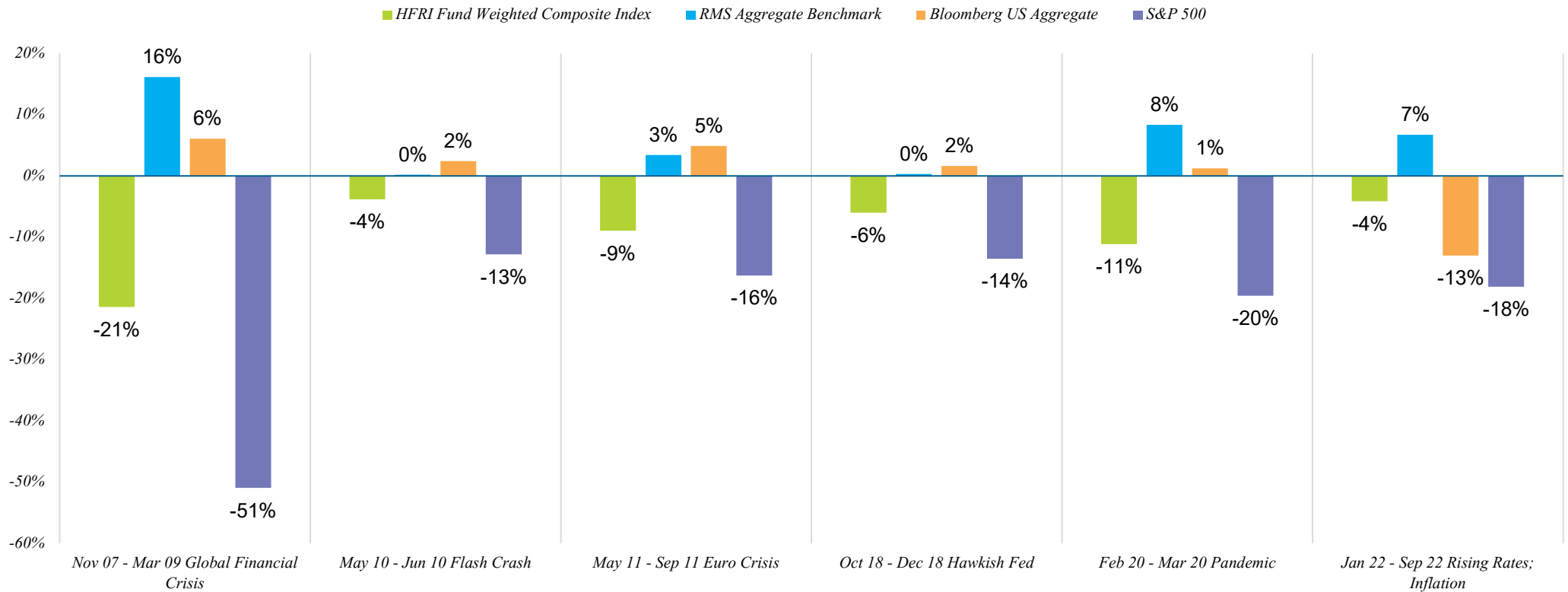
→ Be explicit about the role of a hedge fund allocation



→ Identify appropriate structures that support the role



Returns During S&P 500 Drawdowns of at Least 10%*



- RMS is designed to protect against short and long-term market shocks.
- Gains from RMS during market dislocations can potentially be used to rebalance, fund spending/liabilities, fund capital calls from private investments, etc.
- Factors such as liquidity, RMS program design, and overall client objectives need to be considered.

*Source: Please see "RMS Benchmark" methodology in the Appendix.

Types of Trend Followers

By lookback:

- Short-term (<1-month, or at most <3-months)
- Medium-term (3- to 6-months) to long-term (6- to 12-months)

By markets:

- Traditional = ~60 futures and forwards across equities, fixed income, currencies, and commodities
- Alternative = ~200 markets including emerging markets, OTC contracts, esoteric commodities, etc.

By Fee:

- Replication = ~25-50bps
- Basic Trend = ~50-100bps
- “Alpha” Trend = ~100-200bps and incentive fee

By volatility targeting method:

- Constant notional or volatility target
- Range bound depending on market dynamics

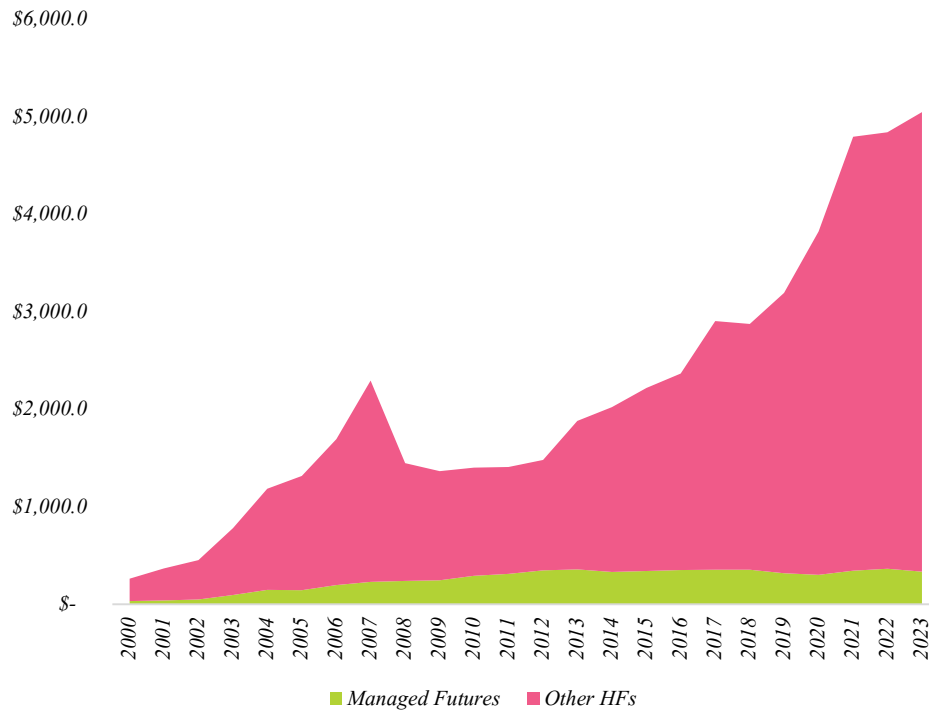
Other common alterations:

- Capping equity beta
- Limiting long equity exposure
- Excluding equities or commodities (due to regulatory constraints)

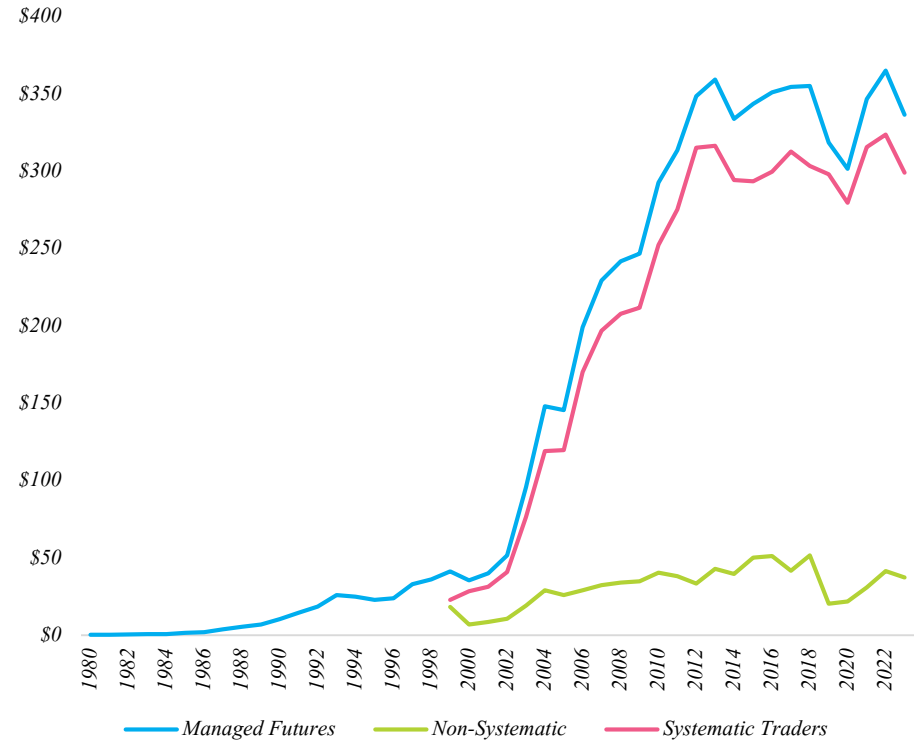
Size of Managed Futures Market

- The universe of trend following strategies can be proxied by the managed futures industry in total which grew significantly between 2001 and 2013
- However, managed futures (or trend following) still only makes up a small proportion of the total hedge fund industry
- There are approximately 30-50 managers which offer trend following solutions

*Hedge Fund Industry AUM (\$B)
2000-2023*



Managed Futures Industry AUM (\$B) 1980-2023

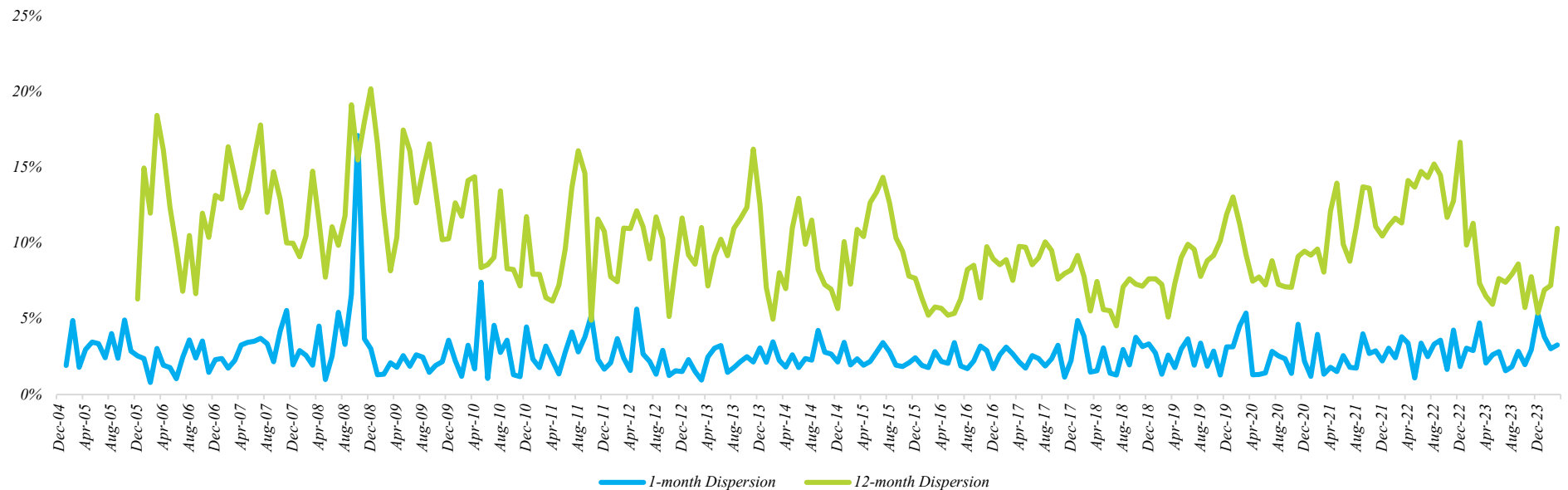


Source: Meketa, Barclay Hedge.

Manager Dispersion

- There is a significant amount of dispersion in returns across trend following strategies
- Accurate ranked manager selection is difficult in this space but are usually clear tiers of managers that can be identified (e.g. high quality, average, low quality)
- Dispersion can be heavily influence by signal lookbacks, markets traded, and volatility targets.
- Dispersion is across ~45 CTA Trend Following Strategies selected by Meketa as peers

*Trend Following Manager Dispersion Interquartile Spread 75th minus 25th
2005 to Q1 2024*



Source: Meketa, eVestment.

Annualized and Calendar Year Returns*

RMS Programs may be enhanced through:

- Manager Selection
- Portfolio Construction
- Capital Efficiency
- Rebalancing
- Negotiated Terms

	1 Year	3 Year	5 Year	7 Year	10 Year	Jan 05 – Feb. 25
RMS Benchmark	2.2%	2.7%	4.3%	3.4%	2.3%	4.3%
First Responders Benchmark	-1.1%	-4.1%	-0.7%	0.8%	-0.6%	3.4%
Second Responders Benchmark	-1.7%	5.5%	6.9%	4.2%	2.6%	4.2%
Diversifiers Benchmark	9.1%	5.6%	5.9%	4.5%	4.3%	4.6%
S&P 500	24.7%	11.4%	14.9%	13.2%	13.6%	10.4%
MSCI ACWI	18.8%	7.6%	10.5%	8.3%	9.4%	7.8%
Bloomberg US Agg	4.3%	-0.8%	-0.2%	1.5%	1.4%	3.1%
Bloomberg US Treasury (20+ Y)	0.2%	-10.4%	-6.2%	-1.4%	-1.3%	3.5%
HFRI Fund Weighted Composite	10.4%	5.4%	7.2%	5.5%	5.3%	5.2%

	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005
RMS Benchmark	2.0%	-0.2%	6.7%	3.7%	11.0%	5.3%	-2.4%	1.8%	-1.0%	0.0%	11.4%	0.0%	-1.7%	5.1%	10.8%	0.0%	16.8%	9.0%	5.2%	5.3%
First Responders Benchmark	-5.4%	-2.2%	-8.3%	-6.6%	22.3%	0.8%	2.9%	-1.7%	-2.3%	0.1%	11.2%	-9.0%	-7.1%	25.5%	10.9%	-9.2%	39.8%	9.7%	0.8%	6.9%
Second Responders Benchmark	2.6%	-4.2%	27.4%	9.1%	6.3%	9.2%	-8.1%	2.2%	-6.1%	0.0%	19.7%	2.7%	-3.5%	-7.9%	13.1%	-4.8%	20.9%	8.6%	8.2%	0.7%
Diversifiers Benchmark	8.6%	5.8%	1.2%	8.7%	4.5%	5.9%	-1.9%	5.0%	5.4%	-0.2%	3.4%	6.4%	5.6%	-2.4%	8.6%	14.2%	-10.2%	8.0%	10.8%	6.6%
S&P 500	25.0%	26.3%	-18.1%	28.7%	18.4%	31.5%	-4.4%	21.8%	12.0%	1.4%	13.7%	32.4%	16.0%	2.1%	15.1%	26.5%	-37.0%	5.5%	15.8%	4.9%
MSCI ACWI	16.4%	21.6%	-18.4%	18.2%	16.3%	26.4%	-10.1%	23.9%	8.4%	-2.2%	3.8%	23.6%	16.4%	-7.9%	14.3%	36.4%	-42.3%	11.2%	20.9%	11.6%
Bloomberg US Agg	1.3%	5.5%	-13.0%	-1.5%	7.5%	8.7%	0.0%	3.5%	2.6%	0.5%	6.0%	-2.0%	4.2%	7.8%	6.5%	5.9%	5.2%	7.0%	4.3%	2.4%
Bloomberg US Treasury (20+ Y)	-8.0%	2.7%	-31.1%	-4.4%	18.1%	15.1%	-2.0%	9.0%	1.4%	-1.6%	27.5%	-13.9%	3.4%	33.8%	9.4%	-21.4%	33.7%	10.2%	0.9%	8.6%
HFRI Fund Weighted Composite	9.8%	8.1%	-4.1%	10.2%	11.8%	10.4%	-4.7%	8.6%	5.4%	-1.1%	3.0%	9.1%	6.4%	-5.3%	10.2%	20.0%	-19.0%	10.0%	12.9%	9.3%

* Source: eVestment. Please see "RMS Benchmark Composition" methodology in the Appendix.

RMS Benchmark Composition

RMS Benchmark is equally weighted, rebalanced each calendar year

- 1/3rd First Responders Benchmark
- 1/3rd Second Responders Benchmark
- 1/3rd Diversifiers Benchmark

First Responders Benchmark*:

- Equally weighted, rebalanced each calendar year: HFRI Long Volatility Index, Bloomberg US Treasury 20+ Years

Second Responders Benchmark:

- SG Trend Index

Diversifiers Benchmark: equally weighted; rebalanced each calendar year

- 25% HFRI Relative Value
- 25% HFRI Equity Market Neutral
- 25% HFRI Macro
- 25% HFRI Event Driven

* In place of the HFRI Long Volatility Index from January 2005 to July 2011 when the HFRI Long Volatility Index performance begins performance uses the CBOE Eurekahedge Long Volatility Index.

