

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

NOTICE

1. The OPERS Board will meet on **Tuesday, March 18, 2025, at 9:00 a.m. and Wednesday, March 19, 2025, at 9:30 a.m.** 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_s4U79SC2RqgZGxVZlaZW0w?_gl=1*_1wt0m08*_gcl_au*NDk4MDM0ODQ4LjE3Mzk5MDE5Mzg. Once completed you will receive additional information regarding how to observe the meetings.

Board Agenda

OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM
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Board Meeting March 18, 2025
9:00 A.M.
A G E N D A OPERS Office

I. Roll Call 9:00 – 9:00 a.m.

II. Consent agenda: 9:00 – 9:05 a.m.

A. [Minutes](#) – February 18, 2025

B. [Disability report](#)

Executive Session – with AG’s Office 9:00 – 9:30 a.m.

III. Action Item:

A. [Board Interview Process, Interviews](#) of 3 Candidates and
Selection – Eric Harrell and Jenny Starr 9:30 – 12:30 p.m.

**The Board will recess on Tuesday, March 18, 2025, and reconvene on
Wednesday, March 19, 2025, at 9:30 a.m.**

IV. Committee Report:

A. Personnel & Salary Review Committee 9:30 – 9:35 a.m.

V. Member Address the Board 9:35 – 9:40 a.m.

VI. Action Items:

A. Board Resolution 9:40 – 9:45 a.m.

B. [2025 Board Election Schedule](#) – Jenny Starr and
Eric Harrell 9:45 – 10:00 a.m.

C. [OPERS and Ohio Deferred Compensation Merger](#) –
Karen Carraher 10:00 – 10:15 a.m.

D. [Adopt the Remote Meeting Attendance Policy](#) –
Eric Harrell 10:15 – 10:30 a.m.

E. [OPERS Board Governance Policy Manual Changes](#) –
Eric Harrell 10:30 – 10:45 a.m.

F. [2024 Health Care Rate Stabilization Fund Transfer](#) –
Craig Hallermann 10:45 – 11:00 a.m.

G. [Approve Investment Policy Benchmark Changes](#) for
Long Duration Treasury, Short Duration Treasury, Trend Following,
Alternative Risk Premia – Meketa 11:00 – 12:00 p.m.

Lunch 12:00 – 12:20 p.m.

H. [DB/HC Transition Benchmark Process](#) – Paul Greff and
Prabu Kumaran 12:20 – 12:35 p.m.

I. [2025 Annual Investment Plan](#) – Prabu Kumaran 12:35 – 1:05 p.m.

J. [Approve Investment Policies](#) – Prabu Kumaran 1:05 – 1:50 p.m.

VII. Discussion Items:

A. 4th Quarter 2024 Investment Returns/Market Update – Meketa	1:50 – 2:20 p.m.
B. Communications Survey Results – Allen Foster and Lori Mitchell Dixon, Great Lakes Marketing Research	2:20 – 3:20 p.m.
C. Executive Director Report – Karen Carraher	3:20 – 3:30 p.m.

VIII. For Your Information:

- A. [Summary of 2024 Board Self-Evaluation Discussion Outcomes](#) and
Governance Practices Discussion
- B. [Health Care – Annual Update](#)
- C. [Benchmarks Policy Update](#)
- D. [Internal Audit Update](#)
- E. [Incentive Compensation Payouts](#)
- F. 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 at Hocking Hills Lodge, St. Rt. 664 S, Logan, Ohio, at 8:30 a.m., Tuesday, February 18, 2025.

Members present: Ms. Julie Albers; Mr. James Kunk; Mr. Scott Richter; Mr. Stewart Smith; Mr. Tim Steitz; Mr. Ken Thomas; Mr. Steve Toth; Mr. Chris Mabe.

Members absent: Ms. Kathleen Madden 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; 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.

Mr. Thomas moved, Ms. Albers seconded, to approve the minutes of the meeting held January 14, 2025, and the disability report (see Appendix to the Minutes for report).

Roll call vote was taken as follows: Ms. Albers, aye; Mr. Kunk, aye; Mr. Richter, 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 meeting logistics related to conducting the meeting at the same time and together with the Ohio Deferred Compensation Board.

Ms. Carraher and Ms. Gresh provided a joint discussion on the OPERS and Ohio Defined Contribution (ODC) systems. They discussed the historical affiliation of both systems,

recent analysis of ODC needs, current shared services, and the benefits of a potential merger. They also discussed belief statements and governance matters related to a potential merger of administrative functions.

The Board recessed for a short break.

After recess, the Chair proceeded with the agenda.

Ms. Amy McDuffee, Mosaic Governance Advisors, reviewed OPERS and ODC belief statements. She reviewed several beliefs and key benefits of an OPERS/ODC merger. She also reviewed the potential responsibilities of the Board should there be an OPERS and ODC merger.

The Board recessed for lunch.

After recess, the Chair proceeded with the agenda.

Only staff present were Ms. Carraher and Mr. Harrell.

Ms. McDuffee discussed at a high-level best practice for the Board to review and select the candidates to interview for the open Non-teaching College/University Employee Board seat. Staff received 10 resumes for the open seat. She reviewed a matrix for the Board members to evaluate each candidate.

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

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

The motion passed with all ayes.

(Mr. Steitz left the meeting during executive session.)

By acclimation, the Board came out of executive session.

After discussion, the Board members selected the following individuals to be interviewed for the open Board seat:

Mark Conselyea (nominated by James Kunk)
Timothy Hess (nominated by Stewart Smith)
Sheri Meacham (nominated by Steve Toth)
Russell Smith (nominated by Scott Richter)

These four individuals will be interviewed at the March Board meeting and the Board will make a selection at that meeting.

Mr. Harrell reviewed a draft Remote Meeting Attendance Policy. Newly passed Ohio Revised Code section 145.071 (effective April 9, 2025) allows the OPERS Board to adopt a policy allowing for remote attendance at Board meetings, subject to certain restrictions in the law. These include limitations on the number of regular meetings during which remote attendance can be authorized, that a majority of the members be physically present at the meeting when remote attendance is allowed, that votes be taken by roll call, and that the public must be able to hear and see the deliberations of the members physically present and attending by video conference.

This policy will be presented at the March Board meeting for approval.

Mr. Harrell provided a review of the Board Governance Manual. Staff reviewed the current manual and is proposing several changes. These changes can be found in Section 4. Board Operations. The changes include notice when members are unable to attend a meeting and several updates to align practices with the new law authorizing attendance by video-conference means (to be effective April 9, 2025).

The Board Governance Manual will be presented at the March Board meeting for approval.

The Board recessed at 3:50 p.m. until Wednesday, February 19, 2025, at 8:30 a.m.

The Board reconvened at 8:35 a.m. February 19, 2025, and the Chair proceeded with the Board agenda.

All Board members present from the prior day were present, including Ms. Kathleen Madden who entered the meeting later.

Also present: Ms. Karen Carraher, Executive Director and Mr. Eric Harrell, General Counsel.

Ms. McDuffee presided over a Board governance session.

She provided an exercise on fiduciary scenarios.

(Ms. Madden entered the meeting during the fiduciary scenarios.)

The Board recessed for a short break.

Ms. McDuffee continued the governance session. She facilitated the Board's annual self-assessment and Trustee continuing education needs.

The Board recessed for lunch.

After recess, the Chair proceeded with the agenda.

Ms. McDuffee facilitated a discussion on governance follow-up issues from the Board's session in February 2024. She reviewed the governance topics that came up at the meeting to ensure the Board was getting the information they needed from those discussions. For the most part, the Board felt they were. They suggested some additional changes that were discussed with staff for additional review.

Mr. Toth moved, Mr. Kunk seconded, the meeting be adjourned until the next regular meeting to be held Tuesday, March 17, 2025, at 9:00 a.m.

The motion passed without dissent.

The meeting adjourned at 2:00 p.m.

Board Meeting III.A



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MEMORANDUM

DATE: March 10, 2025

TO: OPERS Retirement Board Members

FROM: Eric Harrell, General Counsel
Jenny Starr, Director - Finance

RE: **III. Action Item:**
A. Interview and Select Non-Teaching College/University Employee Representative

Action requested: _____ moved, _____ seconded to: select _____ to fill the vacant Non-Teaching College/University Employee Representative OPERS Board seat.

Background – In January 2025 the Non-Teaching College/University Employee Representative seat became vacant following the resignation of the Trustee in that seat. The Board established a schedule to fill the vacancy, calling for interested members to submit a letter of interest and a resume by February 14, 2025. At the February meeting the Board selected four candidates to interview with the Board at the March meeting. Following nomination, one candidate withdrew from the process, leaving three candidates for consideration.

Attached please find the resumes and affidavits completed by the three candidates for the vacant Board seat.

We have informed the candidates that they may make 5-minute presentations, which will be followed by questions from the Board.

Process – The Board selects a successor member from those names submitted to it. A successor member is selected by majority vote in which successive voting occurs until one candidate receives a majority. In the event of a tie vote, the tie vote will be decided by coin toss.

Attachments

Board Meeting VI.B



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MEMORANDUM

DATE: March 10, 2025

TO: OPERS Retirement Board Members

FROM: Eric Harrell, General Counsel
Jenny Starr, Director - Finance

RE: **VI. Action Item:**
B. 2025 Board Election Schedule

Action requested: _____ moved, _____ seconded to: approve the 2025 board election schedule.

Background – Pursuant to Ohio Administrative Code Section 145-1-02, the Board shall establish an election time schedule at its regular March meeting in the year that an election of members to the Board is required.

Three Board member seats are up for election this year: Miscellaneous, County, and Retiree.

2025 OPERS Board Election Schedule
(ORC Section 145.05 and Rule 145-1-02)

<u>Seats to be elected:</u>	<u>Number of Employees/Retirees (as of 2/28/2025)</u>
Miscellaneous	46,401
County	85,992
Retiree (1)	188,564
Total Count	320,957

March 19, 2025 Wednesday	OPERS Board adopts election schedule.
May 5, 2025 Monday	Article about election to all employee and employer associations released for publication.
May 12, 2025 Monday	Letter to employers outlining procedures.
May 30, 2025 Friday	Formal notice of election postcards mailed to retirees at home address of record. Formal notice of election posters, petitions, forms mailed to employers and petitions and forms made available upon request.
August 4, 2025 4:30 p.m. Monday	Last day for OPERS to <u>receive</u> petitions, forms, biographical statements.
August 19, 2025 Tuesday	OPERS Board certifies slate of candidates, biographical statements to appear on voting material.
August 26, 2025 Tuesday	Voting materials mailed to qualified voters at home address of record. Telephone and internet voting to go live.
October 3, 2025 Midnight Friday	Last day to <u>receive</u> votes.
October 6, 2025 Monday	Election results verified under supervision of Secretary of State representative at OPERS.
October Board Meeting	OPERS Board certifies election results.

Board Meeting VI.C



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MEMORANDUM

DATE: March 10, 2025

TO: OPERS Board

FROM: Karen Carraher, Executive Director

RE: **VI. Action Items:**
C. OPERS and Ohio Deferred Compensation Merger

Action requested: _____ moved, _____
seconded, to authorize staff to seek legislation to merge Ohio Deferred
Compensation with the Ohio Public Employees Retirement System.

Background – In November 2022, members of the Ohio Deferred Compensation Board requested an analysis from OPERS about the feasibility of providing services to Ohio Deferred Compensation, including the various options for doing so. OPERS staff provided an initial discussion to the OPERS Board in January 2023 and subsequently launched a six-month project to identify options. The results were presented by the OPERS staff to the OPERS Board in July 2023 and to the Ohio Deferred Compensation Board in August 2023.

Since that meeting OPERS has expanded the services it provides to Ohio Deferred Compensation. Prior to these discussions, OPERS provided building space and Board room services. These have been expanded to include human resource support, printing and mailing support, IT support, member education support and other miscellaneous functions as requested by Ohio Deferred Compensation. Additionally, OPERS has provided executive leadership support. All services provided to Ohio Deferred Compensation by OPERS are billed by OPERS and reimbursed to OPERS by Ohio Deferred Compensation.

The OPERS Board and the Ohio Deferred Compensation Board have continued discussion on paths forward including merger. At the February strategic planning meeting of the OPERS Board and a special meeting of the Ohio Deferred

Compensation Board, the evaluation of the goals of a merger and the benefits of a merger were discussed. Subsequently, the Ohio Deferred Compensation Board voted to approve seeking legislation to merge Ohio Deferred Compensation with OPERS. This month, the OPERS Board will consider the same action.

Rationale for Action – The proposed merger of Ohio Deferred Compensation with OPERS requires legislative action. Final merger steps would follow successful passage of legislation. If successful, Ohio Deferred Compensation would be included in the OPERS financial statements as an independent trust fund similar to the manner in which the Member Directed and Health Care Plans operate. The funding sources of Ohio Deferred Compensation would continue to remain as it is without subsidization by OPERS. Allocation of resources would be reflected through intercompany billing as is current practice with the Member Directed Plan, the Health Care Plan and Ohio Deferred Compensation. The 2024 OPERS financial statements will reflect this same presentation due to the accounting requirements for the presentation of a component unit.

Following successful legislation, the Ohio Deferred Compensation Board would cease to exist, and all Ohio Deferred Compensation Board activity would be incorporated into the OPERS Board activity. The Ohio Deferred Compensation Board currently is the OPERS Board plus two additional legislative members.

Both the OPERS Board and the Ohio Deferred Compensation Board believe the benefits of a merger include:

- Integrating the Ohio Deferred Compensation Plan with OPERS will ensure long-term stability and competitiveness.
- Leveraging economies of scale is crucial for the efficient administration of a deferred compensation plan.
- The merger will harness professional expertise, streamline operations and improve service delivery.
- OPERS access to deep resources and has experience administering similarly structured plans.
- Since the majority of Ohio Deferred Compensation participants are OPERS members, centralized access to education and counseling for their comprehensive retirement planning- including both pension and voluntary workplace savings – will simplify their path to achieving retirement security.
- Ohio Deferred Compensation is well-recognized brand that will continue as will its essential business relationships.

Board Meeting VI.D



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MEMORANDUM

DATE: March 10, 2025

TO: OPERS Retirement Board Members

FROM: Eric Harrell, General Counsel

RE: **VI. Action Items:**
D. Adopt the Remote Meeting Attendance Policy

Action requested: _____ moved and _____ seconded to approve the Remote Meeting Attendance Policy included the Board materials as reviewed and discussed with staff.

Background – Newly passed Ohio Revised Code section 145.071 (effective April 9, 2025) allows the OPERS Board to adopt a policy allowing for remote attendance at Board meetings, subject to certain restrictions in the law. These include limitations on the number of regular meetings during which remote attendance can be authorized, that a majority of the members be physically present at the meeting when remote attendance is allowed, that votes be taken by roll call, and that the public must be able to hear and see the deliberations of the members physically present and attending by video conference.

A draft policy was presented to the Board in February 2025 for consideration and discussion.

Next Steps – Upon approval of the policy, and following the effective date of the new law, the OPERS Board will be able to utilize remote attendance at meetings in accordance with the policy.



Ohio Public Employees Retirement System

**Remote Meeting Attendance Policy
April 9, 2025**

I. AUTHORITY

This policy is created pursuant to Ohio Revised Code section 145.071 which authorizes the OPERS Board of Trustees to establish a policy to allow members to attend a meeting of the Board by means of video conference.

II. ATTENDANCE BY VIDEO CONFERENCE

All regular, monthly meetings of the Board will be in person, with all Board members physically present, subject to the following:

1. The Board Chair may authorize attendance by video conference means when:
 - a. Inclement weather or other issues make travelling to the meeting difficult, unsafe or impractical;
 - b. A meeting contains limited agenda items (not a complete regular, monthly meeting) but occurs on the date of a regular, monthly meeting date; or
 - c. When convening a special or emergency meeting.
2. No less than three quarters of regular meetings (annually) will be in person, with no video conference attendance being available.
3. When video conference attendance is available, the following shall apply:
 - a. A majority of the Board members must be physically present at the meeting.
 - b. All votes will be taken by roll call.
 - c. The meeting must be conducted such that members of the public can hear and observe the discussions and deliberations of all members, both physically present and participating by video conference means.
 - d. Board members wishing to attend by video conference must notify the Board Chair no less than forty-eight hours prior to the meeting except in case of emergency. Emergency shall consist of an unforeseen situation that prevented forty-eight-hour notice as determined by the Board Chair.

Board Meeting VI.E



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MEMORANDUM

DATE: March 10, 2025

TO: OPERS Retirement Board Members

FROM: Eric Harrell, General Counsel

RE: **VI. Action Items:**
E. OPERS Board Governance Policy Manual Changes

Action requested: _____ moved and _____ seconded to approve the edits to the OPERS Board Governance Policy Manual included the Board materials as reviewed and discussed with staff.

Background – The Board Governance Manual was last updated in October 2022 and calls for periodic review by the Board. Staff reviewed the current manual and proposed several changes. These changes can be found in Section 4. Board Operations. The changes include notice when members are unable to attend a meeting and several updates to align practices with the new law authorizing attendance by video-conference means (to be effective April 9, 2025). These changes were discussed with the Board in February 2025.

Additionally, the Board's Governance Consultant suggested adding language about leadership and succession planning and acknowledging the Board's role in monitoring the work of consultants. These resulted in changes to Sections 6, 11, and 12.

Summary of the Changes – As described above, the suggested changes to the manual include:

- Adding language regarding notice when a trustee is unable to attend a meeting
- Adding language regarding the use of video-conference attendance at Board meetings
- Adding language regarding leadership succession planning
- Acknowledging the Board's role in evaluating consultant performance.

Next Steps – Upon approval, the Board Governance Policy Manual and will be updated and distributed to the Board members.

THE OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM

BOARD GOVERNANCE POLICY MANUAL

Issued: June 2005;

*Revised: June 2008; January 2011; January 2012; January 2014; January 2015; January 2016;
June 2017; February 2020; October 2022, March 2025*

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1. Preamble

OPERS Board members are fiduciaries, and are, at all times, subject to Board policies governing Board member conduct, and the statutory and common law duties of a fiduciary. The Board has authority and oversight for the Defined Benefit Plan, the Defined Contribution Plan, the Combined Plan, and the Health Care Plan. This Board Governance Policy Manual is established to set forth the guidelines pursuant to which the OPERS Board will fulfill its fiduciary responsibilities; to ensure that the Board will perform its functions in a manner that is consistent with and in furtherance of its fiduciary responsibilities; and to facilitate the organized, efficient, and cohesive functioning of the Board. The Board's goal is to maintain focus on policy-level issues and ensure good governance practices so it can confidently delegate all management responsibilities to the Executive Director and their staff.

This Board Governance Policy Manual is to be provided to all OPERS Board members. The contents of this Governance Manual will be readily available to the Board members at all meetings.

Vision and Mission Statement

The Board is dedicated to seeing that the system accomplishes its vision and mission. The OPERS vision statement is: "Our vision is to be your trusted retirement partner delivering responsive, high quality service." The mission statement is: "Our purpose is to provide secure retirement benefits for our members."

Governance Operative Principles

The OPERS Board is committed to cultivating a culture of excellence in governance for the benefit of its members and beneficiaries. To accomplish this objective, the Board has developed the following Governance Operative Principles.

- a. Board trustees are committed fiduciaries acting with the highest level of integrity and always in the long-term interests of all members and beneficiaries.
- b. The board seeks out new information and learns from the past.
- c. Information for one board member is information for all board members.
- d. The board understands what is within its control and what is within its influence. Board discussions and decisions reflect that.
- e. The board, its staff, and consultants have a high sense of confidence in each other as reflected by open, honest, respectful, and productive dialogue and interactions.
- f. All board members actively engage in boardroom discussion and endeavor to align on assumptions of major decisions.
- g. Board members balance listening and talking. They neither monopolize nor shy away from the board and committee meeting floor.
- h. The board values open decision-making that is accessible to its stakeholders.

- i. All board members understand how the board came to a decision, and accept it, once made, whether originally in favor or not.
- j. The board speaks in “one voice” when directing or delegating.

2. Board Organization

Function and Composition

The Ohio Public Employees Retirement Board, the governing body of the system, is responsible for the administration and management of OPERS. Among its many duties, the Board reviews and adopts policies concerning investments, members, contributors, and benefit recipients of OPERS and OPERS staff, adopts administrative rules, conducts membership determination hearings, approves disability applications, reports to the Ohio Retirement Study Council, adopts an annual administrative budget, certifies employer contribution rates, monitors actuarial status of system by reviewing annual actuarial reports, establishes a period of not more than 30 years to amortize the unfunded actuarial accrued pension liability, or adopts a plan to reach such goal, and administers and determines the type and level of benefits for the OPERS Health Care Plan.

The OPERS Board is established by Ohio Revised Code (“R.C.”) 145.04, which describes the Board’s composition and qualifications. Board members serve four-year terms. The Board consists of eleven members as follows: five employee Board members elected by the members of the system; two retiree Board members elected by retirees and disability benefit recipients of the system; the Director of Administrative Services; and three investment expert members appointed by the Governor, the Treasurer of State, and jointly by the Speaker of the Ohio House of Representatives and the President of the Ohio Senate.

Board members are not penalized for absences from their regular employment while attending authorized Board meetings. Although Board members receive no compensation, reimbursement is made for necessary expenses incurred while serving the system.

Oath of Office

Upon assuming office, each Board member shall be required to sign an affirmation pledging to support the U.S. and Ohio Constitutions, and that the member will diligently and honestly administer the affairs of the Board and will not knowingly violate, or permit to be violated, any provision of R.C. Chapter 145, the chapter governing OPERS.

3. Board Code of Conduct

Fiduciary Duty

Board members are trustees of the retirement system funds and as such are subject to strict fiduciary standards of conduct. The Board members must act solely in the best interests of all the participants and beneficiaries of the system and for the exclusive purposes of providing them with benefits and defraying reasonable administrative expenses. The U.S Supreme Court has concluded that this duty of loyalty means Board members must wear only one hat as a trustee and not at the same time wear a second hat as a representative of outside interests. The Board members are required to discharge their duties with respect to the system's funds with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and with like aims.

Conflict of Interest Restrictions

Board members are prohibited by law from engaging in certain party-in-interest transactions (i.e. furnishing of goods or services between the system and a relative of a Board member), and are prohibited from using assets of the system for their own interests. Board members are prohibited from receiving any consideration for their own personal account from any party dealing with the system in connection with a transaction involving the system's assets. Board members may not act on behalf of a party whose interests are adverse to the system, its participants or beneficiaries.

The system is prohibited by law from making investments or doing business with individuals or entities controlled by individuals who were Board members, officers, or employees of the system within the last three years and further prohibits such individuals or entities from being involved in investment recommendations to the system where such individuals or entities would benefit by any monetary gain. Board members are prohibited from having any direct or indirect interest in the gains or profits of any Board investment.

Ohio Ethics Laws

Board members are also subject to Ohio ethics laws as set forth in R.C. Chapters 102 and 2921. The Ohio Ethics Commission set forth the attached State Retirement System Ethics Policy, which summarizes the general ethical provisions. The Ohio ethics laws generally govern conflict of interest situations and violations of such laws are subject to criminal penalties. Board members must annually file Financial Disclosure Statements with the Ohio Ethics Commission. In addition to adhering to the provisions set forth in the Ohio ethics laws, Board members are prohibited from soliciting or accepting payment of travel expenses, including expenses incurred with the travel for lodging, meals, food and beverages from anyone other than OPERS. Under ethics laws, Board members are also prohibited from accepting anything of value from persons or corporations doing business or seeking to do business with the system.

APPENDIX A: OPERS ETHICS POLICY

Removal

Pursuant to R.C. 145.057, a Board member may be removed by a Court of Common Pleas of the County in which the Board member resides if the member commits misconduct in office by

willfully and flagrantly exercising authority or power not authorized by law, refusing or willfully neglecting to enforce the law or to perform any official duty imposed by law, or being guilty of gross neglect of duty, gross immorality, drunkenness, misfeasance, malfeasance, or nonfeasance.

Civil Action by Attorney General

If a Board member breaches their fiduciary duty, the Ohio Attorney General may file a civil action pursuant to R.C. 109.98 against the member and seek restitution to be paid to the System. If the entire Board is sued, the Board may obtain independent legal counsel.

Insurance

R.C. 145.08(B) provides that the Board may secure insurance coverage designated to indemnify Board members and employees for their actions or conduct in the performance of official duties, and may pay required premiums for such coverage from the OPERS expense fund. The Executive Director or their designee shall be responsible for obtaining and maintaining such coverage and reporting to the Board.

4. Board Operations

Meetings & Quorum

Attendance at Board meetings is considered to be an essential element of a Board member's fiduciary duty. Therefore, members are expected to attend all meetings unless there are extenuating circumstances that prevent such attendance. Pursuant to R.C. 145.06, if an employee or retiree member fails to attend the meetings for three months or longer, without valid excuse, the member shall be considered as having resigned and the Board shall declare the member's office vacated as of the date of the adoption of a proper resolution. Members shall provide the Board Chair and Executive Director (and/or their designee) with adequate notice if they are unable to attend a meeting and those requiring excuse from the meeting must provide the circumstances upon which they are asking the Board to excuse their absence.

In accordance with R.C. 145.07 and Ohio Administrative Code 145-1-01, the Board shall generally hold regular meetings at nine a.m. on the third Wednesday of each calendar month at the OPERS' offices in Columbus, Ohio. At the Board chair's discretion, the chair may call for a regular Board meeting or a portion thereof to occur on the Tuesday immediately preceding the third Wednesday of the month, at a time to be determined by the chair. The date, hour and/or location of the regular meetings may be changed by appropriate Board resolution. Board committee meetings are generally scheduled on the third Tuesday of the month before regular Board meetings.

Special meetings may be held at the call of the chair, or in the event of the chair's incapacity, at the call of the vice chair.

The Director of Administrative Services may designate a member of such individual's staff to act on the Board in such individual's absence, provided the person designated is not disqualified by operation of law to act as such a representative.

A majority of the actual number of Board members that have been elected or appointed to and are serving on the OPERS Board at the time of a meeting where official action is to be taken constitutes a quorum to conduct a meeting. A majority of those members present voting yes on a proposal shall constitute a favorable vote. An abstention from voting shall not be counted as either an affirmative or negative vote. A roll call shall occur if there is a division in the vote. Any Board member may request a roll call on any vote. All votes taken when any member attends a meeting through video conference means will be by roll call.

Ohio Open Meetings Act

Meetings of the Board are governed by the Ohio Open Meetings Act and are generally open to the public. The Open Meetings Act is intended to require public bodies to take official action and to conduct deliberations upon official business in open meetings. A public body has three basic responsibilities under the Act: openness, notice, and minutes. R.C. 121.22(B)(2) defines a meeting as a prearranged gathering by a majority of membership of the public body for the purpose of discussing or conducting public business. Except as provided in the Remote Meeting Attendance Policy, The Board members must be present in person to vote, deliberate, or be counted in a quorum. Trustees attending a meeting using video-conference means shall use an

OPERS provided background and ensure they can be seen and heard in accordance with the Remote Meeting Attendance Policy ~~Teleconferencing and videoconferencing are prohibited.~~

Anyone wishing to take pictures or video, or record audio during a Board or Committee meeting must do so in a manner that is silent and unobtrusive, with self-contained and self-powered equipment, to limit disruption or interference with the ability of others to hear, see, and participate in the meeting. The Board or Committee chair shall have the discretion to determine the location from which such action may occur.

The minutes shall be the record of the proceedings of the Board. Statements from individual Board members made to clarify their vote will be included in the minutes. Draft copies of the written minutes shall be circulated to the Board in advance of each meeting. After approval, the final form shall be inserted in the minutes book of the Board.

An executive session is authorized by the Open Meetings Act in R.C. 121.22(G) to allow the Board or committee to privately discuss limited matters within the executive session. Those matters include:

1. personnel-to consider the appointment, employment, dismissal, discipline, promotion or compensation of a public employee or official;
2. property-to consider the purchase of property (real and personal property, whether it is tangible or intangible) and to consider the sale of property by competitive bid (real or personal property) if disclosure of the information would result in a competitive advantage to the other side;
3. court action-with the public body's attorney to discuss pending or imminent court action;
4. collective bargaining-to prepare for, conduct or review collective bargaining strategy;
5. confidential matters-to discuss matters required to be kept confidential by federal law, federal rules or state statutes; and
6. security arrangements-to discuss details of security arrangements and emergency response protocols where disclosure could be expected to jeopardize the security of the public body or public office.

The Board or committee may exclude members of the public from the executive session, and only persons invited by the Board or committee may attend the executive session.

A Board member shall maintain the confidential nature of all Board deliberations in executive session. This includes written and verbal communication concerning the executive session.

Robert's Rules of Order

When a question of parliamentary procedure arises that is not governed by the Open Meetings Act or OPERS' statutes or rules, the most current edition of Robert's Rules of Order will be followed.

Meeting Agendas

The Executive Director and/or their designee, in coordination with the Board chair and committee chairs, will prepare, and distribute a written agenda for all meetings of the Board and

committees. The agenda items and related materials for Board and committee meetings will generally be distributed to Board members at least seven calendar days in advance of the meeting, and may be updated if necessary for the actual meeting. Materials prepared for the meeting should be in the form of concise narratives. The agenda will be distributed to interested parties who have expressed an interest in receiving it. In addition, the agenda and general action items may be posted to the system's public website, according to the guidelines set forth in the OPERS Board Public Disclosure Policy.

APPENDIX B: OPERS BOARD PUBLIC DISCLOSURE POLICY

5. Board Committees

The Board creates committees to assist the Board in effectively fulfilling its fiduciary responsibilities. All committees report to the Board. Committees of the Board hear presentations, review reports, deliberate and make recommendations to the Board. Any policies developed by committees are to be recommended to the full Board for the Board's approval. Appointments of the committee chairs and appointments of members to the regular committees are concurrent with the Board chair that makes the appointment. The chair shall announce committee appointments for the coming year no later than the regular February meeting. Anyone on the Board is eligible to be a committee chair. The composition of the committees shall remain the same until the new appointments. Unless otherwise stated for a shorter period in the appointment, temporary or special committee appointments shall be concurrent with the Board chair that makes such appointment.

Two current standing committees are provided for in statute and/or rule: the Audit Committee and the Personnel and Salary Review Committee. The chair by rule may appoint temporary or special committees for such purposes as the chair deems necessary.

Each committee shall have a Board approved charter defining its purpose, role and responsibilities as well as the committee's membership, operations and reporting requirements. Each charter is attached.

The minutes shall be the record of the proceedings of the committees. Draft copies of the written minutes shall be circulated to the committee for approval. After final approval, the final form shall be inserted in the minutes book of the Board.

Audit Committee

This committee's composition is prescribed in R.C. 145.095 and Ohio Admin. Code 145-1-01 and consists of five members; the Board chair, the Director of Administrative Services, an employee Board member appointed by the Board chair, a retiree Board member appointed by the Board chair, and one additional Board member appointed by the Board chair. This committee meets two times per year and at any other time as needed, to review audit plans and audit findings of the retirement system's independent and/or internal auditors. The committee reports to the Board, and submits an annual report of its activities to the Ohio Retirement Study Council.

The Audit Committee's purpose is to assist the Board in fulfilling its fiduciary responsibilities related to the system's financial reporting practices, audit processes and systems of internal control for finance, accounting and legal compliance. The Audit Committee is responsible for providing direct and open avenues of communication between the Board, independent auditor, internal auditors and management of the system and making appropriate recommendations to the Board. The Audit Committee also receives reports of complaints of suspected misconduct if an investigation is required under the Suspected Misconduct Policy.

APPENDIX C: AUDIT COMMITTEE CHARTER AND OPERS REPORTING OF SUSPECTED MISCONDUCT POLICY

Personnel and Salary Review Committee

This committee is comprised of an odd number of Board members up to a maximum of seven. The exact number of members on the committee and members shall be determined and named by the Board chair. The composition is set in Ohio Admin. Code 145-1-01. This committee meets occasionally as necessary to review personnel matters and to make recommendations and reports to the Board. The committee is responsible for general oversight of personnel matters, reviewing the employee compensation and benefit program. The committee chair coordinates with the Board chair to conduct Executive Director searches and the annual evaluation of the Executive Director.

APPENDIX D: OPERS BOARD PERSONNEL AND SALARY REVIEW COMMITTEE CHARTER

6. Board Member Roles and Responsibilities

Basic Responsibilities of the Board

The Board should:

- Determine OPERS' mission and vision. It is the Board's responsibility to create and review a statement of mission and vision that articulates OPERS' goals, means, and primary constituents served.
- Select the Executive Director after a carefully considered and executed search process.
- Establish an investment policy or policies and performance benchmarks for the fund, and monitor the overall risks and returns of the fund.
- Provide proper financial oversight. The Board approves the annual budget and ensures that proper financial controls are in place.
- Ensure legal and ethical integrity, adhere to fiduciary duties, and maintain accountability. The Board is ultimately responsible for ensuring adherence to legal standards and ethical norms.
- Ensure effective organizational planning. The Board will actively participate in the strategic planning process and assist in monitoring the plan's goals.
- Establish the fund's proxy voting and corporate governance policies.
- Participate in the orientation of new Board members by welcoming them to the Board, describing the Board's culture, and discussing current issues facing the Board
- Assess Board performance annually
- Enhance OPERS' public standing. The Board should clearly articulate the organization's mission, accomplishments, and goals to the public and garner support from the community.
- Determine, monitor, and strengthen OPERS' programs and services. The Board's responsibility is to determine which programs are consistent with the organization's mission and to monitor their effectiveness.
- Ensure high quality, professional personnel practices and programs in compliance with applicable laws are in place for the OPERS staff.
- Hire, review, and terminate (if necessary) the investment consultant(s), actuary and other consultants as needed.
- Verify that procedures are in place to ensure the security of member specific information and other confidential information, including through cyber risks.
- Appropriately manage the funding and design of the health care plan, keeping in mind that it is not a statutorily guaranteed benefit.
- Monitor and influence, as deemed appropriate, legislation and external factors that impact the System.
- Verify that a disaster recovery plan is in place in-order to protect the beneficiaries of the System.
- Support the Executive Director and assess their performance. The Board should ensure that the Executive Director has the moral and professional support he or she needs to further OPERS' goals and ensure long-term leadership and succession planning is achieved.

Beyond the responsibilities listed above, all other responsibilities are delegated to the Executive Director.

Responsibilities of Individual Board Members

Board members should:

- be informed about OPERS' mission and policies.
- attend Board and committee meetings.
- review agenda and supporting materials prior to Board and committee meetings.
- serve on committees and offer to take on special assignments.
- keep up to date on developments in the pension and public fund arena.
- follow conflict of interest, disclosure, and confidentiality policies.
- counsel the Executive Director as appropriate and support him or her.
- assist the Board in carrying out its fiduciary responsibilities.
- at all times meet high ethical standards to avoid even the appearance of impropriety.
- direct requests that require staff and/or consultant resources through the Board chair who will ensure information is shared with the entire Board.
- use the OPERS provided email or ensure retention of Board communication in accordance with OPERS current retention policies.

Responsibilities of Board Chair and Vice Chair

The first regular meeting each year shall be the annual meeting (generally January), at which time as the first order of business, the Board shall elect from its members a chair and a vice chair who shall take office immediately following their election. Those interested in running for chair or vice chair will submit their names as directed by the current Board chair prior to the election. The names of all interested individuals will be communicated to the full Board for consideration.

The Chair shall:

- preside over meetings of the Board and may call upon the vice chair to preside during a meeting, or during the chair's absence.
- call special meetings if necessary.
- appoint all committee chairs as well as those who serve on such committee
- develop and review agenda for Board meetings with the Executive Director with input from the Board.
- start and end meetings within scheduled time parameters.
- set time-line for each agenda item.
- keep discussions focused on topic.
- help clarify participants' comments, summarize often so the Board can see and feel the progress being made and so that staff has clear direction on decisions made and any necessary follow-up.
- elicit the views of the quieter members and prevent anyone from dominating the discussions, make sure all members get an opportunity to voice their views.
- request further information when chair feels Board needs more data to make a decision and ensure appropriate staff follow-up on agenda items.
- coordinate with the chair of the Personnel and Salary Review Committee in searches for a new Executive Director.
- coordinate with the chair of the Personnel and Salary Review Committee with the annual review of the Executive Director
- coordinate the annual review of the Board and other Board governance activities.

- oversight of consultant evaluations.
- periodically consult with Board members on their roles and help them assess their performance.
- act as alternate spokesperson for OPERS, as needed and appropriate.
- present to the Board for vote requests to be excused for members unable to attend meetings.

The Vice Chair shall:

- perform the duties of chair in the absence of the chair or upon the chair's incapacity or request to act.
- succeed the chair in the event of resignation, retirement, or death of the chair.
- participate as a vital part of the Board leadership.

Responsibilities of Committee Chair

Each Committee Chair shall:

- chair committee meetings and provide leadership to the committee.
- develop and review agenda for committee meeting with the Executive Director or appropriate staff and set tone for the committee work.
- report to the full Board on committee's decisions, policies, and recommendations.

7. Board Education and Travel

Pursuant to R.C. 145.041, each newly elected or appointed Board member shall complete an orientation program established by the state retirement systems within 90 days after commencing service on the Board. New Board members will be asked to observe a Board meeting before taking their official seat, if possible. In addition, the Executive Director and their designees will assist with OPERS specific orientation for new Board members.

A customized orientation and education plan will be developed for each new Board member. The orientation session will be tailored to the specific needs of the Board member. While the curriculum will be fairly standard, more or less time can be devoted to specific topics based on the areas the new Board member would like to focus on. The Board chair will participate in new Board member orientations by welcoming the new Board member, describing the Board's culture, and discussing current issues facing the Board. When possible, the orientation will include a tour of OPERS' headquarters and the opportunity to observe OPERS' staff members at work. A follow up orientation session will be offered to each new Board member six months into their first term.

Each Board member who has served for a year or longer must attend at least twice a year continuing education programs that are part of the continuing education program established by the state retirement systems. The guidelines for Board member education are attached.

The Board encourages trustees to attend educational seminars and conferences to advance trustee education and understanding of various retirement system topics and to assist the trustees in properly fulfilling their fiduciary responsibilities.

Pursuant to Ohio Admin. Code 145-1-03, the Board must approve in advance of all out of state Board travel at its public meetings. Registration, travel and hotel arrangements are handled on the Board's behalf by staff. Staff will also assist Board members with expense reimbursement after the travel is completed. Board travel reimbursement is subject to Ohio Admin. Code 145-1-03, the OPERS Travel policy and ethics laws and regulations. Board members are prohibited from soliciting or accepting payment of OPERS business related travel expenses, including expenses incurred with the travel for lodging, meals, food and beverages, from anyone other than OPERS.

APPENDIX E: BOARD MEMBER EDUCATION GUIDELINES AND OPERS
TRAVEL & EXPENSE POLICY

8. Board Communications

Staff

Board members will direct questions regarding the system's operations to the Executive Director or appropriate senior staff member. Board member requests for information that require a significant expenditure of staff time or the use of external resources should be formally requested at a Board or committee meeting. In the spirit of open communication, Board members will share any information pertinent to the system with the Executive Director in a timely manner. The Executive Director will similarly share with the Board any information pertinent to the Board in a timely manner. The Executive Director will ensure that information that has been requested by the Board or by an individual Board member is made available to all Board members as appropriate.

System Members

Board members should refrain from providing specific advice or counsel with respect to the rights or benefits to which a member may be entitled under the Chapter 145 of the Revised Code. In cases where a member contacts a Board member with questions pertaining to personal situations or benefits matters, the member should be referred directly to the Executive Director and/or the appropriate senior staff member within OPERS to handle the issue and/or issue appropriate correspondence. The Board member should be informed of the outcome of the contact.

Members or members of the public who wish to address the Board during Board or committee meetings are given the opportunity to do so by following guidelines attached, which are posted on the OPERS public website.

APPENDIX F: SPEAKING AT AN OPERS BOARD OR COMMITTEE MEETING

External Communication

In their external communications (including but not limited to communication by letter, email, phone, text, presentations, use of social media or otherwise), Board members should:

- limit commentary to interested groups or in public settings to existing Board policies or decisions;
- speak on behalf of the Board only when explicitly authorized to do so by the Board;
- indicate when they are representing a personal position, opinion or analysis that is different from a Board-approved position; and
- indicate if they are speaking in a capacity other than that of a Board member.

Media

The Executive Director and appropriate staff serve as the primary contacts for media inquiries and spokespersons for the system. On major Board policy issues or issues requiring a Board perspective the Board chair will serve as the spokesperson. The Executive Director will closely coordinate with the chair on media inquiries and keep the full Board informed on a timely basis. When contacted by the media, a Board member has the option of directing the inquiry to the Executive Director. If the Board member chooses to be interviewed by the media, the Board

member should clarify that he or she is speaking as an individual Board member and not on behalf of the Board. Written press releases concerning OPERS will be the responsibility of the Executive Director and appropriate staff.

Vendors/Lobbyists/ Service Providers

Individual Board members shall refer proposals or other communications regarding potential or existing investments as well as business opportunities or contracts with any outside service providers directly to the OPERS Executive Director or appropriate OPERS senior staff member. From time-to-time, Board members may be in a situation where they accept a call or see a vendor/lobbyist/service provider face-to-face. In those situations, the Board member will re-iterate to the vendor/lobbyist/service provider that they are unable to take action for the Board and that the vendor/lobbyist/service provider should contact the Executive Director.

Board members are prohibited from accepting anything of value from vendors, including any payment for travel expenses.

External Groups

When a Board member accepts an invitation to make a presentation as a Board member on public retirement topics to an external group, the Board member should have their presentation reviewed by the Executive Director or designee for completeness and accuracy.

9. Monitoring and Reporting

A system of routine reporting will be developed to monitor the performance of the system and ensure that the Board is carrying out its fiduciary responsibilities.

The following written reports and oral reports will be provided regularly to the Board:

- Executive Director monthly reports providing a status of major issues and system activities,
- investment reports, including asset allocation and performance reports,
- comprehensive annual financial report, annual operating budget, and interim financial reports,
- disability reports,
- committee reports,
- annual actuarial valuation and other reports,
- legislative reports,
- litigation status reports,
- strategic plan progress reports,
- health care reports,
- internal audit reports,
- corporate governance reports,
- enterprise risk reports, and
- investment risk and compliance reports.

In addition, the Executive Director has a duty to report potential material issues or problems on a timely basis to the Board.

10. Board and Committee Self-Evaluation

The objective of this policy is to provide a process whereby the Board and its committees may engage in self-analysis and discussion for the purposes of improving its own effectiveness as a fiduciary body. In order to carry out this process, the Board will, on an annual basis, schedule a specific time period to conduct the self-evaluation.

The Board chair is responsible for overseeing the implementation of this policy. The purpose of the Self-Evaluation is to provide Trustees with a framework for reviewing the performance of the Board in a candid manner. All Trustees are expected to participate. The self-evaluation may be conducted through any of several means, including but not limited to a written evaluation, a structured governance discussion, facilitated activities, or any other means as determined by the Board chair.

Each committee may also conduct an annual evaluation of its performance and effectiveness and consider whether any changes to the committee charter is appropriate.

11. Executive Director Evaluation

The primary responsibility of the Executive Director is the efficient and effective management of the system's operations in accordance with the policy direction established by the Board. To provide feedback and guidance to the Executive Director, the Board has established the following procedures for annually evaluating the performance of the Executive Director.

The Executive Director prepares and presents to the Board a self-evaluation focused on the system's accomplishments, any relevant performance issues for the previous year and recommended goals for the coming year. This is submitted annually to the Board for review and discussion. The Board will discuss the self-evaluation, as well as any other activities and tasks completed during the review period. The evaluation will also be tied to the goals set forth in the strategic plan. Only performance during the review period will be considered for the evaluation. The Board will strive to reach a consensus view on the Executive Director's performance in order to provide a unified message.

At the discretion of the Board chair and the chair of the Personnel and Salary Review Committee, the Board may engage a third party to facilitate the Board's review of the Executive Director's performance.

The Board may require the Executive Director to utilize various tools to improve the Executive Director's leadership skills. The Board will work with the Executive Director to ensure long-term leadership and succession planning is addressed.

A written summary evaluation is prepared, provided to and discussed with the Executive Director at a meeting coordinated by the Board chair and chair of the Personnel and Salary Review Committee.

12. OPERS Service Provider Selection and Monitoring

There shall be a policy regarding service provider selection that will be implemented by staff. The Executive Director or their designee will negotiate and execute all agreements in connection with service providers retained by the System. All contracts will be reviewed by the OPERS Legal Department as to form and legal sufficiency prior to execution. All service providers will be subject to regular monitoring of performance and periodic reviews, as appropriate, throughout the term of their contracts.

APPENDIX G: OPERS PROCUREMENT POLICY AND PROCEDURES MANUAL

13. Strategic Planning

To systematically plan for the immediate and long-term challenges and needs of the retirement system, the Board and staff, will engage in an annual strategic planning process. The Executive Director will initiate the strategic planning process and will recommend a timetable and process to the Board. The strategic plan will generally cover a 3 – 5 year period. The Board will be responsible for:

- providing management with input on the strategic plan, including goals and strategic initiatives;
- approving the final strategic plan and operating budget to support the plan; and
- monitoring the implementation of the strategic plan.

Staff will provide periodic updates to the Board. The Board and staff will make official modifications to the strategic plan at the annual strategic planning retreat.

The progress under the strategic plan will be part of the Executive Director's evaluation.

14. Disaster Recovery Plan

There shall be a disaster recovery plan in place to be implemented by the appropriate staff and reviewed frequently for relevance and appropriateness.

15. This Manual

The Board Governance Committee shall review this manual periodically to ensure that it remains relevant and appropriate.

Board Meeting VI.F



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

MEMORANDUM

DATE: March 10, 2025

TO: OPERS Retirement Board Members

FROM: Craig Hallermann, Senior Actuary

RE: **VI. Action Items:**
F. 2024 Health Care Rate Stabilization Fund Transfer

Action requested: _____ moved and _____ seconded to approve the 12/31/2024 health care transfer of \$391,844,315 to the Health Care Rate Stabilization Fund from the Health Care Core Fund.

Background – 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. The Health Care Rate Stabilization Fund is intended to provide funding to the Health Care Core Fund when the funding to the Health Care Core Fund is inadequate. Similarly, the Health Care Rate Stabilization Fund is intended to hold the reserve funds when funding to the Health Care Core Fund exceeds the expected amounts. These two sub funds are for recordkeeping only.

The design of the health care plan is based on plan expenses not exceeding a self-funding rate (SFR) of 2.0%. The SFR had been 4.0% prior to the 1/1/2022 effective date of the Board approved HCPP 3.1 changes that decreased the health care program's overall expenses. The health care expenses, to be paid out of the Health Care Core Fund, are funded from the combination of a 2.0% allocation of the employer contribution (the SFR) and investment earnings on the fund of 4.0%. These components comprise the Health Care Core Fund. The Health Care Core Fund represents the ongoing balance necessary to meet long-

term health care payments projected under HCPP 3.1 (under HCPP 3.0 prior to 2022) provided all demographic and benefit assumptions are met.

The Health Care Rate Stabilization Fund was designed as a reserve fund to mitigate the volatility and risk to the Health Care Core Fund. Its purpose is to provide a source of funds to offset years in which the 2.0% allocation (4.0% prior to 2022) of the employer contribution cannot be contributed or in years in which the 4.0% investment earnings is not achieved. The funding source for the Health Care Stabilization Fund is any investment earnings on the Health Care Core Fund in excess of a 4.0% return and any excess contributions over the 2.0% of pay target (4.0% prior to 2022).

For fiscal year 2024, the health care fund (excluding MD-RMA funds) earned an actuarial investment return of 10.0% which exceeded the 4.0% threshold. Additionally, the portion of the employer contribution rate available to be allocated to the health care fund was 0.0% (2.0% for the Combined Plan) in 2024 which was less than the 2.0% assumption. The excess 2024 investment return of \$743M combined with the deficient employer contributions of -\$351M results in a total 2024 excess to the Core Fund of \$392M. Therefore, subject to Board approval, a transfer will be made to the Health Care Rate Stabilization Fund from the Health Care Core Fund in the amount of \$391,844,315. This transfer is a recordkeeping only transfer. No new additional funds are added to the total Health Care Fund by this action.

The following schedule shows actual employer contribution allocations compared to assumed allocations by year:

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Target	3.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	2.0%	2.0%	2.0%
Actual	2.0%	2.0%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

The detailed calculation of the 2024 Stabilization Fund transfer amount follows:

Actual Experience	2024
12/31/23 Core Fund	\$11,127,833,610
2024 contributions *	\$9,371,312
2024 health care payments & expenses **	(\$552,516,271)
2024 investment return	\$1,184,055,342
12/31/24 Core Fund	\$11,768,743,993

Planned Experience	2024
12/31/23 Core Fund	\$11,127,833,610
2024 contributions	\$360,288,422
2024 health care payments & expenses **	(\$552,516,271)
2024 investment return	\$441,293,918
12/31/24 Core Fund	\$11,376,899,679

Actual versus Planned	2024 Transfer Amount
Employer contribution less than 2.0%	(\$350,917,110)
Investment returns above 4.0%	\$742,761,424
Transfer to HC Rate Stabilization Fund	\$391,844,315

* Reflects contract and other receipts, and Combined Plan employer 2% of payroll contributions

** Reflects actual expenses in both actual and planned categories and does not reflect gain or loss from actual versus planned

The following shows the historical transfer amounts to/from the Rate Stabilization Fund:

- 2023: \$766,507,782 to the Stabilization Fund [return of 14.15 compared to 4.0% or 10.15% over; contribution rate of 0.0% compared to 2.0% or 2.0% under]
- 2022: \$(2,862,199,603) from the Stabilization Fund [return of -15.71 compared to 4.0% or 19.71% under; contribution rate of 0.0% compared to 2.0% or 2.0% under]
- 2021: \$765,098,269 to the Stabilization Fund [return of 14.36% compared to 4.0% or 10.36% over; contribution rate of 0.0% compared to 4.0% or 4.0% under]
- 2020: \$284,799,362 to the Stabilization Fund [return of 10.54% compared to 4.0% or 6.54% over; contribution rate of 0.0% compared to 4.0% or 4.0% under]
- 2019: \$1,135,689,617 to the Stabilization Fund [return of 19.80% compared to 4.0% or 15.80% over; contribution rate of 0.0% compared to 4.0% or 4.0% under]
- 2018: \$(1,621,438,655) from the Stabilization Fund [return of -5.62% compared to 4.0% or 9.62% under; contribution rate of 0.0% compared to 4.0% or 4.0% under]
- 2017: \$920,876,150 to the Stabilization Fund [return of 15.25% compared to 4.0% or 11.25% over; contribution rate of 1.0% compared to 4.0% or 3.0% under]
- 2016: \$139,445,815 to the Stabilization Fund [return of 7.34% compared to 4.0% or 3.34% over; contribution rate of 2.0% compared to 4.0% or 2.0% under]

- 2015: \$(801,767,564) from the Stabilization Fund [return of -2.18% compared to 4.0% or 6.18% under; contribution rate of 2.0% compared to 3.0% or 1.0% under]
- 2014: \$202,738,499 to the Stabilization Fund [return of 4.97% compared to 4.0% or 0.97% over; contribution rate of 2.0% compared to 2.0% for no difference]
- 2013: \$932,450,967 to the Stabilization Fund [return of 11.25% compared to 4.0% or 7.25% over; contribution rate of 1.0% compared to 1.0% for no difference]

The current balances of the Health Care Core Fund and Health Care Stabilization Fund (balances reflect the completion of the relevant transfer for that year) and Total Health Care Fund by year since 2019 is shown below.

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
Stabilization Fund	1,977,606,570	2,262,405,932	3,027,504,201	165,304,598	931,812,380	1,323,656,694
Core Fund	10,350,119,720	10,590,553,724	10,747,174,844	10,902,752,744	11,127,833,610	11,376,899,679
Total	12,327,726,290	12,852,959,656	13,774,679,045	11,068,057,342	12,059,645,990	12,700,556,373
Transfer	1,135,689,617	284,799,362	765,098,269	(2,862,199,603)	766,507,782	391,844,315

The Stabilization Fund transfer is a recordkeeping only allocation and is included in the Total Health Care Fund.

Next Steps – Once the Board approves the recommendation, staff will proceed with the recordkeeping allocation between the Core and Stabilization Funds as of 12/31/2024. In 2018, staff began disclosing health care solvency based on the Health Care Core Fund only while continuing to disclose health care solvency based on the Total Health Care Fund which includes both the Core Fund and the Stabilization Fund.

Health Care Rate Stabilization Transfer 2025

Craig Hallermann

Senior Actuary

March 6, 2025



HCPP 3.0 & 3.1

- In 2012, the Board approved a series of changes to the Health Care program designed to preserve the Health Care Fund. These changes comprised a plan which is referred to as the Health Care Preservation Plan 3.0 (HCPP 3.0).
- The changes were designed to develop a self-sustaining health care plan that would have expenses that would be supported by the planned revenue stream.
- The revenue stream for the health care program was to be an allocation (the “self-funding rate (SFR)”) of 4% of the employer contributions (**2% beginning in 2022 to reflect HCPP 3.1¹**) and interest earned on the trust fund of 4%.
- The health care plan, since 2012, has adhered to this design by means of a **Core Fund** covering expenses estimated to be funded by these two revenue streams.

¹ HCPP 3.1 was approved by the Board in 2020 (effective in 2022) resulting in a decrease in the SFR from 4% to 2% beginning in 2022.

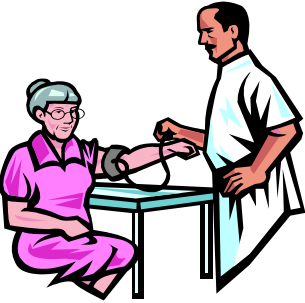
HCPP 3.0 & 3.1

- In addition to the establishment of the Core Fund, HCPP 3.0 included the establishment of a reserve fund referred to as the Health Care **Rate Stabilization Fund**.
- The purpose of the Stabilization Fund is to provide funding when the Health Care Core Fund does not receive the target contributions (2% (4% prior to 2022)) or the target investment earnings (4%).
- The source of funding for the Stabilization Fund is any excess investment earnings over the 4% target or any excess contributions over the 2% target.
- The activity of the Stabilization Fund reflects the net amount of excess/deficient investment earnings and excess/deficient contributions since the establishment of the Stabilization Fund.

HCPP 3.0 & 3.1

- The Total Health Care Trust Fund consists of the two components:
 - Core Fund
 - Stabilization Fund
- Annually, the Board approves the transfer to/from the Stabilization Fund from/to the Core Fund, depending on the results of the prior year.
- The Core and Stabilization Funds are for recordkeeping only.

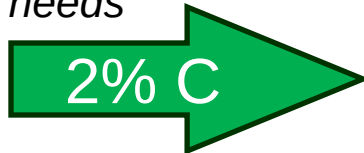
Key Decisions: Funding Framework (HCPP 3.1)

	Investments <i>(6.0% target investment return)</i>	OPERS Investment Division targets a 6.0% investment return for health care (based on current asset allocation policies and actuarial assumptions)
	- Health Care <i>(4.0% expected investment return)</i>	OPERS Health Care plan design structure based on a lesser investment return (proposed 4.0%)
	= Health Care Stabilization Fund <i>(2.0% expected investment return)</i>	Investment return in excess of 4.0% is placed in a reserve fund to build a buffer against future volatility. Funds used to stabilize health care coverage in years of poor returns. When sufficiently large, can also be used to enhance the health care program.

Key Decisions: Funding Framework (HCPP 3.1)

Employer contributions

*Currently 2% of payroll;
impacted by pension funding
needs*

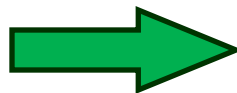


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Investment returns

*(Target return = 6.0%, 4%
reinvested in Core Fund,
returns in excess of 4%
invested in Stabilization Fund)*



Core Fund



Stabilization Fund

Expenditures

*Proposed plan design:
Allowances, Claims,
Administrative expenses*



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*Maintain
coverage levels*

**Annual
actuarial review
assesses
financial stability**

HCPP 3.1

- This presentation summarizes the 2024 activity and the required transfer.
- In 2024, the Core Fund received contributions of 0% (2% for CO plan) of the employer contribution rate rather than the target of 2%, thus creating a shortfall (-\$350,917,110).
- In 2024, the Core Fund earned a return of 10.0% which exceeded the target of 4.0% (\$742,761,424).
- Thus, the net transfer from the Core Fund to the Stabilization Fund is \$391,844,315.

Planned versus Actual Contributions

Employer Contribution Rate Allocation

Planned Schedule	Pension	Health Care	Total
2013	13.0%	1.0%	14.0%
2014	12.0%	2.0%	14.0%
2015	11.0%	3.0%	14.0%
2016 – 2021	10.0%	4.0%	14.0%
2022 and beyond	12.0%	2.0%	14.0%

Actual Schedule	Pension	Health Care	Total
2013	13.0%	1.0%	14.0%
2014	12.0%	2.0%	14.0%
2015	12.0%	2.0%	14.0%
2016	12.0%	2.0%	14.0%
2017	13.0%	1.0%	14.0%
2018 and beyond	14.0%	0.0%	14.0%

¹ There is currently no specific future date at which the Health Care Fund is expected to receive employer contributions.

2024 Stabilization Fund Transfer Calculation

Actual Experience	2024
12/31/23 Core Fund	\$11,127,833,610
2024 contributions *	\$9,371,312
2024 health care payments & expenses	(\$552,516,271)
2024 investment return	<u>\$1,184,055,342</u>
12/31/24 Core Fund	\$11,768,743,993

* Reflects contract and other receipts, and 2.0% of payroll contributions for CO plan members.

2024 Stabilization Fund Transfer Calculation

Planned Experience	2024
12/31/23 Core Fund	\$11,127,833,610
2024 contributions	\$360,288,422
2024 health care payments & expenses *	(\$552,516,271)
2024 investment return	<u>\$441,293,918</u>
12/31/24 Core Fund	\$11,376,899,679

* Reflects actual benefit payments and expenses; gain or loss on benefit payments and expenses is not reflected

Difference between Actual and Planned	2024
2024 contributions	(\$350,917,110)
2024 investment return	<u>\$742,761,424</u>
2024 Stabilization Fund transfer	\$391,844,315

2024 Core Fund and Stabilization Funds

Total Health Care Fund	2024
12/31/24 Core Fund	\$11,376,899,679
12/31/24 Stabilization Fund	<u>\$1,323,656,694</u>
12/31/24 Total Health Care Fund	\$12,700,556,373

* The 12/31/23 Stabilization Fund balance was \$931,812,380.

Action

- Requesting that the Board approve the transfer of \$391,844,315 to the Health Care Rate Stabilization Fund from the Health Care Core Fund for 2024. (Note this transfer is for recordkeeping purposes only)

Questions?

Board Meeting VI.G



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MEMORANDUM

DATE: March 10, 2025

TO: OPERS Retirement Board Members

FROM: Paul Greff, Chief Investment Officer
Prabu Kumaran, Lead Fund manager

RE: **VI. Action Items:**
G. Approve Investment Policy Benchmark Changes for

- Long Duration U.S. Treasury
- Short Duration U.S. Treasury
- Trend Following
- Alternative Risk Premia

Action requested: _____ moved, _____
seconded, a motion to approve the investment policy benchmark changes for the Defined
Benefit (DB) and Health Care (HC) Funds recommended by Staff and Meketa.

Purpose

Staff requests approval from the OPERS Retirement Board (Board) to both establish new policy benchmarks and modify an existing benchmark for both the DB and HC Funds.

Background

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.

Current Issue

Staff, in collaboration with Investment Advisor Meketa, has introduced an RMS allocation and restructured the U.S. Treasury portfolio. They propose the following policy benchmarks for the sub-asset classes, as shown in the table below.

Asset Class	Sub-Asset Classes	Benchmark	Status
Risk Mitigating Strategies	Long Duration U.S. Treasury	Bloomberg U.S. Treasury 20+ Year Total Return Index	New
	Trend Following	Market-value weighted composite of the portfolio returns	New
	Alternative Risk Premia	Market-value weighted composite of the portfolio returns	New
Fixed Income	U.S. Treasury	Bloomberg U.S. Treasury 1-5 Year Total Return Index	Modified

Next Steps

Staff requests Board approval to adopt the proposed policy benchmarks for both the DB and HC Fund. Upon approval, Staff will begin implementing the RMS allocation starting in 2Q-2025 and complete the HC Fund target in 2025 and DB Fund target by 2026.

MEMORANDUM

TO: OPERS Board of Retirement
FROM: Meketa Investment Group (Meketa)
DATE: March 19, 2025
RE: New Policy Benchmarks— Defined Benefit and HC Plans

During the fourth quarter of 2024 and first quarter of 2025, OPERS completed an asset-liability study for both its Defined Benefit (DB) and Health Care (HC) plans. These new allocation targets also moved the portfolios to a functional framework that is designed to provide better transparency into the role of each class. Both the DB and HC portfolios require these new asset allocations to create a new class called Risk Mitigation Strategies (RMS). In addition, we recommend that the current treasury portfolio be split into two different mandates. The first will be for liquidity and short-term cash needs and the second will be for its role as long treasuries in RMS. The RMS class has three underlying components; Long Treasury, Trend Following and Alternative Risk Premia (ARP). As a result, new policy benchmarks need to be established for each sub class and included in the investment policy statement.

Throughout 2025, OPERS staff and Meketa will be working to build out the various segments of the RMS class. With the exception of Long Treasuries, there is no benchmark that perfectly reflects the investments in Trend Following and ARP. As a result, it is practical to use a weighted average methodology in the first year of these two components. Following this initial year, Meketa and OPERS staff would look to conduct an annual review of these policies to further evaluate if different benchmarks may be more appropriate.

Meketa and OPERS staff recommend the adoption of four new class benchmarks for the OPERS DB and HC funds.

- Long Treasury: Bloomberg U.S. Treasury 20+ year index
- Trend Following: Market Weight of underlying strategies/managers
- Alternative Risk Premia: Market Weight of underlying strategies/managers
- Treasuries: Bloomberg 1-5 year U.S. Treasury index

Ohio Public Employees Retirement System

March 19, 2025

Benchmarking Primer

- 1. Background**
- 2. Summary**
- 3. Recommendations**

Background

Introduction

→ **What is the purpose of a benchmark?**

- To assess both return, and risk
- Also, often a tool to measure staff/portfolio success

→ **“You cannot manage what you can’t measure”- Peter Drucker**

→ **Benchmarks are used at many “Levels”**

- Total Plan
- Asset Class
- Manager

What is a Benchmark?

Objective way to evaluate the performance of an investment.

→ Benchmarks are used at all levels of investing.

- For funds/managers, asset classes, and the whole portfolio.

→ Benchmarks are often based upon the performance of the most appropriate opportunity set.

- For example, a US large-cap equity manager might be compared to the Russell 1000 index.

→ Benchmarks may also facilitate comparison to long-term financial objectives.

- For example, a pension plan would be compared to its actuarial assumed rate of return.

What Objectives Do Benchmarks Serve?

- Allow investors to assess whether they are achieving their goals.
 - Compare relative performance of portfolio with another reasonable option.
 - Allows for measurement of value added.
 - Enables performance attribution analysis.
- Facilitate better-informed investment decisions.

Levels of Benchmarks

Total Plan Benchmark

Generally, Plan or portfolio-level benchmarks fall under three categories, discussed later in this presentation. Policy Benchmarks are typically based on an institutional portfolio's target asset allocation expressed passively. Other Plan-level benchmarks include Simple/Reference Benchmarks, Dynamic Benchmarks, and Peer Benchmarks.

Asset Class-level Benchmark

A benchmark for the aggregate asset class that represents what the investor is seeking at the aggregate asset class level. These benchmarks often exist as blended versions of the underlying manager benchmarks, aggregate benchmarks that represent the investable universe, or some other proxy that represents the segment/asset class.

Manager-level Benchmark

A benchmark at the manager level that is primarily used to measure the relative performance of a given manager.

Representative

Benchmark is appropriate and relevant to the portfolio's investment strategy

Investable

Should be able to invest in all of the securities included in the benchmark

Transparent

Names and weights of securities comprising the benchmark are available and understandable

Measurable

Benchmark is readily calculable on a frequent basis

Independent

Calculated by an independent third party to ensure a fair comparison

Primary Approaches to Plan Level Benchmarking

1. Plan Level Benchmark

There are three generally accepted Plan Level Benchmarks. While each has its pros and cons, it is common practice for institutional clients to utilize multiple Benchmarks at the Total Plan level.

- Simple: Simple Benchmarks are typically based on a predetermined mix of relatively few public market investments, rebalanced at regular intervals (e.g., 60/40 portfolio).
- Static/Policy: Is a blend of the individual asset class benchmarks represented at their policy weights, to align with the plan's portfolio composition and investment objectives. This captures the effect of active management and allocation differences from policy targets. The asset class benchmarks are generally one of the following types of benchmarks depending on the asset class type.
 - Broad market (i.e. MSCI ACWI IMI Index; Bloomberg Barclays Aggregate Index).
 - Real return target (i.e. CPI + 3%).
 - Peer fund universe primarily utilized for private markets (i.e. NCREIF ODCE; Cambridge Private Equity Index; HFRI Fund of Fund Index).
- Dynamic: Uses the actual weights, adjusted monthly, of each asset class within the portfolio and the passive index to calculate the passive equivalent of the return achieved by the total portfolio.

Primary Approaches to Plan Level Benchmarking (continued)

2. Peer Group Benchmark

- Peer group benchmarks measure how well the Plans' performance compares to other "similar" plans.
- However, every Plan is unique and very few pension plans track performance at the total plan level.
- Peer comparisons may be difficult to obtain, are often substantially lagged and are subject to reporting issues (fee netting, etc.), making them only marginally useful.

3. Institutional Financial Objectives: Target Returns

- Institutional Financial Objective benchmarks compare realized returns against target (e.g., annual spend rate, assumed actuarial rate of return, etc.).
- While Institutional Financial Objectives benchmarks provide the ultimate measure of whether a portfolio is achieving its target return, they are disconnected from what the capital markets are delivering at any given time (e.g., the 2008 calendar year didn't provide the backdrop for positive investment performance).
- Institutional Financial Objective benchmarks offer useful long-term comparisons, such as over a full market cycle, whereas benchmarks that are composed of risk assets will permit short-term comparisons with institutional portfolios.

OPERS Portfolio

OPERS Benchmarks

Functional Class	Asset Class	Policy Weight	Current Benchmark	New Proposed Benchmark
Aggressive Growth	Private Equity/Non-Core RE	19%	State Street Private Equity Index, NCREIF ODCE +85bps	
Traditional Growth	Public Equity	41%	Russell 3000, Custom Int'l Blend, DJ U.S. select Real Estate Securities	
Stabilized Growth	Core RE, Risk Parity, Public Credit, Priv. Credit	19%	Bloomberg US Corp Bond Bloomberg US High Yield Index Custom EMD Blend Custom CMBS Blend S&P UBS Leveraged Loan S&P Risk Parity Total Return (10% Vol)	
Principal Protection	Core Fixed Income	7%	Bloomberg U.S. Aggregate US Treasury Index	Bloomberg U.S. Aggregate <u>New Proposed: Bloomberg 1-5 Year U.S. Treasury Index.</u>
Inflation	TIPS, Commodities	4%	Bloomberg US TIPS Mkt Weight: Bloomberg Commodity and Gold Subindex	
RMS	Long Treasury, Trend Following, ARP	10%	N/A	<u>New Proposed: 1/3rd US 20+ Treasury Index, 1/3rd Market Mgr weight (Trend Following), 1/3rd Market Mgr Weight (ARP)</u>

OPERS Benchmark (continued)

- Following the completion of the 2024 Asset-Liability study OPERS DB and HC portfolios were moved to a functional framework and the introduction of an RMS class
 - This new structure allows both portfolios to be viewed under as either growth seeking or diversifying..
- The current policy benchmark includes both investable benchmarks and those that are return-target oriented.
- As OPERS begins to allocate to the new RMS class, policy benchmarks will need to be established for all three of the underlying segments..
 - Long Treasury: Bloomberg U.S. Treasury 20+ year index
 - Trend Following: Market Weight of underlying strategies/managers
 - Risk Premia: Market Weight of underlying strategies/managers

Summary and Recommendations

Summary

- **Benchmarks are objective standards to measure the performance of an investment against a reasonable alternative and whether it is meeting the investor's goal.**
 - They may be applied at different levels of the portfolio.
 - There are a number of widely-accepted criteria for effective benchmarks, not all of which are available for every asset class.
 - Therefore, combined “total portfolio/plan benchmarks” will have flaws in most cases. This has been exacerbated by the growing allocations of “alternatives” and hard-to-benchmark areas.
- **Due to the intricacies and diverse composition of total portfolio/plan benchmarks, no single total portfolio benchmark can provide a perfect comparison for all time periods.**
 - Because of this limitation, institutional investors often utilize two or more total portfolio level benchmarks, while being aware of the structure (and flaws) of each.
- **Fiduciaries should understand why each benchmark performs the way it does in different capital market environments, as this understanding adds context to the investment pool's total return.**

Recommendations

- There are a multitude of benchmarks to consider depending on the asset class and objective.
- Constructing a policy benchmark should be a direct result of the underlying classes. These policy classes and benchmarks are generally reviewed at least annually.
- The addition of RMS as a result of the 2024 Asset-liability study requires the addition on three new class benchmarks..

Recommendations: Meketa and OPERS staff recommend the adoption of the four new class benchmarks for RMS and Treasuries.

- Long Treasury: Bloomberg U.S. Treasury 20+ year index
- Trend Following: Market Weight of underlying strategies/managers
- Alternative Risk Premia: Market Weight of underlying strategies/managers
- Treasuries: Bloomberg 1-5 Year U.S. Treasury index

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Board Meeting VI.H



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MEMORANDUM

DATE: March 10, 2025

TO: OPERS Retirement Board Members

FROM: Paul Greff, Chief Investment Officer
Prabu Kumaran, Lead Fund manager

RE: **VI. Action Items:**
H. DB/HC Transition Benchmark Process

Action requested: _____ moved, _____
seconded, a motion to approve the monthly resetting of target benchmark allocations for the Defined Benefit (DB) and Health Care (HC) Funds due to the implementation of the new Risk Mitigation Strategies (RMS) allocation.

Purpose

Staff requests approval from the OPERS Retirement Board (Board) to change the target DB and HC policy benchmark allocations from quarterly to monthly for 2025, starting April 1st, and ending December 31st. Staff will review targets with the Investment Advisor, Meketa, before the beginning of each month and update the Board regularly. Monthly resets will give Staff more flexibility and prevent delays during the construction of the newly approved RMS allocations for both the DB and HC Funds. Staff has requested and received approval for similar changes twice before. In 2012, the Board approved monthly benchmark resets when Staff created a custom core fixed income portfolio. Similarly, in 2010, the Board approved monthly resets to accommodate a custodian change and the reduction of the U.S. Treasury long duration portfolio.

Background

In late 2024 and early 2025, the Board, Staff, and Meketa, completed asset liability studies for both the DB and HC Funds. The completion of studies led to the establishment of a new allocation to Risk Mitigation Strategies for both plans, with a target allocation of 10% for each. The HC Fund is expected to reach this target allocation in 2025, while the DB Fund will achieve it in two years: 5% in 2025 and the remaining 5% in 2026.

The RMS allocation will include three sub-strategies: Long duration U.S. Treasuries (20+ years), long-short trend following, and alternative risk premia. Additionally, the current standalone U.S. Treasury allocation (held within Fixed Income Asset Class), which is separate and distinct from the RMS allocation, will be restructured to a shorter-duration and will be benchmarked to the Bloomberg U.S. Treasury 1 to 5 Year Index.

Policy Reference

The DB and HC Fund policies both call for a quarterly resetting of the target benchmark asset allocations. The relevant text from the DB Policy, which is similar to the HC Policy, is shown below:

“During periods of transition resulting from a change in the Board-approved target asset allocations, the interim target asset allocation used to calculate benchmark performance for the DB Fund will be established on a quarterly basis in advance of the subsequent quarter. That target mix will be based on allocations made by Staff and reported to the Board through quarterly reports.”

In the current quarterly process, the benchmark target allocations are reviewed by the Board’s Investment Advisor before the end of each quarter. The approved targets are then communicated to the Board through the monthly CIO letter. This quarterly resetting approach constrains Staff to funding the new RMS investments at quarter-end. Since there are only three remaining quarter-end dates in 2025, it constrains earlier RMS implementation.

In the requested temporary modification to the existing process, Staff would continue its existing approach, but on a monthly basis instead of quarterly during 2025. Staff will seek approval of the proposed target benchmark allocation from the Investment Advisor, Meketa, prior to the end of each month for the succeeding month. The changes will be communicated to the Board through the monthly CIO letter.

Next Steps

Staff requests Board approval to change the benchmark target policy allocations from quarterly to monthly for the period April 1, 2025, to December 31, 2025. Upon approval, Staff will work with Meketa to review and implement the monthly benchmark targets as it implements the new RMS allocation.

MEMORANDUM

TO: OPERS Board of Retirement
FROM: Meketa Investment Group (Meketa)
DATE: March 19, 2025
RE: Monthly Reset of Policy benchmarks: DB and HC plans

Following the completion of the asset liability studies for both the Defined Benefit and Health Plans the new target allocations include a new class called Risk Mitigating Strategies (RMS). This new class is designed to give the OPERS portfolios additional downside protection when the growth markets fall.

Under current policy, OPERS staff resets its policy benchmarks on a quarterly basis. This process is adequate when the portfolio classes are relatively stable and funded near their targets. Since OPERS is working on allocating to RMS for the first time in 2025, this can lead to a bit of volatility and additional cost within the policy benchmark as assets are reallocated. Hence moving to a monthly rebalancing of these policy benchmarks can alleviate some of the friction and cost difference that might happen as the class is built out.

As a result, Meketa recommends that OPERS move to monthly rebalancing of the policy benchmark to allow for some flexibility in the implementation of RMS and changing market conditions.

Monthly Reset of Target Benchmark Allocation

Prabu Kumaran
Fund Manager

March 19, 2025

129/694



Purpose of Request and Policy Reference

Purpose

Staff requests approval from the OPERS Retirement Board to **temporarily** modify the target Defined Benefit (DB) and Health Care (HC) Funds policy benchmark allocations from **quarterly to monthly** in 2025, starting April 1st and ending December 31st to assist with the transitions associated with the new Risk Mitigation Strategies (RMS) allocation.

Policy Reference

The DB Policy (comparable language also in HC Policy) stipulates the quarterly reset of the target benchmark asset allocations as follows:

“During periods of transition resulting from a change in the Board-approved target asset allocations, the interim target asset allocation used to calculate benchmark performance for the DB Fund will be established on a quarterly basis in advance of the subsequent quarter. That target mix will be based on allocations made by Staff and reported to the Board through quarterly reports.”

Rationale for Request

- **Large Asset Transition**: In late 2024 and early 2025, the Board, Staff, and Investment Advisor, Meketa, conducted comprehensive asset liability (AL) studies for both the DB and HC Funds. As a result of these studies, a new allocation to RMS was approved for both plans, with a target allocation of 10% for each.
- **Historical Precedence**: In the past, the Board permitted Staff to reset monthly during the creation of custom-core portfolio in 2012, as well as during the custodian change and reduction of U.S. Treasury long duration portfolio in 2010.
- **Flexibility and Avoid Implementation Delays**: Provides Staff with the flexibility to implement new strategies promptly, thereby avoiding any unintended allocation risk to the Funds.

Recommendation - Request for Approval

Approve a temporary monthly resetting of target benchmark allocations for the DB and HC Funds from April 1st to December 31, 2025, due to the implementation of the new Risk Migration Strategies (RMS) allocation.

Board Meeting VI.I



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MEMORANDUM

DATE: March 10, 2025

TO: OPERS Retirement Board Members

FROM: Paul Greff, Chief Investment Officer
Prabu Kumaran, Fund Manager

RE: **VI. Action Items:**
I. 2025 Annual Investment Plan (including alpha targets)

Action requested: _____ moved, _____
seconded, to approve the 2025 Annual Investment Plan (including alpha targets), as
recommended below by Meketa and Staff.

Purpose

The Annual Investment Plan (“AIP”) is the principal, although not exclusive, vehicle by which Staff describes planned asset allocation and investment strategies as well as new strategies and the general framework to support the implementation plan.

Background

Each year, Staff presents a proposed OPERS AIP to the OPERS Retirement Board (Board). The main functions of the AIP are to:

- Describe the principal Asset/Sub-Asset Classes and key forward asset management characteristics for the Defined Benefit (DB) and Health Care 115 Trust Funds (HC), including target allocation percentages and ranges, benchmarks, investment strategy, and strategies concerning the use of active and passive management.
- Specify projected excess (active management) return and risk, provisions for risk control, and investment expenses.
- Identify resource (staffing and budgetary) requirements.
- Describe key initiatives for the current year.

Issues

Investment Advisor Meketa completed a comprehensive review of OPERS asset allocation and the asset liability study for both DB and HC Funds. The Board approved the new long-term targets for the DB Fund at the November 2024 meeting and for the HC Fund at the January 2025 meeting.

In discussion with Meketa, Staff plans to build a new Risk Mitigation Strategies Asset class in phases for the DB Fund over two years (2025-26) and for the HC Fund in one year (2025). Staff has prepared an AIP reflecting the proposed target asset allocation for both the DB and HC Funds. See the details in the tables below.

Proposed Asset Allocation changes for DB and HC Funds

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%

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%

Next Steps

If the Board approves the proposed 2025 Asset Allocation Changes and AIP, Staff will focus on implementing changes for the DB & HC Funds starting in the second quarter of 2025. The Board will be asked to approve the revised Health Care alpha target at the next Board meeting.

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 Annual Investment Plan (including alpha targets)

Prabu Kumaran, Fund Manager
March 19, 2025

Annual Investment Plan

Purpose of the Annual Investment Plan (AIP):

- Describe the investment asset classes for the Defined Benefit (DB) and Health Care (HC) funds, including allocation percentages, ranges and internal and external management split.
- Specify projected total return, excess return and risk targets.
- List risk management control provisions and investment expenses.
- Identify staffing and budgetary requirements.
- List key initiatives for the current year.

Annual Investment Plan - 2024 Accomplishments

- Reviewed the OPERS Derivatives Policy and use of derivatives strategies, including options, with the aim of optimizing asset class returns and mitigating downside risk.
- Finalized the implementation of an upgraded portfolio management system dedicated to Private Alternatives resulting in enhanced reporting and functionality.
- Senior Investments leadership re-designed the process for reviewing and discussing strategic and tactical asset allocation.

Annual Investment Plan - 2025 Initiatives

- Implement the new long-term asset allocation targets for both the DB and HC funds.
- Build the first phase of the Board approved Risk Mitigation Strategy (RMS) allocation for both the DB and HC funds. The target RMS allocation for the DB and HC funds this year are 5% and 10%, respectively.

2025 Annual Investment Plan - DB Fund Targets

2025 Total Return Assumptions			
Sources of Return	Pessimistic	Base	Optimistic
Policy	-4.20%	8.53%	21.26%
Active	-0.59%	0.39%	1.37%
Total Return	-4.50%	8.92%	22.34%

2025 Total Risk and Active Risk Assumptions			
Sources of Risk	Variability Risk	Information Ratio	Sharpe Ratio*
Policy	12.73%		0.48
Active	0.98%	0.40	
Total Risk	13.42%		0.49

*The Sharpe Ratio reflects 2.4% (10 year Cash Return) as the risk free rate.

Source: Meketa – Total Return and Policy Risk

OPERS – Active Return and Total Risk

Schedule of Expected Performance and Volatility						
	Average Allocation	Active Return Performance Objectives	Active Return Performance Contribution	Target Tracking Error	Tracking Error Range	Target Information Ratio
	(%)	(bps)	(bps)	(bps)	(bps)	Ratio
U.S. Equity	21.0%	14	3	36	0 - 100	0.40
Non-U.S. Equity	20.0%	60	12	150	0 - 300	0.40
Fixed Income	21.0%	17	4	50	0 - 200	0.34
Alternatives	31.0%	68	21	500	250 - 1500	0.14
Risk Parity	2.0%	0	0	0	0 - 200	NA
RMS	5.0%	0	0	0	0 - 200	NA
Defined Benefit Fund	100.0%	NA	39	98	0 - 300	0.40

Source: Meketa & OPERS

2025 Annual Investment Plan - HC Fund Targets

2025 Total Return Assumptions			
Sources of Return	Pessimistic	Base	Optimistic
Policy	-3.05%	7.30%	17.99%
Active	-0.36%	0.24%	0.85%
Total Return	-3.04%	7.54%	18.12%

2025 Total Risk and Risk Attribution Assumptions			
Sources of Risk	Variability Risk	Information Ratio	Sharpe Ratio*
Policy	10.52%		0.47
Active	0.61%	0.40	
Total Risk	10.58%		0.49

*The Sharpe Ratio reflects 2.4% (10 year Cash Return) as the risk free rate.

Source: Meketa – Total Return and Policy Risk

OPERS – Active Return and Total Risk

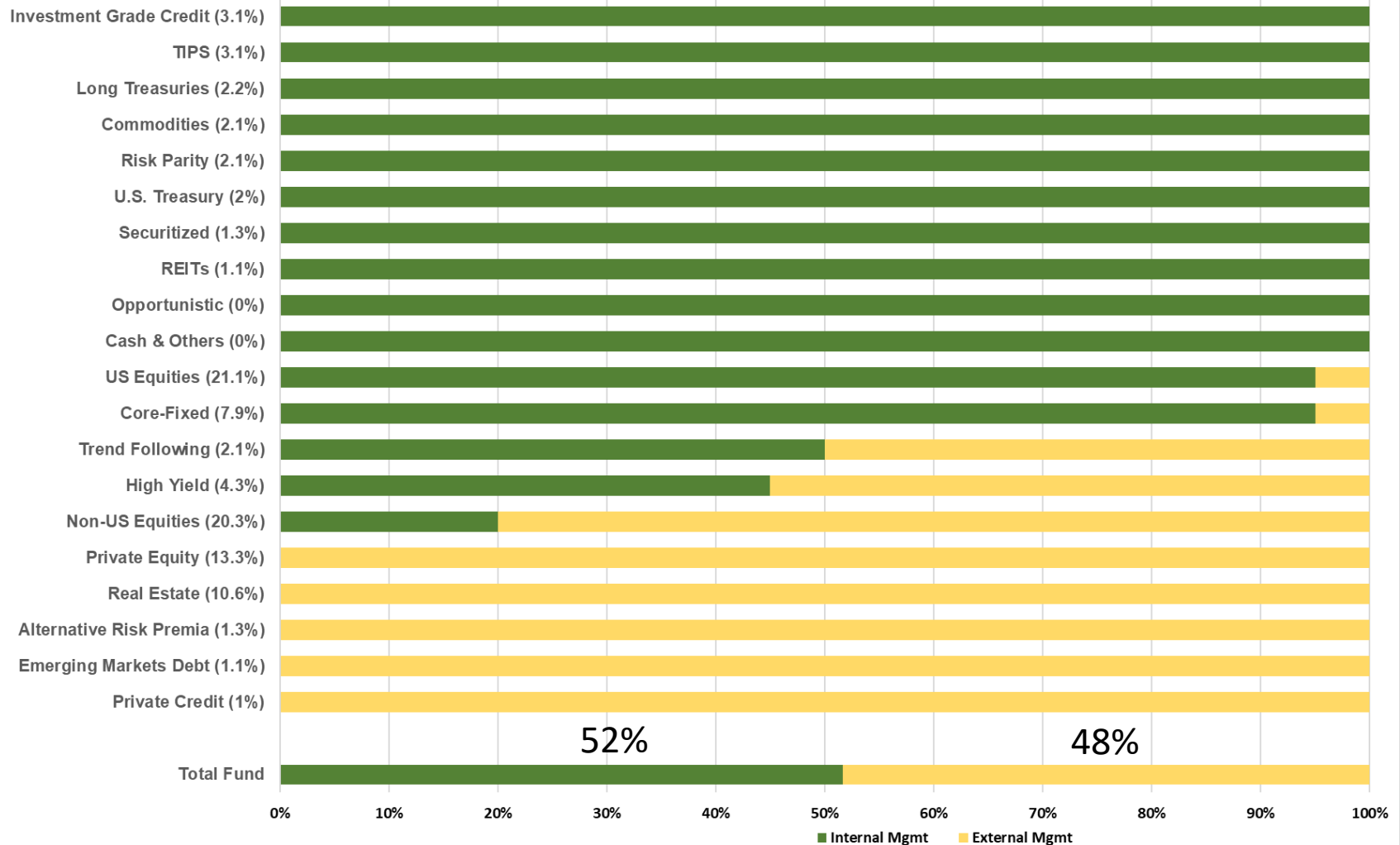
Schedule of Expected Performance and Volatility						
	Average Allocation (%)	Active Return Performance Objectives (bps)	Active Return Performance Contribution (bps)	Target Tracking Error (bps)	Tracking Error Range (bps)	Target Information Ratio
U.S. Equity	22.0%	14	3	36	0 - 100	0.40
Non-U.S. Equity	23.0%	60	14	150	0 - 300	0.40
Fixed Income	37.0%	18	7	50	0 - 200	0.36
Alternatives	5.0%	14	1	300	200 - 400	0.05
Risk Parity	3.0%	0	0	0	0 - 200	NA
RMS	10.0%	0	0	0	0 - 200	NA
Health Care Fund	100.0%	NA	24★	61	0 - 300	0.40

Source: Meketa & OPERS

* 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.