Disclaimer



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Model, simulated or pro-forma performance results (model or the model) are unaudited and do not reflect actual results. Model performance results are for illustrative purposes only and are not necessarily indicative of performance that would have been actually achieved if an investment utilized the strategy during the relevant periods, nor are these simulations necessarily indicative of future performance of the strategy. Inherent limitations of such hypothetical returns are as follows without limitation: 1) model results are generally prepared with the benefit of hindsight; 2) model results do not represent the impact that material economic and market factors might have on an investment adviser's decision-making process if the adviser were actually managing client assets; 3) there are numerous factors related to the markets in general, many of which cannot be fully accounted for in the preparation of hypothetical performance results and all of which may adversely affect actual investment results. Investing involves the risk of loss, including the potential loss of principal, and there can be no assurance the adviser will be able to achieve profitable or results comparable to those expressed herein.

Board Meeting VII.C. Aladdin Demonstration

An Overview of BlackRock Aladdin

May 2025



Agenda

1 Introduction - Risk Team

2 What is Aladdin?

3 Why Aladdin?

4 Demonstration

5 Questions



Investments Risk Management Team



**Dan German,
CFA**

17 years OPERS,
26 total

Senior Risk
Manager

MBA, University of
Pittsburgh

BS, Allegheny
College



**Elizabeth
Homeier, CPA**

5 years OPERS,
32 total

Senior Operational
Risk Analyst

MBA, Washington
University at St.
Louis

BS, Smith College



Jack Lake, CFA

17 years OPERS,
31 total

Senior
Risk Analyst

MBA, Case
Western Reserve
BS, Marist College



**Michelle
Lumpkin**

14 years OPERS,
14 total

Senior
Risk Analyst

MBA, University of
Phoenix

BA, Wright State
University



**Sean McCarthy,
CFA, CAIA**

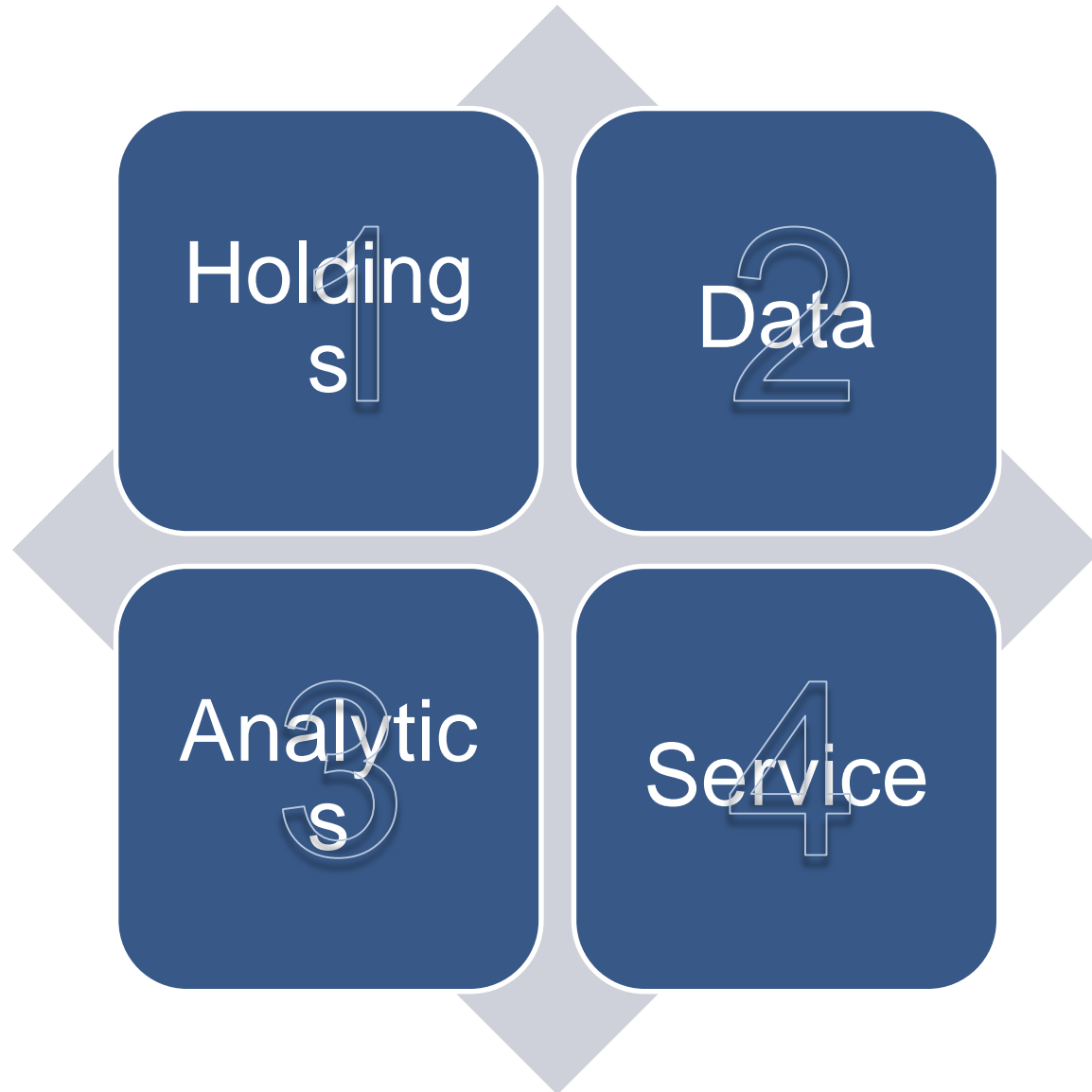
6 years OPERS,
8 total

Senior
Risk Analyst

MA, King's College
London

BA, The Ohio State
University

What Is Aladdin?





Why Aladdin?

- Data Management**
- Single Platform**
- Functionality**

Why Aladdin? - Data Management

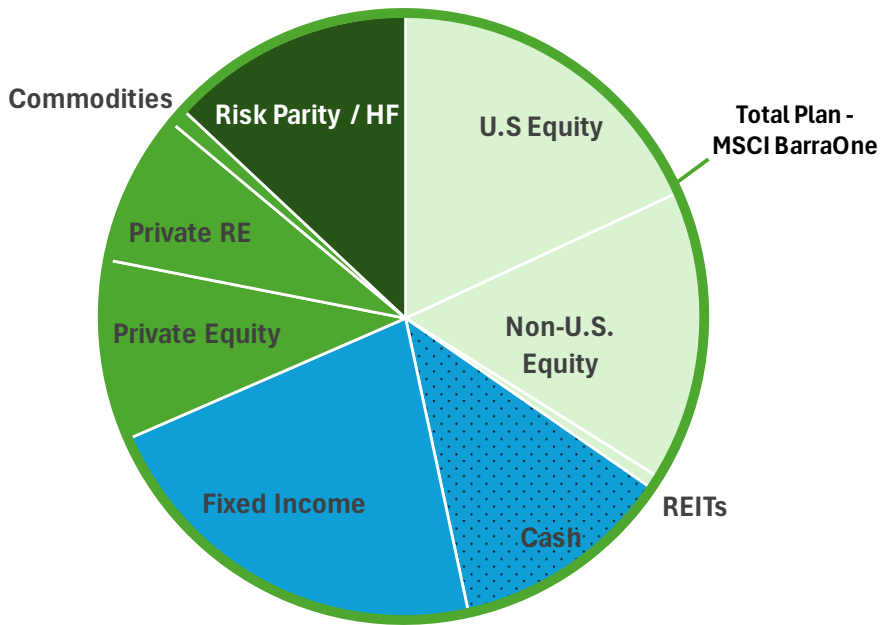
Holdings sources:

1. BNY Mellon
2. OPERS Simcorp
3. OPERS eFront
4. External Managers
5. Swap Providers

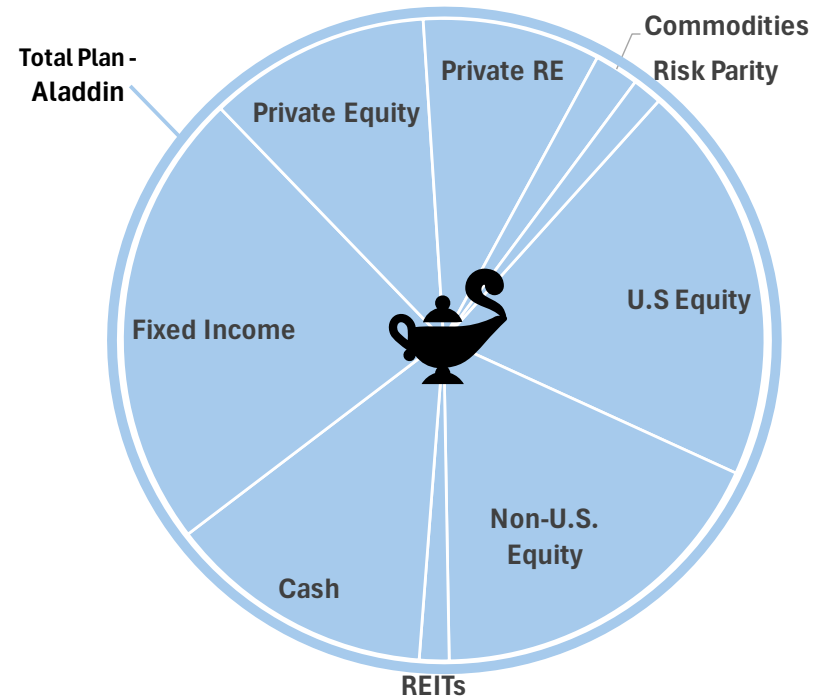
Equities		~
12,000		
Bonds	~	5,000
Derivatives	~	200
Real Estate	~	1,700
Private Equity	~	1,000

Why Aladdin? - Single Platform

Risk Systems - 2018



Risk Systems - 2025



- MSCI RiskManager
- MSCI BarraOne
- MSCI Barra Portfolio Manager
- Bloomberg
- BondEdge

Why Aladdin? - Functionality

High-Quality Analytics

- Holdings-Based
- Comprehensive Asset Coverage

For Analysts, Portfolio / Risk Managers, CIO, Others

- Portfolio & Risk Management
- Security-, sector-, portfolio-, asset class-, and fund-level analysis

Powerful User Interface

- Customizable
- Shared Workspaces

Demonstration

Which OPERS assets are managed:

- Internally? Externally?
- Actively? Indexed?

How do the Plans perform under stress tests? Historical scenarios?

- E.g., Scenario Analysis – L.A. Wildfires

In the Defined Benefit Plan, what is the:

- Asset allocation?
- Total risk?
- Active risk?

In Private Real Estate, what is the:

- Manager exposure?
- Geographic exposure?
- Property exposure?

What are OPERS derivatives:

- Holdings?
- Exposures by contract type?
- Exposures by asset class?

Are holdings within the OPERS Derivatives Policy limit?

Board Meeting VII.E. DC Plan Investment Update

Defined Contribution (DC) Plan Investment Update

Lincoln D. Carnam

Assistant Portfolio Manager, External Public Markets

May 20, 2025

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AGENDA

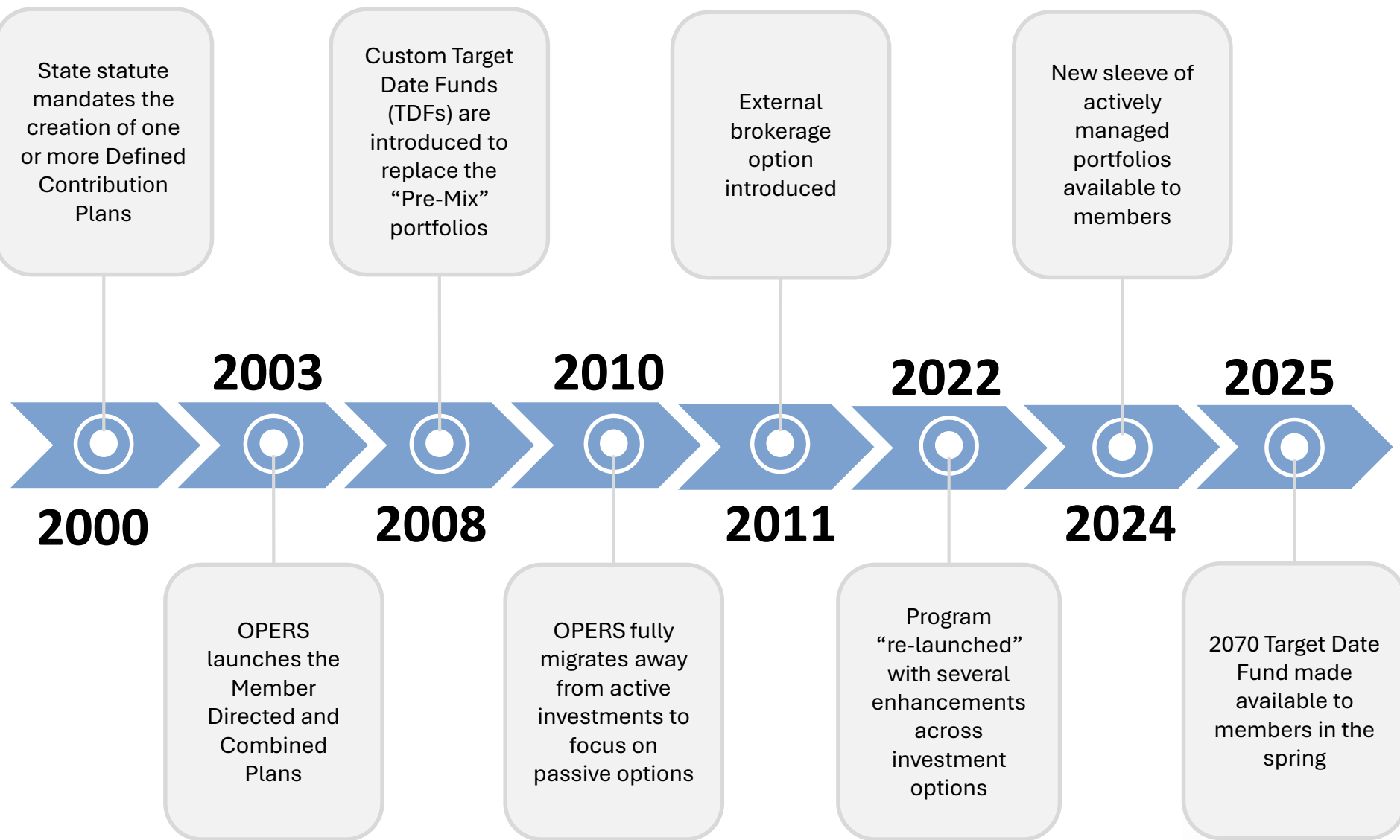
History of the Defined Contribution Plan