2025 Annual Investment Plan

Projected Internal vs. External Management

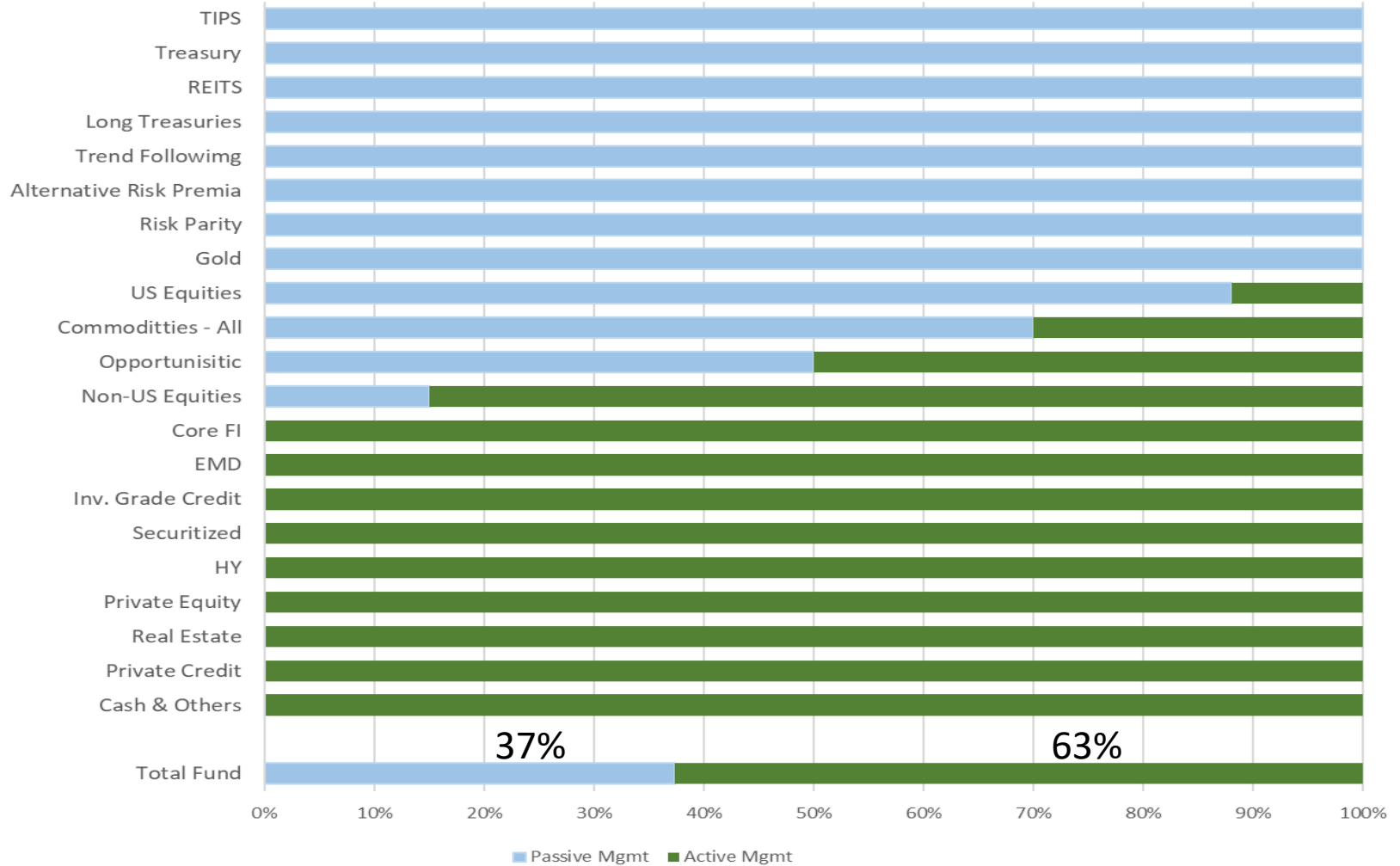


% shown in brackets are Combined Fund Target 2025 Allocations

Source: OPERS Estimates

2025 Annual Investment Plan

Projected Passive vs. Active Management



% shown in brackets are Combined Fund Target 2025 Allocations

Source: OPERS Estimates

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2025 Annual Investment Plan - Cost & Staffing

	Estimated 2025 Total Costs (\$ millions)			
	Internal Mgmt.	External Mgmt.	Total Investments Division	% of Total
Total Compensation	19.3	4.6	23.9	4.5%
Operating Budget less Compensation	7.8	3.1	10.9	2.1%
Manager Fees		479.3	479.3	90.6%
Custody & Oversight	8.9	6.1	15.1	2.8%
Total Costs	36.0	493.2	529.2	100.0%
Percent of Total	0.1	0.9		
Average 2024 Asset Size (\$ Billions)	61.0	56.5	117.5	
Costs in Basis Points	5.9	87.3	NA	
Costs in Basis Points to Total Fund	NA	NA	45.0	

Source: OPERS Estimates

	Target Staffing for Year 2025					
	Office of the CIO	Fund Mgmt.	Risk Mgmt.	Internal Funds	External Funds	Total Invest. Division
2025 Investment Plan Projected Staffing	5	4	5	33	15	62
Current Staffing	5	4	5	33	12	59
Vacant Positions - To be filled in 2025	0	0	0	0	3	3
Year End 2025 Target Staffing	5	4	5	33	15	62

	Current Open and Budgeted Positions	
	Position	Vacant
Private Alternatives	Asst. Portfolio Manager- PE	1
External Management	Sr. Investment Analyst - EPM	1
External Management	Sr. Portfolio Manager - EPM	1
Total		3

Source: OPERS Estimates

Appendix

2025 Annual Investment Plan - Appendix

Glossary:

- **Standard Deviation:** Measure of volatility. Calculated as the square root of the sum of the squared deviations from the mean. It is typically known as volatility risk and it is used in total return domain. E.g. Volatility of R3000 Index returns
- **Tracking Error:** It is a financial metric that measures how well an investment portfolio performs relative to its assigned benchmark. It is commonly known as active risk and a measure of relative volatility. It can be estimated as the standard deviation of the Portfolio's returns in excess of the Portfolio's benchmark.
- **Sharpe Ratio:** A Risk/Reward measure. Calculated by dividing the average Portfolio return in excess of the Risk-Free rate by the Standard Deviation of the Portfolio's returns. The higher the measure, the better.
- **Information Ratio:** Risk/Reward measure. Calculated as the average Portfolio return in excess of the Portfolio's benchmark divided by Tracking Error. The higher the measure, the better.



OPERS

**2025 Investment Plan
(DRAFT)**

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To My Fellow OPERS Members:

It is a pleasure to report strong results for 2024. At the beginning of the year, U.S. financial markets were primarily focused on inflation, monetary policy, and the economy's ability to sustain growth while avoiding a recession. Despite periods of volatility and uncertainty, U.S. equities surged approximately 24% for the year, achieving back-to-back annual gains of over 20%—a feat last seen during the dot-com boom of the early 2000s.

This robust equity performance significantly contributed to the positive outcomes for OPERS funds. The Defined Benefit Fund posted a solid 8.82% return, surpassing its actuarial return target of 6.90%. Similarly, the Health Care Fund achieved a strong 10.0% return, exceeding its actuarial return target of 6.0%.

Economic and Market Review of 2024

Monetary Policy Shifts

Central banks worldwide shifted toward monetary easing to bolster economic growth amid cooling inflation and slowing labor markets. The U.S. Federal Reserve, after a prolonged period of rate hikes, initiated its first rate cut in September, reducing the federal funds rate by 0.50% to a target range of 4.75% to 5.0%. Additional cuts followed, bringing the rate to 4.25%–4.50% by year-end.

Globally, other major central banks, including the European Central Bank (ECB) and the Bank of England (BOE), also reduced interest rates to stimulate their economies. The ECB cut its main refinancing rate by 0.25% to 2.75% in November 2024, while the BOE lowered its base rate by 0.50% to 3.0% in December 2024. However, the Bank of Japan (BOJ) diverged by increasing its policy rate by 0.25% in October 2024, reflecting its unique economic conditions. These collective actions underscored a global trend toward monetary easing, aiming to support economic stability and growth.

Inflation and Economic Growth

Throughout 2024, the U.S. experienced declining inflation, which supported the Federal Reserve's decision to pivot toward lower interest rates. By December 2024, the annual inflation rate had fallen to 2.8%, down from a peak of 9.0% in June 2022. Meanwhile, economic growth remained robust, expanding at an annualized rate of 2.8%, slightly below the 2.9% recorded in 2023.

The combination of easing inflation and sustained growth created a favorable environment for growth assets such as global equities, private equity and public credit, driving positive returns across nearly all asset classes. These conditions contributed to the strong performance of the OPERS funds.

OPERS Portfolio

Our disciplined investment approach positioned the Funds' assets to capitalize on appreciating growth opportunities while maintaining a resilient, diversified portfolio. By strategically allocating capital to high-performing equity markets and other growth-oriented assets, we achieved strong returns as economic conditions favored expansion. Simultaneously, our commitment to diversification across asset classes - including fixed income, real assets, gold and alternatives - provided stability during periods of volatility. This balanced approach enabled us to generate solid

CHIEF INVESTMENT OFFICER'S LETTER

performance while safeguarding both the Defined Benefit and Health Care Funds long-term financial health.

Key Investment Division Initiatives

Each year, the Investments Division undertakes key initiatives to enhance the capabilities and performance of our program. In addition to delivering positive returns for the year, the following initiatives were particularly noteworthy:

- **Private Alternatives System Upgrade:** Successfully implemented an upgraded private alternatives portfolio management system, which strengthened the reporting and oversight of OPERS' private alternatives allocations.
- **New Board Consultant Onboarding:** In April, OPERS Board hired Meketa as its new investment consultant following a comprehensive selection process. Meketa introduced, and the Board adopted, a new functional allocation framework designed to improve portfolio transparency, oversight, and risk assessment. This framework offers the Board a clearer and more intuitive understanding of major risks and the roles of various asset classes within the portfolio.
- **Risk Mitigation Strategies (RMS):** In November, the Board approved the creation of a dedicated Risk Mitigation Strategies composite for the Defined Benefit Fund. These strategies are designed to enhance portfolio resilience by offering defensive characteristics and maintaining low correlations to equity markets. The goal is to reduce drawdown risk and overall volatility throughout a market cycle. Implementation will be a key focus for staff throughout 2025-2026.

Looking Forward

As we enter 2025, market volatility remains a key challenge, driven by historically high equity valuations, shifting economic policies, and global uncertainties. Despite these headwinds, our investment team remains committed to delivering strong, risk-adjusted returns for OPERS members. Through disciplined asset allocation, rigorous risk management, and a focus on long-term fundamentals, we will strive to navigate market fluctuations while identifying opportunities for sustainable growth. Our approach includes diversification across asset classes, active portfolio management, and tactical adjustments to align with evolving economic conditions.

We extend our sincere appreciation to the OPERS Board of Trustees for their diligent oversight of investment strategies, allocation decisions, and ongoing performance monitoring. Additionally, we thank the Board's consultant, Meketa, for their invaluable guidance in structuring our assets to achieve long-term positive results. With the support of these trusted partners, the Investments Division remains steadfast in our fiduciary duty to safeguard and grow the Funds in order to provide a secure retirement for our members



Paul T. Greff
Chief Investment Officer
March 19, 2025

EXECUTIVE SUMMARY

Executive Summary

The following Summary outlines the strategies, asset allocation, and asset class strategies for both OPERS Defined Benefit and Health Care Funds. This Summary also includes initiatives and resources as well as performance and risk expectations.

Fund Strategies

For the Defined Benefit Fund ("DB Fund") and Health Care Fund ("HC Fund"), Staff is working towards the new asset allocation targets approved as part of the asset liability study conducted by the Board's retained Investment Advisor, Meketa at the November 2024 and January 2025 Board meetings. Staff expects the DB Fund to complete transition over multiple years (2025-2027) and HC Fund transition to be completed by the end of the year 2025. Within DB Fund, Private Credit sub-asset class may require a longer timeframe to reach its long-term target beyond 2027.

The following table outlines the projected base case returns with ranges for both the Defined Benefit and Health Care Funds. The base case 2025 return expectations are higher than 2024 for both the Defined Benefit and Health Care Funds due to higher expected returns for the Public Equity, and Alternatives Asset Classes.

	Base Case Return	Return Range	Active Return	Tracking Error	Information Ratio
<u>Defined Benefit Fund</u>					
2025*	8.92	-4.50 to 22.34	0.39	0.98	0.40
2024^	7.41	-7.27 to 22.09	0.42	1.05	0.40
2023^	7.86	-7.79 to 23.50	0.39	0.97	0.40
<u>Health Care Fund</u>					
2025*	7.54	-3.04 to 18.12	0.24	0.61	0.40
2024^	6.78	-5.43 to 18.99	0.30	0.75	0.40
2023^	7.26	-5.88 to 20.40	0.26	0.65	0.40

Source: *2025 Meketa Capital Market Expectations applied to OPERS Strategic Asset Allocation targets
^2023/2024 NEPC Capital Market Expectations

The active returns shown above incorporate an information ratio of 0.40. This risk-adjusted return metric is a ratio which measures the active return per unit of tracking error (active risk).

	3 year Alpha Target	1 year Alpha Target
<u>Defined Benefit Fund</u>		
2025	0.23	0.39
2024	0.22	0.42
2023	0.21	0.39
<u>Health Care Fund</u>		
2025	0.15	0.24
2024	0.16	0.30
2023	0.15	0.26

Asset Allocation and Asset Class Strategies

Meketa, OPERS Retirement Board's retained Investment Advisor, has recommended asset allocation changes for the DB Fund and HC Fund in 2025 as part of the comprehensive review of OPERS asset mix and the subsequent asset-liability study. Staff will continue its focus on determining the optimal mix of active, passive, internally managed and externally managed portfolios when implementing the asset allocation changes.

The Public Equity allocation in the Defined Benefit and Health Care Funds seeks to mirror the market-based global weighting between U.S. Equity and Non-U.S. Equity in the MSCI All Country World Index-Investable Market Index ("MSCI ACWI-IMI"). The current asset allocation targets for U.S. Equity and Non-U.S. Equity in the DB and HC Funds are evaluated annually by the Investment Advisor, (refer to pages 6 and 9 for target allocations for the DB and HC Funds).

With regard to the Fixed Income allocation, the following sub-asset classes, namely Core Fixed, Investment Grade Credit, Securitized Debt, TIPS, High Yield and U.S. Treasury are managed utilizing internal Staff. Staff is also continuously reviewing the current mix of external managers within the Emerging Markets Debt and High Yield sub-asset classes to achieve lower fees and higher risk-adjusted returns. The High Yield allocation is increasingly managed internally with the expansion of the High Yield staff, with approximately 40% of the assets now managed internally. This provides improved liquidity, better risk-adjusted returns, and lower fees for the overall High Yield exposure.

Within the Alternatives asset class, the pace of Private Equity commitments is anticipated to align with the program's current allocation, which is nearing its long-term Defined Benefit Fund target of 15%. In the Private Real Estate sub-asset class, Staff will continue its strategy of seeking attractive core and non-core investments to maintain the DB Fund target allocation of 12%. The new Private Credit sub-asset class will require more than three years to reach its long-term target allocation of 4% (as approved as part of the DB Fund asset-liability study) and will be comprised of various private credit strategies.

Within the Risk Mitigation Strategies ("RMS") asset class, the following sub-asset classes, namely Long Duration U.S. Treasury, Trend Following, and Alternative Risk Premia are intended to obtain and manage downside protection of the Funds. They may include index-oriented or actively managed strategies with the expectation that they enhance the existing overall asset mix, portfolio construction and risk-adjusted long-term returns of the Funds.

Staff will continue to monitor the progress and report to the OPERS Retirement Board quarterly along with Meketa's quarterly performance report.

Initiatives

Each year the Investments Division undertakes significant initiatives to enhance the capabilities and performance of the Funds. Completed 2024 strategic initiatives and new 2025 strategic initiatives are highlighted on the next page.

2024 Completed Initiatives

- Conducted thorough research to refine the framework for both strategic and tactical asset allocation within the OPERS Investments program.
- Reviewed the OPERS Derivatives Policy and use of derivatives strategies, including options, with the aim of optimizing asset class returns and mitigating downside risk.
- Finalized the implementation of an upgraded portfolio management system dedicated to Private Alternatives, that produce enhanced reporting and functionality.

2025 Initiatives

- Implement the new long-term asset allocation targets for both the DB and HC Funds.
- Implement the Risk Mitigation Strategies for both the DB and HC Funds to protect the downside of the Funds.

Resources

The Investments Division Staff is comprised of 62 budgeted positions. Two positions are currently vacant.

The Investments Division submitted an estimated operating budget of \$23.9 million for 2025. The budget includes the Finance Division's estimate of the 2025 incentive compensation payout, based on the prior year's budget. The budget incorporates the Investments Division's efforts to maintain internal investment management, where appropriate, due to the material cost savings in asset management fees.

Staff estimates the total cost to manage the OPERS asset base at 45.0 basis points or \$529.2 million. This is an increase in fees from the prior year primarily due to higher allocations in Private Alternatives. This cost estimate assumes long-term growth in the Fund's asset base, whereas an unanticipated bear market would reduce the absolute dollar cost.

Defined Benefit Fund

Expected Asset Growth – Defined Benefit Fund

The table below summarizes Staff's estimate (base case) of market values and ranges for the Defined Benefit Fund on December 31, 2025. Pessimistic and optimistic cases are also provided for comparison purposes.

	Defined Benefit Fund 2025 Expected Asset Growth Estimated Market Values, Returns and Cash Flows		
	Pessimistic Case	Base Case	Optimistic Case
12/31/24 Market Value (\$ billions)	\$104.10	\$104.10	\$104.10
Expected Total Return	-4.50%	8.92%	22.34%
Expected Investment Gain (\$ billions)	-\$4.68	\$9.29	\$23.25
Expected Cash Flow (\$ billions)	-\$3.96	-\$3.96	-\$3.96
12/31/25 Market Value (\$ billions)	\$95.46	\$109.42	\$123.39

The base market value of \$104.1 billion for December 31, 2024, is based on the audited financial BNY performance report.

Asset Allocation – Defined Benefit Fund

The 2025 target asset allocation and ranges for the Defined Benefit Fund reflect an estimate by Staff of the expected progress to be made toward the strategic asset allocation targets. Also included are asset allocations for a comparable peer group as of December 2024 (refer to page 27).

Asset Class	12/31/2024 Target	12/31/2025 Target	Range	Peer Group*
Public Equity	41.0%	41.0%	33% to 49%	37.24%
U.S. Equity	21.0%	21.0%	16% to 26%	23.86%
Non-U.S. Equity	20.0%	20.0%	15% to 25%	13.39%
Fixed Income	24.7%	21.0%	11% to 20%	22.21%
Core Fixed	9.7%	7.0%	3% to 8%	13.27%
Securitized Debt	1.0%	1.0%	0% to 5%	0.00%
Emerging Markets Debt	1.0%	1.0%	0% to 5%	1.81%
High Yield	4.0%	4.0%	0% to 6%	3.86%
TIPS	3.0%	3.0%	0% to 5%	3.27%
U.S. Treasury	3.0%	2.0%	0% to 5%	0.00%
Investment Grade Credit	3.0%	3.0%	0% to 5%	0.00%
Alternatives	32.3%	31.0%	24% to 44%	36.93%
Private Equity	15.0%	15.0%	10% to 20%	17.06%
Real Estate	12.0%	12.0%	7% to 17%	10.34%
Hedge Funds	-	0.0%	0% to 1%	2.99%
Opportunistic	2.0%	0.0%	0% to 2%	0.00%
Commodities - All	2.0%	1.0%	0% to 5%	1.06%
Gold	0.0%	1.0%	0% to 5%	0.00%
REITs	1.0%	1.0%	0% to 5%	1.80%
Private Credit	0.3%	1.0%	0% to 8%	3.69%
Risk Parity	2.0%	2.0%	0% to 5%	0.00%
RMS	-	5.0%	0% to 10%	1.11%
Long Duration U.S. Treasury	-	2.0%	0% to 5%	0.39%
Trend Following	-	2.0%	0% to 5%	0.50%
Alternative Risk Premia	-	1.0%	0% to 5%	0.22%
Other				2.51%
Defined Benefit Fund	100.0%	100.0%		100.00%

*The asset allocations are derived from the organizations in the Peer Group Comparison section on page 27 and OPERS data.

FUND STRATEGIES

The traditional asset allocation framework primarily focuses on dividing investments across traditional asset classes (e.g., stocks, bonds, real estate) is well known and easily understood. It focuses on normal market environments and is beneficial for its simplicity in identifying public and private investments when making operational considerations such as liquidity management.

The functional asset allocation framework aligns assets based on their functional role within a portfolio. It is grouped into two strategic classes of growth and diversification. Growth and diversification each are comprised of subcomponents which help to improve portfolio governance, increase transparency and oversight into major risk and roles among portfolio components, and provide easier accommodation of new strategies and implementation flexibility.

The aggregate portfolio does not materially change whether one uses functional framework or asset class framework. Leveraging the strengths of both traditional asset class frameworks and functional frameworks can create a robust and flexible investment strategy.

DB Fund - Traditional Allocation View			DB Fund - Functional Framework		
Asset Classes		AIP 2025	Asset Classes		AIP 2025
	Q1 - 2025	2025 YE		Q1 - 2025	2025 YE
Public Equity	41.00%	41.00%	Traditional Growth	42.00%	42.00%
U.S. Equity	21.00%	21.00%	U.S. Equity ^{+ REITS}	22.00%	22.00%
Non-U.S. Equity	20.00%	20.00%	Equity ex-US	20.00%	20.00%
Fixed Income	24.80%	21.00%	Aggressive Growth	19.00%	19.00%
Core Fixed	9.80%	7.00%	Private Equity	15.00%	15.00%
Securitized Debt	1.00%	1.00%	Non-Core Real Estate	4.00%	4.00%
Emerging Markets Debt	1.00%	1.00%	Stabilized Growth	19.20%	20.00%
High Yield	4.00%	4.00%	Core Real Estate	8.00%	8.00%
TIPS	3.00%	3.00%	Risk Parity	2.00%	2.00%
U.S. Treasury	3.00%	2.00%	Public Credit (IG, HY, EMD & SD)	9.00%	9.00%
Investment Grade Credit	3.00%	3.00%	Private Credit	0.20%	1.00%
Alternatives	32.20%	31.00%	Principal Protection	12.80%	9.00%
Private Equity	15.00%	15.00%	Core Fixed	9.80%	7.00%
Real Estate	12.00%	12.00%	U.S. Treasury	3.00%	2.00%
Commodities - All	2.00%	1.00%	Inflation	6.00%	5.00%
Gold	1.00%	1.00%	TIPS	3.00%	3.00%
PE FX Currency	1.00%		Commodities - All	2.00%	1.00%
REITs	1.00%	1.00%	Gold	1.00%	1.00%
Private Credit	0.20%	1.00%	Risk Mitigation Strategies	1.00%	5.00%
Risk Parity	2.00%	2.00%	Long Duration U.S. Treasury	0.00%	2.00%
RMS	0.00%	5.00%	Trend Following	0.00%	2.00%
Long Duration U.S. Treasury	0.00%	2.00%	Alternative Risk Premia	1.00%	1.00%
Trend Following	0.00%	2.00%	Broad Growth ^(including REITS)	80.20%	81.00%
Alternative Risk Premia	0.00%	1.00%	Diversifying Strategies	19.80%	19.00%
Total DB Fund	100.0%	100.0%	Total DB Fund	100.0%	100.0%

	Schedule of Expected Performance and Volatility					
	Average Allocation	Active Return Performance Objectives	Active Return Performance Contribution	Target Tracking Error	Tracking Error Range	Target Information
	(%)	(bps)	(bps)	(bps)	(bps)	Ratio
U.S. Equity	21.0%	14	3	36	0 - 100	0.40
Non-U.S. Equity	20.0%	60	12	150	0 - 300	0.40
Fixed Income	21.0%	17	4	50	0 - 200	0.34
Alternatives	31.0%	68	21	500	250 - 1500	0.14
Risk Parity	2.0%	0	0	0	0 - 200	NA
RMS	5.0%	0	0	0	0 - 200	NA
Defined Benefit Fund	100.0%	NA	39	98	0 - 300	0.40

The table above shows an anticipated active management contribution of 39 basis points to the Defined Benefit Fund's return for 2025. The estimated tracking error of 98 basis points indicates a 68% probability that the active return will be in a range of -59 basis points to +137 basis points. This interval is calculated by subtracting the tracking error from, and adding the tracking error to, the expected active return.

Return and Risk – Defined Benefit Fund

The performance objectives for the Defined Benefit Fund are to: 1) exceed the return of the Policy benchmark within an appropriately constrained risk framework, net of investment expenses, and 2) exceed the actuarial required rate of return over a reasonably longer time horizon. The Policy benchmark combines designated market indices for asset classes, weighted by asset allocation targets.

The return estimates in the following table were derived from the asset class return expectations developed by the OPERS Retirement Board's retained Investment Advisor, Meketa. The single-point estimate return of 8.92% is comprised of an expected return of 8.53% from the policy mix and an additional contribution of 0.39% from active management, net of fees.

In the following table, Staff divides return and risk into two components.

Policy: The return and risk derived from the policy asset allocation and the intermediate term return and risk forecast of the underlying asset classes.

Active: The return and risk associated with deviations from benchmark allocations at either the asset class level or portfolio level. It reflects the potential impact to relative performance from deviating from the asset class policy allocation targets, from asset class benchmark mismatches, and from individual portfolio active risk.

FUND STRATEGIES

The Policy Return and Active Return are calculated as weighted average of expected returns and expected alphas of each sub-asset class.

2025 Policy Return Assumptions			
Asset Classes	Pessimistic	Base	Optimistic
Public Equity			
U.S. Equity	-10.10%	6.90%	23.90%
Non-U.S. Equity	-10.30%	7.70%	25.70%
Fixed Income			
Core Fixed	0.60%	4.60%	8.60%
Securitized Debt	0.70%	4.70%	8.70%
Emerging Markets Debt	-5.00%	7.00%	19.00%
High Yield	-4.50%	6.50%	17.50%
TIPS	-2.70%	4.30%	11.30%
U.S. Treasury	1.00%	4.00%	7.00%
Investment Grade Credit	-1.80%	5.20%	12.20%
Alternatives			
Private Equity	-15.10%	9.90%	34.90%
Real Estate	-8.60%	6.40%	21.40%
Gold	-15.60%	2.40%	20.40%
Commodities - All	-12.10%	4.90%	21.90%
REITs	-18.40%	5.60%	29.60%
Private Credit	-5.80%	9.20%	24.20%
Risk Parity	-3.70%	6.30%	16.30%
RMS			
Long Duration U.S. Treasury	-7.70%	4.30%	16.30%
Trend Following	-11.20%	3.80%	18.80%
Alternative Risk Premia	-2.20%	4.80%	11.80%
Policy Return	-4.20%	8.53%	21.26%

2025 Total Return Assumptions			
Sources of Return	Pessimistic	Base	Optimistic
Policy	-4.20%	8.53%	21.26%
Active	-0.59%	0.39%	1.37%
Total Return	-4.50%	8.92%	22.34%

2025 Total Risk and Active Risk Assumptions			
Sources of Risk	Variability Risk	Information Ratio	Sharpe Ratio*
Policy	12.73%		0.48
Active	0.98%	0.40	
Total Risk	13.42%		0.49

*The Sharpe Ratio reflects 2.4% (10 year Cash Return) as the risk free rate.

Health Care Fund

Expected Asset Growth – Health Care Fund

The table below summarizes Staff's estimate (base case) of market values and ranges for the Health Care Fund on December 31, 2025. Pessimistic and optimistic cases are also provided for comparison purposes.

Health Care Fund 2025 Expected Asset Growth Estimated Market Values, Returns and Cash Flows			
	Pessimistic Case	Base Case	Optimistic Case
12/31/24 Market Value (\$ billions)	\$13.37	\$13.37	\$13.37
Expected Total Return	-3.04%	7.54%	18.12%
Expected Investment Gain (\$ billions)	-\$0.41	\$1.01	\$2.42
Expected Cash Flow (\$ billions)	-\$0.60	-\$0.60	-\$0.60
12/31/25 Market Value (\$ billions)	\$12.36	\$13.77	\$15.18

The base market value of \$13.37 billion for December 31, 2024 is based on the audited financial BNY performance report.

Asset Allocation – Health Care Fund

The 2025 target asset allocation and ranges for the Health Care Fund reflect an estimate by Staff of the expected progress to be made toward the strategic asset allocation targets, which are shown below. There is no peer universe of public pension plans with separate health care funds.

Asset Class	12/31/2024 Target	12/31/2025 Target	Range
Public Equity	50.0%	45.0%	36% to 54%
U.S. Equity	25.0%	22.0%	17% to 27%
Non-U.S. Equity	25.0%	23.0%	18% to 28%
Fixed Income	37.0%	37.0%	26% to 48%
Core Fixed	16.0%	15.0%	10% to 19%
Securitized Debt	3.0%	4.0%	0% to 6%
Emerging Markets Debt	1.0%	1.5%	0% to 5%
High Yield	5.0%	7.0%	0% to 10%
TIPS	7.0%	4.0%	0% to 6%
U.S. Treasury	2.0%	2.0%	0% to 5%
Investment Grade Credit	3.0%	3.5%	0% to 5%
Alternatives	10.0%	5.0%	3% to 8%
REITs	5.0%	2.0%	0% to 5%
Hedge Funds	0.0%	0.0%	0% to 1%
Opportunistic	2.0%	0.0%	0% to 2%
Gold	0.0%	1.0%	0% to 5%
Commodities - All	3.0%	2.0%	0% to 5%
Risk Parity	3.0%	3.0%	0% to 5%
RMS	0.0%	10.0%	0% to 15%
Long Duration U.S. Treasury	0.0%	3.4%	0% to 5%
Trend Following	0.0%	3.3%	0% to 5%
Alternative Risk Premia	0.0%	3.3%	0% to 5%
Health Care Fund	100.0%	100.0%	

FUND STRATEGIES

The traditional asset allocation framework primarily focuses on dividing investments across traditional asset classes (e.g., stocks, bonds, real property estate) is well known and easily understood. It focuses on normal market environments and is beneficial for its simplicity in identifying public and private investments when making operational considerations such as liquidity management.

The functional asset allocation framework aligns assets based on their functional role within a portfolio. It is grouped into two strategic classes of growth and diversification. Growth and diversification each are comprised of subcomponents which help to improve portfolio governance, increase transparency and oversight into major risk and roles among portfolio components, and provide easier accommodation of new strategies and implementation flexibility.

The aggregate portfolio does not materially change whether one uses functional framework or asset class framework. Leveraging the strengths of both traditional asset class frameworks and functional frameworks can create a robust and flexible investment strategy.

HC Fund -Traditional Allocation View		
Asset Classes	AIP 2025	
	Q1 - 2025	2025 YE
Public Equity	50.0%	45.0%
U.S. Equity	25.0%	22.0%
Non-U.S. Equity	25.0%	23.0%
Fixed Income	37.0%	37.0%
Core Fixed	16.0%	15.0%
Securitized Debt	3.0%	4.0%
Emerging Markets Debt	1.0%	1.5%
High Yield	5.0%	7.0%
TIPS	7.0%	4.0%
U.S. Treasury	2.0%	2.0%
Investment Grade Credit	3.0%	3.5%
Alternatives	10.0%	5.0%
Commodities - All	3.0%	2.0%
Gold	1.0%	1.0%
PE FX Currency	1.0%	
REITS	5.0%	2.0%
Risk Parity	3.0%	3.0%
RMS	0.0%	10.0%
Long Duration U.S. Treasury	0.0%	3.4%
Trend Following	0.0%	3.3%
Alternative Risk Premia	0.0%	3.3%
Total HC Fund	100.0%	100.0%

HC Fund - Functional Framework		
Asset Classes	AIP 2025	
	Q1 - 2025	2025 YE
Traditional Growth	55.0%	47.0%
U.S. Equity ^{+ REITS}	30.0%	24.0%
Equity ex-US	25.0%	23.0%
Stabilized Growth	15.0%	19.0%
Risk Parity	3.0%	3.0%
Public Credit (IG,HY,EMD & SD)	12.0%	16.0%
Principal Protection	18.0%	17.0%
Core Fixed	16.0%	15.0%
U.S. Treasury	2.0%	2.0%
Inflation	11.0%	7.0%
TIPS	7.0%	4.0%
Commodities - All	3.0%	2.0%
Gold	1.0%	1.0%
Risk Mitigation Strategies	1.0%	10.0%
Long Duration U.S. Treasury	0.0%	3.4%
Trend Following	0.0%	3.3%
Alternative Risk Premia	1.0%	3.3%
Broad Growth ^(including REITS)	70.0%	66.0%
Diversifying Strategies	30.0%	34.0%
Total HC Fund	100.0%	100.0%

FUND STRATEGIES

	Schedule of Expected Performance and Volatility					
	Average Allocation (%)	Active Return Performance Objectives (bps)	Active Return Performance Contribution (bps)	Target Tracking Error (bps)	Tracking Error Range (bps)	Target Information Ratio
U.S. Equity	22.0%	14	3	36	0 - 100	0.40
Non-U.S. Equity	23.0%	60	14	150	0 - 300	0.40
Fixed Income	37.0%	18	7	50	0 - 200	0.36
Alternatives	5.0%	14	1	300	200 - 400	0.05
Risk Parity	3.0%	0	0	0	0 - 200	NA
RMS	10.0%	0	0	0	0 - 200	NA
Health Care Fund	100.0%	NA	24*	61	0 - 300	0.40

**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.*

The table above shows an anticipated active management contribution of 24 basis points to the Health Care Fund's return for 2025. The estimated tracking error of 61 basis points indicates a 68% probability that the active return will be in a range of -36 basis points to +85 basis points. This interval is calculated by subtracting the tracking error from, and adding the tracking error to, the expected active return.

Return and Risk – Health Care Fund

The performance objectives for the Health Care Fund are to (1) exceed the return of the Policy benchmark within an appropriately constrained risk framework, net of investment expenses, and (2) exceed the actuarial required rate of return over a reasonably longer time horizon. The Policy benchmark combines designated market indices for asset classes, weighted by asset allocation targets.

The return estimates in the following table were derived from the asset class return expectations developed by the OPERS Retirement Board's retained Investment Advisor, Meketa. The single-point estimate return of 7.54% is comprised of an expected return of 7.30% from the policy mix and an additional contribution of 0.24% from active management, net of fees.

In the following table, Staff divides return and risk into two components.

Policy: The return and risk derived from the policy asset allocation and the intermediate-term return and risk forecast of the underlying asset classes.

Active: The return and risk associated with deviations from benchmark allocations at either the asset class level or portfolio level. It reflects the potential impact to relative performance from deviating from the asset class policy allocation targets, from asset class benchmark mismatches and from individual portfolio active risk.

FUND STRATEGIES

The Policy Return and Active Return are calculated as the weighted average of expected returns or expected alphas of each sub-asset class.

2025 Policy Return Assumptions			
Asset Classes	Pessimistic	Base	Optimistic
Public Equity			
U.S. Equity	-10.10%	6.90%	23.90%
Non-U.S. Equity	-10.30%	7.70%	25.70%
Fixed Income			
Core Fixed	0.60%	4.60%	8.60%
Securitized Debt	0.70%	4.70%	8.70%
Emerging Markets Debt	-5.00%	7.00%	19.00%
High Yield	-4.50%	6.50%	17.50%
TIPS	-2.70%	4.30%	11.30%
U.S. Treasury	1.00%	4.00%	7.00%
Investment Grade Credit	-1.80%	5.20%	12.20%
Alternatives			
REITs	-18.40%	5.60%	29.60%
Gold	-15.60%	2.40%	20.40%
Commodities - All	-12.10%	4.90%	21.90%
Risk Parity	-3.70%	6.30%	16.30%
RMS			
Long Duration U.S. Treasury	-7.70%	4.30%	16.30%
Trend Following	-11.20%	3.80%	18.80%
Alternative Risk Premia	0.40%	5.40%	10.40%
Policy Return	-3.05%	7.30%	17.99%

2025 Total Return Assumptions			
Sources of Return	Pessimistic	Base	Optimistic
Policy	-3.05%	7.30%	17.99%
Active	-0.36%	0.24%*	0.85%
Total Return	-3.04%	7.54%	18.12%

2025 Total Risk and Risk Attribution Assumptions			
Sources of Risk	Variability Risk	Information Ratio	Sharpe Ratio*
Policy	10.52%		0.47
Active	0.61%	0.40	
Total Risk	10.58%		0.49

*The Sharpe Ratio reflects 2.4% (10 year Cash Return) as the risk free rate.

**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.*

ASSET CLASS STRATEGIES

Tactical Outlook

The following tactical outlook provides a background and context for the asset class strategies in the Defined Benefit and Health Care Funds.

The following are overviews of the two components of the tactical outlook: the capital markets observations and the asset class outlook. The Investment Advisor, Meketa, retained by the OPERS Retirement Board, provided the outlook for 2025.

Capital Markets Observations

- **Key Market Themes**

- The current federal administrative plan for expansion of fossil fuel production, tax cuts, and deregulation may boost corporate margins and short-term growth but risk potentially higher deficit spending, regulatory challenges, and inflation. In addition, restrictive immigration and protectionist trade policies could disrupt supply chains, reduce the labor force supply, elevate consumer prices, and reignite inflation.
- Despite recent rate cuts, the U.S. labor market and economy have remained resilient, while the Fed balances its dual mandate of price stability and maximum employment amidst fiscal measures that may increase economic volatility. Rising yield curve trends reflect market concerns over inflationary impacts of federal policies, and challenges in balancing inflation and growth within a volatile environment.
- Interest rates should remain high in 2025 as the federal reserve continues to evaluate rising inflation.
- China's ongoing real estate crisis and weak consumer demand pose ongoing economic challenges. Trade tensions between the U.S. and China have reduced Foreign Direct Investment by 29.1% YoY, while potential additional U.S. tariffs in combination with yuan depreciation may impact U.S. growth and financial stability.
- We are watching the U.S. federal government for the fiscal challenges it faces in 2025. Roughly 25% of the outstanding debt or \$9 trillion is expected to mature this year.
- The U.S. market faces risks from AI-focused stocks driving indices and elevated P/E ratios. Corporate tax cuts boost EPS artificially, while macroeconomic shocks and diversification concerns persist. Opportunities exist for small caps in a new monetary environment.

Market Outlook

- **U.S. and Non-U.S. Equities**

- A resilient U.S. economy, a still relatively strong labor market, and the expectation for deregulation and tax cuts serve as tailwinds.
- U.S. dollar strength remains supportive of domestic equities relative to foreign equities.
- The uncertain impact of the new administration's policies and concentrated tech stock leadership are areas we are monitoring

- U.S. dollar strength remains a headwind, though the Yen has recently strengthened.
- Many developed foreign market economies have weaker growth projections than the U.S.
- Improvements in corporate governance in Japan, particularly the increasing openness to shareholder activism and takeover bids, are supportive.
- Overall international valuations remain attractive relative to the U.S.

- **Fixed Income**

- Long-Term Gov't Bonds could benefit from a flight to quality if the economy significantly slows.
- If the Federal Reserve continues cutting interest rates and the yield curve further steepens, it could make yields on longer-dated Treasuries relatively attractive.
- The new administration's policies seem likely to increase deficit spending and the need for bond issuance possibly leading to investors demanding higher yields on U.S. debt.
- A pick-up in inflation could also act as a headwind.
- Corporate yields are attractive in absolute terms and on a risk-adjusted basis relative to Treasuries due to strong corporate health.
- Investment grade bonds are more insulated to an economic downturn relative to lower quality corporate bonds.
- Even though High Yield spreads are narrow compared to longer-term averages, indicating the upside to price appreciation is limited, the income levels from ongoing coupon payments are attractive.
- Higher interest payments could be a concern for some companies that might have to re-issue debt at higher rates if their current lower interest rate debt matures in 2025.

- **Real Assets**

- Since March of 2022, the actions of the Federal Reserve aimed at lowering inflation have resulted in debt costs which have more than doubled, constrained debt capital markets, greatly reduced commercial real estate transaction volume, and a broad re-pricing of commercial real estate assets.
- While occupancy across property type sectors remains healthy, cooling tenant demand coupled with the increasing cost of debt and slowing rent growth has been weighing heavily on commercial real estate property values. In addition, the continued low transaction volume has made it more difficult to determine "fair value".
- Investors have adjusted their return expectations assuming a higher for longer interest rate environment.

- Some asset owners with maturing debt, expiring interest rate caps, and other situations requiring a refinancing of current debt, could have difficulty obtaining financing and be forced to sell their commercial real estate asset(s), or to give the asset(s) back to the lender. Even if the owner obtains a loan extension, the terms are likely to be far less favorable than the initial loan.
 - While interest rate increases and the uncertain economic environment are increasing the likelihood of pocketed distress, the amount of distressed assets that may come to market remains unclear.
 - Commercial real estate loan exposure at large banks is generally less than at smaller, and/or regional banks. While some smaller banks and non-bank mortgage lenders may be experiencing stress, the situation is currently not anticipated to be a risk to the entire U.S. banking system.
 - Lenders have become more conservative with their underwriting and willingness to make loans.
 - As long as the uncertainty surrounding the U.S. economy and capital markets endure, we expect asset values to continue to be under pressure across property types and locations.
- **Private Equity**
 - Private Equity fund raising has been challenged in the recent year and we expect that to continue as we enter 2025 as the markets continue to adjust to higher interest rates and a slowing IPO market. We would not be surprised to see an uptick in the secondary market this year as investors look to get out of existing funds.
 - North America-focused vehicles have continued to represent the highest geographic allocation of funds raised, and we expect that it will not change this year given the new federal administration's policies. Investor appetite for Rest of World should also remain subdued.
 - Overall, Private Equity returns have proven resilient in these markets but remain below the highs of recent years. Performance has been strong in each vintage year since the Global Financial Crisis. The spread between first and third quartile performance in private equity has increased since the Global Financial Crisis.
 - While Private Equity has undergone several quarters of write-downs, we continue to view this class as an attractive allocation and expect returns will continue to improve as we move through 2025. Manager selection and annual pacing studies continue to be key within this market.
- **Private Debt**
 - Based on survey data financial conditions remain relatively loose supporting the Federal Reserve's potential case for a less aggressive approach to easing.
 - The economically critical U.S. housing market faces some headwinds with the U.S. mortgage rate reversing its downward trend, posing a challenge to household formation and prospective home buyers.

- Lower total yield due to declining base rates and tighter spreads lowered funding costs for borrowers rated single-B, a segment typically targeted by private credit lenders and capital solutions providers.
- We believe in continuing to commit and allocate to Private Debt managers with a focus on manager selection and an annual review of pacing studies. In addition, leverage limits should be reviewed as the market moves continue to be volatile.
- **Risk Mitigating Strategies**
 - High valuations in the U.S. Equity markets and uncertainty surrounding the new federal administrations policies lends itself to look at assets that can protect capital when economic growth slows or turns negative. We continue to have conviction in building all-weather like portfolios to help protect assets during down markets.
 - Given the early indication of the Fed to keep rates higher for longer there has been historical trends that benefit bonds when investors seek a flight to quality.

Performance Expectations – Excess Return Targets

Public Equity

The following table shows the benchmarks and performance objectives for the Public Equity asset class. The benchmark for the U.S. Equity asset class is the Russell 3000 Index with an alpha target of 14 basis points, net of fees. The tracking error target is 36 basis points with a range of 0 to 100 basis points. The performance objective (alpha) and target tracking error for Non-U.S. Equity are 60 basis points and 150 basis points, respectively.

Public Equity Asset Class					
Alpha Target and Target Tracking Error					
	Benchmark	Alpha Target (net of fees) (bps)	Target Tracking Error (bps)	Target Information Ratio	Tracking Error Range (bps)
U.S. Equity	Russell 3000	14	36	0.40	0 - 100
Non-U.S. Equity	Custom Benchmark	60	150	0.40	0 - 300

The custom benchmark for Non-U.S. Equity is composed of 55% MSCI World Index ex U.S. Standard Index; 10% MSCI World Index ex U.S. Small Cap Index; 31% MSCI Emerging Markets Standard Index; and 4% MSCI Emerging Markets Small Cap Index. This structure reflects a strategic overweight to Emerging Markets compared to the Emerging Markets allocation of the MSCI All Country World Index ex U.S. Investable Markets Index ("MSCI ACWI ex U.S. IMI").

Fixed Income

The following table shows the benchmarks and performance objectives for the Fixed Income asset class.

Internal - Fixed Income Asset Class					
Alpha Target and Target Tracking Error					
	Benchmark	Alpha Target (net of fees) (bps)	Target Tracking Error (bps)	Target Information Ratio	Tracking Error Range (bps)
Core Fixed	Bloomberg U.S. Aggregate	30	75	0.40	0 - 200
Securitized Debt	Securitized Debt Custom Benchmark*	80	200	0.40	0 - 400
High Yield	OPERS Custom Bloomberg Very Liquid BB/B High Yield	30	75	0.40	0 - 150
TIPS	Bloomberg U.S. TIPS	0	15	NA	0 - 30
U.S. Treasury	Bloomberg U.S. Treasury 1-5 Year	0	15	NA	0 - 30
Investment Grade Credit	Bloomberg U.S. Corporate Bond	30	75	0.40	0 - 150

*50% Bloomberg Non-Agency Investment Grade CMBS: BBB Total Return Index Unhedged USD & 50% Bloomberg Non-Agency CMBS Agg Eligible Total Return Index Value Unhedged USD.

ASSET CLASS STRATEGIES

External - Fixed Income Asset Class					
Alpha Target and Target Tracking Error					
	Benchmark	Alpha Target (net of fees (bps)	Target Tracking Error (bps)	Target Information Ratio	Tracking Error Range (bps)
Core Fixed	Bloomberg U.S. Aggregate	36	90	0.40	0 - 200
Emerging Markets Debt	EMD Custom Benchmark**	46	230	0.20	0 - 800
High Yield	Bloomberg U.S. Corporate High Yield	20	100	0.20	0 - 700

**50% JP Morgan Emerging Markets Bond Index Global & 50% JP Morgan Government Bond Index-Emerging Markets Global Diversified.

Cash Management

The cash portfolios are managed with a low-to-moderate risk profile that results in principal preservation while exceeding the performance of the respective benchmarks. The benchmark for the OPERS Short Term Investment Funds ("STIF") is the Bloomberg Tier 1 30-Day Commercial Paper Index.

Securities Lending

In the securities lending program, Staff manages two lending portfolios and utilizes a lending agent to maximize lending revenue. Staff strive to hire agents who provide competitive fee splits, while providing adequate risk controls and expertise in the asset class being loaned. There is a bias toward lending assets in an auction environment, so borrowers are providing maximum revenue in a competitive environment on a regular basis. Staff will continue lending the U.S. Treasury, Agency and a portion of the corporate bond assets in-house. The collateral from the securities lending program is managed internally. The combination of lending revenue and investment income comprise the total securities lending performance. The benchmark for the Securities Lending STIF is the Overnight Bank Funding Rate.

Alternatives

The Alternatives asset class is composed of Private Equity, Real Estate, REITs, Private Credit, Commodities-All, and Gold investment strategies. The Defined Benefit and Health Care Funds invest differently in the Alternatives asset class to meet their unique investment objectives.

The following table summarizes the benchmark, performance objectives and tracking error for the various alternative investment strategies utilized within the Fund.

	Benchmark	Alpha Target (net of fees) (bps)	Target Tracking Error (bps)	Target Information Ratio	Tracking Error Range (bps)
Private Equity	State Street Private Equity Index (SSPEI)	100	NA	NA	0 - 1500
Real Estate	Net NFI-ODCE + 0.85%	30	NA	NA	0 - 1500
REITs	DJ U.S. Select RESI	0	10	NA	0 - 250
Private Credit	S&P UBS Leveraged Loan	200	500	0.40	0 - 1500
Commodities - All	Bloomberg Commodity Total Return	36	90	0.40	0 - 300
Gold	Bloomberg Gold Subindex Total Return	0	25	NA	0 - 50

Risk Parity

Risk Parity is an alternative approach to investment portfolio management, which focuses on the allocation of risk rather than allocation of capital. The Risk Parity approach is underpinned by the expectation that when asset allocations are adjusted to the same risk level, a portfolio can achieve a higher Sharpe ratio and be more resilient to market downturns.

Currently, the Risk Parity asset class is 100% managed in-house. The internal mandate has a volatility target of 10% and is benchmarked to the S&P Global Risk Parity Index – 10% Target Volatility.

Risk Mitigation Strategies

The Risk Mitigation Strategies (“RMS”) asset class is comprised of Long Duration U.S. Treasury, Trend Following and Alternative Risk Premia. Each strategy within the RMS asset class has a specific performance benchmark (as outlined in the table below). The overall benchmark for the RMS asset class is a custom benchmark based on the target weights of the underlying sub-asset class allocations. RMS is being implemented as a beta allocation and passive strategy to the total Fund with zero alpha expectations.

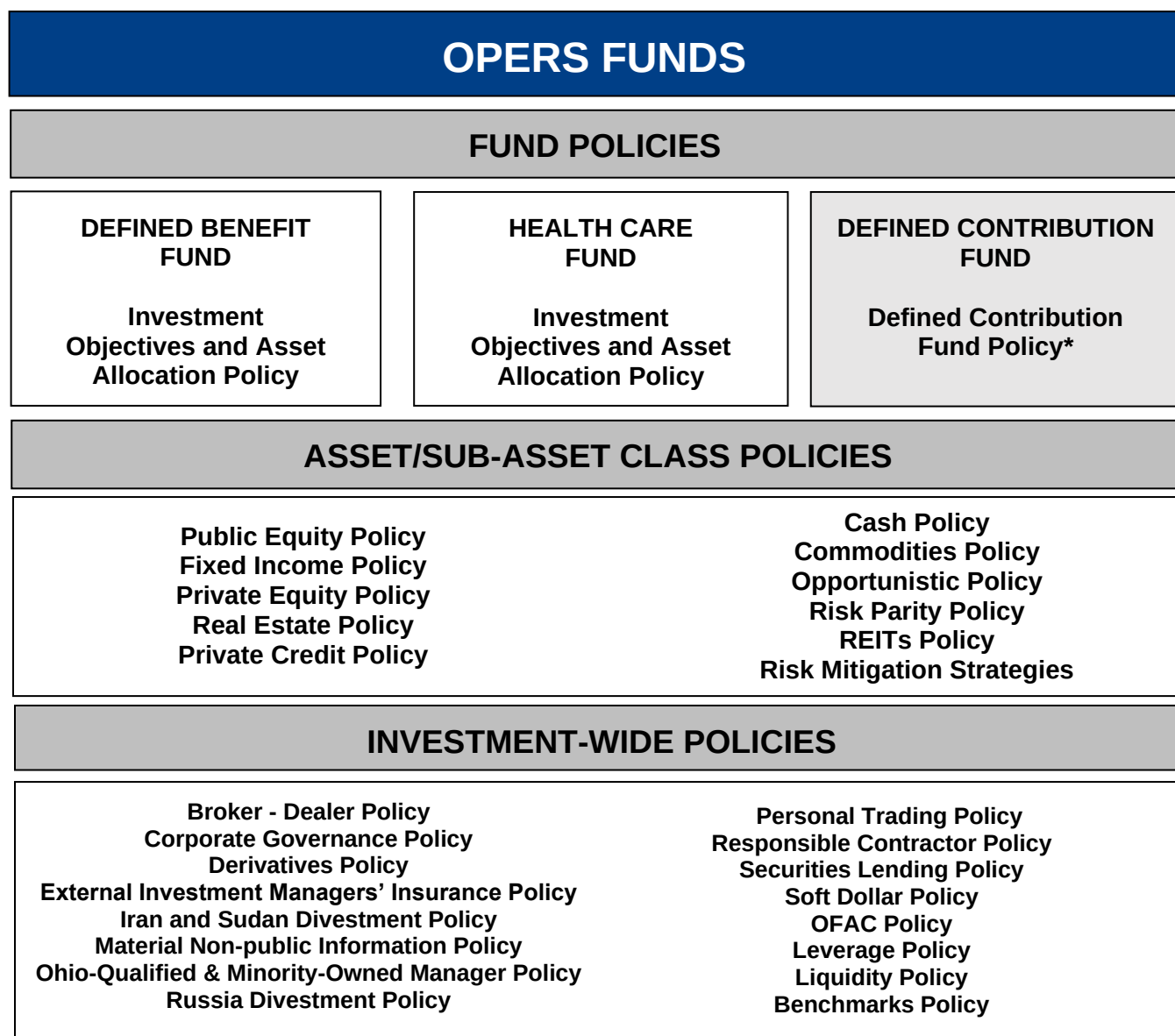
Strategy	Benchmark	Alpha Target	Tracking Error Range (bps)
Long Duration U.S. Treasury	<i>Bloomberg U.S. Treasury 20+ Year Total Return Index</i>	0	0 - 50
Trend Following	<i>Market-value weighted composite of the portfolio returns</i>	0	0 - 50
Alternative Risk Premia	<i>Market-value weighted composite of the portfolio returns</i>	0	0 - 50

POLICIES, COMMITTEES, AND RESOURCES

POLICIES, COMMITTEES, AND RESOURCES

OPERS Retirement Board Policies Governing Investment Activities

The following exhibit illustrates the structure and relationship of the Policies within the OPERS System and its three Investment Funds.



*Defined Contribution Fund has a stand-alone policy and other sub-asset class policies are not applicable.

Staff Committee Structure

The Chief Investment Officer (“CIO”) utilizes a variety of committees, working groups and meeting structures to govern the Investments Division’s activities. This internal governance arrangement enhances collective inputs, retains institutional knowledge, provides documentation of the due diligence process and other processes, promotes transparency and accountability, and formalizes decision-making processes. These committees are designed to combine structure and flexibility to efficiently bring the appropriate decision makers together on a timely basis and maintain a controlled environment to minimize operational risk.

The following provides an outline of the Investment related committees.

<u>Committee/Meeting</u>	<u>Purpose and Description</u>
Staff Investment Committees *	Approvals and Decisions
Broker Review	Monitor/Approve and Evaluate Brokers, Complete ORSC Reports
Counterparty Risk	Set Counterparty Limits and Monitor Counterparty Exposures
DC Funds Staff Investments Committee	Review/Monitor Defined Contribution Fund’s Investment Offerings and Performance
Fund Management	Implement Asset Allocation and Investment Strategies, Cash Forecasting, Fund and Portfolio Exposure Metrics, and Set Quarterly Fund Target Benchmark Allocations During Transition, Liquidity Management
Operational Risk Management	Identify and Monitor Operational Risks
Public Markets Committee	Recommend to hire or terminate External Managers and to open or close internally managed portfolios in relation to OPERS Investment Policies
Private Alternatives Committee	Review Private Equity/Real Estate Opportunities for CIO Approval

* Committee has charter and maintains minutes

POLICIES, COMMITTEES, AND RESOURCES

Staffing

Recruiting and retaining the best and most talented staff is a critical priority for the Investments Division. The following table shows the anticipated full staffing for 2025.

	Target Staffing for Year 2025					
	Office of the CIO	Fund Mgmt.	Risk Mgmt.	Internal Funds	External Funds	Total Invest. Division
2025 Investment Plan Projected Staffing	5	4	5	33	15	62
Current Staffing	5	4	5	33	12	59
Vacant Positions - To be filled in 2025	0	0	0	0	3	3
Year End 2025 Target Staffing	5	4	5	33	15	62

	Current Open and Budgeted Positions	
	Position	Vacant
Private Alternatives	Asst. Portfolio Manager - PE	1
External Management	Sr. Investment Analyst - EPM	1
External Management	Sr. Portfolio Manager - EPM	1
Total		3

Staffing Costs

Assuming full staffing levels in 2025, the chart below details the estimated \$23.93 million of salaries, benefits, and incentive compensation for the Investments Division. This represents approximately 2.04 basis points of cost, an increase of 0.10 basis points from the 2024 projection.

	Estimated 2025 Total Compensation Costs (\$ millions)				
	Office of the CIO	Internal Mgmt.	External Mgmt.	2025 Projected Total	2024 Projected Total
Salaries	\$2.27	\$7.28	\$2.37	\$11.92	\$11.28
Benefits	\$1.21	\$3.80	\$1.22	\$6.23	\$5.75
Incentive Compensation	\$1.28	\$3.48	\$1.03	\$5.79	\$4.62
Total Compensation	\$4.75	\$14.56	\$4.62	\$23.93	\$21.65
Average Assets (\$ billions)	\$117.46	\$60.99	\$56.47	\$117.46	\$111.55
Compensation (Basis Points)	0.40	2.39	0.82	2.04	1.94

Operating Budget

The Investments Division's 2025 operating budget (excluding compensation) is \$10.91 million. This operating budget reflects an increase of \$0.09 million, or 0.8% percent, from the 2024 budget and, as a percentage of assets, is 0.93 basis points as compared to 0.97 basis points in 2024. The decrease in bps is due to the increase in AUM.

	Operating Budget less Total Compensation (\$ millions)		
	Internal Mgmt.	External Mgmt.	Total Investments Division
2024 Operating Budget	\$7.76	\$3.06	\$10.82
2025 Operating Budget	\$7.76	\$3.15	\$10.91
Percent Change	0.0%	2.9%	0.8%
Percent of Total	71.1%	28.9%	100.0%
Average Assets (\$ billions)	\$60.99	\$56.47	\$117.46
Operating Budget (Basis Points)	1.27	0.56	0.93

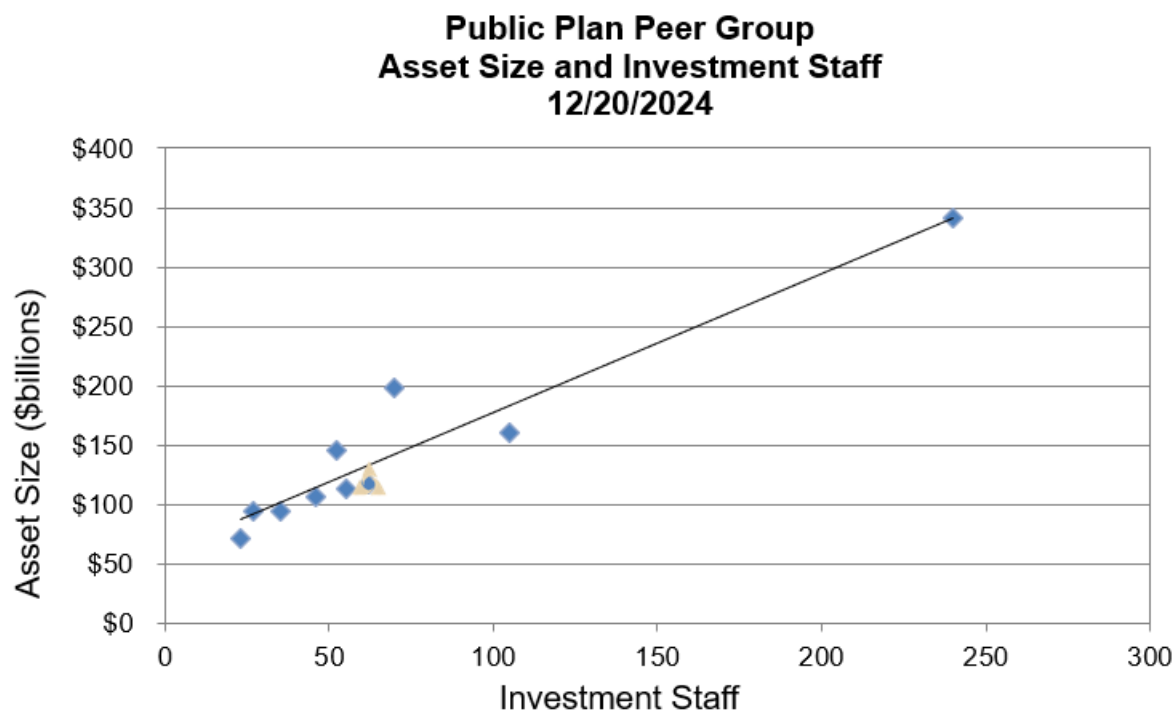
Total Costs

The total costs of the investment program in 2025 are projected to be \$529.2 million, or 45.0 basis points of assets under management. External management fees are projected to be \$493.2 million in 2025. In 2023 OPERS actual cost of 35.9 basis points (excluding performance fees) was below the CEM Peer benchmark median cost of 39.0 basis points. CEM Benchmarking, Inc. an independent firm that provides an assessment of pension plans, evaluates OPERS investment program relative to a group of comparatively sized peers. CEM Benchmarking excludes the incentive/performance fees for Private Equity and Real Estate in their peer group analysis.

	Estimated 2025 Total Costs (\$ millions)			
	Internal Mgmt.	External Mgmt.	Total Investments Division	% of Total
Total Compensation	19.3	4.6	23.9	4.5%
Operating Budget less Compensation	7.8	3.1	10.9	2.1%
Manager Fees		479.3	479.3	90.6%
Custody & Oversight	8.9	6.1	15.1	2.8%
Total Costs	36.0	493.2	529.2	100.0%
Percent of Total	0.1	0.9		
Average 2024 Asset Size (\$ Billions)	61.0	56.5	117.5	
Costs in Basis Points	5.9	87.3	NA	
Costs in Basis Points to Total Fund	NA	NA	45.0	

Peer Group Comparison

The following chart compares the OPERS asset size and Investment Staff to its peer group as of December 20, 2024.



The following table lists the public pension peer group referenced in the chart.

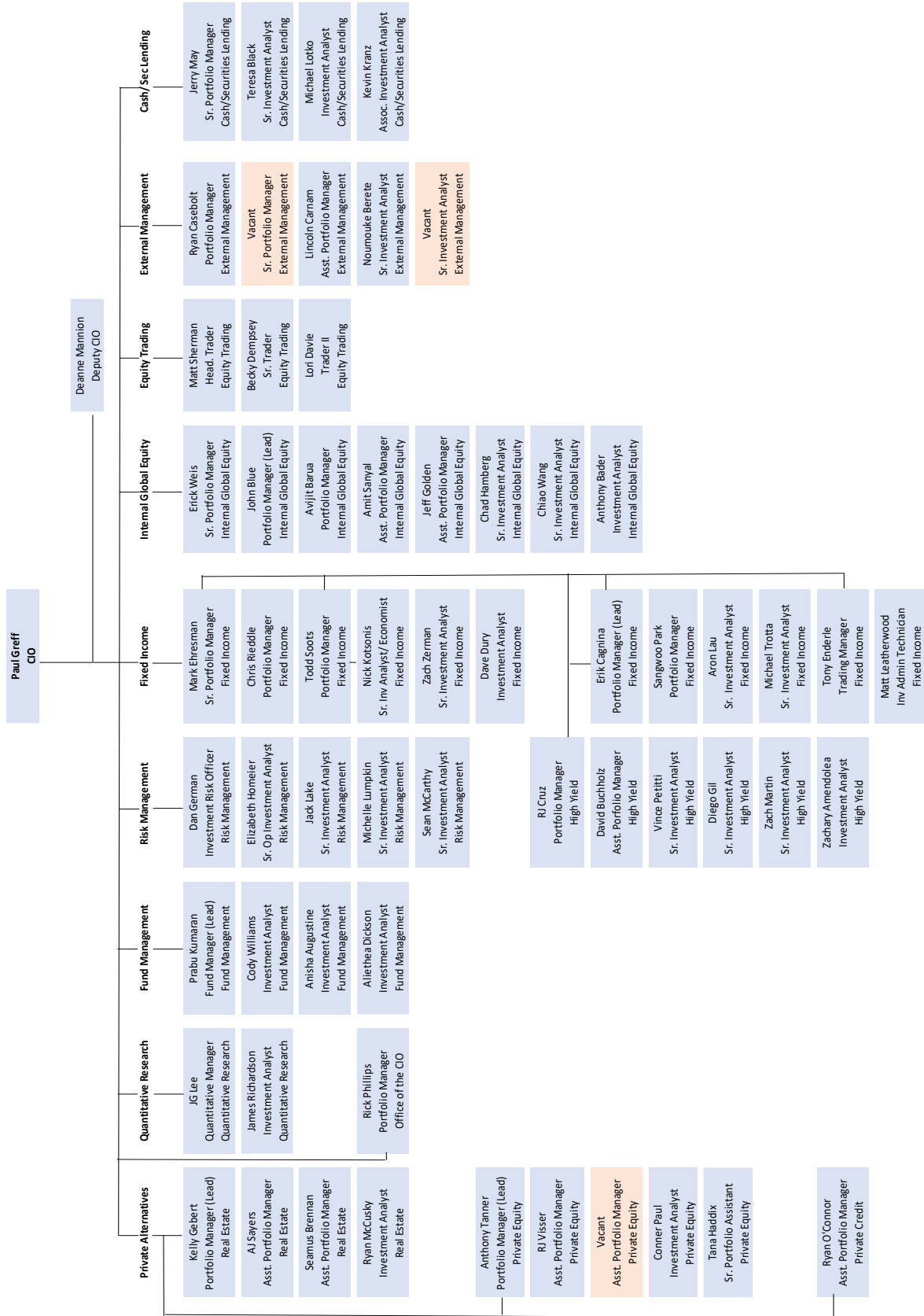
Public Plan Peer Group (as of 12/20/2024)			
Peers	Asset Size (\$ millions)	Investment Staff	Asset Size per Investment Staff
California State Teachers' Retirement System	\$341,400	240	\$1,423
State Board of Administration of Florida	\$198,200	82	\$2,417
State of Wisconsin Investment Board	\$160,200	105	\$1,526
New York State Teachers' Retirement System	\$145,500	52	\$2,798
Ohio Public Employees Retirement System	\$117,400	62	\$1,894
Virginia Retirement System	\$113,900	55	\$2,071
Michigan Retirement System	\$107,600	46	\$2,339
Oregon Public Employees' Retirement Fund	\$94,500	27	\$3,500
Minnesota State Board of Investments	\$93,700	35	\$2,677
Teachers' Retirement System of the State of Illinois	\$71,400	23	\$3,104
Average	\$144,380	73	\$2,375

Source: PFDE (Pension Fund Data Exchange), OPERS

*Staffing data sourced from PFDE is as of 12/20/2024

POLICIES, COMMITTEES, AND RESOURCES

Investments – Organizational Structure



As of 02/28/2025

Board Meeting VI.J



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

MEMORANDUM

DATE: March 10, 2025

TO: OPERS Retirement Board Members

FROM: Paul Greff, Chief Investment Officer
Prabu Kumaran, Fund Manager

RE: **VI. Action Items:**
J. Approve Investment Policies

Action requested: _____ moved, _____ seconded,
to approve the Investments Policy Changes, as recommended by Staff and Meketa.

Purpose

Investment Policies are a significant component of the OPERS Retirement Board's ("Board") governance and oversight of OPERS investment activities. Reviewing Investment Policies annually allows the Board to assess whether they are, individually and holistically, current, properly designed and constructed to perform the oversight and fiduciary duties required by Section 145.11 of the Ohio Revised Code. This memorandum is a summary review of proposed changes to OPERS Investments Governing Policies that authorize Staff in the implementation of the Board's asset allocation in 2025.

Background

In 2024, OPERS Board had adopted 29 Policies relating to investment governing activities. This memorandum discusses proposed changes to those Investment Policies and providing additional context and rationale for the requested changes and introducing a new Risk Mitigation Strategies (RMS) asset class policy. All such changes are highlighted in redlined copies of these Policies, which follow this memorandum in a separate booklet.

Issues

Key proposed changes to existing Policies are grouped by: (A) General Changes; (B) Fund Policy Changes; (C) Asset Class and Sub-Asset Class Policy Changes; and (D) other Investment Related Policies.

Next Steps

OPERS will provide a final version of the Policies to all Board members upon approval.

A. General Changes (editorial)

- For all policies, refreshed the review date as if March 19, 2025 with the scheduled annual policy review meeting.

B. Key Changes to Fund Policies

Investment Objectives and Asset Allocation Policies for Defined Benefit (“DB”) Fund and Health Care 115 Trust (“HC”) Fund

DB Fund Policy

The target allocations reflect the recently approved changes (Asset-Liability study recommendations) by the Board at the November 2024 meeting and reviewed their respective asset class target ranges. Benchmark Changes as presented at the March Meeting.

- Section VI. Asset Allocation
 - B. Targets and Ranges
 - Commodities sub-asset class split into two sub-categories, namely, Commodities-All and Gold into the allocation table.
 - Introduced a new asset class, called RMS, to the table and added three sub-asset classes, namely Long Treasuries, Trend Following, Alternative Risk Premia to the table
 - In setting ranges, principles section, included the recently approved Risk Mitigation Strategies Asset Class.
- Section VII. Performance Objectives
 - B. Asset Classes
 - Included the word “Corporate” to the High Yield Index name to mirror the actual benchmark name.
 - The Benchmark for the U.S. Treasury sub-asset class is modified to shorter term “Bloomberg U.S. Treasury 1-5 Year Index” with the creation of new long duration treasuries within RMS asset class.
 - The Benchmark for Commodities was modified to “Market value weight of underlying benchmarks**”, similar to Fixed Income or Public Equity.
 - With the introduction of two new sub-categories, namely, Commodities-All and Gold, we have introduced their respective benchmarks into the table (no change to benchmarks).
 - Updated Private Credit sub-asset class benchmark to S&P UBS Leveraged Loan Index to reflect the correct benchmark name.
 - With the approval of the new asset class, namely, Risk Mitigation Strategies, we have introduced the benchmark into the table.
 - With the termination of external Risk Parity mandate, the Benchmark for Risk Parity asset class was modified to S&P Risk Parity Total Return Index 10% Vol Target (USD) given the internal only mandate.
 - Removed Risk Parity and added Opportunistic and Risk Mitigation Strategies to benchmarks table footnote.

HC Fund Policy

The target allocations reflect the recently approved changes (Asset-Liability study recommendations) by the Board at the January 2025 meeting and reviewed their respective asset class target ranges. Benchmark Changes as presented at the March Meeting.

- Section VI. Asset Allocation
 - B. Targets and Ranges
 - Commodities sub-asset class split into two sub-categories, namely, Commodities-All and Gold into the allocation table.
 - Introduced a new asset class, called RMS, to the table and added three sub-asset classes, namely Long Treasuries, Trend Following, Alternative Risk Premia to the table
 - In setting ranges, principles section, included the recently approved Risk Mitigation Strategies Asset Class.
- Section VII. Performance Objectives
 - B. Asset Classes
 - Included the word “Corporate” to the High Yield Index name to mirror the actual benchmark name.
 - The Benchmark for the U.S. Treasury sub-asset class is modified to shorter term “Bloomberg U.S. Treasury 1-5 Year Index” with the creation of new long duration treasuries within RMS asset class.
 - The Benchmark for Commodities was modified to “Market value weight of underlying benchmarks**”, similar to Fixed Income or Public Equity.
 - With the introduction of two new sub-categories namely, Commodities-All and Gold we have introduced their respective benchmarks into the table (no change to benchmarks).
 - With the approval of the new asset class, namely, Risk Mitigation Strategies, we have introduced the benchmark into the table.
 - With the termination of external Risk Parity mandate, the Benchmark for Risk Parity asset class was modified to S&P Risk Parity Total Return Index 10% Vol Target (USD) given the internal only mandate.
 - Removed Risk Parity and added Opportunistic and Risk Mitigation Strategies to benchmarks table footnote.

DC Fund Policy

- Section V. Investment Options
 - A. Manager Selection
 - Added “s” to the end of State and removed the extra bracket after (ii)) correcting the typographical errors the policy language.
 - B. Standalone Funds and TDFs
 - Removed the comma after options and removed the word “Barclays” from benchmark name Bloomberg U.S. Aggregate to mirror the actual benchmark name.
- Section VII. Roles and Responsibilities
 - A. OPERS Members
 - Removed “s” from DC Plans to provide language clarity.

C. Key Changes to Asset Class and Sub-Asset Class Policies

Fixed Income Policy

- Section VIII. Risk Management
 - A. Active Risk
 - Updated the Core Fixed tracking error range upper bound to 200 from 150 to accommodate the transitions planned within the sub-asset class in 2025 and a prospectively active mandate going forward, given the reduction in size of Core mandate.
 - Included the word “Corporate” to the High Yield Index to mirror the actual benchmark name.
 - The Benchmark for the U.S. Treasury asset class is modified to “Bloomberg U.S. Treasury 1-5 Year Index” to shorten the duration with the creation of long duration treasuries within the RMS asset class.

Real Estate Policy

- Section VIII. Risk Management
 - 1. Property Type Risk
 - Reduced Office lower range bound from 15% to 5% to better match by OPERS actual allocations and newer granular data than broad categories of the Net NFI-ODCE plus 85 bps Real Estate benchmark.
 - 2. Investment Profile Risk
 - Updated language to provide better clarification on Core and Non-Core investments and what mitigates risk for Core investments.
 - Updated language on Closed-End Funds to provide a more granular approach to measure Core investments with two rules: Loan to Value and percentage of fund commitments for development assets.
 - Removed language from Separate Accounts to provide more clarity based on consultant’s recommendations.

Private Credit Policy

- Section VII. Performance Objectives
 - Updated the benchmark name to S&P UBS Leverage Loan Index removing references of Credit Suisse.
- Section VIII. Risk Management
 - C. Single Investment Risk
 - Increased the co-investment limit up from \$200 million to \$250 million with the target allocation moving up to 4% for DB Fund.
 - H. Geographic Risk
 - Removed the deployment clause because it is no longer needed as the implementation is in progress.

Risk Parity

- Updated Table of Contents and removed all reference language related to external managers. The current Risk Parity mandate is internally managed, and the policy reflects the internal mandate only.

Risk Mitigation Strategies

- A new Risk Mitigation Strategies asset class policy is being introduced along with the sub-asset class benchmarks.

Commodities Policy

- Section VI. Performance Objectives
 - Introduced sub-categories within the Commodities sub-asset class, namely Commodities-All and Gold.

D. Other Investment Related Policies

Cash Policy

- Section VIII. Risk Management
 - A. Interest Rate Risk
 - Updated language to provide better clarity beyond the reporting duties for structured securities extending their average weighted life 3-year limit.
 - B. Credit Risk
 - Updated language to clarify all securities purchased will be investment-grade securities, including those guaranteed by an investment-grade credit counterparty.
 - Updated language to provide better clarity on reporting duties and handling of securities that drop below investment grade rating.

Broker Dealer Policy

- Section VI. Selection, Evaluation, and Documentation
 - B. Broker-Dealer Selection
 - Expanded qualitative criteria to include Operational readiness and legal agreements.

Derivatives Policy

- Section VIII. Risk Management
 - F. Liability/Recourse Risk
 - Added Private Credit sub-asset class to the liability/recourse risk section.
 - G. Legal and Regulatory Risk
 - Added additional language to address the coverage of any additional legal and regulatory requirements.

Leverage Policy

- Section V. Sources of Leverage
 - Updated the Potential Leverage Source chart to include new asset class RMS.
- Section VIII. Risk Management
 - A. Volatility Risk
 - Increased the leverage limit for Core Fixed from 1.20 to 1.30. This increase will better accommodate a more active internal mandate.
 - Introduced leverage limits for the new asset class, Risk Mitigation Strategies in the table.
 - C. Liability/Recourse Risk

- Added Private Credit sub-asset class to the liability/recourse risk section.
- Added clarifying language for portfolios in which leverage exceeds 3.0 times.

Liquidity Policy

- Updated Table of Contents
- Section V. Sources of Liquidity Risk
 - A. Assets
 - 4. Risk Mitigation Strategies
 - Added language for the new asset class, Risk Mitigation Strategies to explain the role of liquidity within the asset and sub-asset class.
 - B. Liabilities
 - 2. Capital Commitments
 - Enhanced the policy language and added private credit sub-asset class to the listing.
 - C. Contingency Liquidity Plan
 - Added long and short duration treasury portfolios to provide more clarification in explaining the contingency liquidity.

Corporate Governance Policy & Proxy Voting Guidelines

Changes to the document were made to the following sections to address grammar and clarify the scope of Staff's audits.

- Sections I. Scope
 - Updated "support" to "supports"
- Sections III. Philosophy
 - Added a "," after leadership.
- Section VI. Monitoring and Reporting
 - Updated language to clarify scope of staff's audits.
- Section X. Proxy Voting Core Categories
 - A. Board of Directors
 - Capitalized "S" in "System" for consistency.
 - Board Structure Principles
 - Spelled out the number three.
 - C. Governance Risks
 - Removed "the" from OPERS.

List of Policies (with no changes) - #15

Benchmarks	Private Equity
External Investment Managers Insurance	Public Equity
Iran Sudan Divestment	REITs
MNPI	Responsible Contractor
Office of Foreign Assets Control	Russia Divestment
Ohio Qualified & Minority Manager	Securities Lending
Opportunistic	Soft Dollar
Personal Trading	

MEMORANDUM

TO: OPERS Board of Retirement
FROM: Meketa Investment Group (Meketa)
DATE: March 19, 2025
RE: Investment Policy Review

Meketa has reviewed the redlined changes to the Investment Policy Statements for the Defined Benefit Plan, the Defined Contribution Plan, and the Health Care Fund. A summary of the changes are reflected below.

- Modifications to the policy targets and ranges for both funds that reflect the new Board approved asset allocation.
- Inclusion of Risk Mitigating Strategies ("RMS") as a new asset class.
- Updated asset class benchmarks.
- Changes to the Risk Management section for Private Real Estate, which reflects Meketa's recommended definitions of core and non-core real estate, and potential deviations from target allocations.
- Increased the co-investment limit from \$200 million to \$250 million.
- Updates to the Risk Parity Policy.
- Updates to the Proxy Voting Policy.

Meketa believes these edits are reasonable, and the Board should consider adopting the updated Investment Policy Statements.

AWS/DS/mm

Approve Investment Policies

[Including Corporate Governance]

Prabu Kumaran
Fund Manager

March 19, 2025

188/694



INVESTMENT POLICY - EDITS

- **RED** edits are changes requested to Policy.
- **GREEN** edits are sections which have been moved within the Policies.

INVESTMENT GOVERNING POLICIES

FUND POLICIES

DEFINED BENEFIT FUND

Investment Objectives and
Asset Allocation Policy

HEALTH CARE FUND

Investment Objectives and
Asset Allocation Policy

DEFINED CONTRIBUTION FUND

Defined Contribution Fund Policy*

ASSET/SUB-ASSET CLASS POLICIES

- Public Equity
- Fixed Income
- Private Equity
- Real Estate
- Private Credit
- Cash
- Commodities
- Opportunistic
- Risk Parity
- REITs
- **Risk Mitigation Strategies**

INVESTMENT-WIDE POLICIES

- Benchmarks
- Broker–Dealer
- Corporate Governance
- Derivatives
- External Investment Managers’ Insurance
- Iran & Sudan Divestment
- Leverage
- Liquidity
- Material Non-Public Information
- Ohio-Qualified & Minority-Owned Manager
- OFAC Policy
- Personal Trading
- Responsible Contractor Policy
- Russia Divestment
- Securities Lending Policy
- Soft Dollar Policy

INVESTMENT GOVERNING POLICIES

DEFINED BENEFIT FUND

Investment Objectives and
Asset Allocation Policy

HEALTH CARE FUND

Investment Objectives and
Asset Allocation Policy

DEFINED CONTRIBUTION FUND

Defined Contribution Fund
Policy *

DB FUND POLICY

- The target allocation changes reflect the Board approved changes at the November 2024 meeting (Asset Liability study - Allocation changes recommendation).

Section VI: Asset Allocation

B. Targets and Ranges

Target allocation table is updated to reflect the new targets and ranges.

Asset Class	Target Allocation	Range
Public Equity	<u>40</u>41%	<u>32</u>33 to <u>48</u>49%
U.S. Equity	<u>20</u> 24	+/- 5%
Non-U.S. Equity	20	+/- 5%
Fixed Income	<u>15</u>24%	<u>11</u>17 to <u>20</u>34%
Core Fixed	<u>5</u> 9	<u>3</u> 6 to <u>8</u> 12
Investment Grade Credit	<u>2</u> 3	0 to 5
Emerging Markets Debt	1	0 to 5
Securitized Debt	1	0 to 5
TIPS	<u>2</u> 3	0 to 5
High Yield	<u>2</u> 4	0 to 6
U.S. Treasury	<u>2</u> 3	0 to 5
Alternatives	<u>34</u>33%	<u>24</u>23 to <u>44</u>43%
Private Equity	15	10 to 20
Real Estate	12	7 to 17
REITs	1	0 to 5
Hedge Funds	0	0 to 1
Opportunistic	<u>0</u> 2	0 to <u>2</u> 5
Commodities	2	0 to 5
Commodities-All	<u>1</u>	<u>0</u> to <u>5</u>
Gold	<u>1</u>	<u>0</u> to <u>5</u>
Private Credit	<u>4</u> 4	0 to <u>8</u> 5
Risk Mitigation Strategies	<u>10</u>%	<u>0</u> to <u>15</u>%
Long Duration U.S. Treasury	<u>3</u> .4	<u>0</u> to <u>5</u>
Trend Following	<u>3</u> .3	<u>0</u> to <u>5</u>
Alternative Risk Premia	<u>3</u> .3	<u>0</u> to <u>5</u>
Risk Parity	<u>12</u>%	0 to 5%
Operating Cash	0%	0 to 5%
Total	100%	

DB FUND POLICY

- The target allocation changes reflect the Board approved changes at the November 2024 meeting (Asset Liability study - Allocation changes recommendation).

Section VI: Asset Allocation

• B. Targets and Ranges

New Language to introduce the Risk Mitigation Strategies asset class and establishing/defining target range.

- The Ranges for the Risk Mitigation Strategies Asset Class allocations are given wider ranges to reflect the dominant influence of public market fluctuations on their proportion.

DB FUND POLICY

Section VII: Performance Objectives

• B. Asset Classes

- Adding the word “Corporate” in High Yield index name
- Incorporating the new benchmarks proposed at March meeting for U.S. Treasury & RMS
- Renaming the Private Credit to S&P UBS leveraged loan index
- Introducing existing benchmark for Gold
- Modifying the Risk Parity to S&P Risk Parity Total Return Index 10% Vol Target

Asset Class	Benchmark Index
Public Equity	
U.S. Equity	Russell 3000 Index
Non-U.S. Equity	Custom benchmark of the following indices: ■ 55% MSCI World Index ex U.S. Standard ■ 10% MSCI World Index ex U.S. Small Cap ■ 31% MSCI Emerging Markets Standard ■ 4% MSCI Emerging Markets Small Cap
Fixed Income	Custom benchmark based on the target weights of the underlying sub-asset class allocations
Core Fixed	Bloomberg U.S. Aggregate Index
Investment Grade Credit	Bloomberg U.S. Corporate Bond Index
Emerging Markets Debt	Custom benchmark of the following indices: ■ 50% JP Morgan Emerging Markets Bond Index Global ■ 50% JP Morgan Government Bond Index-Emerging Markets Global Diversified
Securitized Debt	Custom benchmark of the following indices: ■ 50% Bloomberg Non-Agency Investment Grade CMBS: BBB Total Return Index Unhedged USD ■ 50% Bloomberg Non-Agency CMBS Agg Eligible Total Return Index Value Unhedged USD
TIPS	Bloomberg U.S. TIPS Index
High Yield	Bloomberg U.S. <u>Corporate</u> High Yield Index
U.S. Treasury	Bloomberg U.S. Treasury <u>1-5 Year</u> Index
Alternatives	
Private Equity	State Street Private Equity Index (“SSPEI”)
Real Estate	Net NFI-ODCE plus 85 basis points
REITs	Dow Jones U.S. Select Real Estate Securities
Hedge Funds	Custom benchmark using the HFRI single strategy indices weighted by the target allocations listed in the <u>-Annual Investment Plan AIP</u>
Opportunistic	Market value weight of underlying portfolio benchmarks**
Commodities	<u>Market value weight of underlying benchmarks</u>
<u>Commodities-All</u>	<u>Bloomberg Commodity Index</u>
<u>Gold</u>	<u>Bloomberg Gold Subindex Total Return</u>
Private Credit	<u>S&P UBS Credit Suisse Leveraged Loan Index</u>
Risk Mitigation Strategies	<u>Custom benchmark based on the target weights of the underlying sub-asset class allocations</u> **
Risk Parity	<u>S&P Risk Parity Total Return Index 10% Vol Target (USD)</u> <u>Market value weight of underlying benchmarks**</u>
DB Fund	Custom Defined Benefit Benchmark* *Policy weight (reset quarterly) of underlying asset/sub asset class benchmarks ** Please refer to <u>Opportunistic and Risk Mitigation Strategies Risk Parity policies</u> for the underlying benchmarks

HC FUND POLICY

- The target allocation changes reflect the Board approved changes at the January 2025 meeting (Asset Liability study - Allocation changes recommendation).

Section VI: Asset Allocation

B. Targets and Ranges

Target allocation table is updated to reflect the new targets and ranges.

Asset Class	Target Allocation	Range
Public Equity	4550%	3640 to 5460%
U.S. Equity	2225	+/- 5%
Non-U.S. Equity	2325	+/- 5%
Fixed Income	37%	26 to 48%
Core Fixed	1546	1044 to 1924
Investment Grade Credit	3.53	0 to 5
Emerging Markets Debt	1.54	0 to 5
Securitized Debt	43	0 to 65
TIPS	47	0 to 69
High Yield	75	0 to 108
U.S. Treasury	2	0 to 5
Alternatives	540%	37 to 820%
REITs	25	0 to 58
Hedge Funds	0	0 to 1
Opportunistic	02	0 to 25
Commodities	3	0 to 5
Commodities-All	2	0 to 5
Gold	1	0 to 5
Risk Mitigation Strategies	10%	0 to 15%
Long Duration U.S. Treasury	3.4	0 to 5
Trend Following	3.3	0 to 5
Alternative Risk Premia	3.3	0 to 5
Risk Parity	3%	0 to 5%
Operating Cash	0%	0 to 5%
Total	100%	

HC FUND POLICY

- The target allocation changes reflect the Board approved changes at the January 2025 meeting (Asset Liability study - Allocation changes recommendation).

Section VI: Asset Allocation

• **B. Targets and Ranges**

New Language to introduce the Risk Mitigation Strategies asset class and establishing/defining target range.

- The Ranges for the Risk Mitigation Strategies Asset Class allocations are given wider ranges to reflect the dominant influence of public market fluctuations on their proportion.

HC FUND POLICY

Section VII: Performance Objectives

• B. Asset Classes

- Adding the word “Corporate” in High Yield index name
- Incorporating the new benchmarks proposed at March meeting for U.S. Treasury & RMS
- Introducing existing benchmark for Gold
- Modifying the Risk Parity to S&P Risk Parity Total Return Index 10% Vol Target

Asset Class	Benchmark Index
<i>Public Equity</i>	
U.S. Equity	Russell 3000 Index
Non-U.S. Equity	Custom benchmark of the following indices: ■ 55% MSCI World Index ex U.S. Standard ■ 10% MSCI World Index ex U.S. Small Cap ■ 31% MSCI Emerging Markets Standard ■ 4% MSCI Emerging Markets Small Cap
<i>Fixed Income</i>	
Core Fixed	Custom benchmark based on the target weights of the underlying sub-asset class allocations
Investment Grade Credit	Bloomberg U.S. Aggregate Index
Emerging Markets Debt	Bloomberg U.S. Corporate Bond Index
	Custom benchmark of the following indices: ■ 50% JP Morgan Emerging Markets Bond Index Global ■ 50% JP Morgan Government Bond Index-Emerging Markets Global Diversified
Securitized Debt	Custom benchmark of the following indices: ■ 50% Bloomberg Non-Agency Investment Grade CMBS: BBB Total Return Index Unhedged USD ■ 50% Bloomberg Non-Agency CMBS Agg Eligible Total Return Index Value Unhedged USD
TIPS	Bloomberg U.S. TIPS Index
High Yield	Bloomberg U.S. <u>Corporate</u> High Yield Index
U.S. Treasury	Bloomberg U.S. Treasury <u>1-5 Year</u> Index
<i>Alternatives</i>	
REITs	Dow Jones U.S. Select Real Estate Securities Index Total Return
Hedge Funds	Custom benchmark using the HFRI single strategy indices weighted by the target allocations listed in the <u>AIP/Annual Investment Plan</u>
Opportunistic	Market value weight of underlying portfolio benchmarks**
Commodities	<u>Market value weight of underlying benchmarks Bloomberg Commodity Index</u>
<u>Commodities-All</u>	<u>Bloomberg Commodity Index</u>
<u>Gold</u>	<u>Bloomberg Gold Subindex Total Return</u>
<u>Risk Mitigation Strategies</u>	<u>Custom benchmark based on the target weights of the underlying sub-asset class allocations**</u>
<u>Risk Parity</u>	<u>S&P Risk Parity Total Return Index 10% Vol Target (USD)Market value weight of underlying benchmarks**.</u>
HC Fund	Custom Health Care 115 Benchmark*

*Policy weight (reset quarterly) of underlying asset/sub asset class benchmarks

** Please refer to OpportunisticRisk Parity and Risk Mitigation Strategies policies for the underlying benchmarks

Section V: Investment Options

- **A. Manager Selection**
 - Updated the section to correct typographical errors.