Governance

Current State of the Defined Contribution Plan

Investment Fees

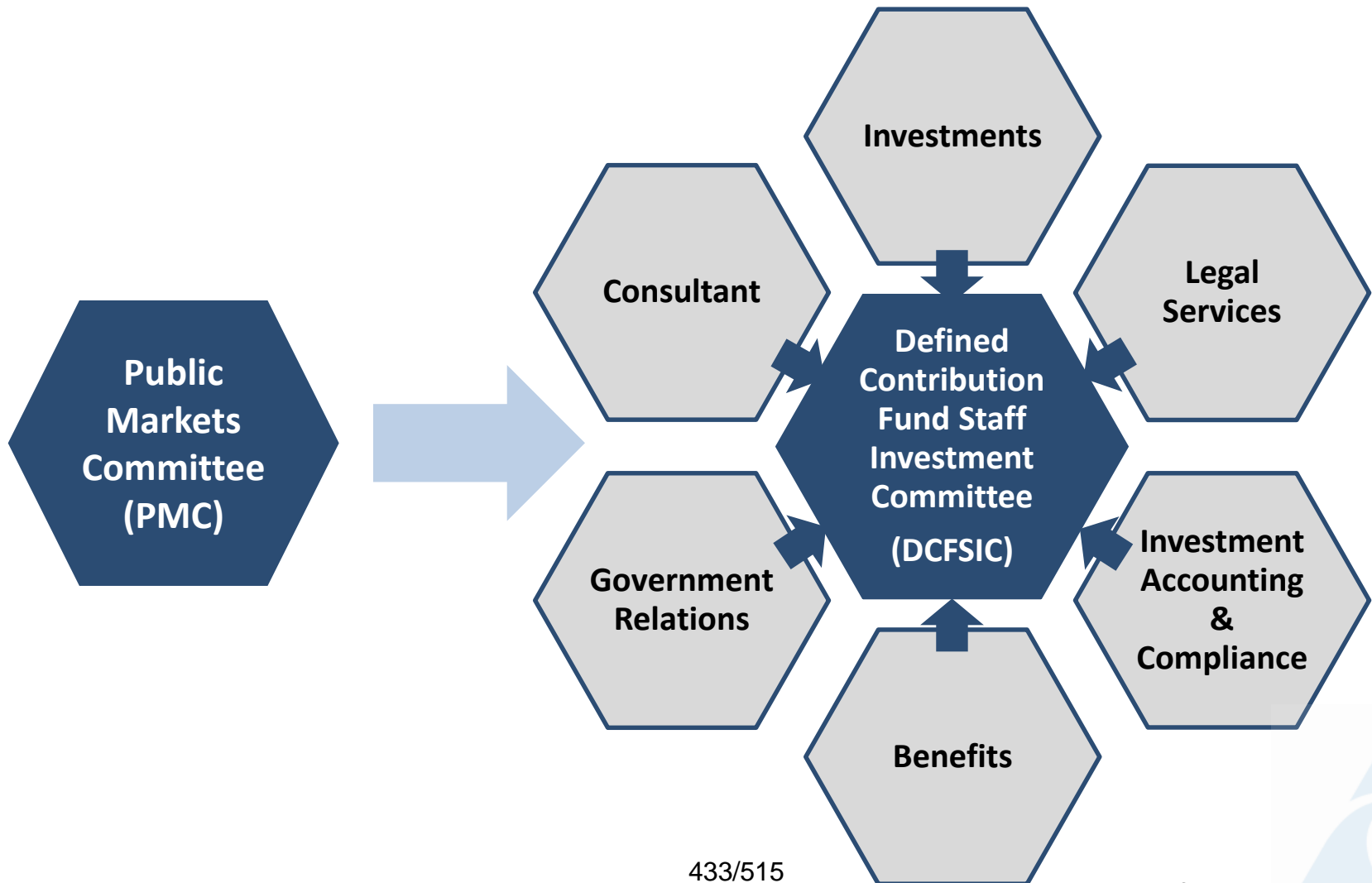
HISTORY OF THE DEFINED CONTRIBUTION PLAN



DC PLAN OVERSIGHT - INVESTMENTS

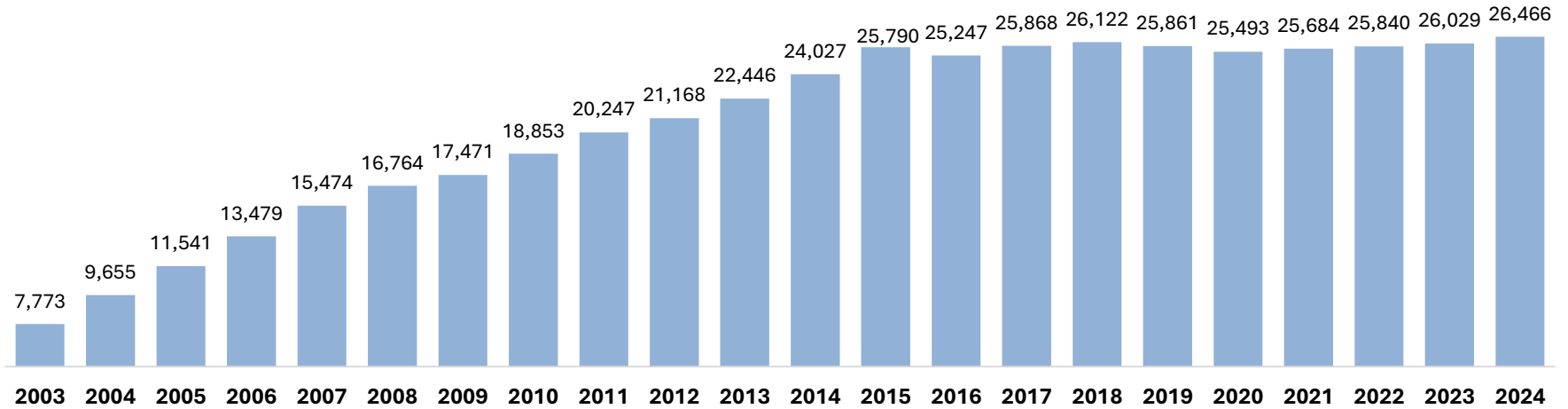
Board of Trustees

Chief Investment Officer



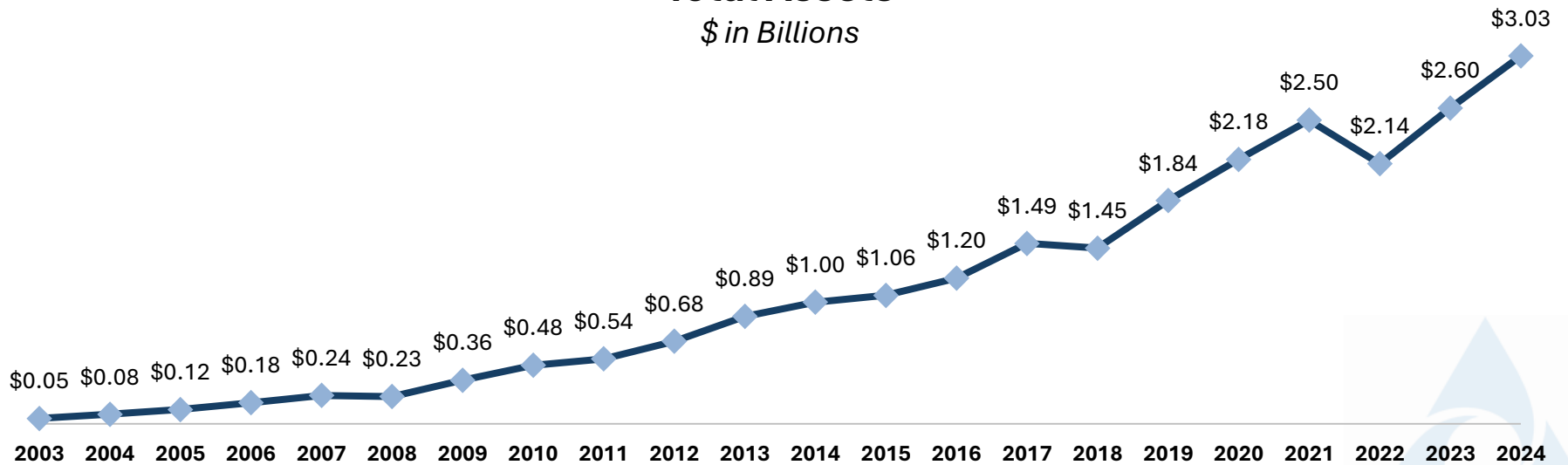
DC PLAN MEMBERSHIP

Members



Total Assets

\$ in Billions



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CURRENT INVESTMENT OPTIONS

Target Date Funds

- LifePath Retirement
- LifePath 2030
- LifePath 2035
- LifePath 2040
- LifePath 2045
- LifePath 2050
- LifePath 2055
- LifePath 2060
- LifePath 2065
- LifePath 2070

Passive Standalone Funds

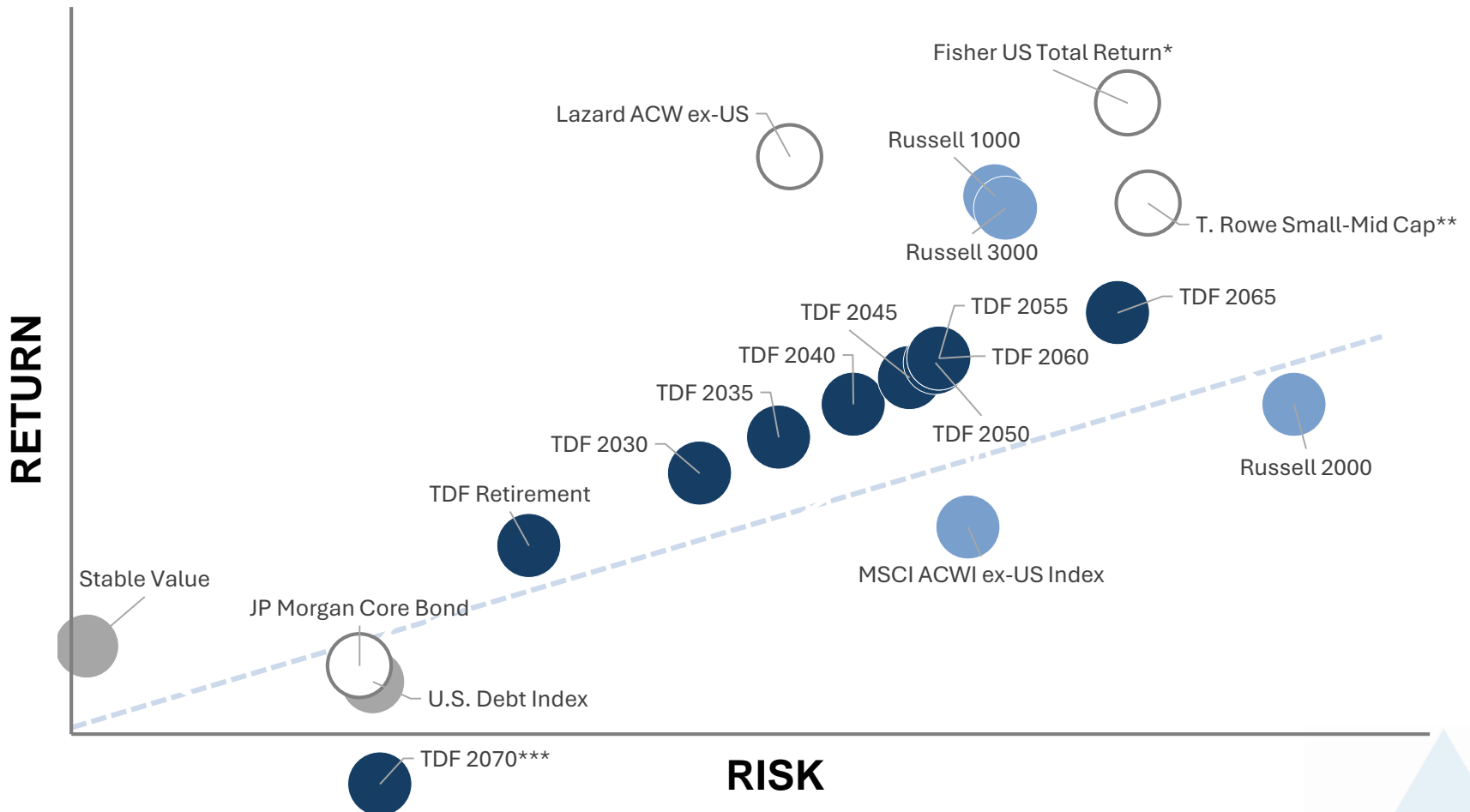
- Russell 1000 Index Fund
- Russell 2000 Index Fund
- Russell 3000 Index Fund
- MSCI ACWI ex-US
- Core Bond Index Fund

Active Standalone Funds

- Fisher US Total Return
- T. Rowe Small-Mid Cap
- Lazard ACW ex-U.S.
- JP Morgan Core Bond
- Invesco Stable Value
- Schwab Brokerage*

DC PLAN INVESTMENT OPTIONS

- 10 Target Date Funds
- Five Active Standalone Funds
- Five Passive Standalone Funds
- Schwab Brokerage Window



Performance is net of fees and is for 10 years, except where noted

*Fisher performance is composite performance, not for the fund we offer which was launched in 2024

**T. Rowe Price performance is 9 years, since inception

***TDF 2070 was launched in October 2024

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TARGET DATE FUNDS

BlackRock LifePath Index Retirement Fund N

\$165,704,289.23

BlackRock LifePath Index 2030 Fund N

\$225,699,769.15

BlackRock LifePath Index 2035 Fund N

\$278,566,459.09

BlackRock LifePath Index 2040 Fund N

\$331,947,935.84

BlackRock LifePath Index 2045 Fund N

\$254,425,509.66

BlackRock LifePath Index 2050 Fund N

\$147,306,268.86

BlackRock LifePath Index 2055 Fund N

\$66,973,034.55

BlackRock LifePath Index 2060 Fund N

\$31,679,919.37

BlackRock LifePath Index 2065 Fund N

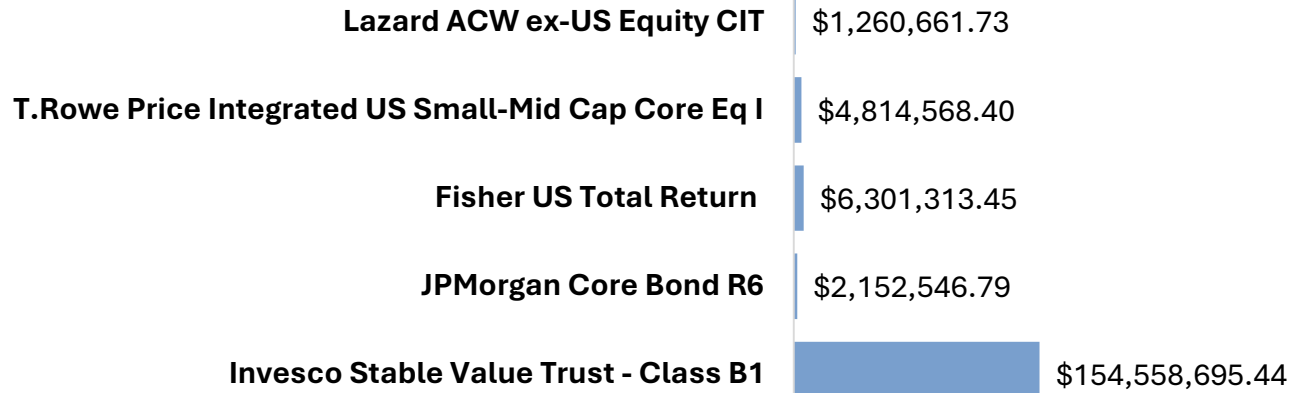
\$23,659,266.31

437/515

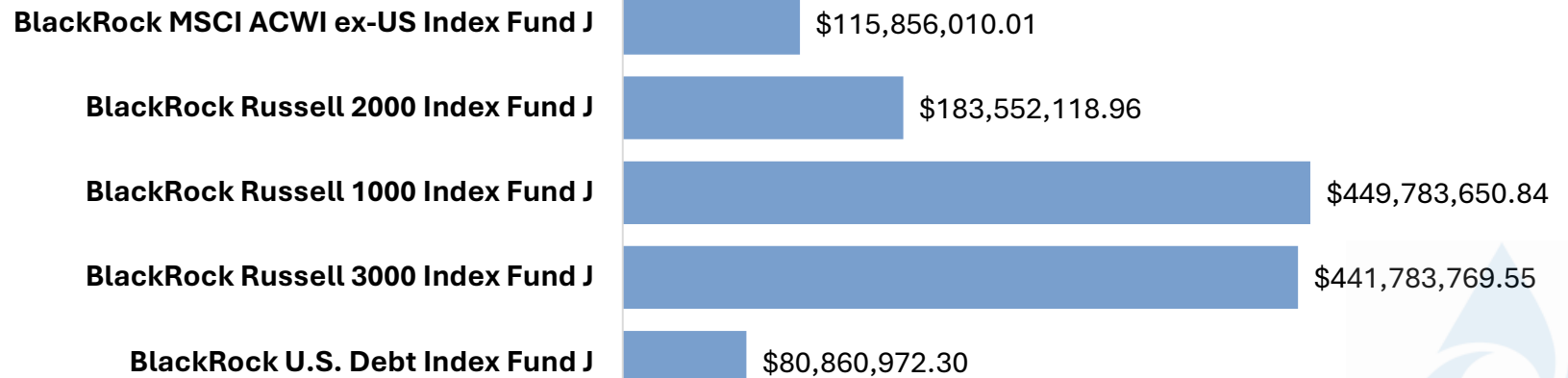


ACTIVELY MANAGED & INDEX FUNDS

ACTIVELY MANAGED FUNDS



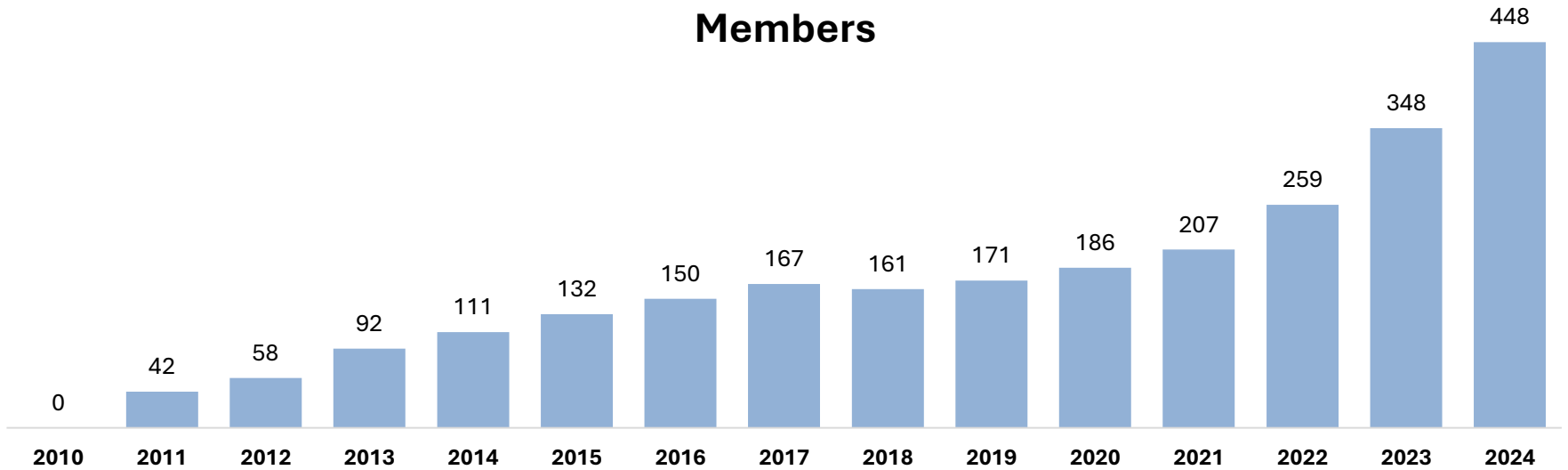
INDEX FUNDS



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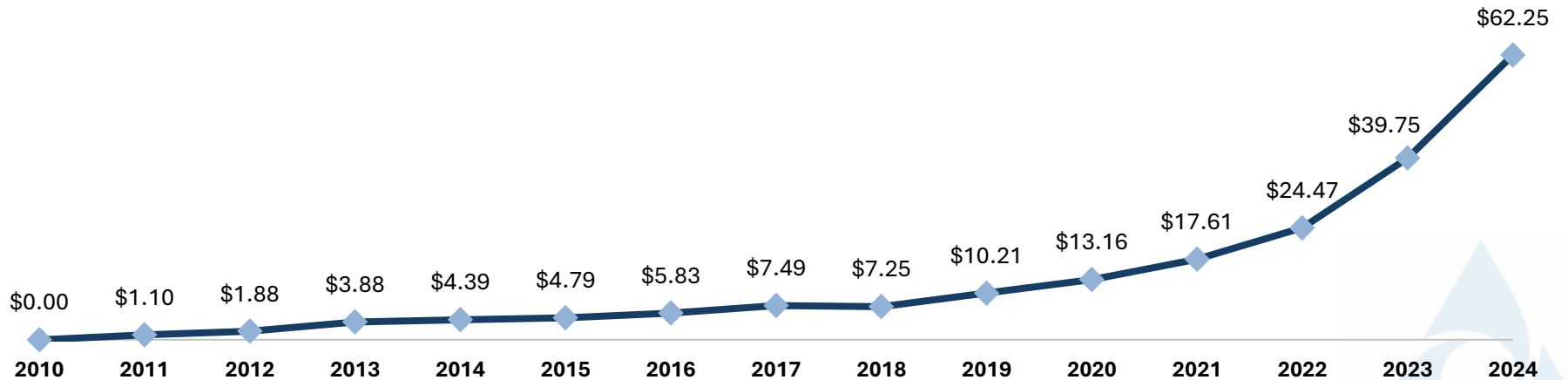
SELF-DIRECTED BROKERAGE USAGE

Members



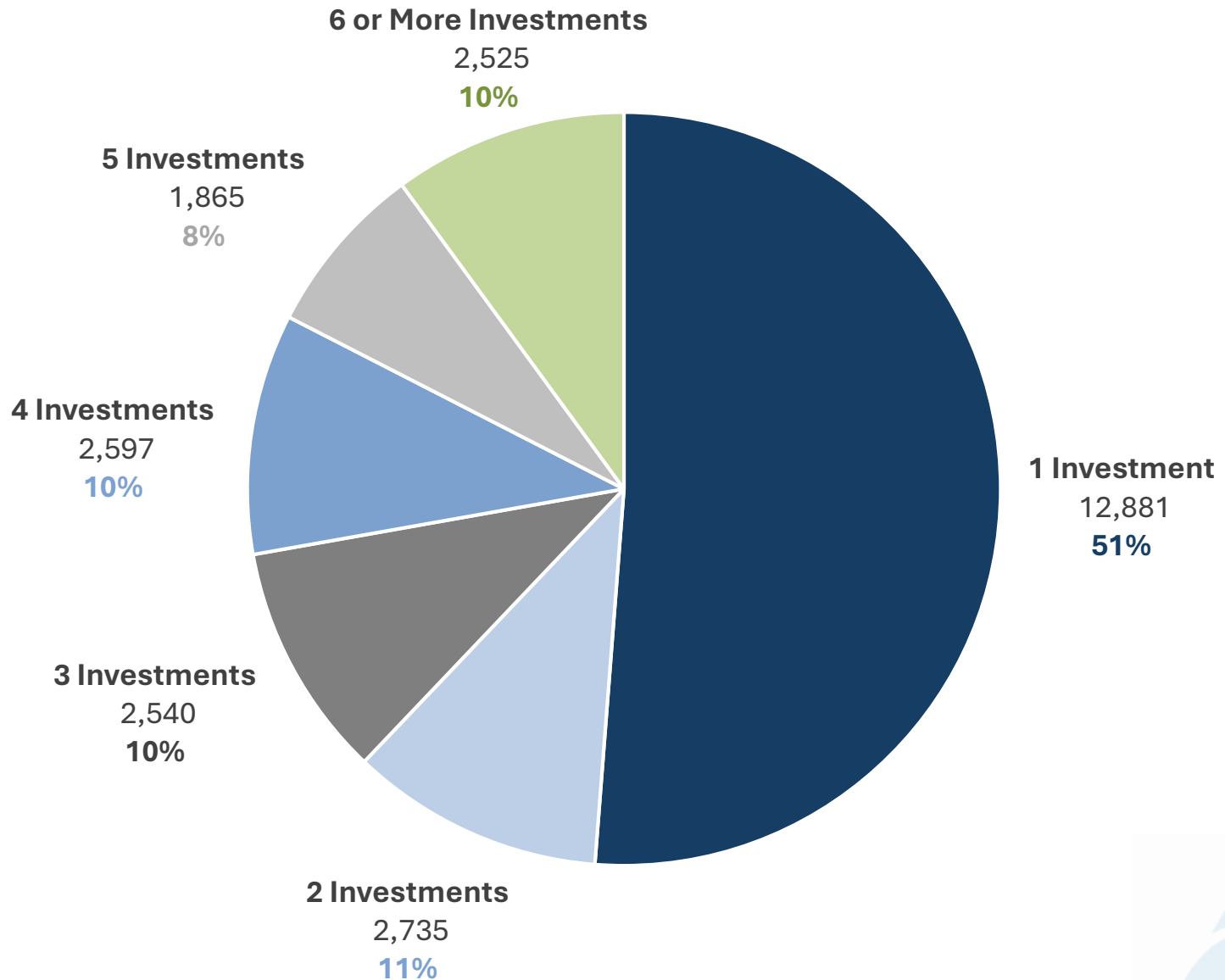
Total Assets

\$ in Millions



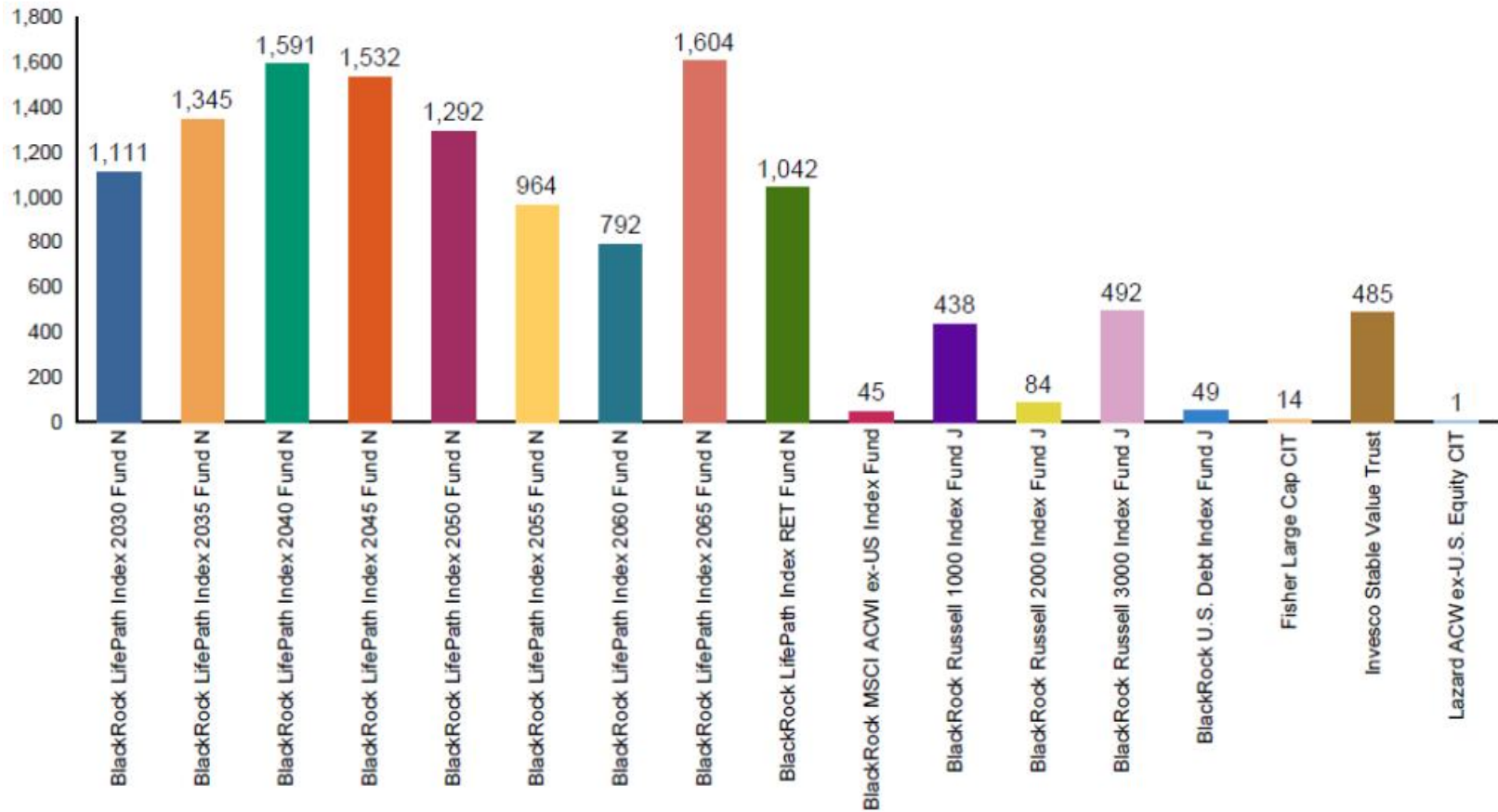
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PARTICIPANT INVESTMENT USAGE