A. Manager Selection

OPERS offers passively managed and actively managed strategies utilizing external, professional Asset Managers (“Managers”), selected by Staff, based on their proven record of managing such funds and the competitiveness of the fees they charge.

All Managers exercising investment discretion must be (i) registered with the United States Securities and Exchange Commission or with a similar regulator if they are domiciled outside the United States or (ii) a bank regulated by a United States regulatory body.

DC POLICY

Section V: Investment Options

- **B. Standalone Funds and TDFs**
 - Removing the word Barclays from the Core Fixed Income benchmark name.

Asset Class	Benchmark Index
U.S. Equity All Cap	Russell 3000 Index
U.S. Equity Large Cap	Russell 1000 Index
U.S. Equity Small Cap	Russell 2000 Index
U.S. Equity Small-Mid Cap	Russell 2500 Index
International Equity	MSCI ACWI Net Dividend Return ex U.S.
Core Fixed Income	Bloomberg ~~Barclays~~ -U.S. Aggregate
Stable Value	ICE BofA US 3M Trsy Bill TR USD
Target Date Funds	Market value weight of underlying asset class benchmarks

Section VII: Roles and Responsibilities

- **B. OPERS members**
 - OPERS have one DC Plan and removing the letter “s”.

A. OPERS Members

Members are responsible for determining in which OPERS retirement plan they will participate. Members who elect the DC Plan~~s~~ are responsible for selecting their own Investment Option or Options, monitoring their asset allocation

ASSET/SUB-ASSET CLASS POLICIES

Asset Class

- Public Equity Policy
- Fixed Income Policy
- Alternatives
- Risk Parity Policy
- **Risk Mitigation Strategies**

Sub-Asset Class

- Cash Policy
- Commodities Policy
- Opportunistic Policy
- Private Equity Policy
- Real Estate Policy
- Private Credit Policy
- REITs Policy

Fixed Income

Section VII: Risk Management

- **B. Active Risk**
 - Reflecting the new benchmark for U.S. Treasury and updating the name for High Yield sub-asset class.
 - Requesting a small increase to Core Fixed sub-asset class to manage transition and pursue an active mandate with reduction in size of internally managed portfolio.

Sub-Asset Class	Benchmark	Tracking Error Range (in basis points)
Core Fixed	Bloomberg U.S. Aggregate Index	0- ~~200~~ <u>150</u>
Investment Grade Credit	Bloomberg U.S. Corporate Bond Index	0-150
Emerging Markets Debt	Custom benchmark of the following indices: ■ 50% JP Morgan Emerging Markets Bond Index Global ■ 50% JP Morgan Government Bond Index-Emerging Markets Global Diversified	0-800
Securitized Debt	Custom benchmark of the following indices: ■ 50% Bloomberg Non-Agency Investment Grade CMBS: BBB Total Return Index Unhedged USD ■ 50% Bloomberg Non-Agency CMBS Agg Eligible Total Return Index Value Unhedged USD	0-400
TIPS	Bloomberg U.S. TIPS Index	0-50
High Yield	Bloomberg U.S. <u>Corporate</u> High Yield Index	0-700
U.S. Treasury	Bloomberg U.S. Treasury <u>1-5 Year</u> Index	0-50

PRIVATE REAL ESTATE

Section VIII: Risk Management

- Property Type Risk: Staff is requesting to change lower bound for Office range.

Property Type	Range
Residential	10-50%
Industrial	5-50%
Office	~~5-15~~ 40%
Retail	0-35%
Hotel/Leisure	0-30%
Diversified	0-20%
Infrastructure	0-25%
Other**	0-35%

** May include cash held by the managers and property types classified as Education, Healthcare, and Land

PRIVATE REAL ESTATE

Section VIII: Risk Management

- Investment Profile Risk: Modifying the language to enhance the qualitative contents of section.

2. Investment Profile Risk

The “Risk Profile” of real estate investments can generally be classified as either Core or Non-Core. ~~Real Estate investments can generally be classified into two life cycle risks, Core and Non-Core.~~ OPERS will make allocations to both Core and Non-Core investments to maximize the total return to OPERS while mitigating risk.

As a moderate risk investor, OPERS’ allocation will be primarily weighted toward Core investments. Over the long term, OPERS will maintain a 60% Core target for the private markets Real Estate portfolio, within a range of +/- 10 percentage points. ~~From time to time, the actual allocation of the portfolio may fall outside the ranges due to external market events. In these instances, OPERS will implement strategies to return the portfolio to the recommended ranges over a reasonable time frame, while considering the need to preserve investment returns.~~

PRIVATE REAL ESTATE

Section VIII: Risk Management

- Investment Profile Risk: Modifying the language to use a granular approach to categorize the investments into Core and Non-Core.

Investments will be defined as either Core or Non-Core based on the ~~channel as defined following criteria below:~~

- Open-End Funds
Investments in this channel will be considered Core investments.
- Closed-End Funds
Investments in Closed-End ~~equity Funds where no more than 40% of the fund is committed to development will be considered Core, per the guidelines. Investments in Closed End debt funds and Secondaries funds will all be considered Core. will be considered Core when the following criteria are met:~~
 - The Fund utilizes leverage that equates to a loan-to-value of 50% or less
 - Less than 30% of the aggregate Fund commitments are committed to ground-up development.
- Separate Accounts
Investments made by Separate Account ~~to acquire a property~~ will be considered Core ~~if~~ when the property-level occupancy is 80% or higher (60% for hotels) and the loan-to-value is 60% or lower. Separate Account debt investments will all be considered Core.

PRIVATE CREDIT

Section VII: Performance Objectives

- Renaming the benchmark name from Credit Suisse to S&P UBS Leveraged Loan Index.

VII. PERFORMANCE OBJECTIVES

OPERS' Private Credit performance is benchmarked against the total return of the ~~Credit Suisse~~ S&P UBS Leveraged Loan Index.

Section VIII: Risk Management

- C. Single Investment Risk: Requesting for an increased limit to co-investment vehicle commitment from \$200 to \$250 million.
- H. Geographic Risk: Removing a section that is longer applicable.

C. Single Investment Risk

OPERS does not want the failure of a single fund investment to have a severe impact on the performance of the Private Credit sub-asset class. The following limitations will be applied to moderate the impact of a single commitment/investment:

- For commingled vehicles, OPERS will limit its commitment amount to any single commingled fund to \$500 million.
- For Fund of One investments, OPERS will limit its commitment to \$800 million.
- For co-investment vehicles, OPERS will limit its commitment to ~~\$200~~ \$250 million.

~~Given the longer deployment periods required for the Private Credit sub-asset class, it may take up to 18 months from the start of the program to achieve the geographic allocation range.~~

RISK PARITY

- All the edits in the Risk Parity Policy, to remove the external management / manager references.
- The Asset class benchmark would be S&P Risk Parity Total Return Index 10% Vol Target (USD).

RISK MITIGATION STRATEGIES

- Introducing a new Asset class policy with three sub-asset classes and their respective benchmarks.

Sub-Asset Classes	Benchmark
Long Duration U.S. Treasury	Bloomberg U.S. Treasury 20+ Year Total Return Index
Trend Following	Market-value weighted composite of the portfolio returns
Alternative Risk Premia	Market-value weighted composite of the portfolio returns

- Long Duration U.S. Treasury will be managed internally by Staff.
- Trend Following and Alternative Risk Premia will be built using both internal and external mandates. The policy has specific coverage and sections to address external mandate related risks namely, Third Party Marketing, Manager Risk and Legal Risk.
- During the initial transition and build up phase (2025-26), Staff has assigned a higher manager limit of 50% to address the single manager risk.

COMMODITIES

Section VI: Performance Objectives

- Modifying the section to introduce a new sub-category “Gold” and renaming the existing Commodities to “Commodities-All”.
- The below table also reflects their designated benchmarks.

VI. PERFORMANCE OBJECTIVES

The benchmark for the sub-categories are listed below~~aggregate commodity portfolio is the Bloomberg Commodity Total Return Index~~. Sub-portfolios categories may be assigned different benchmarks and shall be detailed in manager portfolio guidelines. The Annual Investment Plan, which is approved by the OPERS Retirement Board, shall include the expected outperformance.

<u>Categories</u>	<u>Benchmark</u>	<u>Mandate</u>
<u>Commodities - All</u>	<u>Bloomberg Commodity Index</u>	<u>Active</u>
<u>Gold</u>	<u>Bloomberg Gold Subindex Total Return</u>	<u>Index</u>

Section VII: Risk Management

- Modifying the section to clarify the word “addressed” and exceptions are handled within the cash portfolios.

A. Interest Rate Risk

The duration constraint is the primary risk-mitigating factor in controlling interest rate risk. The weighted-average-maturity-to-reset-date for the cash portfolios will have a maximum limit of 120 days, while the weighted-average-maturity-to-final-maturity-date will have a maximum limit of 1.3 years. The maximum maturity or weighted average life of any security in a portfolio will be 3 years or less at time of purchase. If structured securities should extend their weighted average life past the 3-year limit, they will be addressed-noted and reported to management within a maximum of 90 days. Guidelines for each portfolio will include a specific duration constraint for that portfolio.

B. Credit Risk

Credit risk is mitigated in the portfolios through credit research and following guidelines that dictate permitted ratings for securities, aggregate exposure to various credit tiers and maximum exposure limits for individual securities.

Excluding repurchase agreements, all securities in the portfolios will be investment grade, or guaranteed by an investment grade credit counterparty at time of purchase and any securities that are subsequently downgraded below investment grade will be addressed-noted and reported to management within a 90-day period. The guidelines for each portfolio shall address minimum specific rating criteria. The cash portfolios shall only hold securities that are rated by an NRSRO or guaranteed by a party that is rated investment grade by an NRSRO.

INVESTMENT-WIDE POLICIES

- Benchmarks
- Broker-Dealer
- Corporate Governance
- Derivatives
- External Investment Managers' Insurance
- Iran & Sudan Divestment
- Leverage
- Liquidity

- Material Non-Public Information
- Ohio-Qualified & Minority-Owned Manager
- OFAC
- Personal Trading
- Responsible Contractor
- Russia Divestment
- Securities Lending
- Soft Dollar Policy

BROKER DEALER

Section VI: Selection, Evaluation and Documentation

- Adding few additional qualitative criteria for Broker-Dealer selection.

B. Broker-Dealer Selection

Staff will maintain procedures for determining which broker-dealers will be selected for use in specific purchase or sale transactions in order to obtain Best Execution. These procedures will determine which broker-dealers are selected and will evaluate qualitative criteria including, but not limited to:

- Trading capabilities, including execution speed and ability to provide liquidity
- Commissions and/or fees both in aggregate and on a per share basis
- Use of technology and other special services
- Responsiveness, reliability and integrity
- Nature and value of research provided
- Operational readiness
- Legal agreements

DERIVATIVES

Section VIII: Risk Management

- **H. Liability/Recourse Risk:**
 - Adding Private Credit sub-asset class to the section.
- **G. Legal and regulatory Risk**
 - Enhancing language to accommodate internal mandates/ strategies that can be executed through other legally required agreements

- When it is determined that the total potential losses in an investment, including losses caused by investments in derivatives, should be limited to the amount of assets initially invested or committed, OPERS shall endeavor to utilize a limited liability structure for such investment, such as a limited liability partnership or a limited liability company, with terms designed to limit the total potential loss for such investment to the amount initially invested or committed by OPERS. This includes all assets within the Private Equity, Private Market Real Estate, Private Credit and Risk Parity Asset and Sub-Asset classes. Operating documents, which include partnership agreements, subscription agreements, portfolio guidelines, and similar documents, govern the usage of derivatives in these investments.

G. Legal and Regulatory Risk

Legal risk is the risk of inadequate or deficient legal documentation. Appropriate enabling documentation is required.

- For internally managed portfolios, Category III derivatives must be executed pursuant to ISDA Master Agreements and other legally required agreements with approved counterparties. Usage of “long-form” trade confirmations must be approved by the CIO.

LEVERAGE

Section V: Source of Leverage

- Adding Risk Mitigation Strategies Asset Class into the table

Asset Class / Sub-Asset Class	Potential Leverage Sources			
	Derivatives*	Short selling	Collateral reinvestment	Borrowing
<i>Public Equity</i>				
U.S. Equity	X			
Non-U.S. Equity	X			
<i>Fixed Income</i>				
Core Fixed	X			
Investment Grade Credit	X			
Emerging Markets Debt	X			
Securitized Debt	X			
TIPS				
High Yield	X			
U.S. Treasury	X			
<i>Alternatives</i>				
Private Equity	X			X
Real Estate	X			X
REITs	X			
Opportunistic	X			
Commodities	X			
Private Credit	X			X
<i>Risk Parity</i>	X		X	
<i><u>Risk Mitigation Strategies</u></i>				
<u>Long Duration Treasury</u>	X			
<u>Trend Following</u>	X	X	X	
<u>Alternative Risk Premia</u>	X	X	X	

LEVERAGE

Section VI: Risk Management

- A. Volatility Risk – introducing new leverage limits for Risk Mitigation strategies (10x) and modifying the Core-Fixed to 1.3x from 1.2x

Leverage Limit	
<i>Public Equity</i>	
U.S.	1.20
Non-U.S.	1.05
<i>Fixed Income</i>	
Core Fixed	~~1.20~~ 1.30
Investment Grade Credit	1.20
Emerging Markets Debt	1.10
Securitized Debt	1.45
High Yield	1.20
U.S. Treasury	1.10
<i>Alternatives</i>	
Private Equity ¹	N/A
Real Estate	60% (Loan to Value)
REITs	1.05
Opportunistic	
Internally Managed	3.00
Externally Managed	9.00
Commodities	1.20
Private Credit	3.00
<i>Risk Parity</i>	6.00
<i>Risk Mitigation Strategies</i>	10.00
Activities²	
<i>Rebalancing³</i>	1.05
<i>Tactical Asset Allocation³</i>	1.05
<i>Securities Lending</i> 214/694	1.30

LEVERAGE

Section VI: Risk Management

- C. Liability/Recourse Risk –
 - Adding Private Credit sub-asset class to the liability/recourse section.
 - Introducing new language to address or handle strategies that use higher leverage (>3.0x) within separate accounts.

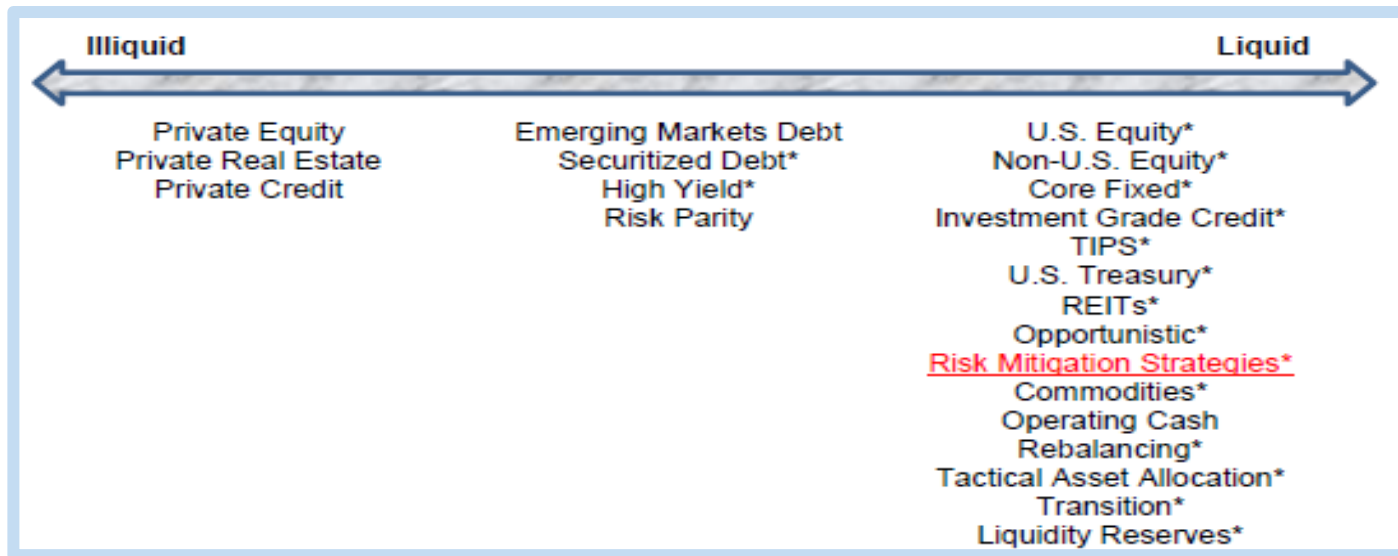
■ For investments in Private Equity, Private Credit and Private Market Real Estate, Staff shall endeavor to utilize a limited liability structure such as a limited partnership or a limited liability company, with terms designed to limit the total potential loss, including losses caused by derivatives, to the amount initially invested or committed by OPERS.

For all other portfolios in which leverage exceeds 3.0 times, Staff shall endeavor to utilize a ~~limited liability~~ structure and/or terms that limit liability, such as a limited partnership or a limited liability company, with terms designed to limit the total potential loss, including losses caused by derivatives, to the amount initially invested or committed by OPERS.

LIQUIDITY

Section V: Sources of Liquidity Risk

- B. Assets –
 - Adding Risk Mitigation Strategies into the liquidity spectrum chart.



LIQUIDITY

Section VI: Risk Management

- A. Assets –
 - Adding a text related to the new Risk Mitigation Strategies Asset Class.

4. Risk Mitigation Strategies

Long Duration U.S. Treasury portfolios are used at the Asset Class and sub-Asset Class level to manage liquidity and to facilitate both benefit payments and rebalancing.

Trend Following and Alternative Risk Premia portfolios may utilize derivative instruments to take advantage of market dislocations. It can be used at the Asset Class and sub-Asset Class liquidity and to facilitate both internally and externally managed portfolio rebalancing.

LIQUIDITY

Section VI: Risk Management

- B. Liabilities –
 - Introducing Private Credit sub-asset class and minor edits to section

Private equity, private credit and private real estate investments sometimes require the commitment of a ~~pool~~ capital pool which is then drawn, or funded, over time as needed (i.e., as investments are made). This unused (and unfunded) portion of capital, referred to as committed capital, represents a form of liability. At the time the manager calls for capital, the Funds must be prepared to provide cash to satisfy the call. The contingent liquidity requirements of private market capital commitments are closely monitored and managed accordingly.

LIQUIDITY

Section VI: Risk Management

- B. Liabilities –
 - Introducing the short and long duration U.S. Treasuries into the contingent liquidity plan section.

C. Contingency Liquidity Plan

During a liquidity event, the CIO, working with the Board's Consultant and with subsequent notification to the Board, may utilize contingency liquidity actions to satisfy the Funds' liquidity needs.

In addition to assets held in the liquid reserves and rebalancing portfolios, liquid fixed income assets are held, in part, for liquidity management purposes and may be utilized to satisfy the Funds' liquidity needs. Specifically, Treasury securities are held in the following allocations and may be accessed as needed:

- U.S. Treasury (short and long duration portfolios)
- U.S. TIPS
- Core Fixed

CORPORATE GOVERNANCE POLICY & PROXY VOTING GUIDELINES

Section VI: Monitoring and Reporting

- Addressed grammar on the following sections – Scope, Philosophy

I. SCOPE

The OPERS Corporate Governance Policy & Guidelines (Policy & Guidelines) apply to all internally and externally managed public market portfolios over which OPERS retains proxy voting rights and supports OPERS' investment objective to provide secure retirement benefits for its members.

III. PHILOSOPHY

Effective corporate governance, including prudent proxy voting and good faith engagement with companies, significantly contributes to the long-term financial performance of a company by fostering a culture of corporate integrity, financial accountability, leadership, and achievement of long-term strategic goals. OPERS does not generally support divestment strategies as a means of encouraging change within the companies in which it invests.

CORPORATE GOVERNANCE POLICY & PROXY VOTING GUIDELINES

- Updated language to clarify the scope of Staff's audits and

VI. MONITORING AND REPORTING

Not less than quarterly, staff will provide a status report on Corporate Governance activity and significant emerging or evolving issues that may affect the value of OPERS' investments.

Staff will report to the Board annually regarding Program performance and future areas of focus.

Corporate Governance Staff also perform monthly and quarterly audits of the proxy firm's performance to mitigate risk of votes against the Policy & Guidelines or any circumstances where no vote action occurred ~~missed votes~~.

- Proxy Voting Categories section – Capitalized S in “System”, Spelled out “three” and removed an extra “the”.

Boards of Directors are shareholders' representatives within a company. As noted above, OPERS believes the primary purpose of the Board is to represent shareholders by maximizing shareholder value. Although OPERS is often aligned with board and/or company interests, the ~~S~~system generally believes boards should be held accountable for the consistent implementation of appropriate corporate governance practices and standards. This accountability will necessarily differ from company to company and director to director, depending on a specific company's sector and market, and a specific director's role on the board and on various board committees.

- Ideally, the board size should be between ~~three~~3 and 15 directors.

As a fiduciary, OPERS must consider and evaluate all risks that can harm the economic interests of ~~the~~ OPERS' members and beneficiaries. Protecting and enhancing the value of its investments and continuing to provide safe and secure retirement income for its current retirees, as well as future generations of Ohio's public servants is the sole purpose of the Program.

POLICY CHANGES - SUMMARY

POLICIES WITH EDITS

- Defined Benefit Fund
- Health Care Fund
- DC Fund
- Fixed Income
- Real Estate
- Private Credit
- Risk Mitigation Strategies (NEW)
- Risk Parity
- Commodities
- Cash
- Broker-Dealer
- Derivatives
- Leverage
- Liquidity
- Corporate Governance

No. of Policies = 15

POLICIES WITH NO EDITS

- Benchmarks
- External Investment Managers Insurance
- Iran Sudan Divestment
- MNPI
- Office of Foreign Assets Control
- Ohio Qualified & Minority Manager
- Opportunistic
- Personal Trading
- Private Equity
- Public Equity
- REITs
- Responsible Contractor
- Russia Divestment
- Securities Lending
- Soft Dollar

No. of Policies = 15

RECOMMENDATION



Request for Policy Approval

Transition Period:

March 20 to April 30, 2025

Investment Governing Policies:

Effective May 01, 2025

OPERS

Board Policies

Governing
Investment Activities



March 2025

(DRAFT)

OPERS Board Policies

Governing Investment Activities

<u>TAB</u>	<u>POLICY</u>
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2	Health Care 115 Trust
3	Defined Contribution
B.	<u>Asset Class and Sub-Asset Class Policies</u>
4	Public Equity
5	Fixed Income
6	Private Equity
7	Real Estate
8	Private Credit
9	REITs
10	Risk Parity
11	Risk Mitigation Strategies
12	Commodities
13	Cash
14	Opportunistic
C.	<u>Investment-Wide Policies</u>
15	Benchmarks Policy
16	Broker-Dealer
17	Derivatives
18	External Investment Manager's Insurance
19	Iran and Sudan Divestment
20	Leverage
21	Liquidity
22	Material Non-public Information
23	Office of Foreign Assets Control Compliance
24	Ohio-Qualified and Minority-Owned Manager
25	Personal Trading
26	Responsible Contractor
27	Russia Divestment
28	Securities Lending
29	Soft Dollar
D.	<u>Corporate Governance & Proxy Voting Policy</u>
30	Corporate Governance & Proxy Voting Guidelines



Ohio Public Employees Retirement System

Investment Objectives and Asset Allocation Policy

Defined Benefit Fund

March 2025⁴

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Revision History

Defined Benefit Fund Policy Established	September 16, 1998
Policy Revised	May 16, 2001
Policy Revised	June 19, 2002
Policy Revised	June 17, 2003
Policy Revised	May 18, 2005
Policy Revised	September 19, 2006
Policy Revised	November 14, 2007
Policy Revised	November 18, 2009
Policy Revised	December 15, 2010
Policy Revised	January 18, 2012

Policy Revised	March 20, 2013
Policy Revised	February 19, 2014
Policy Revised	February 18, 2015
Policy Revised	January 20, 2016
Policy Revised	February 15, 2017
Policy Revised	March 21, 2018
Policy Revised	May 15, 2019
Policy Revised	September 18, 2019
Policy Revised	March 17, 2021
Policy Revised	April 21, 2021
Policy Revised	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
Policy Revised	March 19, 2025

I. SCOPE

This Policy applies to the assets within the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit Fund (“DB Fund”).

II. PURPOSE

This Policy provides the broad strategic investment framework for managing the DB Fund.

III. LEGAL AUTHORITY

The investment powers and fiduciary responsibilities of the OPERS Retirement Board (“Board”) are established by Section 145.11 of the Ohio Revised Code (“ORC”). Section 145.11(A) states, in part:

The members of the public employees retirement board shall be the trustees of the funds created by section 145.23 of the Revised Code. The board shall have full power to invest the funds. The board and other fiduciaries shall discharge their duties with respect to the funds solely in the interest of the participants and beneficiaries; for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administering the public employees retirement system; with care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims; and by diversifying the investments of the system so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so.

OPERS Investment Staff (“Staff”) and others, who are involved in the management of the DB Fund’s assets, are subject to the same fiduciary standards as the Board.

IV. INVESTMENT PHILOSOPHY

The Board believes OPERS’ assets should be managed in a fashion that reflects OPERS’ unique liabilities, funding resources and portfolio size, by incorporating accepted investment theory and reliable, empirical evidence and supports the following principles:

- Asset allocation is the key determinant of return and, therefore, commitments to asset allocation ranges will be maintained through a disciplined rebalancing program.
- Diversification, both by and within asset classes, is the primary risk control element.
- Active management, or the pursuit of returns in excess of benchmarks, entails the possibility of disappointing results over short periods of time. Therefore, assets will be invested with a long-term perspective.

- Passive investment vehicles consist of index funds and derivatives-based strategies that are suitable alternatives to actively managed portfolios, especially in highly efficient markets.

V. INVESTMENT OBJECTIVE

The investment objective of the DB Fund is to support OPERS' mission to provide secure retirement benefits for its members. Meeting this objective necessitates making active decisions about markets in a long-term framework which, by its nature, involves taking reasonable risks. OPERS also seeks to operate effectively and at an appropriate cost.

VI. ASSET ALLOCATION

A. Purpose

The asset allocation establishes a framework for OPERS that has a high likelihood, in the judgment of the Board, of realizing OPERS' long-term investment objective.

B. Targets and Ranges

The Board sets Target allocations ("Targets") to various asset classes that are designed to meet OPERS' long-term investment objectives, and establishes a band of minimum and maximum allowable allocations, or Ranges ("Ranges"), surrounding each Asset Class Target. The purpose of Ranges is to appropriately and cost-effectively balance the Board's Investment Policy with the investment strategies pursued over shorter time periods. The table below sets forth Targets and Ranges for each Asset Class and sub-asset class.

Asset Class	Target Allocation	Range
Public Equity	<u>40</u>41%	<u>32</u>33 to <u>48</u>49%
U.S. Equity	<u>20</u> 21	+/- 5%
Non-U.S. Equity	20	+/- 5%
Fixed Income	<u>15</u>24%	<u>11</u>17 to <u>20</u>31%
Core Fixed	<u>5</u> 9	<u>3</u> 6 to <u>8</u> 12
Investment Grade Credit	<u>2</u> 3	0 to 5
Emerging Markets Debt	1	0 to 5
Securitized Debt	1	0 to 5
TIPS	<u>2</u> 3	0 to 5
High Yield	<u>2</u> 4	0 to 6
U.S. Treasury	<u>2</u> 3	0 to 5
Alternatives	<u>34</u>33%	<u>24</u>23 to <u>44</u>43%
Private Equity	15	10 to 20
Real Estate	12	7 to 17
REITs	1	0 to 5
Hedge Funds	0	0 to 1
Opportunistic	<u>0</u> 2	0 to <u>2</u> 5
Commodities	2	0 to 5
<u>Commodities-All</u>	<u>1</u>	<u>0</u> to <u>5</u>
<u>Gold</u>	<u>1</u>	<u>0</u> to <u>5</u>
Private Credit	<u>4</u> 1	0 to <u>8</u> 5
<u>Risk Mitigation Strategies</u>	<u>10</u>%	<u>0</u> to <u>15</u>%
<u>Long Duration U.S. Treasury</u>	<u>3.4</u>	<u>0</u> to <u>5</u>
<u>Trend Following</u>	<u>3.3</u>	<u>0</u> to <u>5</u>
<u>Alternative Risk Premia</u>	<u>3.3</u>	<u>0</u> to <u>5</u>
Risk Parity	<u>12</u>%	0 to 5%
Operating Cash	0%	0 to 5%
Total	100%	

In setting Ranges, the following principles are applied:

- The Public Equity allocation has a symmetrical Range equivalent to 20% of its Target rounded to a whole percentage point. Due to the floating nature of the Public Equity allocation, the Range for U.S. and Non-U.S. is +/- 5 percentage points as a proportion of the DB Fund.

- Both the Fixed Income Asset Class and the Core Fixed sub-asset class have a symmetrical Range of 30% from their Target allocations, rounded to a whole percentage point. The allocations to Investment Grade Credit, Emerging Markets Debt, Securitized Debt, TIPS, High Yield, and U.S. Treasury are given wider percentage Ranges for greater flexibility and to accommodate wider market swings.
- The Alternatives Asset Class has a symmetrical Range of 30% from its Target allocation, rounded to a whole percentage point. The Ranges for the sub-asset class allocations within Alternatives are given wider ranges to reflect the dominant influence of public market fluctuations on their proportion.
- The Ranges for the Risk Mitigation Strategies Asset Class allocations are given wider ranges to reflect the dominant influence of public market fluctuations on their proportion.
- For all asset/sub-asset classes with target allocations (less than 5%), are assigned with a range of 0% to 5% except for allocations in liquidation mode.

Exposure from derivatives or the securitization of cash is assigned to the respective sub-asset class for purposes of measuring the sub-asset class allocations stated herein. Operating cash for such purposes as paying benefits or other day-to-day expenses is generally unsecuritized. Unsecuritized cash is limited to a Range of 0% to 5%.

To the extent the actual allocation to the Alternatives Asset Class (except Real Estate) differs from the Target percentage, that difference will be added to, if under, or subtracted from, if over, the Target and Range for Public Equity. For Real Estate, the overage or underage will be applied to the Fixed Income Targets and Ranges in a similar manner.

C. Rebalancing

Staff will ensure conformance with the asset allocation set by the Board through monthly, or more frequent, review. In conducting rebalancing activities, the Board expects Staff to operate under the following principles:

- Staff must initiate rebalancing transactions to bring all percentages to values inside the Ranges or promptly seek Board approval to remain outside the Ranges.
- To implement the investment strategy, Staff will manage the asset allocation nearer to or away from the Targets, but within Policy Ranges. Quarterly performance reports to the Board will also reflect actual allocations and variances from Targets.
- The spirit of this Policy is to implement the investment strategy within the Targets and asset allocation Ranges at a reasonable cost, recognizing that overly precise management of asset exposures can result in transaction costs that are not economically justified.

D. Periodic Review

The Board establishes the asset allocation Targets and Ranges and reviews them annually. Every three to five years or when material changes to the liabilities take place (e.g., plan design changes, material changes in underlying assumptions, etc.), the Board will undertake a comprehensive strategic asset allocation review designed to assess the continuing appropriateness of this Policy. Such review will consider an asset-liability study of future benefit payments, liabilities, required funding, the appropriateness of the actuarial interest rate assumption and the prospective funded status of liabilities. It may also include a study of portfolio design for optimal diversification and comparisons with peer practices.

VII. PERFORMANCE OBJECTIVES

A. DB Fund

The performance objectives for the DB Fund are to: (1) exceed the return of the Policy benchmark, net of investment expenses; and (2) exceed the actuarial interest rate over a reasonably longer time horizon. The Policy benchmark combines designated market indices for Asset Classes, weighted by asset allocation Targets. The table on the next page contains the benchmark indices for the respective asset classes.

Expectations for outperformance are a function of the projected excess returns for each Asset Class and are aggregated at the Fund level. Actual DB Fund performance is compared to the Policy benchmark return with projected excess returns.

In addition, DB Fund risk-adjusted performance relative to the Policy benchmark return is expected to be competitive with peer funds with similar allocations.

During periods of transition resulting from a change in the Board-approved Targets, the interim target asset allocation and associated benchmarks used to calculate benchmark performance for the DB Fund will be established on a quarterly basis in advance of the subsequent quarter. That target mix will be based on allocations made by Staff and reported to the Board through quarterly performance reports.

B. Asset Classes

Each Asset Class shall be measured relative to its designated benchmark index. It is expected that the active management of individual Asset Classes will provide an investment return in excess of the index, net of expenses.

Asset Class	Benchmark Index
Public Equity	
U.S. Equity	Russell 3000 Index
Non-U.S. Equity	Custom benchmark of the following indices: ■ 55% MSCI World Index ex U.S. Standard ■ 10% MSCI World Index ex U.S. Small Cap ■ 31% MSCI Emerging Markets Standard ■ 4% MSCI Emerging Markets Small Cap
Fixed Income	Custom benchmark based on the target weights of the underlying sub-asset class allocations
Core Fixed	Bloomberg U.S. Aggregate Index
Investment Grade Credit	Bloomberg U.S. Corporate Bond Index
Emerging Markets Debt	Custom benchmark of the following indices: ■ 50% JP Morgan Emerging Markets Bond Index Global ■ 50% JP Morgan Government Bond Index-Emerging Markets Global Diversified
Securitized Debt	Custom benchmark of the following indices: ■ 50% Bloomberg Non-Agency Investment Grade CMBS: BBB Total Return Index Unhedged USD ■ 50% Bloomberg Non-Agency CMBS Agg Eligible Total Return Index Value Unhedged USD
TIPS	Bloomberg U.S. TIPS Index
High Yield	Bloomberg U.S. <u>Corporate</u> High Yield Index
U.S. Treasury	Bloomberg U.S. Treasury <u>1-5 Year</u> Index
Alternatives	
Private Equity	State Street Private Equity Index ("SSPEI")
Real Estate	Net NFI-ODCE plus 85 basis points
REITs	Dow Jones U.S. Select Real Estate Securities
Hedge Funds	Custom benchmark using the HFRI single strategy indices weighted by the target allocations listed in the <u>-Annual Investment Plan AIP</u>
Opportunistic	Market value weight of underlying portfolio benchmarks**
Commodities	<u>Market value weight of underlying benchmarks</u>
<u>Commodities-All</u>	<u>Bloomberg Commodity Index</u>
<u>Gold</u>	<u>Bloomberg Gold Subindex Total Return</u>
Private Credit	<u>S&P UBS</u> ~~Credit Suisse~~ Leveraged Loan Index
Risk Mitigation Strategies	<u>Custom benchmark based on the target weights of the underlying sub-asset class allocations</u> **
Risk Parity	<u>S&P Risk Parity Total Return Index 10% Vol Target (USD)</u> <u>Market value weight of underlying benchmarks**</u>

DB Fund

Custom Defined Benefit Benchmark*

*Policy weight (reset quarterly) of underlying asset/sub asset class benchmarks

** Please refer to Opportunistic and Risk Mitigation Strategies ~~Risk Parity~~ policies for the underlying benchmarks

VIII. RISK MANAGEMENT

The Board ensures adequate risk control through the following means:

A. Diversification

Investments shall be diversified to minimize the impact of the loss from individual investments. In addition to achieving diversification by asset class, careful attention shall be paid to diversification within each asset class and sub-allocation and across managers.

B. Liquidity

Liquidity is carefully managed through adherence to OPERS' Liquidity Policy.

C. Portfolio Guidelines

Public market separate account portfolios, excluding cash and custody accounts which are not enabled for trading, shall operate under written guidelines approved by both Staff and the Investment Advisors ("Advisors") that are designed to ensure the portfolio pursues its return objective within the acceptable risk parameters. Other portfolios shall operate pursuant to their governing documents.

D. Risk Parameters

Staff, in conjunction with Advisors, shall recommend active risk (risk of achieving performance different than the DB Fund benchmark) parameters for the DB Fund to the Board. The Board shall approve active risk parameters as part of OPERS Annual Investment Plan and approve Asset Class risk parameters in the Asset Class Policies. Risk management reports shall be provided periodically to the Board.

IX. ROLES AND RESPONSIBILITIES

The following section outlines the roles and responsibilities for each of the parties involved with executing this Policy. In addition to those activities that are described below, each person involved with this Policy is to act with the same care, skill, prudence, and due diligence under the circumstances then prevailing that experienced investment professionals acting in like capacity and fully familiar with such matters would use in like activities for like aims in accordance and compliance with all applicable laws, rules, and regulations.

The Board will determine the manner in which it fulfills its duties and how duties are delegated to other parties that are identified in this section.

A. OPERS Retirement Board

The Board's authority includes:

1. Asset Allocation

- a) Establishing and modifying the asset allocation Targets and Ranges for the DB Fund
- b) Approving Asset Class Policies
- c) Reviewing this Policy annually which would include making a determination whether or not the Fund is in transition, a period when the Fund is moving toward new target allocations

2. Asset Management

- a) Approving OPERS Annual Investment Plan to manage the investments
- b) Determining delegations of authority in connection with investment management
- c) Ensuring adequate supervision of investment managers
- d) Approving all other Investment related Policies

3. Risk Control and Administration

- a) Ensuring that appropriate Investment Policies are in place
- b) Ensuring that adequate risk controls are in place
- c) Ensuring compliance with all of its Policies and directives
- d) Ensuring that custody and other ancillary investment functions are performed as described in the Policy
- e) Reviewing risk reports and taking appropriate actions when necessary

4. Monitoring, Evaluation, and Approval

- a) Establishing performance benchmarks and expectations
- b) Monitoring the performance of investments
- c) Evaluating Staff's capability and performance
- d) Retaining Advisors, actuaries and other consultants, as appropriate
- e) Reviewing and approving this Policy, and any changes to it
- f) Reviewing reports related to this Policy

B. Investment Staff

Staff manages the investments and reports to the Board.

The Board expects Staff to take a leadership role in investment management. Recognizing that OPERS operates with a very high standard of care, the Board expects Staff to discharge its fiduciary responsibilities in managing OPERS' investments. Furthermore, the Board expects Staff to:

- Advise the Board when Staff believes action relative to Investment Policies or implementation is required of the Board.
- Review and approve portfolio guidelines and proposed changes to guidelines.
- Establish and conduct an appropriate process for monitoring OPERS' investments and implementing the Board's decisions.
- Assure that this Policy and all other investment-related Policies are reflected in investment manager agreements and/or guidelines, as appropriate.
- Establish, in advance, the interim target asset allocations for the subsequent quarter, which are to be used to calculate benchmark performance for the DB Fund during periods of transition resulting from a change in the Board-approved target asset allocations. Annually, Staff will discuss with the Board the Fund's transition status including forward plans.
- Inform the Board of any and all matters Staff believes to be sufficiently material to warrant the Board's attention.
- Operate at all times in the best and exclusive interest of OPERS and in compliance with all applicable laws and Investment Policies.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS' investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance ("IC") is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board. Regular monitoring reports are also submitted to the Board.

D. Custodian

Ohio's Treasurer of State ("Treasurer") acts as the custodian of OPERS as specified in Section 145.26 of the ORC. The Treasurer may employ sub-custodians to perform certain functions.

E. Investment Advisors

The Board may appoint Advisors unaffiliated with OPERS to assist with the investment program. These Advisors will be appointed by the Board and shall be responsible to the Board. Such Advisors shall perform functions established through contractual agreements that may include:

- Advising the Board in the management of OPERS' investments.
- Evaluating OPERS Annual Investment Plan and investment proposals that come before the Board.
- Reviewing and approving portfolio guidelines and proposed changes to guidelines, which include the benchmarks.
- Monitoring OPERS' investments, internal investment activities and external managers.
- Reporting independently to the Board on the performance of OPERS investments.
- Conducting periodic and special studies on behalf of the Board.
- Researching, identifying, and evaluating investment managers.
- Assisting and supporting Staff in various projects.

F. Actuary

The Board retains an actuary for the purpose of forecasting asset and liability growth and the many complex factors included in estimating future pension costs. These factors include, but are not limited to, interest rates, inflation, investment earnings, mortality rates and employee turnover. These actuarial assumptions are then used to forecast uncertain future events affecting OPERS. The actuary shall be held to the highest standards and shall provide periodic reports on the actuarial valuation of OPERS, and shall provide recommendations to the Board including, among other things, the estimated level of contributions necessary to fund benefits as specified in Section 145.22 of the ORC. The Board shall consider review of the asset liability study approximately every three to five years, or when material changes to the liabilities take place (e.g., plan design changes, material changes in underlying assumptions, etc.).

G. Investment Managers (Internal and External)

The primary responsibility of each investment manager is to invest assets in accordance with written guidelines which reflect this Policy and other investment-related Policies, as appropriate. Accordingly, investment managers are responsible for determining the best method for implementing investment strategy. The specific duties and responsibilities of each investment manager are as follows:

- Managing the assets of the DB Fund under their supervision in accordance with the guidelines and objectives contained within their guidelines
- Exercising full investment discretion in regards to buying, managing and selling assets within the guidelines to achieve the objectives
- Communicating with Staff and the Advisors, in writing, regarding all significant changes pertaining to the assets it manages or the firm itself in a timely manner

The Board expects the investment managers to use the same care, skill, prudence, and due diligence under the circumstances then prevailing that experienced investment professionals acting in like capacity and fully familiar with such matters would use in like activities for like aims in accordance and compliance with all applicable laws, rules, and regulations.

X. ANNUAL INVESTMENT PLAN

Staff shall present to the Board for its consideration a proposed OPERS Annual Investment Plan. The principal functions of the Annual Investment Plan are to:

- Describe key forward asset management characteristics for the DB Fund and the principal Asset Classes which include but are not necessarily limited to, Targets and Ranges, benchmarks, investment strategy, and strategies concerning utilization of active and index management.
- Specify expected excess (active management) return and risk, provisions for risk control and investment expense.
- Clarify delegations of authority by the Board to Staff for various aspects of investment management.
- Identify resource (staffing and budgetary) requirements.
- Describe key initiatives for the year.

The Annual Investment Plan is the principal, although not exclusive, vehicle by which Staff will describe planned asset allocation and investment strategies with related performance benchmarks as well as new strategies and a general framework to support the need for new or replacement portfolios, managers, or Advisors.

XI. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

A. Quarterly

Performance report – Advisors and Staff

Report on risk – Staff

Review of asset allocation relative to Targets – Investment Compliance Staff

Report on compliance – Investment Compliance Staff

B. Annually

OPERS Annual Investment Plan – Staff

C. Periodically

Additional reports as needed



Ohio Public Employees Retirement System

Investment Objectives and Asset Allocation Policy

Health Care 115 Trust Fund

March 2025⁵⁴

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Revision History

Health Care Fund Policy Established	October 19, 2004
Health Care Fund Revised	May 18, 2005
Health Care Fund Revised	November 14, 2007
Health Care Fund Revised	November 18, 2009
Health Care Fund Revised	December 15, 2010
Health Care Fund Revised	January 18, 2012
Health Care Fund Revised	March 20, 2013
Health Care Fund Policy Revised	February 19, 2014
Health Care Fund Policy Revised	February 18, 2015
Health Care Fund Policy Revised	September 18, 2015

Health Care 115 Trust Fund Policy Established	September 15, 2015
Health Care Fund Policy Revised	January 20, 2016
Health Care 115 Policy Revised	January 20, 2016
Health Care 115 Policy Revised (combined with Health Care Fund Policy)	June 15, 2016
Health Care 115 Policy Revised	February 15, 2017
Health Care 115 Policy Revised	March 21, 2018
Health Care 115 Policy Revised	September 18, 2019
Health Care 115 Policy Revised	March 17, 2021
Health Care 115 Policy Revised	April 21, 2021
Health Care 115 Policy Revised	March 16, 2022
Health Care 115 Policy Revised	March 15, 2023
Health Care 115 Policy Revised	March 20, 2024
Health Care 115 Policy Revised	March 19, 2025

I. SCOPE

This Policy applies to the assets within the Ohio Public Employees Retirement System (“OPERS”) 115 Trust Agreement for Funding Employee Benefit Plans (“HC Fund”).