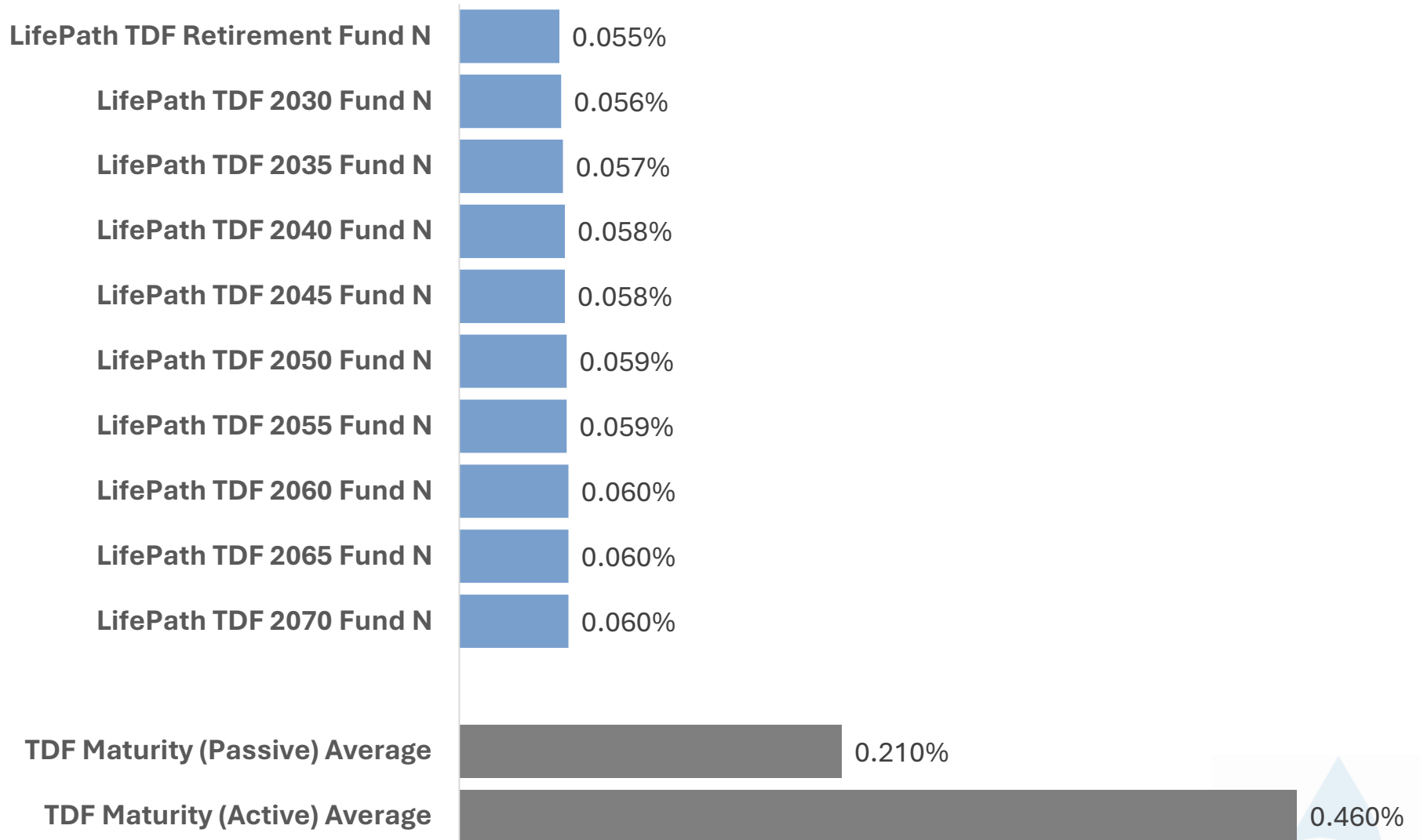


440/515

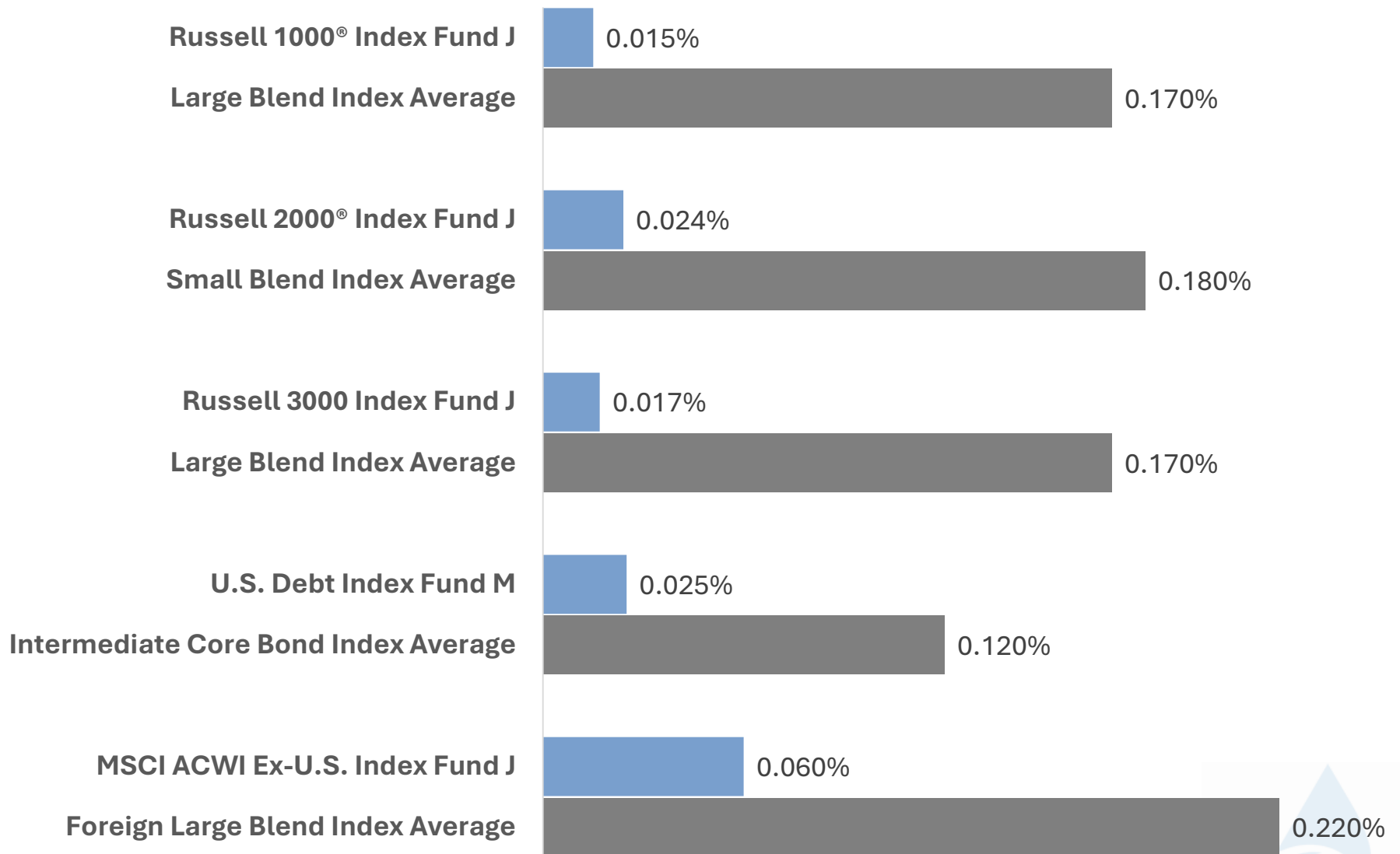
PARTICIPANTS WITH A SINGLE INVESTMENT



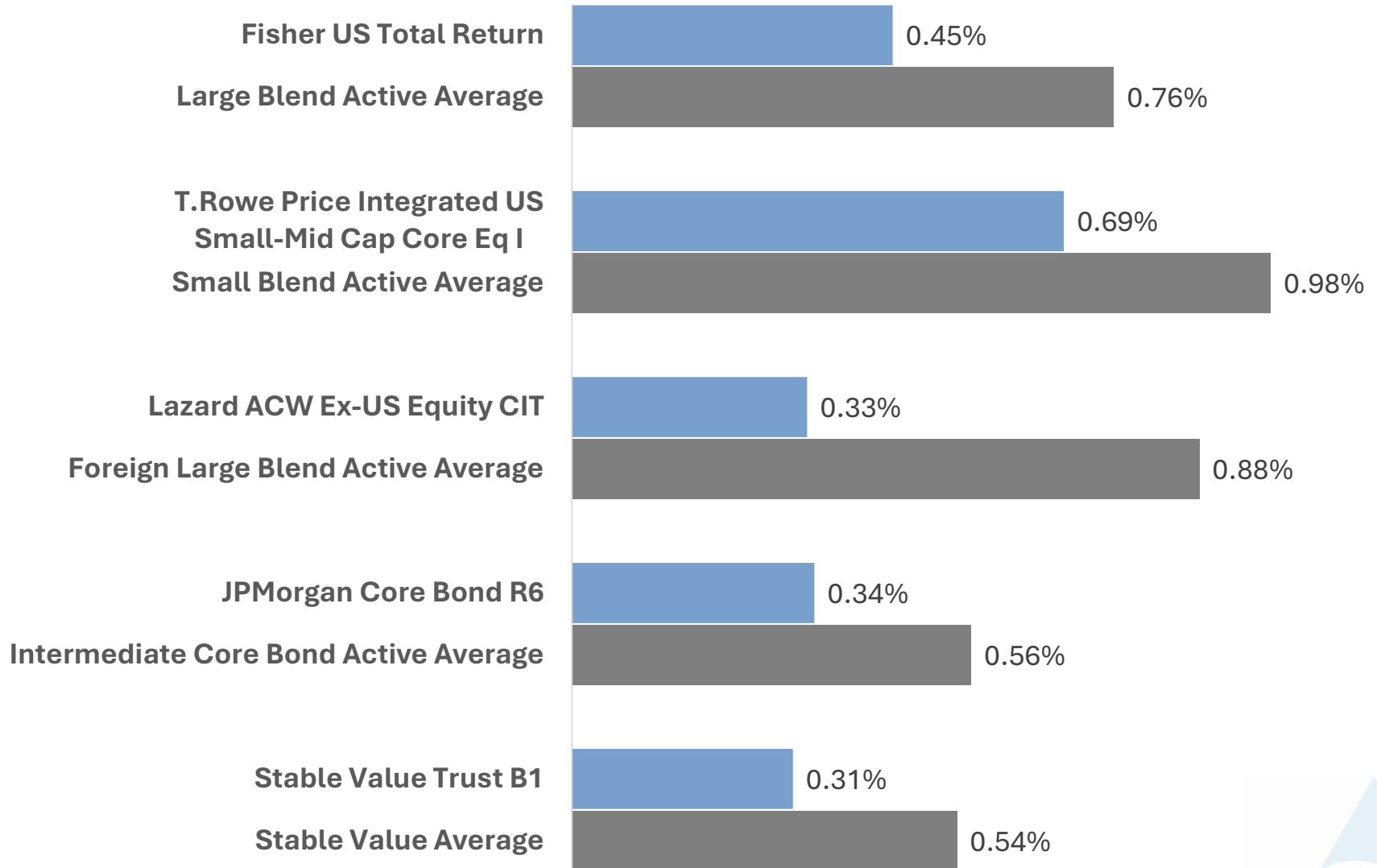
TARGET DATE FUND FEES



PASSIVE STANDALONE FEES



ACTIVE STANDALONE FEES



DC PLAN INVESTMENT PERFORMANCE

Passive Standalone Funds

		2024	3 Year	5 Year
Russell 1000 *	Fund	24.51	8.43	14.28
	Russell 1000 Index	24.51	8.41	14.28
	Difference	0.00	0.02	0.00
Russell 2000 *	Fund	11.56	1.34	7.48
	Russell 2000 Index	11.54	1.24	7.40
	Difference	0.02	0.10	0.08
Russell 3000 *	Fund	23.81	8.04	13.90
	Russell 3000 Index	23.81	8.01	13.86
	Difference	0.00	0.03	0.04
MSCI ACWI ex USA *	Fund	5.43	0.90	4.24
	MSCI ACWI ex USA Index	5.53	0.82	4.10
	Difference	-0.10	0.08	0.14
US Debt	Fund	1.38	-2.33	-0.27
	BBG US Aggregate Bond Index	1.25	-2.41	-0.33
	Difference	0.13	0.08	0.06
Stable Value	Fund	2.92	2.44	2.16
	BBG US Treas. Bellwethers Index	5.29	3.97	2.51
	Difference	-2.37	-1.53	-0.35

Target Date Funds

		2024	3 Year	5 Year
Retirement	Fund	7.10	0.55	4.02
	Custom Benchmark	7.08	0.56	4.00
	Difference	0.02	-0.01	0.02
2030	Fund	9.13	1.58	5.69
	Custom Benchmark	9.12	1.58	5.66
	Difference	0.01	0.00	0.03
2035	Fund	10.9	2.44	6.81
	Custom Benchmark	10.89	2.43	6.77
	Difference	0.01	0.01	0.04
2040	Fund	12.64	3.28	7.84
	Custom Benchmark	12.63	3.25	7.79
	Difference	0.01	0.03	0.05
2045	Fund	14.28	4.09	8.80
	Custom Benchmark	14.32	4.05	8.74
	Difference	-0.04	0.04	0.06
2050	Fund	15.58	4.67	9.42
	Custom Benchmark	15.66	4.64	9.35
	Difference	-0.08	0.03	0.07
2055	Fund	16.23	4.92	9.63
	Custom Benchmark	16.32	4.89	9.57
	Difference	-0.09	0.03	0.06
2060	Fund	16.25	4.93	9.63
	Custom Benchmark	16.36	4.91	9.58
	Difference	-0.11	0.02	0.05
2065	Fund	16.28	4.94	9.60
	Custom Benchmark	16.37	4.91	9.57
	Difference	-0.09	0.03	0.03
2070	* Fund	-1.18	N/A	N/A
	Custom Benchmark	-1.36	N/A	N/A
	Difference	0.18	N/A	N/A

Performance is as of 12/31/24 and presented net of fees
 *2070 TDF performance is for the period 10/4/24-12/31/24

DC PLAN INVESTMENT PERFORMANCE

Active Standalone Funds

		2024	3 Year	5 Year
JPM	JPMorgan Core Bond R6	2.25	-1.68	0.38
	Bloomberg US Aggregate Index	1.25	-2.41	-0.33
	Difference	1.00	0.73	0.71
Fisher	Fisher US Total Return	26.30	9.00	17.70
	Russell 1000 Index	25.00	8.90	14.50
	Difference	1.30	0.10	3.20
T.Rowe Price	T.Rowe Price Integrated US Small-Mid Cap Core Eq I	16.61	7.33	11.07
	Russell 2500 Index	12.00	2.39	8.77
	Difference	4.61	4.94	2.30
Lazard	Lazard ACW EX-US Equity CIT	12.46	5.74	7.55
	MSCI ACW ex-US Index	5.53	0.82	4.10
	Difference	6.93	4.92	3.45

Performance is as of 12/31/24, is presented net of fees, and for informational purposes only as it includes time periods before the investment options were added to OPERS platform

Fisher performance is composite performance, not for the fund we offer which was launched in 2024



THANK YOU



Board Meeting VII.F



OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM
277 EAST TOWN STREET, COLUMBUS, OH 43215-4642
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www.opers.org

MEMORANDUM

DATE: May 12, 2025

TO: OPERS Retirement Board Members

FROM: Allen Foster, Deputy Executive Director
Lauren Gresh, Deputy Executive Director

RE: **VII. Discussion Items:**
F. Member-Directed Plan Statistical and Governance Review

Purpose – The purpose of this memorandum is to continue the Board’s education on the Member-Directed Plan relative to (1) plan features and membership statistics, and (2) fiduciary governance principles for defined contribution plan trustees. This memorandum and presentation educate the board on foundational plan and governance information and do not suggest any changes to current operations.

Background – The Board regularly receives education on the evolution, features and member utilization of the defined contribution plans; this memorandum and presentation continue those efforts.

The purpose and goals of OPERS defined contribution plans and its members help drive the policy objectives for the Board and staff. Fiduciaries who deepen their knowledge about a plan will grow into alignment with members’ best interests and ability to execute strategic decisions that support a healthy retirement plan. In this vein, we will offer refreshed information about the Member-Directed and Combined Plans’ creation and statistics and introduce an governance structure to support the Board’s fiduciary duties.

Defined contribution plan creation and statistics

As a brief refresh on the Plan’s creation, OPERS established the Combined and Member-Directed Plans in 2003 because of state law requiring OPERS to establish a defined contribution plan. Members with less than five years of service credit on December 31, 2002, were permitted to select a new defined contribution plan, as are all new members who join the system. Members with

more than five years of service were required to remain in the Traditional Pension Plan. About 84% of members select or default to the Traditional Pension Plan. The Combined Plan was not selected at a high rate and was discontinued for new elections on January 1, 2022.

The contributions submitted to OPERS for Member-Directed Plan (MD) participants are the same as the TPP and CO Plan – 24% of earnable salary (10% member and 14% employer). Of the 24%, 4% is allocated to their Retiree Medical Account (RMA), 2.5% to administrative/other expenses, and 17.5% (10%-member and 7.5% employer) to their individual investment account. Members direct the investment of 17.5% among 10 Target Date funds, 6 Standalone Funds, and a self-directed brokerage account through Charles Schwab. In the individual investment account, a member's contributions are always 100% vested, and employer contributions vest at 20% per year with full vesting attained after five years.

After the member leaves service, they can refund their investment account, or if they are at least age 55, they have the option of converting all or a portion of the balance to a lifetime annuity calculated by multiplying the balance by an annuity factor. Since MD participants do not have access to the Health Reimbursement Arrangement (HRA) available to TPP and CO Plan retirees, 4% of the employer contribution is allocated to an RMA. The vesting for the RMA is dependent upon hire date. Members who began participating in the MD Plan prior to July 1, 2015, have a five-year vesting schedule, and members whose participation began after July 1, 2015, have a 15-year vesting schedule.

RMA accounts earn interest equal to the annual investment performance return of the stable value fund for the prior year, not to exceed 4%. Interest is credited annually in one lump sum on the last business day of the year. After an MD participant leaves service and distributes the funds in their investment account through a refund or commencement of a lifetime annuity, they are eligible to submit claims against the funds in their RMA for the reimbursement of qualified medical expenses as defined by the IRS. After the member becomes eligible to submit claims against their RMA, interest is credited monthly instead of annually.

Defined contribution plan fiduciary responsibilities

As the plan administrator, the Board is tasked with fiduciary oversight of its plans. For a defined contribution plan, these responsibilities include, but are not limited to, education, monitoring performance and vendors, plan documents, appropriate fees, investment options and policies. The staff running the plans monitors and reports on the health of operations and make recommendations with the assistance of the Board's investment consultant.

To document the Board's work governing the plans, staff will establish a governance dashboard so that all operational plan functions are reviewed and

optimized on a regular basis. Some governance functions will occur more or less frequently than others based on their priority, cost, impact on participants, market changes, or changes in law.

In the coming months, staff and the Board's consultant will review and report on the defined contribution plans' fees and expenses, including benchmarking to peers. To prepare the Board for deeper fee analysis, we briefly cover the general fee structure in this memorandum and presentation.

Plan sponsor expenses

Fees assessed in defined contribution plans typically include administrative expenses to operate the plan, investment expenses within the products selected by the participants (which vary by provider and fund), and often a record-keeping fee, which is a direct overhead to the vendor responsible for processing trades and daily maintenance of accounts.

Administrative costs include those expenses necessary to administer the plan. Administrative costs of OPERS, where possible, are specifically allocated to each plan and trust administered by OPERS. Administrative costs not specifically identifiable to the plans or trusts are allocated based on various factors. For example, personnel estimate effort towards each plan or trust so that their employment expenses can be allocated among the plans correctly. OPERS has determined the cost of the defined contribution plans through both direct and allocated expenses since their inception and it is a routine function of plan administration.

Defined contribution plan contributions and administrative fees

The employer contribution rate of 14% is assessed a 0.26% fee for administrative expenses. The participant accounts are also charged \$6.00 per month for record-keeping vendor expenses, or \$72 per year. For a participant making an annual salary of \$67,000, the administrative expense fee would be \$174 plus record-keeping fees of \$72, or a total of \$246 per year.

Additionally, 4% of the employer contribution is allocated to the participant's Retiree Medical Account.

Thus, participant accounts are credited each month to invest 17.5% of contributions received by OPERS. Total Member-Directed Plan administrative expenses for the year ended December 31, 2024, were \$3.75 million, excluding RMA administration. During 2024, approximately \$3.37 million was collected from members and employers for administrative costs and plan reserves cover the rest.

Defined contribution plan investment fees

Defined contribution members also pay investment fees directly to the investment managers they select (deducted from investment earnings by external managers, not OPERS).

In 2024, the Member-Directed Plan had defined contribution assets of approximately \$3.03 billion and participants paid roughly \$1.45 million in investment fees. The investment fees are not spread evenly among participants. They are driven by both account value and fund chosen by the participant. The defined contribution plans offer a mixture of target date funds, standalone funds, and a self-directed brokerage account. The products selected by OPERS to offer within the plans have very low fees compared to the private market. Self-directed brokerage accounts often generate higher fees due to more frequent trading activity and the asset classes preferred by the members using the brokerage option; this represents only 2.1% of the plan members' assets.

Next steps – Staff will develop a governance dashboard for the Board's reference and continue offering education and fiduciary review of the defined contribution plans based on its governance schedule. Meketa will perform defined contribution plan fee benchmarking for discussion at a future meeting.

Member-Directed Plan Statistical and Governance Review

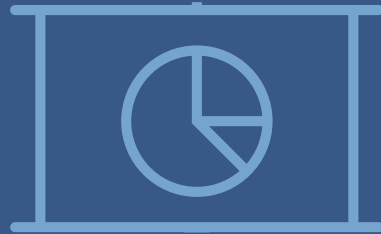
May 21, 2025

Allen Foster – Deputy Executive Director
Lauren Gresh – Deputy Executive Director



Agenda

- Review Member-Directed Plan History, Stats and Plan Features
- Duties of DC Plan Fiduciaries and Dashboard Preview
- Introduction to DC Fees



History and Features of the Member-Directed Plan

Defined Benefit Plan Established (1935)

- Since its inception, OPERS has offered a defined benefit retirement plan—known today as the Traditional Pension Plan
- The Plan offers retirement, disability, survivor and death benefits to its members and their beneficiaries
- For nearly 70 years, the Defined Benefit Plan was the only option

Defined Contribution Plan Required (2000)

- OPERS was required by law to establish one or more defined contribution plans—namely the Member-Directed Plan.
- OPERS elected to offer an additional plan- the Combined Plan which is a hybrid plan.
 - New hires and members with less than 5 years of service on 12/31/2002 were eligible to select a plan.

Changes to the Combined Plan (2019)

Phase 1

Closed CO Plan to new participants effective Jan. 1, 2022.

Phase 2

Merge CO Plan into TP Plan.
Existing participants remain in the plan until they retire, refund or plan change.

Default Rate Since Inception

Members Who Did Not Make A Plan Selection*

Total Members	1,269,041
Total Defaulted To Traditional	1,072,806
Default Rate	85%

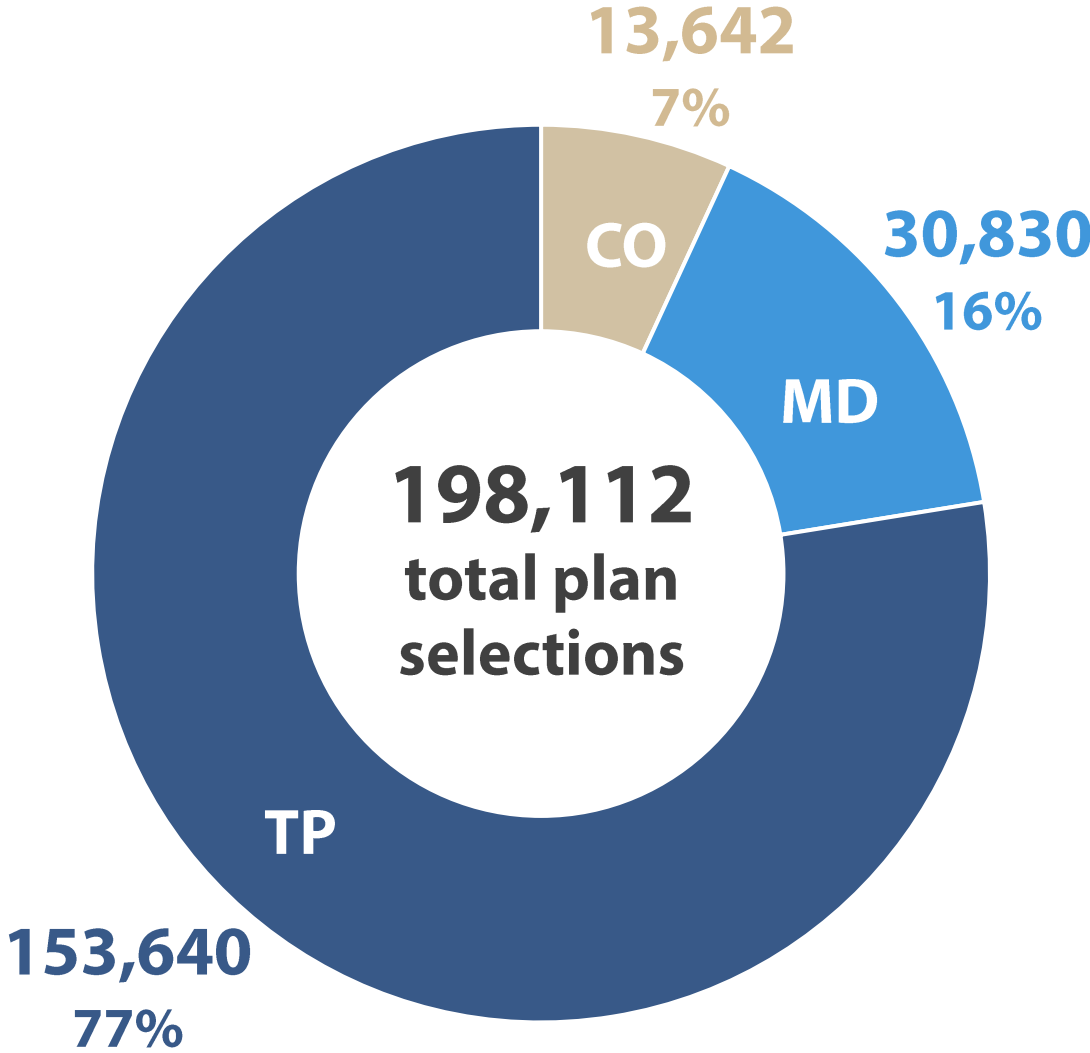
* As of 3/31/2025

Current Membership Breakdown*

Member's Current Plan	Member Count	% of Total
Combined Plan	8,280	0.8%
Member-Directed Plan	18,111	1.6%
Traditional Pension Plan	1,074,888	97.6%
All	1,101,279	100.0%

* As of 3/31/2025

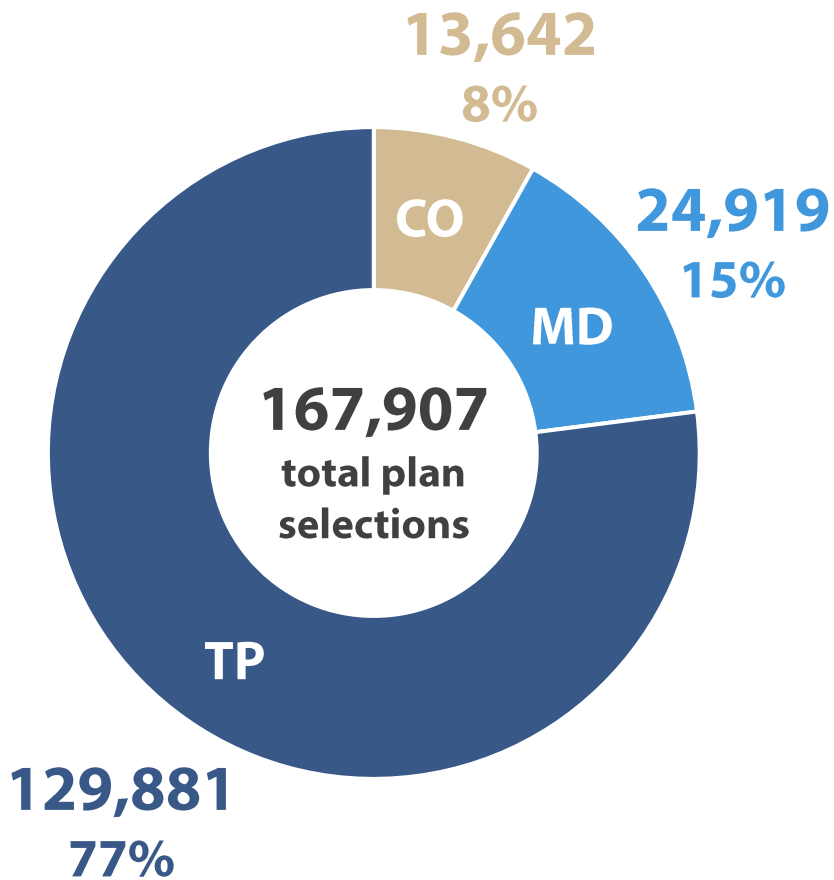
Active Plan Selection Rates*



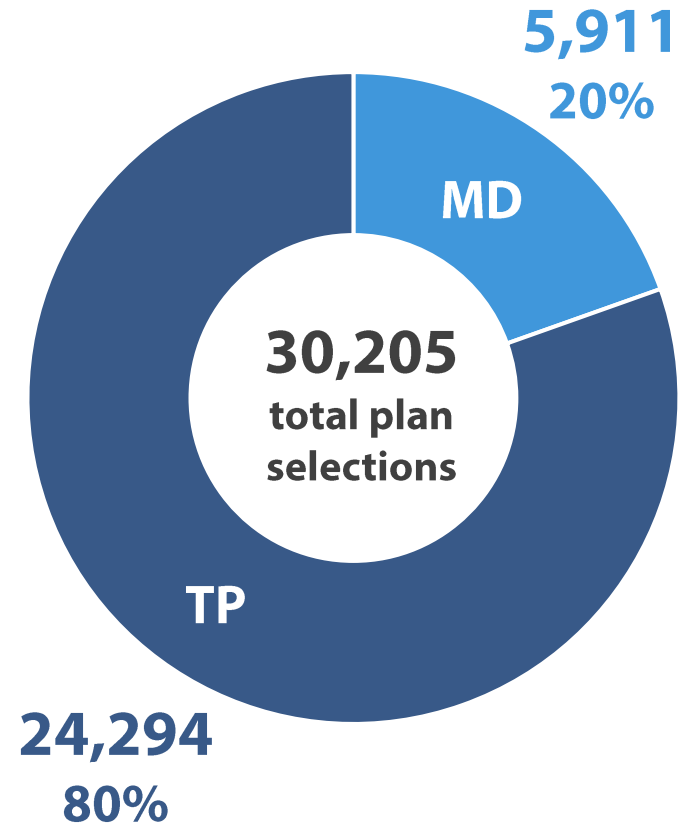
* As of 3/31/2025

Plan Selection*

Before Combined Plan Closure
1/1/2003 to 12/31/2021



Since Combined Plan Closure
1/1/2022 and after



Current Enrollment

**Enrollment in the
Member-Directed Plan as
of 3/31/2025**

18,111

Features of the Member-Directed Plan

- Provides 17.5 % to the member's retirement investment plan
- Members can select from the following investment types:

10 Target Date Funds

10 Standalone Funds

**Self Directed Brokerage
Account**

Features of the Member-Directed Plan

- Five-year vesting schedule **(20% per year)**

Attained Years of Participation	Percentage Vested (in Employer Contributions)
1	20%
2	40%
3	60%
4	80%
5	100%

- Provides an annuity at age 55
(Final account value X Annuity Factor)

Member-Directed Retiree Medical Account

Eligibility and Vesting for the RMA

A member vests in their RMA based on their years of participation in the Member-Directed Plan. A year of participation is defined as 12 contributing months of participation in the plan.

Attained Years of Participation	Hired or Completed Plan Changes into Member-Directed prior to July 1, 2015	Hired or Completed Plan Changes into Member-Directed on or after July 1, 2015
0 years	0%	0%
1 years	20%	
2 years	40%	
3 years	60%	
4 years	80%	
5 years	100%	10%
6 years		20%
7 years		30%
8 years		40%
9 years		50%
10 years		60%
11 years		70%
12 years		80%
13 years		90%
14 years		100%
15 years	466/515	100%

Member-Directed RMA

Retiree Medical Account (RMA) – Interest crediting

The member directed plan is credited with interest based upon the returns of the stable value fund for the prior year not to exceed 4%

- **Active/Inactive members** - Interest is credited in one lump sum on the last business day of the year
- **Claim eligible/distribution status** – This applies to retired or refunded members. One-twelfth of the interest is credited on the last business of each month.

Member-Directed RMA

Retiree Medical Account (RMA)

Upon becoming claims eligible, vested amounts in the RMA may be used for the reimbursement of qualified expenses including medical, prescription, dental, and vision expenses such as premiums, deductibles copays and other out-of-pocket expenses.

Participants become claims eligible once they are receiving a pension benefit or have refunded their account.

- Claims can be submitted for the dates of service on or after the refund/receipt of the first benefit payment.
- RMA value information is available through the members' online account.

Member-Directed RMA

Retiree Medical Account (RMA) vesting and average balances

	Old Vesting Schedule			New Vesting Schedule		
MD Plan Status	Average Balance	Average Contributing Months	Count	Average Balance	Average Contributing Months	Count
Active	\$43,988	175	4,152	\$9,348	42	7,043
Inactive	\$12,848	57	3,672	\$3,909	23	2,961
Pensioned	\$23,793		356	\$13,194		14
Refunded	\$10,651		6,224	\$5,804		180
All	\$21,145	120	14,404	\$7,712	36	10,198

Member-Directed Quarterly Statement

January 1, 2025 - March 31, 2025

**Your Account Value as of
3/31/2025:**

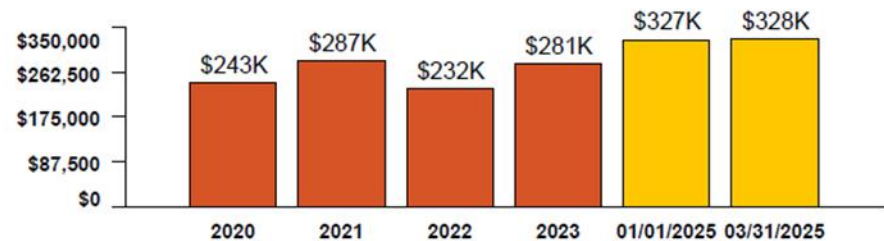
\$332,512.13

**OHIO PUBLIC EMPLOYEES RETIREMENT
SYSTEM**

Your Total Account Value

Opening Value on January 01, 2025	\$329,450.29
Employee Contributions	\$0.00
Employer Contributions	\$0.00
Other Credits/Payments(a)	\$0.00
Investment Gain (Loss)	\$3,079.84
Distributions/Debits(b)	\$18.00
Closing Value on March 31, 2025	\$332,512.13
<hr/>	
Total change in value during this period	\$3,079.84
Current Period Personal Investment Performance (c)	0.54%
Year-To-Date Personal Investment Performance (c)	16.00%

Account Balance History



Comparison of your previous
year-end total values

Opening value vs.
closing value

Participant Profile

Plan Entry Date	03/12/2012
Status	Active
Plan Name	MEMBER-DIRECTED

Where are you on your Financial Wellness journey?

To find out, take a quick, personal assessment today. Simply log into your OPERS online account at opers.org and click "View Your Member-Directed Account," then select "Financial Wellness" and then click the "Get Started" button.