II. PURPOSE

This Policy provides the broad strategic investment framework for managing the HC Fund.

III. LEGAL AUTHORITY

Pursuant to its authority in Chapter 145 of the Ohio Revised Code to establish and fund health care coverage for OPERS retirees, the OPERS Retirement Board (“Board”) began pre-funding retiree health care coverage in an account under Internal Revenue Code (“IRC”) Sec 401(h). Through a series of changes to the health care plans offered by OPERS, the Board established a trust under IRC Sec. 115, which also holds health care assets. Together, the 401(h) Account and 115 Trust were used to accumulate contributions and fund OPERS’ health care plans during the years 2014, 2015, and 2016. During 2016, the Board obtained favorable guidance from the Internal Revenue Service on a method to close the 401(h) Account and consolidate all health care assets in the 115 Trust. The Board proceeded with this change. Going forward, the 115 Trust is the primary source of retiree health care funding for benefit recipients in the Traditional Pension and Combined Plans. The Internal Revenue Service also approved the closure and consolidation (into the 115 Trust) of the OPERS VEBA Trust, which funds the Retiree Medical Accounts for Member-Directed Plan participants. The Health Care Fund may be used only for providing health care coverage and it is held in trust by OPERS with the same duties and responsibilities as other funds.

The investment powers and fiduciary responsibilities of the Board are specified in Section 145.11 of the Ohio Revised Code. Section 145.11(A) states, in part:

The members of the public employees retirement board shall be the trustees of the funds created by section 145.23 of the Revised Code. The board shall have full power to invest the funds. The board and other fiduciaries shall discharge their duties with respect to the funds solely in the interest of the participants and beneficiaries; for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administering the public employees retirement system; with care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims; and by diversifying the investments of the system so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so.

OPERS Investment Staff (“Staff”) and others, who are involved in the management of the HC Fund’s assets, are subject to the same fiduciary standards as the Board.

IV. INVESTMENT PHILOSOPHY

The Board believes OPERS' assets should be managed in a fashion that reflects OPERS' unique liabilities, funding resources and portfolio size, by incorporating accepted investment theory and reliable, empirical evidence and supports the following principles:

- Asset allocation is the key determinant of return and, therefore, commitments to asset allocation ranges will be maintained through a disciplined rebalancing program.
- Diversification, both by and within asset classes, is the primary risk control element.
- Active management, or the pursuit of returns in excess of benchmarks, entails the possibility of disappointing results over short periods of time. Therefore, assets will be invested with a long-term perspective.
- Passive investment vehicles consist of index funds and derivatives-based strategies that are suitable alternatives to actively managed portfolios, especially in highly efficient markets.

V. INVESTMENT OBJECTIVE

The investment objective of the HC Fund is to provide discretionary health care coverage for eligible benefit recipients over a solvency period as defined by the Board from time to time. Meeting this objective necessitates making active decisions about markets in a long-term framework which, by its nature, involves taking reasonable risks. OPERS also seeks to operate effectively and at an appropriate cost. The investment objective of the Fund is to earn a reasonable return and preserve capital.

VI. ASSET ALLOCATION

A. Purpose

The asset allocation establishes a framework for OPERS that has a high likelihood, in the judgment of the Board, of realizing OPERS' long-term investment objective, given the discretionary nature of the HC Fund, and the lower funded status vis a vis the Defined Benefit Fund.

B. Targets and Ranges

The Board sets Target allocations ("Targets") to various asset classes designed to meet OPERS' long-term investment objectives, and establishes a band of minimum and maximum allowable allocations, or Ranges ("Ranges"), surrounding each Asset Class Target. The purpose of Ranges is to appropriately and cost-effectively balance the Board's Investment Policy with the investment strategies pursued over shorter time periods. The table below sets forth Targets and Ranges for each Asset Class and sub-asset class.

Asset Class	Target Allocation	Range
Public Equity	4550%	3640 to 5460%
U.S. Equity	<u>2225</u>	+/- 5%
Non-U.S. Equity	<u>2325</u>	+/- 5%
Fixed Income	37%	26 to 48%
Core Fixed	<u>1516</u>	<u>1011 to 1921</u>
Investment Grade Credit	<u>3.53</u>	0 to 5
Emerging Markets Debt	<u>1.51</u>	0 to 5
Securitized Debt	<u>43</u>	0 to <u>65</u>
TIPS	<u>47</u>	0 to <u>69</u>
High Yield	<u>75</u>	0 to <u>108</u>
U.S. Treasury	2	0 to 5
Alternatives	510%	37 to 820%
REITs	<u>25</u>	0 to <u>58</u>
Hedge Funds	0	0 to 1
Opportunistic	<u>02</u>	0 to <u>25</u>
Commodities	3	0 to 5
<u>Commodities-All</u>	<u>2</u>	<u>0 to 5</u>
<u>Gold</u>	<u>1</u>	<u>0 to 5</u>
<u>Risk Mitigation Strategies</u>	<u>10%</u>	<u>0 to 15%</u>
<u>Long Duration U.S. Treasury</u>	<u>3.4</u>	<u>0 to 5</u>
<u>Trend Following</u>	<u>3.3</u>	<u>0 to 5</u>
<u>Alternative Risk Premia</u>	<u>3.3</u>	<u>0 to 5</u>
Risk Parity	3%	0 to 5%
Operating Cash	0%	0 to 5%
Total	100%	

In setting Ranges, the following principles are applied:

- The equity sub-allocation has a symmetrical Range equivalent to 20% of its Target, rounded to a whole percentage point. Due to the floating nature of the Public Equity allocation, the Range for U.S. and Non-U.S. is +/- 5.0 percentage points as a proportion of the HC Fund.
- Each of the Fixed Income Asset Class and the Core Fixed sub-asset class has a symmetrical Range of 30% from its Target allocations, rounded to a whole percentage point. The Allocations to Investment Grade Credit, Emerging Markets Debt, Securitized Debt, TIPS, High Yield, and U.S. Treasury are given wider Ranges for greater flexibility and to accommodate wider market swings.

- The Alternatives Asset Class has a symmetrical Range of 50% from its Target allocation, rounded to a whole percentage point. The Ranges for the sub-allocations within Alternatives are given wider ranges to reflect the dominant influence of public market fluctuations on their proportion.
- The Ranges for the Risk Mitigation Strategies Asset Class allocations are given wider ranges to reflect the dominant influence of public market fluctuations on their proportion.
- For all asset/sub-asset classes with target allocations (less than 3%), are assigned with a range of 0% to 5% except for allocations in liquidation mode.

Exposure from derivatives or the securitization of cash is assigned to the respective sub-asset class for purposes of measuring the sub-asset class allocations stated herein. Operating cash for such purposes as paying benefits or other day-to-day expenses is generally unsecuritized. Unsecuritized cash is limited to a Range of 0% to 5%.

To the extent the actual allocation to the Alternatives Asset Class differs from the Target percentage, that difference will be added to, if under, or subtracted from if over, the Target and Range for Public Equity.

C. Rebalancing

Staff will ensure conformance with the asset allocation set by the Board through monthly, or more frequent, review. In conducting rebalancing activities, the Board expects Staff to operate under the following principles:

- Staff must initiate rebalancing transactions to bring all percentages to values inside the Ranges or promptly seek Board approval to remain outside the Ranges.
- To implement the investment strategy, Staff will manage the asset allocation nearer to or away from the Targets, but within Policy Ranges. Quarterly performance reports to the Board will also reflect actual allocations and variances from Targets.
- The spirit of this Policy is to implement the investment strategy within the Targets and asset allocation Ranges at a reasonable cost, recognizing that overly precise management of asset exposure can result in transaction costs that are not economically justified.

D. Periodic Review

The Board establishes the asset allocation Targets and Ranges and reviews them annually. Every three to five years or when material changes to the liabilities take place (e.g., plan design changes, material changes in underlying assumptions, etc.), the Board will undertake a comprehensive asset allocation review designed to assess the continuing appropriateness of this Policy. Such review will consider an asset-liability study of future benefits, funding requirements, the appropriateness of the actuarial interest rate assumption and the prospective funded status of future benefits. It may also include a study of portfolio design for optimal diversification and comparisons with peer practices.

VII. PERFORMANCE OBJECTIVES

A. HC Fund

The performance objective for the HC Fund is to exceed the return of its Policy benchmark, net of investment expenses. The Policy benchmark combines designated market indices for Asset Classes, weighted by asset allocation Targets. The table on the next page contains the benchmark indices for the respective Asset Classes.

Expectations for outperformance are a function of the projected excess returns for each Asset Class and are aggregated at the Fund level. Actual HC Fund performance is compared to the Policy benchmark return with projected excess returns.

In addition, HC Fund risk-adjusted performance relative to the Policy benchmark return is expected to be competitive with peer funds with similar allocations.

During periods of transition resulting from a change in the Board-approved Targets, the interim target asset allocation and associated benchmarks used to calculate benchmark performance for the HC Fund will be established on a quarterly basis in advance of the subsequent quarter. That target mix will be based on allocations made by Staff and reported to the Board through quarterly performance reports.

B. Asset Classes

Each Asset Class shall be measured relative to its designated benchmark index. It is expected that the active management of individual Asset Classes will provide an investment return in excess of the index, net of expenses.

Asset Class	Benchmark Index
<i>Public Equity</i>	
U.S. Equity	Russell 3000 Index
Non-U.S. Equity	Custom benchmark of the following indices: ■ 55% MSCI World Index ex U.S. Standard ■ 10% MSCI World Index ex U.S. Small Cap ■ 31% MSCI Emerging Markets Standard ■ 4% MSCI Emerging Markets Small Cap
<i>Fixed Income</i>	
Core Fixed	Custom benchmark based on the target weights of the underlying sub-asset class allocations Bloomberg U.S. Aggregate Index
Investment Grade Credit	Bloomberg U.S. Corporate Bond Index
Emerging Markets Debt	Custom benchmark of the following indices: ■ 50% JP Morgan Emerging Markets Bond Index Global ■ 50% JP Morgan Government Bond Index-Emerging Markets Global Diversified
Securitized Debt	Custom benchmark of the following indices: ■ 50% Bloomberg Non-Agency Investment Grade CMBS: BBB Total Return Index Unhedged USD ■ 50% Bloomberg Non-Agency CMBS Agg Eligible Total Return Index Value Unhedged USD
TIPS	Bloomberg U.S. TIPS Index
High Yield	Bloomberg U.S. <u>Corporate</u> High Yield Index
U.S. Treasury	Bloomberg U.S. Treasury <u>1-5 Year</u> Index
<i>Alternatives</i>	
REITs	Dow Jones U.S. Select Real Estate Securities Index Total Return
Hedge Funds	Custom benchmark using the HFRI single strategy indices weighted by the target allocations listed in the <u>AIP Annual Investment Plan</u>
Opportunistic	Market value weight of underlying portfolio benchmarks**
Commodities	<u>Market value weight of underlying benchmarks Bloomberg Commodity Index</u>
<u>Commodities-All</u>	<u>Bloomberg Commodity Index</u>
<u>Gold</u>	<u>Bloomberg Gold Subindex Total Return</u>
<u>Risk Mitigation Strategies</u>	<u>Custom benchmark based on the target weights of the underlying sub-asset class allocations**</u>
<i>Risk Parity</i>	<u>S&P Risk Parity Total Return Index 10% Vol Target (USD)</u> <u>Market value weight of underlying benchmarks**.</u>

*Policy weight (reset quarterly) of underlying asset/sub asset class benchmarks

** Please refer to Opportunistic Risk Parity and Risk Mitigation Strategies policies for the underlying benchmarks

VIII. RISK MANAGEMENT

The Board ensures adequate risk control through the following means:

A. Diversification

Investments shall be diversified to minimize the impact of the loss from individual investments. In addition to achieving diversification by asset class, careful attention shall be paid to diversification within each asset class and sub-allocation and across managers.

B. Liquidity

Liquidity is carefully managed through adherence to OPERS' Liquidity Policy.

C. Portfolio Guidelines

Public market separate account portfolios, excluding cash and custody accounts which are not enabled for trading, shall operate under written guidelines approved by both Staff and the Investment Advisors ("Advisors") that are designed to ensure the portfolio pursues its return objective within the acceptable risk parameters. Other portfolios shall operate pursuant to their governing documents.

D. Risk Parameters

Staff in conjunction with Advisors shall recommend active risk (risk of achieving performance different than the HC Fund benchmark) parameters for the HC Fund to the board. The Board shall approve active risk parameters as part of OPERS Annual Investment Plan and approve Asset Class risk parameters in the Asset Class Policies. Risk management reports shall be provided periodically to the Board.

IX. ROLES AND RESPONSIBILITIES

The following section outlines the roles and responsibilities for each of the parties involved with executing this Policy. In addition to those activities that are described below, each person involved with this Policy is to act with the same care, skill, prudence, and due diligence under the circumstances then prevailing that experienced investment professionals acting in like capacity and fully familiar with such matters would use in like activities for like aims in accordance and compliance with all applicable laws, rules, and regulations.

The Board will determine the manner in which it fulfills its duties and how duties are delegated to other parties that are identified in this section.

A. OPERS Retirement Board

The Board's authority includes:

1. Asset Allocation

- a) Establishing and modifying the asset allocation Targets and Ranges for the HC Fund
- b) Approving Asset Class Policies
- c) Reviewing this Policy annually which would include making a determination whether or not the Fund is in transition, a period when the Fund is moving toward new target allocations

2. Asset Management

- a) Approving OPERS Annual Investment Plan to manage the investments
- b) Determining delegations of authority in connection with investment management
- c) Ensuring adequate supervision of investment managers
- d) Approving all other Investment-related Policies

3. Risk Control and Administration

- a) Ensuring that appropriate investment Policies are in place
- b) Ensuring that adequate risk controls are in place
- c) Ensuring compliance with all of its Policies and directives
- d) Ensuring that custody and other ancillary investment functions are performed as described in the Policy
- e) Reviewing risk reports and taking appropriate actions when necessary

4. Monitoring, Evaluation, and Approval

- a) Establishing performance benchmarks and expectations
- b) Monitoring the performance of investments
- c) Evaluating Staff's capability and performance
- d) Retaining Advisors, actuaries and other consultants, as appropriate
- e) Reviewing and approving this Policy, and any changes to it
- f) Reviewing reports related to this Policy

B. Investment Staff

Staff manages the investments and reports to the Board.

The Board expects Staff to take a leadership role in investment management. Recognizing that OPERS operates with a very high standard of care, the Board expects Staff to discharge its fiduciary responsibilities in managing OPERS' investments. Furthermore, the Board expects Staff to:

- Advise the Board when Staff believes action relative to Investment Policies or implementation is required of the Board.
- Review and approve portfolio guidelines and proposed changes to guidelines.
- Establish and conduct an appropriate process for monitoring OPERS' investments and implementing the Board's decisions.
- Assure that this Policy and all other investment-related Policies are reflected in investment manager agreements and/or guidelines, as appropriate.
- Establish, in advance, the interim target asset allocations for the subsequent quarter, which are to be used to calculate benchmark performance for the HC Fund during periods of transition resulting from a change in the Board-approved target asset allocations. Annually, Staff will discuss with the Board the Fund's transition status including forward plans.
- Inform the Board of any and all matters Staff believes to be sufficiently material to warrant the Board's attention.
- Operate at all times in the best and exclusive interest of OPERS and in compliance with all applicable laws and Investment Policies.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS' investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance ("IC") is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board. Regular monitoring reports are also submitted to the Board.

D. Custodian

Ohio's Treasurer of the State ("Treasurer") acts as custodian of OPERS as specified in Section 145.26 of the ORC. The Treasurer may employ sub-custodians to perform certain functions.

E. Investment Advisors

The Board may appoint Advisors unaffiliated with OPERS to assist with the investment program. These Advisors will be appointed by the Board and shall be responsible to the Board. Such Advisors shall perform functions established through contractual agreements that may include:

- Advising the Board in the management of OPERS' investments
- Evaluating OPERS Annual Investment Plan and investment proposals that come before the Board
- Reviewing and approving portfolio guidelines and proposed changes to guidelines, which includes the benchmarks
- Monitoring OPERS' investments, internal investment activities, and external managers
- Reporting independently to the Board on the performance of OPERS investments
- Conducting periodic and special studies on behalf of the Board
- Researching, identifying, and evaluating investment managers
- Assisting and supporting Staff in various projects

F. Actuary

The Board retains an actuary for the purpose of forecasting asset and liability growth and the many complex factors included in estimating future health care costs and the solvency period of the HC Fund. These factors include, but are not limited to, interest rates, inflation, investment earnings, mortality rates, health care costs and employee turnover. These actuarial assumptions are then used to prepare a Health Care Projection Report. The actuary shall be held to the highest standards and shall provide periodic reports on the Fund and shall provide recommendations to the Board including, among other things, the estimated level of contributions necessary to maintain a target solvency period as determined by the Board. The Board shall consider review of the asset liability study approximately every three to five years or when material changes to the liabilities take place (e.g., plan design changes, material changes in underlying assumptions, etc.).

G. Investment Managers (Internal and External)

The primary responsibility of each investment manager is to invest assets in accordance with written guidelines which reflect this Policy and other investment-related Policies, as appropriate. Accordingly, investment managers are responsible for determining best method for implementing investment strategy. The specific duties and responsibilities of each investment manager are as follows:

- Managing the assets of the HC Fund under their supervision in accordance with the guidelines and objectives contained within their guidelines
- Exercising full investment discretion in regards to buying, managing and selling assets within the guidelines to achieve the objectives
- Communicating with Staff and the Advisors, in writing, regarding all significant changes pertaining to the assets it manages or the firm itself in a timely manner

The Board expects the investment managers to use the same care, skill, prudence, and due diligence under the circumstances then prevailing that experienced investment professionals acting in like capacity and fully familiar with such matters would use in like activities for like aims in accordance and compliance with all applicable laws, rules, and regulations.

X. ANNUAL INVESTMENT PLAN

Staff shall present to the Board for its consideration a proposed OPERS Annual Investment Plan. The principal functions of the Annual Investment Plan are to:

- Describe key forward asset management characteristics for the HC Fund and the principal Asset Classes which include, but are not necessarily limited to, Targets and Ranges, benchmarks, investment strategy, and strategies concerning utilization of active and index management.
- Specify expected excess (active management) return and risk, provisions for risk control and investment expense.
- Clarify delegations of authority by the Board to Staff for various aspects of investment management.
- Identify resource (staffing and budgetary) requirements.
- Describe key initiatives for the year.

The Annual Investment Plan is the principal, although not exclusive, vehicle by which Staff will describe planned asset allocation and investment strategies with related performance benchmarks as well as new strategies and a general framework to support the need for new or replacement portfolios, managers, or Advisors.

XI. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

A. Quarterly

Performance report – Advisors and Staff

Report on risk – Staff

Review of asset allocation relative to Targets – Staff

Report on compliance – Investment Compliance Staff

B. Annually

OPERS Annual Investment Plan – Staff

C. Periodically

Additional reports as needed



Ohio Public Employees Retirement System

**Investment Objectives and Asset Allocation Policy
Defined Contribution Fund**

March 2025⁵⁴

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Revision History

Defined Contribution Fund Policy Established	December 11, 2001
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Policy Revised	March 19, 2025

I. SCOPE

This Investment Objectives and Asset Allocation Policy (“Policy”) applies to assets within the Ohio Public Employees Retirement System (“OPERS”) Defined Contribution Plan and the defined contribution portion of OPERS Combined Defined Benefit/Defined Contribution Plan (together referred to as the “DC Plans”).

These assets are held in trust and are referred to herein as the Defined Contribution Fund and the Combined Defined Benefit/Defined Contribution Fund (together, the “DC Funds”).

II. PURPOSE

This Policy provides the broad strategic investment framework for managing the DC Funds and is intended to be read in conjunction with documents that govern the DC Plans. If any term or provision of this Policy conflicts with any term or provision of the DC Plans’ governing documents, such governing documents shall control.

This Policy does not cover duties or responsibilities with respect to adoption or revision of the DC Plans, their administration, operation or compliance with tax laws.

III. LEGAL AUTHORITY

Section 145.80 of the Ohio Revised Code (“ORC”) directs OPERS Retirement Board (“Board”) to adopt rules to implement the DC Plans.

Among its other provisions, ORC Section 145.11(A) states in part:

The members of the public employees retirement board shall be the trustees of the funds created by section 145.23 of the Revised Code. The board shall have full power to invest the funds. The board and other fiduciaries shall discharge their duties with respect to the funds solely in the interest of the participants and beneficiaries; for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administering the public employees retirement system; with care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims; and by diversifying the investments of the system so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so.

OPERS Investment Staff (“Staff”) and others, who are involved in the management of the DC Fund’s assets, are subject to the same fiduciary standards as the Board.

ORC Section 145.811 mandates that the DC Plans must meet requirements of Section 401(a) of the Internal Revenue Code (“IRC”) applicable to governmental plans and qualify as governmental plans pursuant to IRC Section 414(d). IRC Section 401(a) requires that assets of the DC Plans be held in trust for the exclusive benefit of Plan participants and their beneficiaries (together referred to as “Members”).

IV. POLICY OBJECTIVES

Members each have their own unique individual investment objectives, risk tolerances and time horizons. The objectives of this Policy are to provide Members with an array of investment choices across a range of asset classes, risk levels and investment strategies, at reasonable cost, which taken together enable a Member to achieve, by selecting from among the available choices, a portfolio with aggregate risk and return characteristics at any point within the range normally appropriate for the Member.

The DC Plans are individual account plans and Members who participate in them are responsible for directing investment of the assets in their accounts utilizing the Investment Options (“Options”) available under the Plans and this Policy.

V. INVESTMENT OPTIONS

This Policy establishes three different Options that Members can use to address their investment needs: Standalone Funds (“Standalone Funds”), Target Date Funds (“TDFs”) and a Self-Directed Brokerage Account (“SDBA”).

Members may invest their assets using any one, two, or all three of these Options. Members are solely responsible for deciding which Option or Options they elect and are also solely responsible for the consequences of the Option or Options they select.

A. Manager Selection

OPERS offers passively managed and actively managed strategies utilizing external, professional Asset Managers (“Managers”), selected by Staff, based on their proven record of managing such funds and the competitiveness of the fees they charge.

All Managers exercising investment discretion must be (i) registered with the United States~~S~~ Securities and Exchange Commission or with a similar regulator if they are domiciled outside the United States or (ii)~~)~~ a bank regulated by a United States regulatory body.

Managers must agree to comply with all provisions of OPERS' External Investment Managers Insurance Policy and with the Best Execution provisions of its Soft Dollar Policy.

Managers must also agree to comply with any other provisions Staff, including OPERS Legal Services Division, believe to be appropriate in order to carry out the terms and intent of this Policy.

B. Standalone Funds and TDFs

The Standalone Funds provide Members with asset class specific investments. Passively managed options are index managed meaning they seek to mirror investment results of broadly-based and publicly-quoted market indices. They are not intended, and do not attempt, to outperform such indices. Actively managed funds seek to outperform the index they are measured against. The asset class benchmarks used for Standalone Funds are listed below:

Asset Class	Benchmark Index
U.S. Equity All Cap	Russell 3000 Index
U.S. Equity Large Cap	Russell 1000 Index
U.S. Equity Small Cap	Russell 2000 Index
U.S. Equity Small-Mid Cap	Russell 2500 Index
International Equity	MSCI ACWI Net Dividend Return ex U.S.
Core Fixed Income	Bloomberg ~~Barclays~~ U.S. Aggregate
Stable Value	ICE BofA US 3M Trsy Bill TR USD
Target Date Funds	Market value weight of underlying asset class benchmarks

Unlike the Standalone Funds, TDFs are intended for Members who do not wish to make their own asset allocation decisions. TDFs are offered in five-year increments and each target date is the year in which a TDF will reach Retirement status ("Retirement").

A TDF with a Retirement date in the distant future will allocate more of its investments to equities and other higher risk/higher reward asset classes to enhance the opportunity to accumulate capital. As TDFs move toward their target Retirement dates, they reduce their allocation to such assets to better preserve accumulated capital. These transitions, called glide paths, are accomplished by assigning each TDF an asset class investment Target allocation ("Target") and an asset class Range ("Range") surrounding such Targets.

C. Self-Directed Brokerage Account

Members who desire additional investment alternatives and are willing to accept all risks and costs related to such alternatives can make their own investment decisions through a SDBA. Members must have a minimum Plan balance of \$5,000 in order to be eligible to elect this Option and, when they do, may invest no more than 90% of the amount of such balance at the time of their election.

To provide Members with this Option, OPERS contracts with a service provider based on its assessment of such vendor's ability to provide quality brokerage and related services at a reasonable cost to participating Members. The services provider will make available to Members thousands of mutual funds and long-only, unlevered, diversified Exchange Traded Funds ("ETFs") that encompass a broad range of types of assets and portfolio management styles, including both index and active portfolio management. The service provider, alone, is responsible for determining which mutual funds to offer in an SDBA.

Members are solely responsible for determining which mutual fund(s) or ETFs to purchase, hold, or sell in their SDBA. By investing in the shares of such fund or funds, Members agree to be subject to fees and other expenses charged to their shares by their investments and to any restrictions on trading or withdrawals that those investments may impose.

D. Default Option

If a Member fails to select one of the above-described Options, their contributions will be invested in the TDF that will reach Retirement status closest to the date on which the Member would attain the age of 65.

E. Change of Investment Options

Members may change their Investment Options at any time.

The Board may at any time and from time-to-time change, add to or reduce the number of asset classes in which Options are offered. The Board delegates to Staff the ability to add or reduce the Options available within those asset classes. If the Board decides to eliminate an Option or an asset class, OPERS shall notify Members affected by its decision.

The SDBA service provider may at any time and from time- to- time change, add to or reduce the number of mutual funds or ETFs it offers in the SDBA.

VI. PERFORMANCE OBJECTIVES

A. Standalone Funds and TDFs

The performance objectives for the passively managed Standalone Funds are to match as closely as possible the return of their respective benchmarks, gross of external investment managers' fees. The performance objectives for the actively managed Standalone Funds is to outperform their respective benchmark net of management fees.

The objective of each TDF is to match as closely as possible its customized benchmark, which is comprised of the market indices for its component Funds weighted in accordance with the TDF's Target allocations, as calculated by the manager of the TDF. Deviations from TDFs' benchmarks are expected to arise principally due to payment of fees and costs associated with asset class rebalancing.

B. OPERS Self-Directed Brokerage Account

There is no performance objective for the SDBA because each participating Member selects the investments they wish to buy, hold, or sell.

VII. ROLES AND RESPONSIBILITIES

A. OPERS Members

Members are responsible for determining in which OPERS retirement plan they will participate. Members who elect the DC Plans are responsible for selecting their own Investment Option or Options, monitoring their asset allocation strategy and making adjustments as appropriate for their personal situations. Members are also responsible for availing themselves of investment educational resources made available to them by OPERS.

OPERS DC Plans are self-directed plans and Members' investments in them are not insured. There can be no assurance that any certain value anticipated at a future date, such as retirement, will be realized. Members' accounts are subject to investment risks such as the variability of investment returns and the potential for losses due to investment selection, market or economic conditions. Since each Member's risk tolerance is different, each Member is ultimately responsible for the investment results of their account.

B. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it. In addition, the Board is responsible for reviewing reports related to this Policy.

The Board has the authority to determine the manner in which it discharges its responsibilities and how it delegates duties to others, all of whom must act in accordance with the fiduciary standards of ORC Section 145.11.

The Board oversees the Standalone Funds and TDFs and, assisted by Staff and the Board's Advisor, reviews the performance of the Funds and TDFs relative to their benchmarks.

The Board is responsible for:

- Setting all investment policies, including this Policy, and reviewing them annually;
- Approving the types of Investment Options to be made available;
- Establishing and modifying benchmarks for Standalone Funds;
- Reviewing the performance of investment Managers, service providers, OPERS Chief Investment Officer ("CIO") and Staff;
- Ensuring compliance with this Policy;
- Retaining Advisors to assist it, as appropriate; and
- Reviewing and approving the Annual DC Funds Report ("Report").
- Reviewing and recommending any changes to this Policy
- Reviewing reports related to this Policy

C. Chief Investment Officer

The CIO is responsible for implementing this Policy and for all investment activities that affect DC Funds' investments including compliance with this Policy. The CIO delegates to Staff the selection and oversight of the external managers who run the Standalone Funds, TDFs and SDBA.

To help assure effective control over DC Fund investment activities, the CIO appoints the DC Funds Staff Investment Committee ("DCFSIC"), which reports to the CIO. The DCFSIC meets no less frequently than quarterly and keeps minutes of its meetings.

D. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance ("IC") is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

E. Custodian

The custodian is responsible for physical custody and safekeeping of investment assets. ORC Section 145.26 appoints Ohio's Treasurer of State custodian of OPERS' assets including assets of the DC Funds. The Treasurer may employ sub-custodians to perform certain functions including some that may affect the DC Funds.

F. Investment Advisor

The Board may appoint an Advisor who is not affiliated with OPERS to assist it with its responsibilities for the DC Plans and DC Funds. Such Advisor may assist Staff in discharging its responsibilities but shall be solely responsible to the Board and report directly to it, independent of Staff.

Such Advisor shall perform functions established through contractual agreements that includes:

- Educating both Board and Staff about DC trends and best practices;
- Advising the Board on DC Fund investment matters;
- Evaluating Staff's Annual Report;
- Reviewing and commenting on Managers' governing documents and any proposed changes thereto after they are reviewed and approved by the DCFSIC;
- Monitoring DC Fund investments and Managers;
- Conducting periodic and special studies on behalf of the Board; or

G. Investment Managers

Each external Manager of Standalone Funds and TDFs is responsible for investing such assets in accordance with their investment manager agreement with OPERS and/or any other governing documents, to achieve their assigned investment objectives.

Managers exercise complete investment discretion in regard to buying, holding, managing and selling assets held in their respective portfolios subject only to any restrictions in their investment manager agreement or other governing documents.

Managers are also responsible for voting proxies on securities held in their portfolios of Standalone Funds and TDF assets, to the extent such voting rights are not specifically reserved by OPERS. They shall do so solely in the best interests of Members. In the event OPERS reserves the rights to vote such proxies, it shall do so in accordance with the terms of the OPERS Corporate Governance Policy and Proxy Voting Guidelines.

VIII. ANNUAL DC FUNDS REPORT

Each year, Staff and the Board's Advisor shall present to the Board a Report in which they:

- Review the DC Plans' Investment Options;
- Propose any changes in OPERS Funds and TDFs, including portfolio benchmarks;
- Analyze investment management expenses of the DC Funds;
- Describe results of any key initiatives for the past year; and
- Explain any key initiatives proposed for the ensuing year.

IX. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

- Quarterly performance report – Advisor or Staff
- Quarterly report on compliance – Investment Compliance Staff
- Annual Report – Advisor and Staff



Ohio Public Employees Retirement System

Public Equity Policy
March 2025⁴

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Revision History

Public Equity Policy Established	December 16, 2009
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U.S. Equity Policy Established Policy Revised Policy Revised Policy Revised Policy Revised	Revision History	September 18, 2002 June 17, 2003 September 9, 2004 June 14, 2005 March 20, 2007
Non-U.S. Equity Policy Established Policy Revised Policy Revised Policy Revised Policy Revised	Revision History	September 18, 2002 June 17, 2003 August 17, 2004 June 14, 2005 July 15, 2008

I. SCOPE

This Policy applies to investments in the Public Equity Asset Class of the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit (“DB Fund”) and Health Care 115 Trust Funds (“HC Fund”).

II. PURPOSE

This Policy provides the broad strategic investment framework for managing investments in the Public Equity Asset Class.

III. INVESTMENT PHILOSOPHY

OPERS seeks to diversify assets by obtaining broad exposure to global publicly traded equity markets. This requires investment in multiple capitalization segments, across global markets incorporating various investment styles. Considering that security, sector and market return opportunities occur, the Public Equity Asset Class is structured to include managers that seek to exploit those opportunities with the expectation that the overall Asset Class produce risk-adjusted returns in excess of the benchmark, net of fees.

IV. ALLOCATION

The target allocations and ranges for the Public Equity Asset Class and its sub-asset classes are specified in the Investment Objectives and Asset Allocation Policy for the DB and HC 115 Trust Funds (“DB and HC Policies”).

The public market equity exposure is obtained through two distinct market weight allocations to U.S. equity and Non-U.S. equity investments. The exposure to both markets is managed through allocations to index and active styles. Index management is a style of portfolio management that involves constructing a broad-based portfolio designed largely to match the performance and risk of its benchmark. Active management is a style of portfolio management that seeks to maximize excess return by constructing portfolios with compositions that deviate materially from that of their benchmark.

Investment Staff’s (“Staff”) decision to allocate across index and active styles is designed, in aggregate, to outperform the respective U.S. Equity and Non-U.S. Equity benchmarks while operating within risk parameters outlined in Section VIII Risk Management, of this Policy.

V. PERMISSIBLE INSTRUMENTS

Public Equity assets may be invested in any and all types of instruments intended to obtain and manage equity-like returns. Instruments used may be exchange-traded or non-exchange-traded and may be physical securities or derivatives. Additional security type constraints may be applied in investment manager portfolio guidelines.

VI. THIRD-PARTY MARKETING

OPERS expects its general partners and investment managers to behave legally and ethically. OPERS requires that third-party marketers used by general partners or investment managers be regulated by appropriate legal authorities and subject to disciplinary actions by them. OPERS will confirm in its side letter, investment management agreement or other contractual arrangement, that a manager being engaged by OPERS has a requirement to provide the details of marketing arrangements, political contributions, or similar payments involving individuals, placement agents, third-party marketers and the like with respect to OPERS investments with the manager.

VII. PERFORMANCE OBJECTIVES

The performance benchmarks for the U.S. Equity and Non-U.S. Equity sub-asset classes are shown in the table in Section VIII. The underlying managers within each sub-asset class may be assigned benchmarks that are different from the overall asset class benchmarks. The Annual Investment Plan, which is approved by the OPERS Retirement Board, shall include the expected outperformance for each sub-asset class.

VIII. RISK MANAGEMENT

The primary approach to managing risk is to monitor principal quantitative and qualitative risk factors relative to benchmarks while continuing to pursue active returns.

The following sub-sections identify the key elements of risk management at the U.S. Equity and Non-U.S. Equity sub-asset class levels.

A. Active Risk

Active Risk or tracking error is a statistical measure of the potential variability of a portfolio's return relative to that of the assigned benchmark. The expected U.S. Equity and Non-U.S. Equity tracking error ranges for the DB and HC Funds are shown in the following table.

Sub-Asset Class	Benchmark	Tracking Error Range
U.S. Equity	Russell 3000 Index	0 to 100 basis points
Non-U.S. Equity	Custom benchmark of the following indices: • 55% MSCI World ex U.S. Standard • 10% MSCI World ex U.S. Small Cap • 31% MSCI Emerging Markets Standard • 4% MSCI Emerging Markets Small Cap	0 to 300 basis points

B. Liquidity Risk

Investment structure impacts liquidity. Therefore, consideration is given to separate accounts over commingled accounts as well as with internally managed accounts given their greater control and transparency.

C. Single Security Risk

Imposing a tracking error discipline limits investment in any single company to a percentage of the manager's total market value. Use of broadly-based sub-asset class benchmarks also encourages security diversification.

D. Country Risk

These sub-asset classes are expected to be broadly diversified and have deviations from the benchmark country allocations. Country exposures within the Non-U.S. Equity sub-asset class will be monitored by Staff to identify the scale of under- and over-allocations and for performance attribution analysis. The tracking error constraints in conjunction with the use of broad-based sub-asset class benchmarks will have the effect of limiting country concentration.

E. Sector Risk

The U.S. Equity and Non-U.S. Equity sub-asset classes are expected to be broadly diversified and may have deviations from the benchmark sector weightings. Sector exposures will be monitored by Staff to identify the under/over-allocations and for performance attribution analysis. The tracking error constraints or index investment mandates and the use of broad-based sub-asset class benchmarks will have the effect of limiting sector concentration.

F. Currency Risk

The Non-U.S. Equity sub-asset class is not hedged to control the currency risks and opportunities associated with international investing. However, currency management, including currency derivatives and cross-hedging, may be used to manage OPERS' exposure to currency risk. OPERS may employ currency strategies that include the use of currency derivatives.

G. Manager Risk

The allocation to a single active external manager in the U.S. Equity or Non-U.S. Equity sub-asset class is limited to 15% of the respective sub-asset class.

H. Derivatives Risk

Derivatives usage and limitations as well as risk management are specified in manager guidelines and shall comply with OPERS' Derivatives Policy.

I. Leverage Risk

Leverage usage and limitations as well as risk management are specified in manager guidelines and shall comply with OPERS' Leverage Policy.

IX. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The OPERS Retirement Board ("Board") is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer ("CIO") to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for managing Public Equity sub-asset classes within the framework of the Board approved Policies and within the goals and objectives adopted by the Board in the Annual Investment Plan.

Staff shall ensure that all investment manager guidelines for external and internal portfolios are set in accordance with OPERS' Policies.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS' investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance ("IC") is responsible for monitoring compliance with this Policy (except for tracking error measurements), including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisor

The role of the Investment Advisor is specified in the Investment Objective and Asset Allocation Policies.

X. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

A. Quarterly

Performance reports – Investment Advisor and/or Staff

Report on compliance – Investment Compliance Staff

B. Annually

OPERS Annual Investment Plan – Staff



Ohio Public Employees Retirement System

Fixed Income Policy
March 20254

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Fixed Income Policy Established	September 2003
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Policy Revised
Policy Revised
Policy Revised

March 15, 2023
March 20, 2024
March 19, 2025

I. SCOPE

This Policy applies to investments in the Fixed Income Asset Class of the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit Fund (“DB Fund”) and Health Care 115 Trust Funds (“HC Fund”).

II. PURPOSE

This Policy provides the broad strategic investment framework for managing investments in the Fixed Income Asset Class.

III. INVESTMENT PHILOSOPHY

OPERS seeks to obtain broad exposure to fixed income assets in order to diversify assets and provide a return and a hedge for long-term liabilities in the DB Fund and rising health care costs in the HC Fund. This is accomplished utilizing multiple credit qualities, durations, and currencies. The Fixed Income Asset Class is structured to include managers that seek to exploit those opportunities with the expectation that the overall Asset Class produce risk-adjusted returns in excess of the benchmark, net of fees.

IV. ALLOCATION

DB and HC Funds’ assets are invested in sub-asset classes of the Fixed Income Asset Class as outlined in their respective Investment Objectives and Asset Allocation Policy.

Those Policies provide for investments in Fixed Income sub-asset classes of Core Fixed, Investment Grade Credit, Emerging Markets Debt, Securitized Debt, TIPS, High Yield, and U.S. Treasury with target allocations and ranges around those targets.

V. PERMISSIBLE INSTRUMENTS

Fixed income assets may be invested in any and all types of instruments intended to obtain fixed income-like returns. Instruments used may be exchange-traded or non-exchange-traded and may be physical securities or derivatives. Additional security type constraints may be applied in investment manager portfolio guidelines.

VI. THIRD-PARTY MARKETING

OPERS expects its general partners and investment managers to behave legally and ethically. OPERS requires that third-party marketers used by general partners or investment managers be regulated by appropriate legal authorities and subject to disciplinary actions by them. OPERS will confirm in its side letter, investment management agreement or other contractual arrangement, that a manager being engaged by OPERS has a requirement to provide the details of marketing arrangements, political contributions, or similar payments involving individuals, placement agents, third-party marketers and the like with respect to OPERS investments with the manager.

VII. PERFORMANCE OBJECTIVES

The performance benchmarks for each of the sub-asset classes are shown in the table in Section VIII. The underlying managers within each sub-asset class may be assigned benchmarks that are different from the overall sub-asset class benchmarks. The Annual Investment Plan, which is approved by the OPERS Retirement Board, shall include the expected outperformance for each sub-asset class.

VIII. RISK MANAGEMENT

The primary approach to managing risk is to monitor principal quantitative and qualitative risk factors relative to benchmarks while continuing to pursue active returns. The following sub-sections identify the key risk areas with risk management parameters.

A. Active Risk

Active Risk or tracking error is a statistical measure of the potential variability of a portfolio's return relative to that of the assigned benchmark. The expected tracking error statistics for the Fixed Income Asset Class is to range between 0 and 200 basis points from the custom benchmark determined by target weighting the underlying sub-asset class allocations.

The following table provides the tracking error ranges for the Fixed Income sub-asset classes solely for informational purposes – it would be considered acceptable for the tracking error of one sub-asset class to exceed its range if the tracking error for the entire Fixed Income asset class is below 200 basis points.

Sub-Asset Class	Benchmark	Tracking Error Range (in basis points)
Core Fixed	Bloomberg U.S. Aggregate Index	0- ~~200~~ 150
Investment Grade Credit	Bloomberg U.S. Corporate Bond Index	0-150
Emerging Markets Debt	Custom benchmark of the following indices: ■ 50% JP Morgan Emerging Markets Bond Index Global ■ 50% JP Morgan Government Bond Index-Emerging Markets Global Diversified	0-800
Securitized Debt	Custom benchmark of the following indices: ■ 50% Bloomberg Non-Agency Investment Grade CMBS: BBB Total Return Index Unhedged USD ■ 50% Bloomberg Non-Agency CMBS Agg Eligible Total Return Index Value Unhedged USD	0-400
TIPS	Bloomberg U.S. TIPS Index	0-50
High Yield	Bloomberg U.S. <u>Corporate</u> High Yield Index	0-700
U.S. Treasury	Bloomberg U.S. Treasury <u>1-5 Year</u> Index	0-50

B. Interest Rate Risk

Interest rate risk will be managed by limiting the average option-adjusted duration of fixed income portfolios. The Fixed Income Asset Class duration will be within 20% of the option-adjusted duration of the aggregate market value weighted Fixed Income sub-asset class benchmarks.

C. Credit Risk

Credit risk will be managed by limiting the non-investment grade securities held in the fixed income portfolios.

The percentage by market value of non-investment grade securities in the Fixed Income Asset Class will not exceed 15 percentage points of the percentage by market value of non-investment grade securities in the Fixed Income Aggregate Benchmark.

Non-investment grade securities are defined as securities rated below Baa3 by Moody's and securities rated below BBB- by S&P and Fitch. If a majority of Moody's, S&P, or Fitch rate a security non-investment grade, it will be considered non-investment grade. Securities that have not been rated will be considered non-investment grade.

D. Liquidity Risk

Investment structure impacts liquidity. Therefore, consideration is given to separate accounts over commingled accounts as well as with internally managed accounts given their greater control and transparency.

E. Currency Risk

The percentage by market value of non-U.S. dollar based securities in the Fixed Income Asset Class will not exceed 15 percentage points of the percentage by market value of non-U.S. dollar based securities in the Fixed Income Aggregate Benchmark. Currency management, including currency derivatives and cross-hedging, may be used to manage OPERS' exposure to currency risk.

F. Non-U.S. Issuer Risk

The percentage by market value of securities of non-U.S. issuers in the Fixed Income Asset Class will not exceed 15 percentage points of the percentage by market value of non-U.S. issuers in the Fixed Income Aggregate Benchmark.

G. Sector Risk

The sub-asset classes are expected to be broadly diversified and may have deviations from the benchmark sector weightings. Sector exposures will be monitored by Investment Staff ("Staff") to identify the under/over-allocations and for performance attribution analysis. The tracking error constraints, in conjunction with the use of broad-based asset class benchmarks, will have the effect of limiting sector concentration.

H. Manager Risk

The allocation to a single active external manager in the Fixed Income Asset Class is limited to 15% of the Asset Class.

I. Derivatives Risk

Derivatives usage and limitations as well as risk management are specified in manager guidelines and shall comply with OPERS' Derivatives Policy.

J. Leverage Risk

Leverage usage and limitations as well as risk management are specified in manager guidelines and shall comply with OPERS' Leverage Policy.

IX. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The OPERS Retirement Board ("Board") is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer ("CIO") to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for managing the Fixed Income assets within the framework of the Board approved Policy and within the goals and objectives adopted by the Board in the Annual Investment Plan.

Staff shall ensure that all manager guidelines for external and internal portfolios are set in accordance with OPERS' Policies.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS' investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance ("IC") is responsible for monitoring compliance with this Policy (except for tracking error measurements), including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisor

The role of the Investment Advisor is specified in the Investment Objective and Asset Allocation Policies.

X. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

A. Quarterly

Performance reports – Investment Advisor and/or Staff

Report on compliance – Investment Compliance Staff

B. Annually

OPERS Annual Investment Plan – Staff



Ohio Public Employees Retirement System

Private Equity Policy
March 2025⁴

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Revision History

Private Equity Policy Established	September 2002
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Policy Revised	September 18, 2019
Policy Revised	March 17, 2021
Policy Revised	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
Policy Revised	March 19, 2025

I. SCOPE

This Policy applies to the Private Equity assets within the Ohio Public Employees Retirement System ("OPERS") Defined Benefit Fund ("DB Fund").

II. PURPOSE

This Policy provides the broad strategic framework for managing the Private Equity assets.

III. INVESTMENT PHILOSOPHY

The Private Equity sub-asset class seeks superior equity returns plus a premium for illiquidity. OPERS attempts to select managers with top quartile returns. Private equity investments also allow OPERS to invest in a very significant portion of the global economy which is not publicly-traded as well as to access strategies which benefit from longer holding or workout periods. Accessing these strategies leads not only to superior returns but also to additional diversification of assets and strategies within the DB Fund.

IV. ALLOCATION

Allocation is a critical driver for the long-term success of the Private Equity sub-asset class. Since it is not possible to rebalance quickly in Private Equity, commitment pacing and manager selection have heightened importance as tools to influence allocation.

Long-term strategy allocation ranges are presented below.

Strategy	Allocation Range
Corporate Finance	50 – 90%
Venture Capital	0 – 30%
Special Situations	0 – 30%

The Private Equity portfolio will achieve diversification by investing in funds and co-investments that are complementary in nature regarding fund size, sector, strategic focus, and vintage year.

A. Corporate Finance

This category is commonly referred to as leveraged buy-outs but is more properly identified as corporate finance. Capital is typically invested in more established companies, meaning those further along the business life cycle, having relatively predictable cash flows and the ability to raise capital throughout the entire capital structure.

B. Venture Capital

Venture capital equity is targeted at companies in the earliest phases of a business lifecycle. Companies may be classified as seed, early, middle or late stage and are characterized by their decreased ability to access public equity or debt. These companies have uncertain revenues, need cash to build their businesses, and are subject to higher failure rates than Corporate Finance companies. Venture capital investments also include fund of funds that commit to newly formed venture capital funds and secondary fund of funds that purchase venture capital funds and venture-backed companies from existing investors.

C. Special Situations

Many private equity opportunities have unique characteristics that require a separate classification beyond that of corporate finance or venture capital. These investments include distressed debt funds, mezzanine debt funds, opportunistic funds, and secondary fund of funds that are not focused on venture capital investments.

V. INVESTABLE INSTRUMENTS AND RESTRICTED INVESTMENTS

A. Investment Types

This Policy authorizes commitments to private equity funds, co-investments, fund of funds and separate accounts (collectively “Private Equity Investments”) investing in private equity strategies. Private Equity Investments may result in exposure to any type of security throughout the capital structure. This Policy also allows for structures which may not conform precisely to the previous list but whose intent is to capture private equity exposure and returns while insulating the DB Fund from liability in excess of the amounts invested.

B. Co-Investment and Direct Investment

Investment rights may include opportunities for additional capital participation through co-investment or direct investment opportunities. The underlying asset in a co-investment is a portfolio company of an existing private equity fund and managed by the fund’s manager.

Co-investments may occur by the Investment Staff (“Staff”) deciding to invest directly in a company committing to a commingled co-invest fund or by structuring a separate account with a manager who has discretion to make co-investments on behalf of OPERS. The allocation range for co-investments and direct placements is 0 to 35% of the Private Equity portfolio’s market value.

C. Derivatives

The use of derivatives shall comply with the OPERS’ Derivatives Policy.

D. Stock Distributions

Stock distributions will either be transferred to the actively or index managed internal equity portfolios or liquidated within ninety days of receipt and with the removal of all trading restrictions. Unlisted stock distributions will be liquidated in an orderly manner.

E. Child Labor

Private Equity Investments whose strategy includes, or that demonstrate a history of, exploiting child labor is prohibited. The definition of child labor varies among countries and this provision is intended as a guideline to be applied in all private equity investing activities. Staff shall endeavor to secure provisions in the investment agreements that conform to these limitations.

F. Privatization

OPERS does not aim to promote privatization of public sector jobs through its Private Equity Investments. It is highly unlikely that OPERS Private Equity Investments would be dependent on privatization strategies. In evaluating Private Equity Investments, the Staff shall use its best efforts to limit circumstances where privatization may have an adverse actuarial impact on OPERS. If such limitation is not possible, the Staff shall seek guidance from the Board before proceeding.

VI. THIRD-PARTY MARKETING

OPERS expects its managers to behave legally and ethically. OPERS requires that third-party marketers used by managers be regulated by appropriate legal authorities and subject to disciplinary actions by them. OPERS will confirm in its side letter, investment management agreement or other contractual arrangement, that a manager being engaged by OPERS has a requirement to provide the details of marketing arrangements, political contributions, or similar payments involving individuals, placement agents, third-party marketers and the like with respect to OPERS' investments with the manager.

VII. PERFORMANCE OBJECTIVES

OPERS' Private Equity performance is benchmarked against the State Street Private Equity Index ("SSPEI") calculated using the time-weighted total return method. In addition, Staff computes internal rate of return ("IRR") results which are compared to peer rankings using the SSPEI data whose performance is also based on the IRR methodology.

VIII. RISK MANAGEMENT

Private Equity Investments do not lend themselves to traditional quantitative measures of risk such as standard deviation and benchmark tracking error. Rather, risk is managed through a combination of quantitative and qualitative constraints. The following sections identify the most significant risks with Private Equity Investments and the method of control.

A. Liquidity Risk

Private Equity Investments are illiquid and funds in particular typically have expected holding periods of 10-12 years. Private Equity Investments are typically held until all underlying investments have been sold, since selling prior to this point generally results in a discount to fair market value. Liquidity risk is managed by minimizing the possibility of forced sales that may arise from exceeding maximum exposure limits or lowering asset allocation exposure limits. Asset allocation exposure is monitored by an investment pacing model maintained by Staff.

B. Vintage Year Risk

Vintage year refers to the year of the first investment or capital draw for fees. Vintage year risk refers to the variability of the annual commitment amounts to Private Equity Investments over time. Staff manages the short and long-term investment pacing that helps to minimize vintage year risk while achieving targeted exposure.

C. Single Investment Risk

OPERS does not want the failure of a single investment to have a severe impact on the performance of the total Private Equity sub-asset class. The following limitations will be applied to control single investment risk at the time of commitment:

- a) For primary funds, OPERS will limit its commitment amount to any single closed-end commingled fund to \$600 million.

This limit does not apply to primary fund of funds, secondary fund of funds, or vehicles used solely for co-investments.

- b) For fund of funds, including secondary fund of funds, OPERS will limit its commitment amount to any single closed-end commingled fund to \$800 million.

D. Co-Investment/Direct Investment Risk

The maximum allowable co-investment or direct investment in any individual company is the greater of \$100 million or 1% of the Private Equity portfolio's market value based on total cost of the co-investment or direct investment at the time of the investment.

E. Company Risk

Staff cannot opt into or out of exposures to individual companies through fund investments, but exposure may be managed when participating via a co-investment or direct investment in a company.

F. Manager Risk

The allocation to a single manager and its affiliates is limited to 20% of the total exposure (defined as unfunded commitments plus market value) of the Private Equity portfolio.

G. Currency Risk

The Private Equity portfolio accepts the currency risks consistent with the geographic constraints. Private Equity Investments generally do not hedge currency risk and the Private Equity portfolio will not implement currency hedges.

H. Industry Risk

Typically, Private Equity Investments are permitted to invest in a wide variety of industries with limited controls. Industry risk is controlled primarily through appropriate diversification across classes and subclasses.

I. Geographic Risk

Geographic risk is controlled through limitations as shown in the table below:

Region	Allocation Range
U.S.	50% to 70%
* Non-U.S.	30% to 50%

*The entire Non-U.S. allocation may be allocated to Western Europe, U.K. and Canada. However, the "Other" Non-U.S. is limited to 20% of the total portfolio, as shown below.

Non-U.S. Region	Allocation Range
Western Europe, U.K. and Canada	No more than 50%
Other	No more than 20%

J. Leverage Risk

Managers of Private Equity Investments invest capital throughout the capital structure of companies. The capital markets determine the maximum leverage available to managers. Staff uses portfolio construction as a tool to manage leverage exposure.

K. Valuation Risk

Private Equity Investments lack the trading frequency to establish values and relies on an assessment process to periodically value investments. OPERS will utilize valuation procedures consistent with industry standards for the Private Equity sub-asset class.

IX. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The OPERS Retirement Board (“Board”) is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer (“CIO”) to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for managing Private Equity assets within the framework of the Board approved Policies and within the goals and objectives adopted by the Board in the Annual Investment Plan. Staff will select managers in accordance with the Manager Selection and Monitoring Processes or through Requests for Proposals.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance (“IC”) is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisors

The Board and Staff may engage specialty Investment Advisor to assist in managing the program. Specific responsibilities will be established with the Investment Advisors through contractual agreements.

X. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

A. Quarterly

Performance reports – Investment Advisors

Report on compliance – Investment Compliance Staff

B. Semi-Annually

Asset class performance report – Staff

C. Annually

OPERS Annual Investment Plan – Staff



Ohio Public Employees Retirement System

Real Estate Policy
March ~~2024~~2025

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Revision History

Real Estate Policy Established	December 2002
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<u>Policy Revised</u>	<u>March 19, 2025</u>

I. SCOPE

This Policy applies to the private market Real Estate assets within the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit Fund (“DB Fund”).

II. PURPOSE

This Policy provides the broad strategic framework for managing investments in the Real Estate sub-asset class for the DB Fund.

III. INVESTMENT PHILOSOPHY

The role of the Real Estate sub-asset class within the DB Fund is to:

- Gain exposure to real estate opportunities that enhance portfolio returns and diversification through less than perfect correlations with other asset classes
- Provide an expected total return that is competitive, and greater than the expected return of fixed income but less than the expected return of public equities
- Use the policy allocation and investment ranges tactically to acquire assets in capital constrained markets and sell assets into market strength
- Create a portfolio of cash flowing assets that provide a current income return
- Identify best-in-class managers with the asset management skills needed to increase asset values by growing property-level cash flows
- Provide a potential hedge against inflation.

The private market Real Estate portfolio uses active management strategies implemented through external managers. The investment strategies may use a component of non-U.S. real estate investments.

IV. ALLOCATION

The DB Fund Investment Objectives and Asset Allocation Policies establish the target allocations for private market Real Estate.

V. PERMISSIBLE INVESTMENTS

1. Investment Types

This Policy authorizes investments in all forms of private market Real Estate and Real Assets. Staff establishes property type and security type limitations at the manager or portfolio level.

2. Investment Structures

This Policy authorizes the use of investment structures that provide legal protections to OPERS commensurate with the investment opportunity, and acceptable to the OPERS Legal Services Division, such as:

- Separate Accounts
- Co-investments
- Joint ventures
- Open and closed-end funds
- Partnerships
- Limited Liability Companies
- Private REITs and Real Estate Operating Companies

3. Derivatives

The use of derivatives shall comply with OPERS' Derivatives Policy.

VI. THIRD-PARTY MARKETING

OPERS expects its general partners and investment managers to behave legally and ethically. OPERS requires that third-party marketers used by general partners or investment managers be regulated by appropriate legal authorities and subject to disciplinary actions by them. OPERS will confirm in its side letter, investment management agreement or other contractual arrangement, that a manager being engaged by OPERS has a requirement to provide the details of marketing arrangements, political contributions, or similar payments involving individuals, placement agents, third-party marketers and the like with respect to OPERS' investments with the manager.

VII. PERFORMANCE OBJECTIVES

The performance benchmark for the private market Real Estate sub-asset class is the National Council of Real Estate Investment Fiduciaries ("NCREIF") Fund Index – Open End Diversified Core Equity ("ODCE") net of fees plus 85 basis points to reflect long-term portfolio weightings to Core and Non-Core real estate. The private market Real Estate portfolio return is measured net of manager fees, not including overhead expenses. The private market Real Estate portfolio is expected to meet or exceed the net ODCE plus 85 bps over rolling five-year periods.

VIII. RISK MANAGEMENT

Private market Real Estate does not lend itself to traditional quantitative measures of risk, such as standard deviation and benchmark tracking error. Rather, risk is managed through a combination of quantitative and qualitative constraints. The following sections identify the most significant risks with private market Real Estate investments and the method of control.

1. Property Type Risk

The table below shows the OPERS investment ranges for the property types. In addition to the five standard property types, OPERS includes a Diversified category that consists of mixed-use assets that contain a combination of multiple property types. The “Other” property type includes properties outside the five major property types such as land or self-storage.

Property Type	Range
Residential	10-50%
Industrial	5-50%
Office	~~5-15~~ -40%
Retail	0-35%
Hotel/Leisure	0-30%
Diversified	0-20%
Infrastructure	0-25%
Other**	0-35%

** May include cash held by the managers and property types classified as Education, Healthcare, and Land

Strategic and tactical property type allocations are a function of economic, capital, and property market conditions that will be addressed in the OPERS Annual Investment Plan.

2. Investment Profile Risk

The “Risk Profile” of real estate investments can generally be classified as either Core or Non-Core. Real Estate investments can generally be classified into two life cycle risks, Core and Non-Core. OPERS will make allocations to both Core and Non-Core investments to maximize the total return to OPERS while mitigating risk.

As a moderate risk investor, OPERS' allocation will be primarily weighted toward Core investments. Over the long term, OPERS will maintain a 60% Core target for the private markets Real Estate portfolio, within a range of +/- 10 percentage points. From time to time, the actual allocation of the portfolio may fall outside the ranges due to external market events. In these instances, OPERS will implement strategies to return the portfolio to the recommended ranges over a reasonable time frame, while considering the need to preserve investment returns.

Investments will be defined as either Core or Non-Core based on the channel as defined following criteria below:

- Open-End Funds
Investments in this channel will be considered Core investments.
- Closed-End Funds
Investments in Closed-End ~~equity Funds where no more than 40% of the fund is committed to development will be considered Core, per the guidelines. Investments in Closed-End debt funds and Secondaries funds will all be considered Core.~~ will be considered Core when the following criteria are met:
 - The Fund utilizes leverage that equates to a loan-to-value of 50% or less
 - Less than 30% of the aggregate Fund commitments are committed to ground-up development.
- Separate Accounts
Investments made by Separate Account ~~to acquire a property~~ will be considered Core ~~if~~ when the property-level occupancy is 80% or higher (60% for hotels) and the loan-to-value is 60% or lower. Separate Account debt investments will all be considered Core.

Staff will seek permission from the OPERS Retirement Board ("Board") prior to enacting any investment or strategy that is expected to cause the private market Real Estate portfolio's Core exposure to drop below 50%.

3. Liquidity Risk

Private market Real Estate investments are illiquid and should be assumed to have expected holding periods of 7-10 years or longer.

4. Geographic Risk

OPERS will endeavor to ensure the private market Real Estate portfolio is well diversified by location. OPERS will attain geographic and economic diversification by investing no more than 25% of the total private market Real Estate portfolio's net asset value outside the United States.

5. Single Investment Risk

OPERS does not want the failure of a single investment to have a severe impact on the performance of the total Real Estate sub-asset class. The following limitations will be applied to control single investment risk at the time of purchase:

- a) For separate accounts OPERS' equity cost basis in any single property will not exceed \$500 million.
- b) For Closed-End commingled funds, OPERS will limit its equity commitment amount to \$750 million.
- c) For Open-End commingled funds, OPERS will limit its equity commitment amount to \$1 billion.

6. Manager Risk

To control manager exposure, the allocation to a single private market Real Estate manager is limited to 20% of the private market Real Estate portfolio.

7. Leverage Risk

Leverage will not exceed 60% loan to value of the aggregate private market Real Estate portfolio.

8. Currency Risk

The Real Estate program accepts the currency risks consistent with the geographic exposures. Real Estate managers may or may not hedge currency risk but the Real Estate sub-asset class will not implement currency hedges.

9. Valuation Risk

Private Market Real Estate lacks the trading frequency to establish values and relies on an appraisal process to periodically value investments. OPERS will utilize valuation procedures consistent with industry standards for the Real Estate sub-asset class.

10. Vertical Integration Risk

A real estate investment manager has the potential to combine the asset management function with other services, such as property management, construction management, and/or leasing, for the assets under management by that investment firm. OPERS acknowledges that vertical integration, when a manager uses a service provider that is related to that manager, may offer potential benefits to the investor, such as greater control, efficiency in the decision making process, and potentially lower costs. OPERS also recognizes that the use of vertically integrated firms raises issues of potential conflicts of interest, as firms that are vertically integrated may be subject to influences on their decision making not found in firms that contract out such services to unaffiliated third parties.

OPERS will seek to identify potential conflicts of interest arising from vertical integration. Separate account managers are required to report all related party activities quarterly to OPERS. For open-end and closed-end fund investments, Staff shall review the fund documents for potential manager conflicts of interest as part of the due diligence process. If the fund has an advisory council, OPERS may request a seat on the advisory council.

11. Other Risks

The legal documents governing the real estate investment structures establish the insurance requirements for the managers. Staff considers potential environmental issues when making real estate investments.

IX. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer (“CIO”) to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for managing real estate assets within the framework of the Board approved policies and within the goals and objectives adopted by the Board in the OPERS Annual Investment Plan.

Staff shall assure that investment guidelines for external public and private market real estate managers are set in accordance with OPERS' policies, goals and objectives. Staff is also responsible for adapting the Investment Division's Guideline Procedure to the unique circumstances of private real estate markets, consistent with the CIO's delegation of authority to Staff.

Staff is also responsible for monitoring Real Estate investments and reporting to the Board in accordance with OPERS' policies.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance ("IC") is responsible for monitoring compliance with this Policy (except for tracking error measurements), including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisors

OPERS may engage specialty Investment Advisors to assist in managing the Real Estate sub-asset class. OPERS Real Estate advisors shall review and approve investment guidelines and proposed guideline changes for public market real estate portfolios, whether managed internally by Staff or externally by managers retained by OPERS. Other specific responsibilities will be established with the Investment Advisors through contractual agreements.

X. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

A. Quarterly

Performance reports – Investment Advisors

Report on compliance – Investment Compliance Staff

B. Semi-Annually

Asset class performance report - Staff

C. Annually

OPERS Annual Investment Plan – Staff



Ohio Public Employees Retirement System

Private Credit Policy
March 2025⁴

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Revision History

Private Credit Policy Established
Policy Revised
Policy Revised

September 20, 2023
March 20, 2024
March 19, 2025

I. SCOPE

This Policy applies to the Private Credit assets within the Ohio Public Employees Retirement System ("OPERS") Defined Benefit Fund ("DB Fund").

II. PURPOSE

This Policy provides the broad strategic framework for managing Private Credit assets.

III. INVESTMENT PHILOSOPHY

The Private Credit sub-asset class seeks exposure to higher risk adjusted returns than public fixed income markets. In order to obtain such returns, OPERS will invest in non-publicly traded debt.

IV. ALLOCATION

The DB Fund Investment Objectives and Asset Allocation Policies establish the target allocations for Private Credit. The Private Credit portfolio may be comprised of various private credit strategies that may include (but are not limited to) direct lending, subordinated capital, structured credit, stressed/distressed debt, and specialty finance.

In order to achieve reasonable levels of diversification in the portfolio, OPERS will invest across strategy types and vintage years.

V. INVESTABLE INSTRUMENTS AND RESTRICTED INVESTMENTS

A. Investment Types

This Policy authorizes commitments to private credit drawdown funds, evergreen funds, Business Development Companies and Funds of One (collectively "Private Credit Investments") investing in private credit strategies. This Policy also allows for structures which may not conform precisely to the aforementioned but are designed to provide private credit exposure and returns while insulating the DB Fund from liability in excess of the amounts invested.

B. Co-Investments

Staff may pursue opportunities for additional capital participation through co-investment. The underlying asset in a co-investment is a loan or debt-like instrument of an existing private credit fund and managed by the fund's manager.

C. Derivatives

The use of derivatives shall comply with the OPERS' Derivatives Policy.

VI. THIRD-PARTY MARKETING

OPERS expects its managers to behave legally and ethically. OPERS requires that third-party marketers used by managers be regulated by appropriate legal authorities and subject to disciplinary actions by them. OPERS will confirm in its side letter, investment management agreement or other contractual arrangement, that a manager being engaged by OPERS has a requirement to provide the details of marketing arrangements, political contributions, or similar payments involving individuals, placement agents, third-party marketers and the like with respect to OPERS' investments with the manager.

VII. PERFORMANCE OBJECTIVES

OPERS' Private Credit performance is benchmarked against the total return of the ~~Credit Suisse~~ S&P UBS Leveraged Loan Index.

VIII. RISK MANAGEMENT

Private Credit Investments do not lend themselves to traditional quantitative measures of risk such as standard deviation and benchmark tracking error. Rather, risk is managed through a combination of quantitative and qualitative constraints. The following sections identify the most significant risks with Private Credit Investments and the method of control.

A. Liquidity Risk

Private Credit Investments are illiquid and funds typically have expected holding periods of 5-8 years or more. Private Credit investments are typically held until all underlying investments have been sold, since selling prior to that point often results in a discount to fair market value. Liquidity risk is managed by minimizing the possibility of forced sales that may arise from exceeding maximum exposure limits or lowering asset allocation exposure limits. Asset allocation exposure is monitored by an investment pacing model maintained by Staff.

B. Vintage Year Risk

Vintage year refers to the year of the first investment or capital draw for fees. Vintage year risk refers to the variability of returns associated with the annual commitment amounts to Private Credit Investments over time. Staff manages the short and long-term investment pacing model that helps to minimize vintage year risk while achieving targeted exposure.

C. Single Investment Risk

OPERS does not want the failure of a single fund investment to have a severe impact on the performance of the Private Credit sub-asset class. The following limitations will be applied to moderate the impact of a single commitment/investment:

- a) For commingled vehicles, OPERS will limit its commitment amount to any single commingled fund to \$500 million.
- b) For Fund of One investments, OPERS will limit its commitment to \$800 million.
- c) For co-investment vehicles, OPERS will limit its commitment to \$~~250~~200 million.

D. Credit Risk

Staff cannot opt into or out of exposures to individual investments through fund investments, but exposure may be managed when participating via a co-investment.

E. Industry Risk

Private Credit Managers may invest across industries at their discretion provided they are providing sufficient diversification to their overall portfolio. Industry risk is controlled through both the underlying investment manager's diversification within their portfolio as well as diversification by investment manager.

F. Manager Risk

The impact of a single manager and its affiliates on the Private Credit portfolio is mitigated by Staff diversifying manager exposure.

G. Currency Risk

Given the global nature of the Private Credit portfolio, OPERS accepts the currency risk consistent with an individual investment's geographic constraints. Private Credit Managers may hedge currency risk at their discretion. OPERS will not implement currency hedges.

H. Geographic Risk

Geographic risk, as defined by the location of the company's headquarters for corporate investments and by region of exposure for non-corporate facing investments, is controlled through limitations as shown in the tables below:

Region	Allocation Range
U.S.	70% to 100%
Non-US	0% to 30%

*The entire non-US allocation may be allocated to Western Europe and/or Canada. No more than 10% of the entire portfolio can be invested outside of the aforementioned regions.

Region	Allocation Range
Western Europe and/or Canada	Up to 30%
Other	No more than 10%

~~Given the longer deployment periods required for the Private Credit sub-asset class, it may take up to 18 months from the start of the program to achieve the geographic allocation range.~~

I. Leverage Risk

Managers of Private Credit Investments may employ leverage to their investments in hopes of generating additional returns. Staff uses portfolio construction as the primary tool to manage leverage exposure and usage of leverage shall comply with the OPERS' Leverage Policy. In addition, strategy specific leverage limitations and asset class exposure maximums may be specified within manager guidelines or governing documents to further constrain the use of leverage.

J. Valuation Risk

Private Credit Investments lack the trading frequency to establish values and rely on an assessment process to periodically value investments. OPERS will utilize valuation procedures consistent with industry standards for the Private Credit sub-asset class.

IX. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The OPERS Retirement Board ("Board") is responsible for reviewing and approving this Policy and any changes to it. In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer (“CIO”) to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for managing Private Credit assets within the framework of the Board approved Policies and within the goals and objectives adopted by the Board in the Annual Investment Plan. Staff will select managers in accordance with the Manager Selection and Monitoring Processes or through Requests for Proposals.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance (“IC”) is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisors

The Board and Staff may engage specialty Investment Advisors to assist in managing the program. Specific responsibilities will be established with the Investment Advisors through contractual agreements.

X. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

A. Quarterly

Performance reports – Investment Advisors

Compliance – Investment Compliance Staff

B. Semi-Annually

Asset class performance Report - Staff

C. Annually

OPERS Annual Investment Plan



Ohio Public Employees Retirement System

REITs Policy
March 20254

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Revision History

REITs Policy Established
Policy Revised
Policy Revised

March 15, 2023
March 20, 2024
March 19, 2025

I. SCOPE

This Policy applies to investments in the public Real Estate Investment Trusts (“REITs”) sub-asset class of the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit (“DB Fund”) and Health Care 115 Trust Funds (“HC Fund”).

II. PURPOSE

This Policy provides the broad strategic investment framework for managing investments in the REITs sub-asset Class.

III. INVESTMENT PHILOSOPHY

OPERS seeks to diversify assets by obtaining broad exposure to publicly traded REITs. Strategies used in this sub-asset class may include index-oriented or actively managed strategies with the expectation that the overall sub-asset class produce risk-adjusted returns similar to that of the benchmark, net of fees.

IV. ALLOCATION

The target allocations and ranges for the REITs sub-asset class are specified in the Investment Objectives and Asset Allocation Policy for the DB and HC 115 Trust Funds (“DB and HC Policies”).

V. PERMISSIBLE INSTRUMENTS

REITs assets may be invested in any and all types of instruments intended to obtain and manage REITs like returns. Instruments used may be exchange-traded or non-exchange-traded and may be physical securities or derivatives. Additional security type constraints may be applied in investment manager portfolio guidelines.

VI. THIRD-PARTY MARKETING

OPERS expects its general partners and investment managers to behave legally and ethically. OPERS requires that third-party marketers used by general partners or investment managers be regulated by appropriate legal authorities and subject to disciplinary actions by them. OPERS will confirm in its side letter, investment management agreement or other contractual arrangement, that a manager being engaged by OPERS has a requirement to provide the details of marketing arrangements, political contributions, or similar payments involving individuals, placement agents, third-party marketers and the like with respect to OPERS investments with the manager.

VII. PERFORMANCE OBJECTIVES

The performance benchmark for the REITs sub-asset class is the DJ RESI. The Annual Investment Plan, which is approved by the OPERS Retirement Board, shall include the performance expectations for this sub-asset.

VIII. RISK MANAGEMENT

The primary approach to managing risk is to monitor principal quantitative and qualitative risk factors relative to benchmarks while continuing to pursue active returns.

The following sub-sections identify the key elements of risk management at the REITs sub-asset class levels.

A. Active Risk

The OPERS Annual Investment Plan may define tracking error ranges for specific portfolios provided the overall REITs sub-asset class tracking error does not exceed 250 basis points. The allowable allocation range for each portfolio type and the investment guidelines defined for each portfolio are designed to assist in risk management.

B. Liquidity Risk

It is the objective of the REITs portfolio to be fully invested in REITs securities. A small allocation to cash or cash equivalents is normal.

C. Sector Risk

The REITs sub-asset class is expected to be broadly diversified and may have deviations from the benchmark sector weightings. Sector exposures will be monitored by Staff to identify the under/over-allocations and for performance attribution analysis. The tracking error constraints or index investment mandates and the use of broad-based sub-asset class benchmarks will have the effect of limiting sector concentration.

D. Single Security Risk

Imposing a tracking error discipline limits investment in any single company to a percentage of the manager's total market value. Use of broadly-based sub-asset class benchmarks also encourages security diversification.

E. Manager Risk

The allocation to a single active external manager in the REITs sub-asset class is limited to 30% of the respective sub-asset class.

F. Derivatives Risk

Derivatives usage and limitations as well as risk management are specified in manager guidelines and shall comply with OPERS' Derivatives Policy.

G. Leverage Risk

Leverage usage and limitations as well as risk management are specified in manager guidelines and shall comply with OPERS' Leverage Policy.

IX. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The OPERS Retirement Board ("Board") is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer ("CIO") to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for managing the REITs sub-asset class within the framework of the Board approved Policies and within the goals and objectives adopted by the Board in the Annual Investment Plan.

Staff shall ensure that all investment manager guidelines for external and internal portfolios are set in accordance with OPERS' Policies.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS' investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance ("IC") is responsible for monitoring compliance with this Policy (except for tracking error measurements), including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisor

The role of the Investment Advisor is specified in the Investment Objective and Asset Allocation Policies.

X. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

A. Quarterly

Performance reports – Investment Advisor and/or Staff

Report on compliance – Investment Compliance Staff

B. Annually

OPERS Annual Investment Plan – Staff



Ohio Public Employees Retirement System

Risk Parity Policy
March 2025⁵⁴

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Revision History

Risk Parity Policy Established	February 20, 2013
Policy Revised	February 19, 2014
Policy Revised	February 18, 2015
Policy Revised	January 20, 2016
Policy Revised	February 15, 2017
Policy Revised	March 21, 2018
Policy Revised	September 18, 2019
Policy Revised	March 17, 2021
Policy Revised	April 21, 2021
Policy Revised	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
Policy Revised	March 19, 2025

I. SCOPE

This Policy applies to investments in the Risk Parity Asset Class within the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit Fund (“DB Fund”) and Health Care 115 Trust Funds (“HC Fund”).

II. PURPOSE

This Policy provides the broad strategic framework for managing investments in the Risk Parity Asset Class.

III. INVESTMENT PHILOSOPHY

OPERS seeks to diversify assets through the Risk Parity allocation by obtaining exposure to global capital market assets in a risk-aware manner. This requires investing in multiple asset types and leveraging exposures to global markets in order to obtain the desired risk-aware mix. The Risk Parity allocation is structured to achieve roughly balanced risk exposure across equities, nominal fixed income, and inflation sensitive assets, targeting a total volatility level comparable to that of the DB Fund and HC Fund.

IV. ALLOCATION

The allocation to Risk Parity is specified in the Investment Objectives and Asset Allocation Policy for the DB Fund and HC Fund. Investments within the Risk Parity Asset Class may be made across multiple asset classes. For asset allocation measurement purposes, those exposures are only reflected within the Risk Parity allocation.

Exposure can be obtained through ~~externally managed and~~ internally managed approaches. Managers’ portfolios may have unique asset allocations, strategies and definitions of approaches for targeting balanced risk exposures.

V. PERMISSIBLE INSTRUMENTS

Risk Parity assets may be invested in all types of instruments intended to obtain exposure to a wide variety of asset types including equities, fixed income (both sovereign and credit based exposures), inflation-linked bonds, commodities and other asset types. Instruments used may be exchange-traded or over-the-counter and may be physical securities or derivatives, and a degree of leverage may be employed. Additional security type constraints may be applied in investment manager portfolio guidelines or comparable governing documents.

~~VI. THIRD-PARTY MARKETING~~

~~OPERS expects its general partners to behave legally and ethically. OPERS requires that third-party marketers used by general partners be regulated by appropriate legal authorities and subject to disciplinary actions by them. OPERS will confirm in its side letter, investment management agreement or other contractual arrangement, that a manager being engaged by OPERS has a requirement to provide the details of marketing arrangements, political contributions, or similar payments involving individuals, placement agents, third-party marketers and the like with respect to OPERS investments with the manager.~~

~~VII.VI. PERFORMANCE OBJECTIVES~~

The overall benchmark for the Risk Parity Asset Class is S&P Risk Parity Total Return Index 10% Vol Target (USD). ~~a market value weight of the underlying benchmarks.~~ The performance benchmarks for the Risk Parity strategies are shown in the table in Section VIII. The Annual Investment Plan, which is approved by the OPERS Retirement Board, shall include the performance expectation for Risk Parity.

~~VIII.VII. RISK MANAGEMENT~~

Risk is managed through a combination of quantitative and qualitative constraints. The following sections identify the most significant risks with Risk Parity investments:

A. Active Risk

Active risk or tracking error is a statistical measure of the potential variability of a portfolio's return relative to that of the assigned benchmark. ~~Externally managed strategies do not lend themselves to traditional quantitative measures of risk such as tracking error due to the use of a peer-based index as a benchmark. Individual external managers within the Risk Parity Asset Class typically do not target a specific level of tracking error relative to the assigned peer-based benchmark.~~

Strategy	Benchmark	Tracking Error Range
~~External Managers~~	~~Custom HFR Risk Parity Index~~	~~0 to 200 basis points (ex post over rolling three-year periods)~~
Internal Global Risk Parity	S&P Risk Parity Total Return Index 10% Vol Target (USD)	0 to 60 basis points

B. Liquidity Risk

~~Investment structure for externally managed portfolios impacts liquidity.~~ Investment Staff ("Staff") will consider liquidity provisions including withdrawal restrictions at both the asset class and individual manager level. Derivatives may introduce additional liquidity risk; however, cash holdings mitigate this risk.

C. Currency Risk

Risk Parity strategies employ some non-U.S. Dollar denominated instruments which expose the Funds to currency risk.

~~D. Manager Risk~~

~~By allocating capital to both internally managed strategies and multiple external Risk Parity managers, concentration risk to any one manager is limited. Staff may work with the Investment Advisor to identify managers, using a process approved by the Chief Investment Officer ("CIO"). In addition to the investment due diligence process, each external manager undergoes an operational due diligence review prior to funding to evaluate non-investment related risk factors.~~

E.D. Derivatives Risk

Derivatives usage and limitations as well as risk management are specified in ~~manager governing documents or~~ portfolio guidelines and shall comply with OPERS' Derivatives Policy.

F.E. Leverage Risk

Risk Parity strategies generally incorporate leverage in order to achieve the desired risk allocations and volatility characteristics. The use of a volatility target limits the amount of leverage that may be undertaken. In addition, strategy specific leverage limitations and asset class exposure maximums may be specified within manager guidelines or governing documents to further constrain the use of leverage. Risks may include a loss of a significant portion of the original investment.

~~G. Legal Risk~~

~~External Risk Parity strategies have unique characteristics which require legal expertise including the use of outside counsel. Limitations include:~~

- ~~• All external managers exercising investment discretion must be (i) registered with the United States Securities and Exchange Commission or with a similar regulator if they are domiciled outside of the United States or (ii) a bank regulated by a United States regulatory body.~~

~~IX.~~VIII. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The OPERS Retirement Board (“Board”) is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer (“CIO”) to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for managing Risk Parity investments within the framework of the Board-approved Policy and within the goals and objectives adopted by the Board in the Annual Investment Plan.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS’ investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance (“IC”) is responsible for monitoring compliance with this Policy (except tracking error measurements), including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisor

The role of the Investment Advisor is specified in the Investment Objective and Asset Allocation Policies.

~~X.~~IX. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

A. Quarterly

Performance Reports – Investment Advisor and/or Staff

Report on compliance – Investment Compliance Staff

B. Annually

OPERS Annual Investment Plan – Staff



Ohio Public Employees Retirement System

**Risk Mitigation Strategies Policy
March 2025**

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Revision History

Risk Mitigation Strategies Policy Established

March 19, 2025

I. SCOPE

This Policy applies to investments in the Risk Mitigation Strategies Asset Class of the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit (“DB Fund”) and Health Care 115 Trust Funds (“HC Fund”).

II. PURPOSE

This Policy provides the broad strategic investment framework for managing investments in the Risk Mitigation Strategies Asset Class.

III. INVESTMENT PHILOSOPHY

OPERS seeks to diversify assets by obtaining broad exposure to Risk Mitigation Strategies. Risk Mitigation Strategies are designed to provide diversifying properties that are often challenging to attain through traditional asset classes. Ideally, Risk Mitigation Strategies will provide liquidity in distressed market environments and allow for asset class rebalancing.

IV. ALLOCATION

The target allocations and ranges for the Risk Mitigation Strategies sub-asset classes are specified in the Investment Objectives and Asset Allocation Policy for the DB and HC 115 Trust Funds (“DB and HC Policies”).

V. PERMISSIBLE INSTRUMENTS

RMS assets may be exchange-traded or non-exchange-traded and may be physical securities or derivatives. The Risk Mitigation Strategies Asset Class will include the following strategies: Long Duration U.S. Treasury, Trend Following, Alternative Risk Premia, and other strategies. Additional security-type constraints may be applied in investment manager governing documents or portfolio guidelines.

VI. THIRD-PARTY MARKETING

OPERS expects its general partners and investment managers to behave legally and ethically. OPERS requires that third-party marketers used by general partners or investment managers be regulated by appropriate legal authorities and subject to disciplinary actions by them. OPERS will confirm in its side letter, investment management agreement or other contractual arrangement, that a manager being engaged by OPERS has a requirement to provide the details of marketing arrangements, political contributions, or similar payments involving individuals, placement agents, third-party marketers and the like with respect to OPERS investments with the manager.

VII. PERFORMANCE OBJECTIVES

The performance benchmarks for the Risk Mitigation Strategies are shown in the table in Section VIII. Custom benchmark based on the target weights of the underlying sub-asset class allocations.

VIII. RISK MANAGEMENT

The primary approach to managing risk is to monitor principal quantitative and qualitative risk factors relative to benchmarks with the possibility to pursue active returns.

The following sub-sections identify the key elements of risk management at the Risk Mitigation Strategies sub-asset class levels.

A. Active Risk

Active risk or tracking error is a statistical measure of the potential variability of a portfolio's return relative to the return of the assigned benchmark. Long Duration U.S. Treasury strategies may be implemented through index-based strategies with low expected tracking error relative to the strategy or manager benchmarks. Other strategies, including Trend Following and Alternative Risk Premia are generally not suitable for index-based implementation and instead typically utilize active strategies and are expected to have a higher tracking error relative to their strategy or manager benchmarks.

Sub-Asset Classes	Benchmark	Tracking Error Range (bps)
Long Duration U.S. Treasury	Bloomberg U.S. Treasury 20+ Year Total Return Index	0 - 50
Trend Following	Market-value weighted composite of the portfolio returns	0 - 50
Alternative Risk Premia	Market-value weighted composite of the portfolio returns	0 - 50

B. Counterparty Risk

Counterparty risk is the risk that a counterparty to an investment transaction fails to perform its obligations under the agreement. Counterparties must be approved in accordance with the Broker-Dealer Policy and managed in compliance with the requirements contained in the Derivatives Policy.

C. Currency Risk

Strategies may employ non-U.S. Dollar denominated instruments which expose the Funds to currency risk.

D. Liquidity Risk

Investment structure impacts liquidity. Therefore, consideration is given to separate accounts over commingled accounts as well as with internally managed accounts given their greater control and transparency.

Investment structure for externally managed portfolios impacts liquidity. Investment Staff ("Staff") will consider liquidity provisions including withdrawal restrictions at both the asset class and individual manager level. Internally managed accounts provide greater control and transparency.

E. Manager Risk

The allocation to a single active external manager in the Risk Mitigation Strategies Asset Class is limited to 50% of the respective Asset Class during the Risk Mitigation Strategies build up and transition timeframe of 2025-2026.

F. Derivatives Risk

Derivatives usage and limitations as well as risk management are specified in manager governing documents or portfolio guidelines and shall comply with OPERS' Derivatives Policy.

G. Leverage Risk

Trend Following and Alternative Risk Premia strategies generally incorporate leverage in order to achieve the desired risk allocations and volatility characteristics. The use of a volatility target limits the amount of leverage that may be undertaken. Risks may include a loss of a significant portion of the original investment. Leverage usage and limitations as well as risk management are specified in manager guidelines and shall comply with OPERS' Leverage Policy.

H. Legal Risk

Externally managed Risk Mitigation Strategies may have unique characteristics which require legal expertise including the use of outside counsel. Limitations for external managers exercising investment discretion must include:

- (i) registered with the United States Securities and Exchange Commission or with a similar regulator if they are domiciled outside of the United States or
- (ii) a bank regulated by a United States regulatory body

IX. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The OPERS Retirement Board (“Board”) is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer (“CIO”) to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for managing the Risk Mitigation Strategies Asset Class within the framework of the Board approved Policies and within the goals and objectives adopted by the Board in the Annual Investment Plan.

Staff shall ensure that all investment manager guidelines for external and internal portfolios are set in accordance with OPERS’ Policies.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS’ investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance (“IC”) is responsible for monitoring compliance with this Policy (except for tracking error measurements), including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisor

The role of the Investment Advisor is specified in the Investment Objective and Asset Allocation Policies.

X. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

A. Quarterly

Performance reports – Investment Advisor and/or Staff

Report on compliance – Investment Compliance Staff

B. Annually

OPERS Annual Investment Plan – Staff



Ohio Public Employees Retirement System

Commodities Policy
March 2025⁴

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Revision History

Commodities Policy Established	March 17, 2010
Policy Revised	December 15, 2010
Policy Revised	December 14, 2011
Policy Revised	March 20, 2013
Policy Revised	February 19, 2014
Policy Revised	February 18, 2015
Policy Revised	January 20, 2016
Policy Revised	February 15, 2017
Policy Revised	March 21, 2018
Policy Revised	September 18, 2019
Policy Revised	March 17, 2021
Policy Revised	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
Policy Revised	March 19, 2025

I. SCOPE

This Policy applies to commodity investments of the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit Fund (“DB Fund”) and Health Care 115 Trust Funds (“HC Fund”) (“Funds”) in the Commodities sub-asset class.

II. PURPOSE

This Policy provides the broad investment framework for managing commodity investments.

III. INVESTMENT PHILOSOPHY

Commodity investments are to provide exposure to global commodities and to achieve returns comparable to or in excess of the benchmark return, net of fees. Active and index management strategies are utilized to manage exposure to the sub-asset class.

IV. STRUCTURE

Commodity portfolios shall be governed by manager portfolio guidelines that establish management parameters to achieve commodity-based returns.

V. PERMISSIBLE INSTRUMENTS

Commodity assets may be invested in instruments intended to produce commodity-like returns. Commodity investments may include commodities not specified in the S&P GSCI and/or the Bloomberg Commodity Index at the time they are purchased. Permissible instruments are exchange-traded and/or over-the-counter securities and derivatives. Security type constraints may be applied in manager portfolio guidelines. Investments shall be managed so as to not result in physical delivery of a commodity.

VI. PERFORMANCE OBJECTIVES

The benchmark for the sub-categories are listed below~~aggregate commodity portfolio is the Bloomberg Commodity Total Return Index~~. Sub-portfolios categories may be assigned different benchmarks and shall be detailed in manager portfolio guidelines. The Annual Investment Plan, which is approved by the OPERS Retirement Board, shall include the expected outperformance.