Member-Directed participants also have 4% of the employer contributions directed to their RMA

Statistical Summary

- The Member-Directed plan has been in existence for over 20 years and currently has a 20% plan selection rate
- There are over 18K active and inactive accounts in the plan
- Total plan assets for the DC plan (MD and CO) is over \$2B with a roughly 0.06% expense ratio

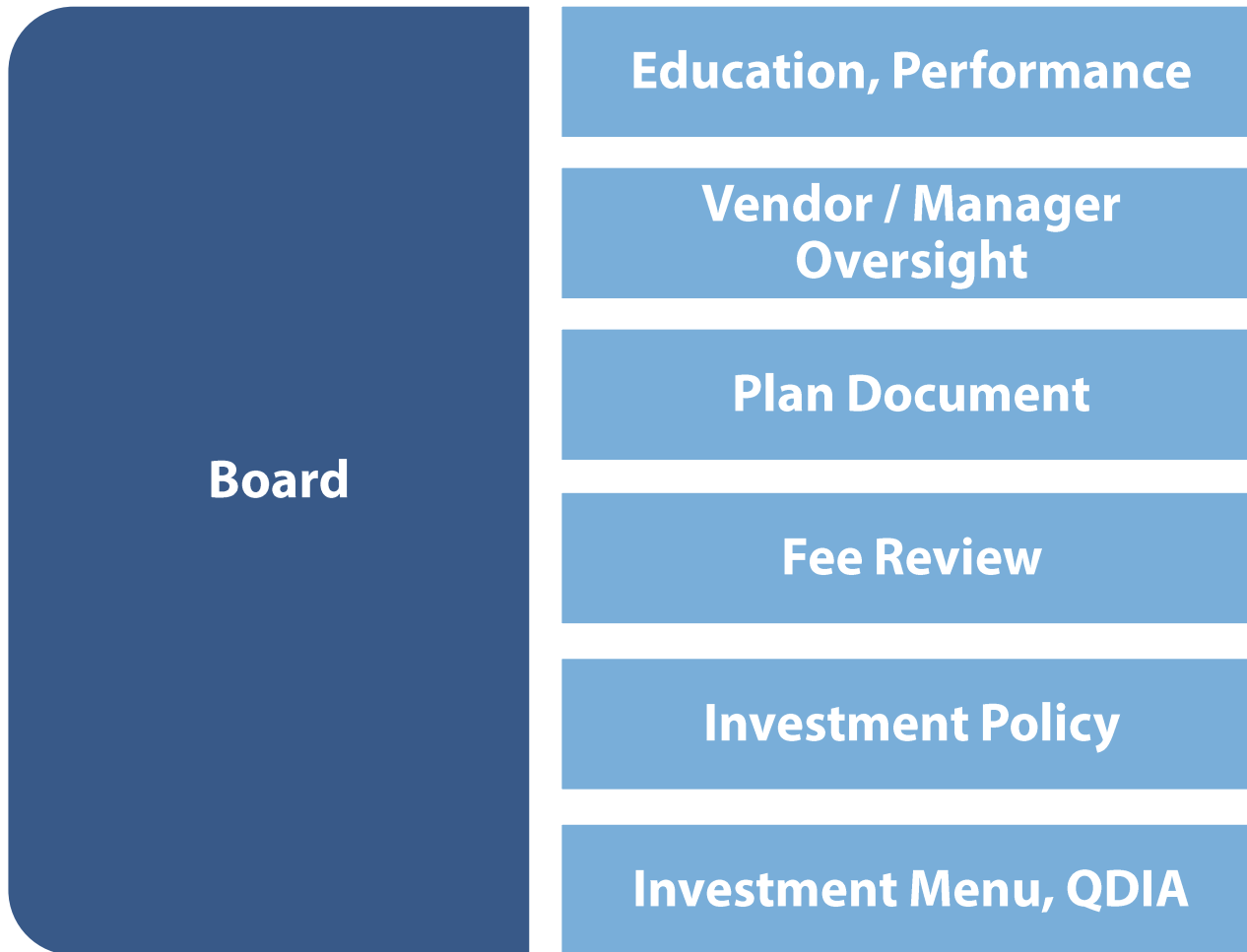
Statistical Summary

- The Member-Directed plan continues to provide great value by providing 21.5% out of 24% as a direct benefit to the participant (17.5% into investment account and 4% to the RMA)



Defined Contribution Plan Fiduciary Responsibilities

DC Governance Responsibilities



DC Governance Responsibilities

Board	Education, Performance	At least Quarterly May 2025
	Vendor / Manager Oversight	Annually, Nov. 2024
	Plan Document	As needed, 2022, Admin Rules 2025
	Fee Review	May 2024 May 2025
	Investment Policy	~Annually, May 2024
	Investment Menu, QDIA	Annually, Nov. 2024

Sample DC Fiduciary Dashboard

A dashboard will be developed by DCFIS and the consultant to document the performance of crucial plan education, process and decisions.

Tasks	Frequency	Dates
Board Education	=/> Quarterly	5/24, 11/24, 5/25, 7/25
Plan Documents	As needed, at least biannually	2022, 1/25
Investment Policy	As needed, at least biannually	5/24
Investment Menu	Annually	11/24, 5/25
Fee Review	Annually	5/24, 7/25
Vendor Oversight	As needed and as contracts mature	11/24



Introduction to Member-Directed Plan Fees

Best Practices in Fee Management

- Investment and administrative fee review and benchmarking
- Fee model assessment
- Seek opportunities to lower fees
- Competitively bid vendor services to lower costs
- Revisit periodically

Components of Member-Directed Fees

- **Administrative expenses** – expenses of sponsor necessary to administer the Plan
- **Record-keeping fees** – fees of third-party vendor hired to provide services to the Plan
- **Investment expenses** – expenses within the investment options selected by the participants (which vary by provider and fund)

Member-Directed Fees

- Member-Directed participants pays \$72 per year (\$6/month) in record keeping fees, that is deducted from their account balance
- Average participants pay roughly \$174 per year in administrative costs which comes from the employer dollars (14%)
- Average expense ratio for someone in a target date fund is 0.06%

Next Topics

- Benchmarking of DC fees against peers
- Review of plan documents and any recommended amendments (Fall 2025)

Questions?



Board Meeting VII.G

OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM
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www.opers.org

MEMORANDUM

DATE: May 12, 2025
TO: OPERS Retirement Board Members
FROM: Karen Carraher, Executive Director
RE: **VII. Discussion Items:**
G. Executive Director Report

Below is my Executive Director report.

Finance

- The Financial Reporting department substantially completed the **Annual Comprehensive Financial Report** and various other external year-end reports, including the reports to employers to comply with Governmental Accounting Standards Board (GASB) standards for pension and health care financial reporting. The annual report will be presented to the Board at the May Board Audit Committee meeting. Staff also began compiling the Popular Annual Financial Report (PAFR).

Our external auditors, Plante Moran (PM), substantially completed their audit procedures of our 2024 financial statements and other year-end reports. PM will report the audit results to the Board in the May Board Audit Committee meeting. The Auditor of State's office also finalized the majority of their audit procedures at a sample of our contributing employers, testing information submitted by employers to OPERS, and reported their audit results to PM, prior to the completion of the audit in early May.

- The Investment Accounting team has completed the strategic plan project with an external consultant on **private alternative investment fee validation**. In that project, the team worked with a consultant to model the management and performance fees for all Private Equity and Real Estate portfolios opened as of September 2021 in a system developed by the consultant. Now that the consultant has completed initial modeling, an internal team will update the modeling and has implemented a sample-based process to continue to validate Private Credit, Private Equity and Real Estate funds using the established software solution and current data from our Front Office and investment accounting systems.
- The Investment Operations team successfully replicated, within the investment accounting system, the **performance results** of our external investment

performance master recordkeeper for a complicated fixed income portfolio. While we do not consider the internal results to reflect official performance results, producing performance estimates internally will allow the Investment Operations team to automate the review of performance that they are currently performing manually and work proactively with the Front Office on performance questions to avoid delays in the monthly performance results closing process with our master recordkeeper.

- Our manager over the investment operations team, **Travis Hite, successfully passed Level III of the Chartered Financial Analyst (CFA) exam** and is now a CFA Charterholder. We are excited about Travis' recent accomplishment and are looking forward to the enhanced analytical skills and strategic insights he'll bring to our operations and team capabilities.

Investment

- **Annual Counterparty Review.** As of April 23, 2025, OPERS has 109 approved broker-dealers for trading equities, fixed income, and derivatives. Staff has initiated its annual review of these trading counterparties (aka broker-dealers) in March. Typically the annual review begins in March, requesting counterparties to resubmit an abbreviated questionnaire along with updated financial statements, changes in ownership and/or settlement instructions. Risk team also reviews regulatory filings which may have occurred since the last annual counterparty review completed in 2024. The findings of the review will be presented to the Broker Review Committee in May.
- **Defined Contribution Funds Update.** On April 28th, Staff convened for the quarterly Defined Contribution Fund Staff Investment Committee (DCFSIC) meeting. Staff reviewed quarterly performance of the Target Date Funds (TDFs) and stand-alone funds, and discussed the current investment landscape with OPERS Board Consultant, Meketa. The LifePath 2070 fund was added to the investment options for members to choose from rounding out the TDF line-up after the LifePath 2025 TDF was rolled into the Retirement vintage last year.

Government Relations/External Relations

- After sitting out the requisite one year following a five-year run, Corporate Governance Officer, Patti Gazda was re-elected to the **Council of Institutional Investors (CII)** board of directors. Additionally, Patti was asked to shadow the current treasurer of the board in hopes that she will assume the officer's role next year.
- Because OPERS maintains a **custom proxy voting policy**, staff previously discussed with the current proxy firm the possibility of **removing vendor recommendations** from the custom research reports OPERS receives. Though this is not an option for the upcoming proxy year due to cost limitations (six figure increase), anticipated additional similar requests has caused the firm to work on

having this option available at a lower cost point due to economies of scale by the following proxy season.

- After a two-week recess, the Ohio Senate is continuing to hold hearings on the state of Ohio biennial budget bill (Amended Substitute House Bill 96). The House of Representatives passed its version of the budget bill on April 9th. There are a number of unwanted provisions impacting OPERS in the budget bill.

OPERS successfully got two provisions deleted from the executive budget proposal:

- A provision that would open a 90-day window for members of **OPERS Law Enforcement and/or Ohio Police and Fire** to transfer service credit regardless of whether the member has more service in OPERS.
- A provision that would add “state fire marshal law enforcement officer, fire and explosion investigation bureau” investigators to **OPERS Law Enforcement Division**.

Unfortunately, three other provisions that staff opposed remain in the current version, which the Senate is now considering. Those provisions are:

- A provision that would require OPERS to withhold **school district taxes** from pension benefits and allow the state **tax commissioner** to adopt rules that could bind OPERS to whatever those rules require. While the withholding requirement will likely remain in the final bill, staff are fairly confident that they can successfully change the effective date of changes to January 2027 (as opposed to 2026) and change the rule promulgation language to reflect the tax commissioner’s authority over private retirement plans (i.e., not public plans).
- A provision that would exempt **election workers** from OPERS membership. Though an exemption is likely, staff are attempting to limit the exemptions to reflect the federal exemption limit.
- A provision that includes OPERS in the definition of “**state agency**” for the purpose of requiring employees to work from the main office five days a week. Staff proposed alternative language that would NOT include public retirement systems as state agencies and require systems to adopt office work policies.

Both the tax provision regarding rules promulgation and the state agency provision erode the independence of the OPERS Board, which is why staff have opposed and offered alternative language.

Staff are meeting with Senate staff, members of the Finance Committee, and the chairs of the Senate Government Oversight and Reform Committee and Agriculture Committee to discuss the aforementioned changes OPERS recommends.

Health Care

- **Health Care Administration: Part A Certification.** Because there are Medicare retirees who did not earn enough work credits to receive premium-free Medicare

Part A, OPERS provides a reimbursement program in which retirees can receive reimbursement for 100% of their Part A premiums and spouses can receive reimbursement for 50% of their Part A premiums.

The annual Medicare Part A Reimbursement Re-certification process was established to ensure OPERS reimburses the correct premium amount and verifies that the premium is not being paid for or reimbursed by another organization. The process starts in early December and wraps up by early April.

- In December 2024, we mailed letters to 6,094 benefit recipients who were receiving Part A reimbursement.
- In April 2025, we had a 99% compliance rate; this means those who were receiving the reimbursement in 2024 submitted the necessary documentation to continue receiving the reimbursement in 2025.

This year we implemented two enhancements to the Part A Certification process to reduce non-compliance and potential overpayments:

- In January, we sent a reminder letter to those benefit recipients who hadn't yet responded to the initial letter mailed in December. This resulted in a 26% decrease in the number of accounts that were moved to overpayment due to non-compliance.
- Health Care Support Specialist made outbound calls to recipients who completed the form incorrectly or did not submit the correct documentation verses sending a letter. This service level enhancement was well received by recipients and assisted with non-compliance.
- **Willis Towers Watson Via Benefits: Open Enrollment Readiness.** As a follow-up to the leadership meetings that occurred in February and March, Via Benefits provides regular updates to Health Care leadership on how they are progressing with their Open Enrollment Readiness initiatives. To date, they've been able to make progress in the following areas:
 - **Telephony.** Via Benefits has met with their telephony vendor to discuss enhancements to messaging, call routing, and prioritizing callers.
 - **Staff.** The hiring process has launched with the goal to hire 12% more seasonal Benefit Advisors (targeting a 10% increase in full-time staff). Different compensation models are being explored to ensure the pay is competitive and incentivizes performance.
 - **Training.** First class of BA training starts on May 12th; training will have an increased focus on role-playing and real-life scenarios.

In addition to the above, OPERS and Via Benefits staff have spent time identifying how open enrollment communications can be broadened to address common pain points that cause retiree frustration. A communication strategy is being built to address the following:

- **Importance of Authentication** – Will allow the caller to get to be routed to the right place in a timelier manner along with prioritization as an OPERS retiree.
- **Enhanced Understanding of Medigap Plans** – Will reiterate to retirees enrolled in a Medigap plan that they don't have to call during open enrollment, they are permitted to make changes anytime during the year.
- **Enhance Understanding of Medicare Premiums** – Will help reduce confusion when retirees may be enrolled in the same plan but have different premiums.
- **Appointments Aren't Necessary** – Will remind retirees that they shouldn't worry if they don't have an appointment; OPERS and Via Benefits will support any retiree who needs help during open enrollment.
- **Via Benefits Service Model** – Will reiterate why retirees need to speak to different Via Benefits associates during their phone call.

Governance

- As shared in the November 2024 annual Enterprise Risk Management update, we **are enhancing security on the OPERS member portal**, which provides members with 24-hour account access and online tools. We are improving our online registration process by adding an additional layer of protection through identity proofing via facial recognition.

During the registration process, members will be asked to provide identifiable information. This information will be used to determine a risk score. If the risk score exceeds the OPERS set threshold, the member will be required to complete the identity proofing process. This process will involve uploading a valid government-issued identification and taking a selfie to complete the facial recognition.

This new feature will be effective June 2, 2025. The online system will be down for implementation the weekend prior.

In addition to the registration process, we will incorporate identity proofing into high-risk online transactions such as bank updates and refunds. This effort is being undertaken due to the increase in fraud and unauthorized access to members' accounts.

Education

- **OPERS leadership conducted roadshows across Ohio** to update members on the system. The seminar, titled "Retirement Security with OPERS Leadership," covered several key topics, including enhancing security measures for the OPERS member portal, improving open enrollment service levels, and providing detailed pension and healthcare funding updates. Additionally, the seminar included a review of current introduced legislation impacting OPERS and its members.

The overall climate of the attendees was positive, with retirees expressing appreciation for the transparency and openness of the leadership. Numerous comments praised the OPERS board for its fiduciary responsibility and leadership.

The roadshows were successful in fostering a positive relationship with our members and reinforcing trust in OPERS leadership.

Based on feedback from retirees, a final seminar will be held for out-of-state retirees in a web-based format. This webinar is scheduled for Friday, May 16th, at 11 AM.

If you have any questions, please let me know.

Board Meeting VIII.A



OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM
277 EAST TOWN STREET, COLUMBUS, OH 43215-4642
1-800-222-PERS (7377)
www.opers.org

MEMORANDUM

DATE: May 12, 2025

TO: OPERS Retirement Board Members

FROM: Tonya Brown, Director of Member Operations

RE: **VIII. For Your Information:**
A. 2026 Health Care Rates – HRA, Dental and Vision

Purpose

To provide the Board with the following health care rates effective January 1, 2026:

- Dental and Vision premium rates for the fully insured dental and vision plans; and
- Restate the Pre-Medicare and Medicare Health Reimbursement Arrangement (HRA) base allowance amounts that were approved in March 2024.

Background

Each year OPERS evaluates its health care plans to establish allowance amounts and premium rates that are competitive, retain reasonable buying power and are financially prudent for the health care fund.

- Dental and Vision premium rates are based on negotiated contract rates with MetLife that support quality, sustainable, fully insured group dental and vision plans. Benefit recipients have the full premium for their and their dependent's coverage deducted from their monthly benefit.
- HRA allowance amounts are based on market trends and our population demographic. The Board considered detailed HRA allowance and purchasing power information in March and approved HRA base allowances through 2030, barring any need to revisit sooner.

2025 Dental & Vision Plan Premiums

Our fully insured dental and vision plans are available to all benefit recipients under the Traditional and Combined plans who meet pension eligibility regardless of their years of service as well as their eligible dependents. We currently have approximately 155,300 participants enrolled in our dental plans and 150,700 participants enrolled in our vision plans. OPERS deducts benefit recipient and dependent premiums automatically from the monthly retirement benefit.

The charts below provide a comparison between the 2025 and 2026 monthly premiums. MetLife and OPERS use a transparent, self-adjusting methodology based on OPERS plan experience to calculate the annual premiums.

High Option Dental	2025 Premium	2026 Premium	Percent Change
Adult	\$40.11	\$39.03	-2.7%
Child	\$23.82	\$23.18	-2.7%

Low Option Dental	2025 Premium	2026 Premium	Percent Change
Adult	\$23.80	\$23.16	-2.7%
Child	\$14.46	\$14.07	-2.7%

High Option Vision	2025 Premium	2026 Premium	Percent Change
Adult	\$4.64	\$4.64	0%
Child	\$3.59	\$3.59	0%

Low Option Vision	2025 Premium	2026 Premium	Percent Change
Adult	\$1.95	\$1.95	0%
Child	\$1.36	\$1.36	0%

2026 Approved HRA Base Allowances

Pre-Medicare HRA	2025 Monthly Base Allowance	2025 Monthly Base Allowance	Percent Change
Benefit Recipient	\$1,200.00	\$1,200.00	0%

Medicare HRA	2025 Monthly Base Allowance	2026 Monthly Base Allowance	Percent Change
Benefit Recipient	\$400.00	\$400.00	0%

Next Steps

OPERS staff will communicate the information outlined in this memo with benefit recipients during open enrollment (October 15 – December 15, 2025).

Board Meeting VIII.C



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MEMORANDUM

DATE: May 12, 2025

TO: OPERS Retirement Board Members

FROM: Karen Carraher, Executive Director

RE: **VIII. For Your Information:**
C. Staff Board Consultant Evaluations – Gabriel, Roeder, Smith & Co., Meketa Investment Group and Mosaic Governance Advisors

Purpose – Provides the Board with an opportunity for feedback on their consultants by completing the annual evaluations of the Board consultants.

Background – In accordance with the **OPERS Board Consultation Evaluation** policy, the Board shall annually complete an evaluation for each Board consulting firm. This year the evaluations will be completed for Gabriel, Roeder, Smith & Co. (GRS), Meketa Investment Group and Mosaic Governance Advisors.

The following is a summary of the services provided by the two consultants being evaluated.

Gabriel, Roeder, Smith & Co

Consultant to provide independent actuarial expertise for the Board. The principal consultants assigned to relationship: Mita Drazilov, James Sparks and Jeff Tebeau. Long time consultant Brian Murphy retired in 2023, however GRS retains a consultant relationship with him to assist on our account as needed. The key activities performed in 2024 include: GRS representatives attend most board meetings to address questions or issues that arise and are otherwise available to support Board and staff needs; provided 50 year projections for Pension and Health Care (May and September); provided an annual Pension Actuarial Valuation Result report (May); provided opinion and material for the Annual Report; provided information for the GASB reports for employers; actively involved and participated in

the Strategic Planning Board meeting (July), work with staff on analyses of proposals and make recommendations on those proposals; provide cost data to the Ohio Retirement Study Council on legislative proposals and other requests; provide industry data and impacts on changes; mitigating rate study; provide updated reduction factors.

Meketa Investment Group

Consultant to provide independent investment expertise for the Board. Meketa began work in May 2024 and the principal consultants assigned to the relationship are: David Sancewich, Alli Wallace Stone and Jonathan Camp. Key activities during 2024 include: active participation at the Strategic Planning Board Meeting including presentation on historical performance compared to peers, an overview of the asset liability study process, discussion of the Board's risk survey responses, and introduction of the risk mitigation strategy concept (July); completion of the Defined Benefit asset liability study (throughout the year, vote in November); introduction of the Health Care Fund asset liability study (November); and performance updates throughout the year. Additionally, Meketa has worked closely with staff to onboard following their selection by the Board in early 2024.

Mosaic Governance Advisors

Consultant to provide Board Governance consulting to the Board. The principal consultant assigned to the relationship is Amy McDuffee. The key activities performed in 2024 include: Conducting the Board's annual governance self-evaluation (February); facilitating the fiduciary scenario discussion (February); facilitating the Board education needs assessment (February and July); and working with the Board to facilitate the Executive Director evaluation process and updating the form used for the evaluation (February, March and July).

Next Steps – The online evaluation tool will be available beginning May 21, 2025, through June 27, 2025. Each Board member is requested to complete one evaluation for each consulting firm. Evaluations do not need to be completed for individual consultant staff members, or the principals assigned to the engagement, but rather for the firm as a whole.

Marsha Volpi will send a link to the evaluation tool on May 21, 2025. As requested by the Board during the consultant evaluation discussion in July 2023, Ms. Volpi's email will also contain a summary of the staff's evaluation of the consultants.

Results of the evaluation will automatically be compiled by the online evaluation system and be shared with the Board at the July 2025 meeting.

Board Meeting VIII.D



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MEMORANDUM

DATE: May 12, 2025
TO: OPERS Retirement Board Members
FROM: Karen Carraher, Executive Director
RE: **VIII. For Your Information:**
D. July 2025 Strategic Planning

This year's OPERS strategic planning retreat is scheduled for July 15-16, 2025 at Hocking Hills. You have emails from Marsha regarding the details and should have provided her arrival and stay information.

The 2025 OPERS strategic planning retreat will focus on long-term system opportunities and challenges. Specifically, we will discuss potential direction if mandated to participate in Social Security. We will also be discussing the potential legislative agenda for the upcoming year including the impact of a reduced statutory amortization period. Other topics will include investment education and geopolitical outlook, board governance, board education follow up from survey, board consultant evaluation, and other topics.

If you have any other topics you would like us to potentially add, let me know.

Board Meeting VIII.E

INVESTMENTS MARKET UPDATE

Net Asset Value & Performance

	NAV (\$ B) 3/31/2025	PERFORMANCE					NAV (\$ B) 05/16/2025
		MTD April	YTD April	YTD April Benchmark	May 1 to 16 Estimated	Benchmark May 1 to 16 Estimated	
DB Fund	\$104.65	0.71%	2.20%	1.79%	2.55%	N/A*	\$106.14
HC115 Fund	\$13.46	0.57%	2.27%	2.07%	8.42%	N/A*	\$13.71

*BNY is reworking benchmark returns with the introduction of the new Risk Mitigation Strategies (RMS) Asset Class.

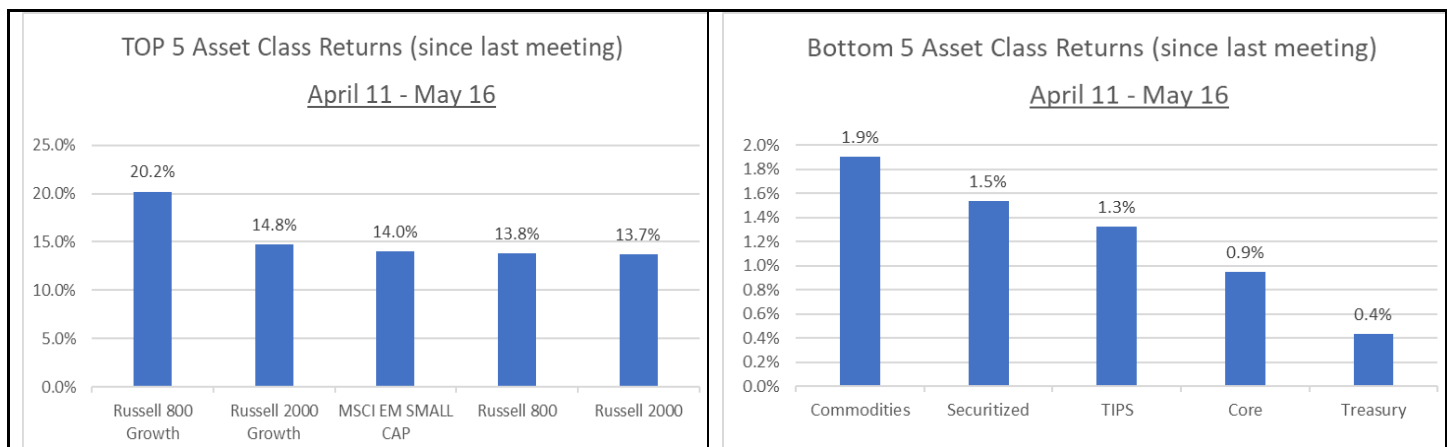
Market Events Summary

- The U.S. total unemployment rate remained unchanged at 4.2%, as consensus expected, for the month of April. Total nonfarm payroll employment increased 177,000, well above estimates of 138,000. Initial estimates for March were revised down by 43,000 to 185,000, and February was revised down by 15,000 to 102,000.
- April's headline CPI rose 0.2% (MoM) and 2.3% (YoY). This was slightly below consensus estimates of 0.3% (MoM) and 2.4% (YoY), respectively. Core CPI (YoY) was as expected at 2.8%, while (MoM) was also slightly below estimates of 0.3% (MoM) rose to 0.2%.
- The Federal Open Market Committee (FOMC) opted to maintain the federal funds rate at 4.25%–4.50% at its latest meeting on May 6-7. Fed Chair Jerome Powell noted that recently imposed tariffs could materially affect the economic outlook. However, he emphasized that the Fed will continue its cautious, data-dependent approach and refrain from making any preemptive policy changes.
- The U.S. Producer Price Index (PPI) for final demand declined by 0.5% month-over-month, significantly below the consensus forecast of a 0.2% increase. This marks the largest monthly drop since April 2020. On a year-over-year basis, PPI final demand also came in below expectations, falling to 2.4% compared to the consensus estimate of 2.5%.

Portfolio Changes

- As of May 1, Staff has begun the implementation of the asset liability study changes for DB and HC Fund. The Risk Mitigation Strategies (RMS) asset class was established with an initial target of 3% and 4% for DB Fund and HC Fund, respectively. Long Duration U.S. Treasury sub-asset class received an initial funding of approximately \$2.3 billion sourced from Core Fixed and U.S. Treasury sub-asset classes for the DB Fund and from the Public Equity asset class for the HC Fund.
- Additionally, PE FX Currency was transferred to Alternative Risk Premia (ARP) within the RMS asset class with an initial target of 1% for both DB and HC Funds. ARP initial funding of approximately \$975 million was sourced from the Opportunistic sub-asset class. The Opportunistic sub-asset class target was decreased from 2% to 0% with the move to ARP sub-asset class and the move of the Gold portfolio to the Commodities sub-asset class (1%)

Top/Bottom Performing Public Market Asset Classes (April 11 – May 16)



Personnel and Salary Review Committee

PERSONNEL AND SALARY REVIEW COMMITTEE MEETING AGENDA
May 20, 2025
Immediately Following the Board Meeting

I. Action Item:

- A. [Revised Health Care Fund Alpha Target](#) – 15 minutes
Ciji Wilhelm, Director – Human Resources

Personnel Committee I.A



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MEMORANDUM

DATE: May 12, 2025

TO: Personnel and Salary Review Committee

FROM: Ciji Wilhelm, Director – Human Resources

RE: **I. Action Item:**
A. Revised Health Care Fund Alpha Target

Action requested: _____ moved, _____ to approve the revised alpha target (24 bps) for the Health Care Fund, reflected in Appendix C of the 2025 Investment Division Incentive Compensation Plan.

Background – On January 15, 2025, the Personnel and Salary Review Committee approved Appendix C of the 2025 Investment Division Incentive Compensation Plan. At that time, Appendix C listed an alpha target of 25 bps for the Health Care (HC) Fund.

Prior to the meeting, Meketa developed Appendix C assuming the Board would adopt asset mix “Option A” for the HC Fund. At the request of the Board, Meketa introduced a third asset mix, “Option C”, on the day of the Board meeting. Upon selection of “Option C” by the Board, the HC Fund alpha target for 2025 was lowered by 1 bps to 24. This change was the result of more assets coming out of Equities, while moving more into Fixed Income and Risk Mitigation Strategies relative to “Option A”.

Recommendation – Meketa and staff recommend approval of the revised alpha target of 24 bps for the HC Fund, reflected in Appendix C of the 2025 Investment Division Incentive Compensation Plan

MEMORANDUM

TO: OPERS Board of Retirement
FROM: Meketa Investment Group (Meketa)
DATE: March 19, 2025
RE: 2025 Annual Investment Plan: DB and HC plans

In November 2024, the Board approved new long-term asset allocation targets for the Defined Benefit Portfolio which was conducted through an asset liability study. The revised target portfolio includes a new allocation to risk mitigating strategies (“RMS”). RMS is designed to protect the portfolio when growth markets are negative. The resulting Defined Benefit asset allocation targets are shown in the table below.

DB Fund			
Asset Class	Current Q1-2025	Asset Mix Changes 2025	New 2025 LT Policy Mix
Public Equity	41%		41%
U.S. Equity	21%		21%
Non-U.S. Equity	20%		20%
Fixed Income	24.8%		21%
Core-Fixed	9.8%	-2.8%	7%
U.S. Treasury	3%	-1.0%	2%
Securitized Debt	1%		1%
Emerging Markets Debt	1%		1%
High Yield	4%		4%
TIPS	3%		3%
Investment Grade Credit	3%		3%
Alternatives	32%		31%
Private Equity	15%		15%
Real Estate	12%		12%
Commodities	2%		2%
Opportunistic	2%	-2.0%	0%
REITs	1%		1%
Private Credit	0.20%	0.8%	1%
Risk Parity	2%		2%
Risk Mitigating Strategies			5%
Long Treasuries		2.0%	2%
Trend Following		2.0%	2%
Alternative Risk Premia		1.0%	1%
Total DB Fund	100%	0%	100%

Subsequently in January 2025, the Board also adopted new asset allocation targets for the Health Care Fund. Similarly, this was following a full asset liability study and resulted in the asset allocation targets shown below.

HC Fund			
Asset Class	Current Q1-2025	Asset Mix Changes 2025	New 2025 LT Policy Mix
Public Equity	50%		45%
U.S. Equity	25%	-3.0%	22%
Non-U.S. Equity	25%	-2.0%	23%
Fixed Income	37.0%		37%
Core-Fixed	16.0%	-1.0%	15%
U.S. Treasury	2%		2%
Securitized Debt	3%	1.0%	4%
Emerging Markets Debt	1%	0.5%	1.5%
High Yield	5%	2.0%	7%
TIPS	7%	-3.0%	4%
Investment Grade Credit	3%	0.5%	3.5%
Alternatives	10%		5%
Commodities	3%		3%
Opportunistic	2%	-2.0%	0%
REITs	5%	-3.0%	2%
Risk Parity	3%		3%
Risk Mitigating Strategies			10%
Long Treasuries		3.4%	3.4%
Trend Following		3.3%	3.3%
Alternative Risk Premia		3.3%	3.3%
Total DB Fund	100%	0%	100%

The result of the asset-liability study was the introduction of a Risk Mitigation asset class for both OPERS Funds. This new asset class will serve the role of lowering the portfolios risk and provide a higher emphasis on capital preservation during equity markets draw down. This new allocation will be implemented as an index-oriented approach which has led to slightly lower alpha targets for both DB and HC Funds in 2025.

The table below shows the 2025 Alpha targets for DB and HC Funds

	2025 Target (1-Year)	2025 Target (3-Year)
DB Fund	39 basis points	23 basis points
HC Fund*	24 basis points	15 basis points

*Please note that HC Fund 2025 target alpha (25 bps) presented at the January Board meeting (Personnel & Salary Committee) assumed an adoption of HC asset mix Option A. At the request of the OPERS Retirement Board, Meketa introduced a third asset mix of Option C on the day of the Board meeting. Upon selection of Option C by the board, the alpha target for 2025 was lowered by 1 bps to 24. This change was the result of more assets coming out of Equities while moving more into Fixed Income and RMS relative to Option A.

Recommendation:

Since the new asset allocation targets were approved, Meketa and Staff have been working together to establish the 2025 Annual Investment Plan which includes updated benchmarks, interim asset allocation targets, and updated alpha assumptions. Meketa and Staff believe it will take approximately two years to fully implement the new target allocations within the Defined Benefit Fund and one year for the Health Care Fund. Meketa agrees with the proposed Annual Investment Plan as provided by Staff, and we recommend the Board adopt the Plan at the March 2025 meeting. In addition, Meketa recommends the OPERS Board adopt the revised lower alpha target for the HC Fund of 24bps for the year 2025 and a 3-year target of 15bps.

DS/AWS/mn

2025 Appendix C: Revised HC Fund Alpha Target

May 20, 2025

Ciji Wilhelm
Director – Human Resources



2025 APPENDIX C

- Approved by Committee in January 2025
- Developed by Meketa assuming Health Care Fund asset mix “Option A”
- HC Fund alpha target: 25 bps

HC FUND ALPHA TARGET

- Board approved asset mix “Option C”
- More assets coming out of Equities, moving into Fixed Income and Risk Mitigation Strategies
- Revised Health Care Fund alpha target: 24 bps

QUESTIONS?