<u>Categories</u>	<u>Benchmark</u>	<u>Mandate</u>
<u>Commodities - All</u>	<u>Bloomberg Commodity Index</u>	<u>Active</u>
<u>Gold</u>	<u>Bloomberg Gold Subindex Total Return</u>	<u>Index</u>

VII. RISK MANAGEMENT

Risk is managed through a combination of quantitative and qualitative constraints. Investment Staff (“Staff”) shall establish parameters in each manager’s portfolio guidelines to control such risks as the following:

A. Active Risk

Active risk or tracking error is a statistical measure of the potential variability of a portfolio’s return relative to the return of the assigned benchmark. The expected Commodities tracking error range has a minimum of 0 basis points and a maximum of 300 basis points.

B. Counterparty Risk

Counterparty risk is the risk that a counterparty to an investment transaction fails to perform its obligations under the agreement. Counterparties must be approved in accordance with the Broker-Dealer Policy and managed in compliance with the requirements contained in the Derivatives Policy.

C. Currency Risk

Commodity strategies employ some non-U.S. Dollar denominated instruments which expose the Funds to currency risk.

D. Delivery Risk

In commodity investing, there is a risk of a commodity being delivered to OPERS. All investments will be managed and monitored so as to not result in physical delivery.

E. Derivatives Risk

Derivatives usage and limitations as well as risk management are specified in manager guidelines and shall comply with OPERS’ Derivatives Policy.

F. Leverage Risk

Leverage usage and limitations as well as risk management are specified in manager guidelines and shall comply with OPERS’ Leverage Policy.

VIII. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Ohio Public Employees Retirement Board (“Board”) is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer (“CIO”) to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for managing the commodity investments within the framework of the Board-approved Policies and within the goals and objectives adopted by the Board in the Annual Investment Plan.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS’ investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance (“IC”) is responsible for monitoring compliance with this Policy (except tracking error measurements), including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisor

The role of the Investment Advisor (“Advisor”) is specified in the Investment Objective and Asset Allocation Policies.

IX. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

A. Quarterly

Performance reports – Advisor and/or Staff

Report on compliance – Investment Compliance Staff

B. Annually

OPERS Annual Investment Plan – Staff



Ohio Public Employees Retirement System

Cash Policy
March 20254

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Revision History

Cash Policy Established	June 14, 2005
Policy Revised	February 17, 2010
Policy Revised	December 15, 2010
Policy Revised	December 14, 2011
Policy Revised	March 20, 2013
Policy Revised	February 19, 2014
Policy Revised	February 18, 2015
Policy Revised	January 20, 2016
Policy Revised	February 15, 2017
Policy Revised	March 21, 2018
Policy Revised	September 18, 2019
Policy Revised	March 17, 2021
Policy Revised	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
Policy Revised	March 19, 2025

I. SCOPE

This Policy applies to cash portfolios of the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit Fund (“DB Fund”) and the Health Care 115 Trust Funds (“HC Fund”), including cash collateral managed as part of the securities lending program. This Policy is not applicable to investment vehicles or cash-equivalent instruments in commingled accounts.

II. PURPOSE

This Policy provides the broad investment framework for managing cash and cash-equivalent portfolios.

III. INVESTMENT PHILOSOPHY

OPERS’ cash management activity seeks to preserve principal, provide adequate liquidity and achieve market returns in excess of the benchmark, net of fees. Cash management involves actively investing cash and securities lending cash collateral relative to the respective benchmarks of each portfolio within established risk parameters.

IV. STRUCTURE

Each portfolio has manager guidelines that establish management parameters such as investment grade ratings, maturity limits and overnight investment requirements to preserve principal, provide adequate liquidity and achieve appropriate market returns.

V. PERMISSIBLE INSTRUMENTS

Guidelines for each portfolio provide for eligible and short-term investment vehicles. Such guidelines limit holdings of securities to those rated investment grade by a Nationally Recognized Statistical Ratings Organization (“NRSRO”), excluding repurchase agreements. Limits on specific security types that may be purchased and held are also included in the guidelines for the individual portfolios.

VI. PERFORMANCE OBJECTIVES

The general objectives of the cash portfolios are to: preserve principal; maintain liquidity; and generate a target rate of return. Specific performance objectives are detailed in guidelines for individual portfolios.

Portfolio	Benchmark
OPERS’ STIF	Bloomberg Tier 1 30 Day CP
OPERS’ Sec Lend STIF	Overnight Bank Funding Rate
OPERS’ Key Lend STIF	Overnight Bank Funding Rate

VII. RISK MANAGEMENT

Risk is managed through a combination of quantitative and qualitative constraints. Investment Staff ("Staff") shall establish parameters in each portfolio's investment guidelines to control such risks as the following:

A. Interest Rate Risk

The duration constraint is the primary risk-mitigating factor in controlling interest rate risk. The weighted-average-maturity-to-reset-date for the cash portfolios will have a maximum limit of 120 days, while the weighted-average-maturity-to-final-maturity-date will have a maximum limit of 1.3 years. The maximum maturity or weighted average life of any security in a portfolio will be 3 years or less at time of purchase. If structured securities should extend their weighted average life past the 3-year limit, they will be addressed, noted and reported to management within a maximum of 90 days. Guidelines for each portfolio will include a specific duration constraint for that portfolio.

B. Credit Risk

Credit risk is mitigated in the portfolios through credit research and following guidelines that dictate permitted ratings for securities, aggregate exposure to various credit tiers and maximum exposure limits for individual securities.

Excluding repurchase agreements, all securities in the portfolios will be investment grade, or guaranteed by an investment grade credit counterparty at time of purchase and any securities that are subsequently downgraded below investment grade will be addressed, noted and reported to management within a 90-day period. The guidelines for each portfolio shall address minimum specific rating criteria. The cash portfolios shall only hold securities that are rated by an NRSRO or guaranteed by a party that is rated investment grade by an NRSRO.

C. Liquidity Risk

With the exception of transition periods, the portfolios will maintain holdings of at least 50% of their market value in securities that are eligible under Rule 2a-7 (used for day count limits of final maturity) as established and amended from time to time by the United States Securities and Exchange Commission, pursuant to the Investment Company Act of 1940. In addition, the funds will maintain a minimum of 10% of the portfolio in instruments maturing the next business day.

VIII. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Ohio Public Employees Retirement Board (“Board”) is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer (“CIO”) to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for managing the cash assets within the framework of the Board approved Policies and within the goals and objectives adopted by the Board in the Annual Investment Plan.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS’ investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance (“IC”) is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisor

The role of the Investment Advisor (“Advisor”) is specified in the Investment Objective and Asset Allocation Policies.

IX. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

A. Quarterly

Performance reports – Advisor and/or Staff

Report on compliance – Investment Compliance Staff

B. Annually

OPERS Annual Investment Plan – Staff



Ohio Public Employees Retirement System

Opportunistic Policy
March 2025⁴

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Revision History

Opportunistic Policy Established	August 17, 2004
Policy Revised	June 14, 2005
Policy Revised	November 14, 2006
Policy Revised	July 21, 2010
Policy Revised	December 15, 2010
Policy Revised	December 14, 2011
Policy Revised	March 20, 2013
Policy Revised	February 19, 2014
Policy Revised	February 18, 2015
Policy Revised	January 20, 2016
Policy Revised	February 15, 2017
Policy Revised	March 21, 2018
Policy Revised	September 18, 2019
Policy Revised	March 17, 2021
Policy Revised	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
Policy Revised	March 19, 2025

I. SCOPE

This Policy applies to investments in the Opportunistic sub-asset class within the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit Fund (“DB Fund”) and Health Care 115 Trust Fund (“HC Fund”) (“Funds”).

II. PURPOSE

This Policy provides the broad strategic framework for managing investments in the Opportunistic sub-asset class.

III. INVESTMENT PHILOSOPHY

Investments in the Opportunistic sub-asset class typically include investment strategies or assets that are not currently used in the respective DB or HC Funds but which have the potential to improve investment results over time.

Opportunistic strategies, approaches, and instruments should eventually mature, be liquidated, or moved into their own or other Asset Class portfolios.

The opportunistic allocation also represents the idea that a broad universe of investment strategies, concepts and assets can be considered available for potential inclusion in OPERS investment program.

IV. ALLOCATION

The allocation to opportunistic investing is specified in the Investment Objectives and Asset Allocation Policy for the DB and HC Funds. Specific strategies may be allocated to the DB Fund, HC Fund or Funds as appropriate.

V. PERMISSIBLE INSTRUMENTS

The Opportunistic sub-asset class permits investments in assets or strategies not presently utilized in the respective OPERS DB or HC Funds. The governing documents associated with the strategy will describe permissible instruments and limits.

VI. PERFORMANCE OBJECTIVES

Every strategy within the Opportunistic sub-asset class will have a specific performance benchmark. The overall benchmark for the Opportunistic sub-asset class is the market value weight of the underlying benchmarks. The Opportunistic sub-asset class will ideally enhance the existing overall asset mix, portfolio construction and long-term returns of the Funds.

VII. RISK MANAGEMENT

The limited size of the opportunistic allocation and the limits on the size of single assets and strategies are the primary risk control mechanisms. To the extent that assets or strategies differ from the rest of OPERS portfolio, or address so-called fat tail risks, a diversification effect may contribute to OPERS overall risk mitigation. Risks may include a loss of a significant portion of the original investment.

At the time of funding, the market value of a single investment strategy or portfolio assigned to the same benchmark within the Opportunistic sub-asset class may not exceed 1.0% of the Fund assets to which the strategy or portfolio is allocated. Private market strategies will be limited based on the commitment amount at the time of closing.

Leverage usage and limitations as well as risk management are specified in manager guidelines and shall comply with OPERS' Leverage Policy.

VIII. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Ohio Public Employees Retirement Board ("Board") is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer ("CIO") to implement this Policy. Investment Staff ("Staff") is responsible for monitoring the Policy and recommending changes to the Board.

Staff is also responsible for managing opportunistic investments within the framework of the Board-approved Policy and within the goals and objectives set by the Board in the Annual Investment Plan. Staff will work with an Investment Advisor to identify managers for the program using a process approved by the CIO. Prior to engaging in a new opportunistic activity, Staff will prepare a memorandum to the Board explaining the investment.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS' investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance (“IC”) is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisor

The Investment Advisor assists Staff in evaluating internal and external strategies for inclusion in the Opportunistic sub-asset class. Prior to engaging in a new opportunistic activity, the Investment Advisor will prepare a memorandum to the Board explaining the investment.

IX. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

A. Quarterly

Performance Reports – Investment Advisor and/or Staff

Report on compliance – Investment Compliance Staff

B. Annually

OPERS Annual Investment Plan – Staff



Ohio Public Employees Retirement System

Benchmarks Policy
March 2025⁴

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Revision History

Benchmarks Policy Established
Policy Revised
Policy Revised

September 20, 2023
March 20, 2024
March 19, 2025

I. SCOPE

This Policy applies to the usage of benchmarks within the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit Fund (“DB Fund”) and Health Care 115 Trust Fund (“HC Fund”).

II. PURPOSE

This Policy provides the broad strategic framework for the selection, use, and modification of benchmarks utilized to manage the Funds. It is intended to clearly describe the use of benchmarks within the Funds, to delineate roles and responsibilities with respect to benchmarks and to help ensure all fiduciaries prudently manage those responsibilities, while preserving the flexibility necessary to meet the Funds return and risk objectives.

III. LEGAL AUTHORITY

The investment powers and fiduciary responsibilities of the OPERS Retirement Board (“Board”) are established by Section 145.11 of the Ohio Revised Code (“ORC”). Section 145.11(A) states; in part:

The members of the public employees retirement board shall be the trustees of the funds created by section 145.23 of the Revised Code. The board shall have full power to invest the funds. The board and other fiduciaries shall discharge their duties with respect to the funds solely in the interest of the participants and beneficiaries; for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administering the public employees retirement system; with care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims; and by diversifying the investments of the system so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so.

OPERS Investment Staff (“Staff”) and others, who are involved in the management of the Funds’ assets, are subject to the same fiduciary standards as the Board.

IV. PHILOSOPHY

A benchmark is a standard or point of reference against which an investment may be compared. Often, market indices (e.g., the S&P 500 index) are used as benchmarks. A market index is a group of financial instruments, typically securities or derivatives, that represents and quantifies the performance of a particular market segment such as an asset class, sector, or strategy.

Many other measures, or combinations of measures, may be used as benchmarks as well. Including returns-based indices such as peer groups or manager universes, the Federal Funds Effective Rate, the Prime Rate, an arbitrary fixed rate, or a reference rate plus a spread.

When properly implemented and utilized in an investment management program, benchmarks may enhance the evaluation of investment strategies and value-added by managers. According to CFA® Institute's Global Investment Performance Standards, appropriate benchmarks reflect the investment mandate, objective, or strategy. Additional characteristics may be considered, such as whether a benchmark is one that is specified in advance and is relevant, measurable, unambiguous, representative of current investment options, accountable, investable, and complete.

Achieving these characteristics when selecting a benchmark often involves trade-offs, as many benchmarks may not satisfy all these criteria. A transparent, representative benchmark is particularly challenging with private market assets since these assets are illiquid and generally not traded publicly or on an exchange.

V. ESTABLISHING AND MODIFYING BENCHMARKS

Benchmarks are used in three primary ways, described further below and summarized in the following table.

Benchmark Usage	Role		
	Board	Investment Advisor	Staff
Policy (Fund, Asset Class, Sub-Asset Class)	Approve	Advise	Advise
Portfolio	Inform	Approve	Approve
External Managers	Inform	Approve	Approve

Policy Benchmarks

Policy Benchmarks are used by the Board to direct Staff in establishing the strategic asset allocation and performance expectations of the Funds, which are expected over time to fulfill the investment objectives set forth in the Fund Policies.

Policy Benchmarks are established by the Board for each Fund, Asset Class, and Sub-Asset Class, as described in the Performance Objectives sections of the Fund Policies and in the Performance Objectives of each Asset Class policy.

Policy Benchmarks are approved at least annually as part of the Board's policy review and approval process.

Modifications to Policy Benchmarks, which must be approved by the Board, may be recommended by the Investment Advisor for reasons that include, but are not limited to the following:

- A change in the investment mandate.
- A material change in benchmark characteristics, frequency or provider.

At the discretion of the Board, the Investment Advisor, with assistance from Staff, shall provide formal recommendations to the Board for the modification of an existing or the establishment of new Policy Benchmarks.

Portfolio Benchmarks

Portfolio Benchmarks are used by Staff to implement the Board's Policy allocation and manage performance and risk expectations for individual portfolios. The selection of a Portfolio Benchmark may differ from the Policy Benchmark, depending on the mandate and implementation.

The authority involving portfolio guidelines was delegated to the Investment Advisor and Staff at the Board's November 13, 2007, meeting, in which the Investment Committee adopted modifications to its Statements of Investment Objectives and Policies for the Defined Benefit and Health Care Funds. Among other changes, the Committee delegated the responsibility and authority to review and approve guidelines, and proposed changes to guidelines, for all portfolios managed by internal Staff as well as those managed by external investment managers.

As part of this delegation of authority, Staff and the Investment Advisor established the Reviewing and Approving Portfolio Guidelines and Proposed Changes to Guidelines Staff Procedure, which is used to specify parameters applicable to individual portfolios, including Portfolio Benchmarks. The Investment Advisor must approve all portfolio guidelines and changes to portfolio guidelines.

External Managers

Benchmarks for groups of External Managers are used by Staff to implement the Board's Policy allocation and manage performance and risk expectations for external manager mandates so that they may be evaluated as a group, rather than individually. For example, external managers in the U.S. Equity small cap mandate are assigned the Russell 2000 benchmark.

Staff and the Investment Advisor assign either an approved Policy Benchmark or an approved Portfolio Benchmark (described above) for External Manager mandates.

VI. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer (“CIO”) to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for maintaining appropriate operating procedures to support the framework of the Board-approved Policy and the goals and objectives adopted by the Board in the Annual Investment Plan.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS’ investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance (“IC”) is responsible for confirming that the Policy Benchmark updates are approved by the Board and that the Portfolio Benchmark updates are approved by the Investment Advisor. IC is also responsible for confirming the benchmark updates are implemented by the Investment Operations team. If IC identifies any exceptions, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisor

The role of the Investment Advisor is specified in the Investment Objective and Asset Allocation Policies.

VII. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with and/or provided to the Board:

A. Quarterly

Report on compliance – Investment Compliance Staff

B. Annually

OPERS Annual Investment Plan – Investment Advisor and Investments Staff

Review of the OPERS Policy Benchmarks approved by the Board – Investment Advisor



Ohio Public Employees Retirement System

Broker-Dealer Policy
March 2025⁴

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Revision History

Broker Dealer Policy Established	November 21, 2001
Policy Revised	June 19, 2002
Policy Revised	June 17, 2003
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Policy Revised	October 15, 2008
Policy Revised	October 20, 2010
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Policy Revised	March 17, 2021
Policy Revised	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
<u>Policy Revised</u>	<u>March 19, 2025</u>

I. SCOPE

This Policy applies to trading and related activities performed by employees of the Ohio Public Employees Retirement System (“OPERS”) in connection with its Defined Benefit Fund (“DB Fund”) and Health Care 115 Trust Fund (“HC Fund”) that involve securities traded in public markets.

II. PURPOSE

This Policy provides general guidelines for approving brokers and dealers (“broker-dealers”) to facilitate purchase or sale transactions involving OPERS’ assets, for selecting which broker-dealers to use in specific purchase or sale transactions and for documenting the results so obtained.

III. LEGAL AUTHORITY

In accordance with Ohio Revised Code (“ORC”) Section 145.11, “Investment powers and fiduciary duties of [OPERS Retirement] Board” (“Board”), Investment Staff (“Staff”) will use its best efforts in approving and selecting broker-dealers and for documenting results so obtained.

In approving and selecting broker-dealers, Staff will comply with ORC Section 145.11(B), which requires the Board to give equal consideration to firms that are owned or controlled by minorities or women.

Staff will also comply with ORC Section 145.114 to “establish a policy with the goal to increase utilization” of Ohio-qualified agents for the execution of transactions “when an Ohio-qualified agent offers quality, services, costs and safety comparable to other agents available to OPERS.”

IV. PHILOSOPHY

OPERS’ goal in all securities transactions is to obtain Best Execution. Best Execution means the execution of a purchase or sale transaction at a price and commission or fee that provides the most favorable total cost or total proceeds reasonably obtainable under the circumstances then prevailing. To achieve Best Execution, Staff will review and evaluate broker-dealers to determine which firms may be used in buying or selling securities. Staff will select from such approved broker-dealers when placing specific purchase or sale transactions. In doing so, Staff shall consider this Policy in conjunction with OPERS’ Soft Dollar Policy.

V. OBJECTIVES

In selecting a broker-dealer for a specific transaction, Staff will use its best judgment to choose the firm most capable of providing services necessary to obtain Best Execution. The full range and quality of broker-dealer services available will be considered in making these determinations and may consist of the following factors:

- Trading capabilities, including execution speed and ability to provide liquidity
- Commissions and/or fees both in aggregate and on a per share basis
- Capital strength and stability
- Execution, clearing and settlement processing
- Use of technology and other special services
- Responsiveness
- Reliability, integrity and reputation
- Ability to handle large block trades and large volumes of trades
- Ability to handle sensitive trades discretely
- Nature and value of research provided
- Whether a firm is owned or controlled by a minority or a woman
- Whether a firm is an Ohio-qualified broker-dealer

OPERS will consider total transaction costs when selecting broker-dealers for trade execution. Total transaction costs include:

- The cost associated with the effect a transaction has on the price of a security
- The cost associated with the failure to execute a transaction
- The cost associated with the delay in execution of a transaction
- Commissions on agency trades or the spreads on principal trades
- Bid-ask spread

VI. SELECTION, EVALUATION, AND DOCUMENTATION

Staff has developed guidelines and procedures for broker-dealer approval, selection and documentation.

A. Broker-Dealer Approval

Staff will maintain approval procedures for all broker-dealer relationships. These procedures will determine whether broker-dealers may be considered for use in purchasing or selling securities and will evaluate quantitative criteria that include, but are not limited to:

- Firm's creditworthiness
- History of research and execution
- Verification of the ability to trade
- Legal and regulatory history or issues
- Electronic communication protocol

Staff will maintain records of broker-dealers that have applied, whether they were approved, when such decision was made and whether the broker-dealer is Ohio-qualified and/or owned or controlled by a minority or a woman.

B. Broker-Dealer Selection

Staff will maintain procedures for determining which broker-dealers will be selected for use in specific purchase or sale transactions in order to obtain Best Execution. These procedures will determine which broker-dealers are selected and will evaluate qualitative criteria including, but not limited to:

- Trading capabilities, including execution speed and ability to provide liquidity
- Commissions and/or fees both in aggregate and on a per share basis
- Use of technology and other special services
- Responsiveness, reliability and integrity
- Nature and value of research provided
- Operational readiness
- Legal agreements

Staff will maintain a list of broker-dealers that have been selected, which describes the services they rendered and the quality and cost of such services. At least annually, Staff will evaluate the quality of services rendered relative to commissions or fees paid.

C. Broker-Dealer Documentation

In addition to the documentation described above, Staff will maintain records of OPERS utilization of broker-dealers and provide them to the Board upon request.

VII. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it. In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer (“CIO”) to implement this Policy. Staff is responsible for establishing and reviewing on a regular basis guidelines and procedures for approving and selecting broker-dealers. It will maintain documentation of such approvals and selections to assure that OPERS obtains Best Execution in the purchase and sale of public market securities.

Staff will report on broker-dealer approval and selection to the CIO and to the Board. Staff is also responsible for recommending changes to this Broker-Dealer Policy.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS’ investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance (“IC”) is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Broker Review Committee

The Broker Review Committee (“BRC”) provides oversight of the selection, approval and usage of broker-dealers – including the utilization of commission sharing arrangements and related programs, securities trading activity and transactions costs. The BRC will document results of trading activities and report to the Board concerning them.

VIII. MONITORING AND REPORTING

A. Continuously

The approval and selection of broker-dealers will be monitored continuously by Staff and will be documented.

B. Quarterly

Staff provides a report to the Board concerning internal trading of external managers.

C. Semi-Annually

A list of approved broker-dealers will be reported to the Board semi-annually. Such reports will also detail the use of broker-dealers.

D. Annually

Staff will conduct an annual assessment of broker-dealers' trading effectiveness. Annually, Staff provides a report to the Board for internal trading activity concerning commissions paid for each approved broker dealer.



Ohio Public Employees Retirement System

Derivatives Policy
March 2025⁴

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Revision History

Derivatives Policy Established	September 19, 2001
Policy Revised	June 19, 2002
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I. SCOPE

This Policy applies to the use of derivatives within the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit Fund (“DB Fund”) and Health Care 115 Trust Funds (“HC Fund”).

II. PURPOSE

This Policy provides the broad strategic framework for managing the Funds’ financial derivatives (“derivatives”) in internally and externally managed portfolios. Derivatives shall only be used to manage asset and risk exposures consistent with this Policy and other approved Investments Policies and portfolio guidelines.

III. LEGAL AUTHORITY

The investment powers and fiduciary responsibilities of the OPERS Retirement Board (“Board”) are established by Section 145.11 of the Ohio Revised Code (“ORC”). Section 145.11(A) states; in part:

The members of the public employees retirement board shall be the trustees of the funds created by section 145.23 of the Revised Code. The board shall have full power to invest the funds. The board and other fiduciaries shall discharge their duties with respect to the funds solely in the interest of the participants and beneficiaries; for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administering the public employees retirement system; with care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims; and by diversifying the investments of the system so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so.

OPERS Investment Staff (“Staff”) and others, who are involved in the management of the Funds’ assets, are subject to the same fiduciary standards as the Board.

IV. PHILOSOPHY

A derivative is an asset or forward investment commitment, the value of which is derived from, or depends on, the value of an underlying asset, reference rate or index.

Derivatives may be used to manage asset exposures and risks in a prudent, timely and cost-effective manner and not for speculative purposes. Derivatives are considered speculative if their use is inconsistent with investment philosophy, objectives, strategies, portfolio guidelines, or any other governing documents.

V. OBJECTIVES

The objective of using derivatives is to enhance returns and manage risks. For example, derivatives may be used to facilitate cost-effective and timely investments, for risk management purposes, for implementation efficiency (i.e. speed of trade execution and lower cost), to achieve exposures that could otherwise be achieved with physical securities or to manage strategies described in Section VI.

VI. STRATEGIES USING DERIVATIVES

Derivatives can be used to assist in achieving investment goals within a particular investment strategy such as managing the overall asset allocation of a Fund or portfolio, including rebalancing activities, transitioning assets between managers, and equitizing or bondizing cash balances. In addition, they can be used to hedge or manage exposure to equity markets, commodities, currencies, duration, total return, yield or credit, interest rates, sectors, sub-sectors and/or countries, risk/return profiles of individual securities or portfolios.

VII. PERMISSIBLE INSTRUMENTS

OPERS may invest in all types of derivatives instruments in accordance with the applicable Asset Class, Sub-Asset Class, portfolio guideline or comparable operative documents. Within this Policy, derivatives are grouped into three categories defined by OPERS as follows:

Category I derivatives are securities-based. Examples of Category I equity derivatives include Exchange Traded Funds, rights, warrants, convertibles and depositary receipts. Examples of Category I fixed income derivatives include asset-backed securities, commercial mortgage backed securities, residential mortgage backed securities, dual currency bonds, Treasury strips, inflation linked securities, interest only and principal only securities, callable and putable bonds, convertibles, yield curve notes and equity or commodity linked bonds.

Category II derivatives are non-securities-based, cleared instruments. An example of a Category II derivative is a futures contract on the S&P 500. Common characteristics of Category II derivatives are that they are generally standardized instruments which are exchange-traded, cleared through a clearinghouse and subject to regulation.

Category III derivatives are non-securities-based, non-cleared instruments. An example of a Category III derivative is a total return swap on an equity index. These types of derivatives are customized, rather than standardized, for the parties engaged in a transaction and are not cleared through a clearinghouse.

Category I derivatives are very similar in many respects to other securities such as stocks and bonds and as such are excluded from this Policy. The risks and risk management associated with Category I derivatives are covered by the Statement of Investment Objectives and Policies for the DB and HC Funds as well as in the asset class and sub-asset class Policies, all of which are approved by the Board. In addition, many of the risk management activities described in the following material also apply to Category I derivatives. The Chief Investment Officer (“CIO”) may elect to subject any Category I derivative to the risk management regime associated with Category II and III derivatives.

VIII. RISK MANAGEMENT

The primary approach to managing risks associated with derivatives usage is to establish and monitor both qualitative and quantitative constraints and through usage of standardized processes.

Given the nature of and the risks associated with Category II and III derivatives, the risk management activities are more extensive. Prior to, and on an ongoing basis, any use of a strategy (outlined in Section VI) in each internally or externally managed portfolio that employs Category II and III derivatives requires:

- Identification and assessment of the derivative specific risks
- Derivative and counterparty guidelines, controls and monitoring reports or equivalent risk management structure
- Operational procedures for control and monitoring of activity
- Staffing resources for effective management and oversight
- Appropriate enabling documents and/or written investment guidelines
- Approval by the CIO (Portfolio guidelines for separate accounts shall set forth whether or not derivatives are permitted within the Portfolio.)

Risks associated with derivatives use include:

A. Market Risk

Market risk may result when market conditions develop differently than expected or when there are mismatches between actual market exposure and the market exposure from the derivative. These risks are primarily mitigated through the usage of tracking error constraints which are defined in applicable Asset class or Sub-Asset Class Policies and portfolio guidelines.

B. Leverage Risk

Leverage risk results when derivatives instruments are used to create a condition in which the economic or market exposure of an investment exceeds the total capital. These risks and the associated controls are further described in the Leverage Policy.

C. Counterparty Risk

Counterparty risk is the risk that a counterparty to a derivative position is unwilling or unable to honor their obligation. Derivative counterparties are subject to the Broker-Dealer Policy which includes requirements for counterparty approval, selection, and monitoring.

- Counterparties utilized by internally managed portfolios for Category III derivatives transactions must be rated at least investment grade by the applicable nationally recognized statistical rating agency(ies).
- Activity limits for counterparties utilized by internally managed portfolios for Category III derivatives transactions are required.

D. Operational Risk

Operational risk is the risk of inadequate or failed internal processes, people or systems. Operational risks are mitigated through the usage of procedures, Staff oversight and effective usage of technology resources.

- For internally managed portfolios, a written assessment of the operational risks associated with derivatives must be completed prior to the usage of new Category II or III derivatives.

E. Complexity Risk

A derivative may behave differently than expected. Complexity risk is mitigated through the identification and assessment of risks associated with the usage of derivatives.

- For internally managed portfolios, a written assessment of the risks associated with derivatives prior to the usage of new Category II or III derivatives.

F. Liability/Recourse Risk

The capital or funding requirements associated with transacting derivatives may result in leverage, which is a condition where the market exposure exceeds the supporting capital. In addition to controls and limits described in the Leverage Policy, account structures are used to mitigate this exposure.

- When conducted in separate accounts (whether internally or externally managed under an agency relationship), the usage of derivatives may result in an exposure and potentially in a liability against the assets of the Funds. Strict controls, as described above in section VIII, for the authorization and the usage of derivatives are used to mitigate this risk.
- When it is determined that the total potential losses in an investment, including losses caused by investments in derivatives, should be limited to the amount of assets initially invested or committed, OPERS shall endeavor to utilize a limited liability structure for such investment, such as a limited liability partnership or a limited liability company, with terms designed to limit the total potential loss for such investment to the amount initially invested or committed by OPERS. This includes all assets within the Private Equity, Private Market Real Estate, Private Credit and Risk Parity Asset and Sub-Asset classes. Operating documents, which include partnership agreements, subscription agreements, portfolio guidelines, and similar documents, govern the usage of derivatives in these investments.

G. Legal and Regulatory Risk

Legal risk is the risk of inadequate or deficient legal documentation. Appropriate enabling documentation is required.

- For internally managed portfolios, Category III derivatives must be executed pursuant to ISDA Master Agreements and other legally required agreements with approved counterparties. Usage of “long-form” trade confirmations must be approved by the CIO.
- For internally managed portfolios, applicable foreign exchange and derivative transactions must be approved by a duly authorized OPERS “Qualified Independent Representative” (“QIR”) as described in the Dodd-Frank Wall Street Reform and Consumer Protection Act and regulatory rules adopted pursuant thereto.
- For internally managed portfolios, in order to ensure that OPERS is not the “reporting party”, under parts 43, 45, and 46, of the Commodity Futures Trading Commission (“CFTC”) regulations, swaps, forward foreign exchange transactions, and foreign exchange swaps may only be transacted with persons that are fully Registered Swap Dealers or Provisionally Registered Swap Dealers with the CFTC.

H. Liquidity Risk

Liquidity risk may result from the usage of derivatives, depending on the type of derivative and its characteristics. In order to manage overall Fund liquidity (Category III) and to balance the Fund-level usage of derivatives versus physical securities (Category II), the following limits will apply to public market assets held in separate accounts:

- The combined gross notional exposure of Category II and Category III derivatives will not exceed 50% of the total net asset value of public market assets held in separate accounts, excluding foreign exchange derivatives used for hedging purposes. Additional portfolio level restrictions may apply.
- Currency forwards shall be one year or less in tenor unless approved by the CIO.

IX. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the CIO to implement this Policy and act as OPERS QIR. The CIO shall also ensure that OPERS adopts written procedures appropriate to manage its Derivative activities. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for managing the derivatives activities within the framework of the Board-approved Policies and within the goals and objectives adopted by the Board in the Annual Investment Plan.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS' investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance ("IC") is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisor

The role of the Investment Advisor is specified in the Fund Policies.

X. MONITORING AND REPORTING

On a quarterly basis, or more frequently if appropriate, Compliance Staff will provide a report to the Board on compliance, including exceptions, with this Policy.



Ohio Public Employees Retirement System
External Investment Managers' Insurance Policy
March 2025⁴

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Revision History

External Investment Managers' Insurance Policy Established	February 18, 2009
Policy Revised	August 18, 2010
Policy Revised	December 15, 2010
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Policy Revised	September 18, 2019
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Policy Revised	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
Policy Revised	March 19, 2025

I. SCOPE

This Policy applies to External Managers (“Managers”) of the Ohio Public Employees Retirement System’s (“OPERS”) assets except Real Estate managers, for which insurance requirements are set forth in the Real Estate Policy.

II. PURPOSE

This Policy is intended to assure that Managers of OPERS’ assets comply with requirements of Ohio law, and with prudent investment practices, concerning insurance.

III. LEGAL AUTHORITY

Section 145.113 (E) of the Ohio Revised Code (“ORC”) requires every fiduciary of OPERS’ assets to be bonded or insured to an amount of not less than one million dollars for loss by reason of acts of fraud or dishonesty.

ORC Section 145.11 (A) provides that the OPERS Retirement Board (“Board”) shall have full power to invest OPERS’ funds. In doing so, it specifies that the Board and other fiduciaries shall act, in among other ways:

“With care, skill, prudence, and diligence of a prudent person under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims.”

IV. OBJECTIVES OF THIS POLICY

OPERS Staff selects Managers to invest OPERS’ assets who have demonstrated consistent investment philosophy and process and generated competitive returns and who have a high probability of meeting or exceeding benchmark performance over time, while adhering to the mandate for which they were selected.

In addition to meeting the minimum requirements of ORC Section 145.113 (E), the Board also expects that Managers will comply with the fiduciary standards of Section 145.11 (A) in regard to insurance coverage for other types of occurrences. This Policy establishes minimum insurance standards that Managers shall meet.

V. TYPES OF INVESTMENT MANAGEMENT ARRANGEMENTS

OPERS engages Managers to manage its assets through two different types of arrangements.

A. Separate Accounts

Separate Accounts are professionally managed portfolios owned directly by OPERS. Separate Account arrangements are created through negotiations with Managers. OPERS and Managers agree on specific terms and conditions according to which OPERS' assets will be managed. These agreements are set forth in contracts signed by both parties and typically called Investment Management Agreements ("IMAs").

B. Commingled Accounts

Commingled Accounts consist of assets of multiple investors, including OPERS, all of which are managed in the same manner. Commingled Account arrangements are created by legal documents such as trust agreements, declarations of trust and collective trust and partnership agreements. These documents set standard terms and conditions according to which Managers will manage investors' assets. In order to invest in Commingled Accounts, OPERS must agree to the terms of the accounts' governing legal documents.

C. Arrangements Covered by Policy

Public Market Managers of Separate or Commingled Accounts invest in securities bought or sold on stock exchanges or over-the-counter markets. Private Market Managers can invest in both public securities or in assets that are not publicly traded.

This Policy applies to Public and Private Market Managers of Separate and Commingled Accounts, except Real Estate Managers who, by contract, assume the fiduciary duty to insure OPERS' assets appropriately.

VI. INSURANCE REQUIREMENTS FOR PUBLIC MARKET SEPARATE ACCOUNT MANAGERS

Managers of Public Market assets retained by OPERS through individually negotiated IMAs shall provide evidence of insurance coverage in accordance with standards set forth in this Section VI.

A. Fidelity Insurance

The term "fidelity insurance" refers to either insurance policies or bonds that protect an entity against fraudulent or dishonest acts committed by one or more of its employees. Riders to such policies or bonds may extend their coverage to certain types of losses caused by non-employees.

1. Form of Coverage

A Manager's organizational type shall determine on which of the following Surety and Fidelity Association of America ("SFAA") forms its fidelity insurance shall be underwritten:

- Form 14 for Mutual and Hedge Funds and Private Equity Firms
- Form 15 for Real Estate Investment Trusts and Broker-Dealers
- Form 24 for Banks and Trust Companies
- Form 25 for Insurance Companies

Policies may also be written on forms that are substantially equivalent to these SFAA forms. Employee Retirement Income Security Act or ERISA Bonds are not equivalent to these SFAA forms and are not acceptable substitutes for policies written on them.

2. Scope of Coverage

At a minimum, Managers' fidelity insurance must cover:

- Acts of dishonesty including, but not limited to, employee dishonesty;
- Acts of fraud including, but not limited to, computer fraud, electronic funds fraud and wire transfer fraud; and
- Forgery and alteration

3. Amount of Insurance

Managers shall provide evidence of fidelity insurance in at least the amounts set forth in the following table:

Manager's Assets Under Management ¹	Minimum Required Limit
Up to \$500 million	\$1 million
\$500 million to \$3 billion	\$3 million
\$3 billion to \$10 billion	\$5 million
\$10 billion to \$25 billion	\$10 million
\$25 billion to \$50 billion	\$15 million
\$50 billion to \$100 billion	\$25 million
\$100 billion to \$250 billion	\$35 million
\$250 billion to \$500 billion	\$50 million
Over \$500 billion	\$50 million and subject to further review ²

¹ “Assets Under Management” is the higher of a Manager’s total assets disclosed in its most recently filed Securities and Exchange Commission (“SEC”) Form ADV Part 1 or Form ADV Part 2, or similar documents filed with other regulators if it is not SEC-registered, at the time insurance is issued or renewed.

² For Managers with assets under management over \$500 billion, OPERS and OPERS Insurance Consultant shall review the Manager’s insurance and may require that the Manager submit additional information.

B. Errors and Omissions Insurance

Errors and Omissions (“E&O”) Insurance protects an entity, its officers, directors and employees in the event they are sued by clients for any actual or alleged negligent act, error or omission committed within the scope of performing professional services. Such coverage also includes legal defense costs even where allegations are baseless.

Managers shall provide evidence of E&O insurance in at least the amounts set forth in the following table:

Manager’s Assets Under Management³	Minimum Required Limit
Up to \$250 million	\$1 million
\$250 million to \$500 million	\$2 million
\$500 million to \$1 billion	\$5 million
\$1 billion to \$10 billion	\$10 million
\$10 billion to \$25 billion	\$15 million
\$25 billion to \$35 billion	\$20 million
\$35 billion to \$50 billion	\$25 million
\$50 billion to \$70 billion	\$35 million
\$70 billion to \$100 billion	\$50 million
\$100 billion to \$200 billion	\$65 million
\$200 billion to \$350 billion	\$80 million
\$350 billion to \$500 billion	\$100 million
Over \$500 billion	\$100 million and subject to further review ⁴

³“Assets Under Management” is the higher of a Manager’s total assets disclosed in its most recently filed SEC Form ADV Part 1 or Form ADV Part 2, or similar documents filed with other regulators if it is not SEC-registered, at the time insurance is issued or renewed.

⁴ For Managers with assets under management over \$500 billion, OPERS and OPERS Insurance Consultant shall review the Manager’s insurance and may require that the Manager submit additional information.

C. Standards for All Types of Insurance

1. Insurance Carrier Ratings

An insurance company writing a Manager's fidelity or E&O coverage must be rated A (Excellent) or better and have a financial size category of IX (adjusted policyholder surplus of at least \$250 million) or higher, both ratings as determined by A. M. Best at the time of issuance.

2. Deductibles or Retentions

Managers' deductibles or retentions should not exceed 5% of the Minimum Required Limits set forth in the two preceding tables or 7.5% of the amounts actually purchased, if greater than the Minimum Required Limits.

VII. INSURANCE REQUIREMENTS FOR OTHER ACCOUNT MANAGERS

A. Public Market Commingled Funds

When OPERS retains a Manager of a Commingled Account that consists of Public Market assets, it cannot control the types or amounts of insurance such Manager shall maintain. As part of due diligence reviews of a prospective Commingled Account Manager, Staff shall inquire into their insurance coverage. Such Managers should not be retained unless their insurance practices comply with ORC Section 145.113 (E), conform to the general principles set forth in this Policy and appear to be appropriate for the activities in which such Managers are engaged.

B. Private Market Accounts

When OPERS retains a Private Market Fund Manager, whether through a Separate Account or a Commingled Account, it is generally unable to specify the types or amounts of insurance such Manager shall maintain. As part of due diligence reviews of a prospective Private Market Manager, Staff shall inquire into their insurance coverage. Such Managers should not be retained unless their insurance practices comply with ORC Section 145.113 (E) and appear to be appropriate for the activities in which Managers are engaged. Managers' compliance with the ORC and their representation as to the appropriateness of their insurance coverage should be documented in an appropriate manner such as in a side letter.

C. Hedge Funds

When OPERS retains a Hedge Fund Manager through a Separate Account, the Manager's insurance must comply with all requirements of Section VI of this Policy.

When OPERS retains a Hedge Fund Manager through a Commingled Account, it does so through various types of governing documents. As part of due diligence reviews of a prospective Hedge Fund Manager, Staff shall inquire into their insurance coverage. Such Managers should not be retained unless their insurance practices comply with ORC Section 145.113 (E) and appear to be appropriate for the activities in which Managers are engaged. Their compliance with the ORC and their representation as to the appropriateness of their insurance coverage should be documented in an appropriate manner such as a side letter.

VIII. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer ("CIO") who, in consultation with OPERS' Legal Services Division, is responsible for reviewing and approving or rejecting deviations from this Policy proposed for inclusion in individually negotiated IMAs. Any approved deviations from this Policy shall be reported to the Board at its next meeting. The CIO shall also review any other exceptions to this Policy.

All members of Investment Staff ("Staff") are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS' investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Legal Services Division

The Legal Services Division is responsible for advising Staff with respect to legal aspects of insurance matters in connection with Managers, including any deviations from this Policy proposed for inclusion in an individually negotiated IMA.

D. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance (“IC”) is responsible for establishing procedures to track Managers’ compliance with the insurance requirements of their IMAs. Annually, IC shall report to the Board concerning Managers’ compliance with this Policy.

E. Insurance Consultant

OPERS may engage an insurance consultant to assist Staff in discharging the duties imposed upon them by this Policy.

F. Investment Managers

Managers engaged by OPERS are responsible for complying with this Policy and their IMAs. They must confirm such compliance to OPERS quarterly and supply copies of their current insurance policies to OPERS, or its Insurance Consultant, at least annually.

IX. MONITORING AND REPORTING

Annually, the Assistant Director of Investment Accounting, Operations and Compliance (“AD”), or the AD’s delegee, will report to the Board concerning compliance with this Policy or any exceptions to it.



Ohio Public Employees Retirement System

Iran and Sudan Divestment Policy
March 2025⁵⁴

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Revision History

Iran and Sudan Divestment Policy Established	September 12, 2007
Policy Revised	December 15, 2010
Policy Revised	December 14, 2011
Policy Revised	March 20, 2013
Policy Revised	February 19, 2014
Policy Revised	February 18, 2015
Policy Revised	January 20, 2016
Policy Revised	February 15, 2017
Policy Revised	March 21, 2018
Policy Revised	September 18, 2019
Policy Revised	March 17, 2021
Policy Revised	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
Policy Revised	March 19, 2025

I. SCOPE

This Policy applies to publicly-traded stocks and bonds in the Non-U.S. Public Equity and Fixed Income Asset Classes that are actively managed through separate accounts.

This Policy applies to the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit Fund (“DB Fund”) and Health Care 115 Trust Fund, (“HC Fund”).

II. PURPOSE

This Policy addresses the management of potentially unique risks posed by certain public equity and fixed income securities issued by companies with ties to Iran and the Republic of the Sudan, sometimes referred to as North Sudan.

III. LEGAL AUTHORITY

Section 145.11 (A) of the Ohio Revised Code (“ORC”) states in part:

The members of the public employees retirement board shall be the trustees of the funds created by section 145.23 of the Revised Code. The board shall have full power to invest the funds. The board and other fiduciaries shall discharge their duties with respect to the funds solely in the interest of the participants and beneficiaries; for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administering the public employees retirement system; with care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims; and by diversifying the investments of the system so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so.

Section 145.11 (B) of the ORC provides that:

In exercising its fiduciary responsibility with respect to the investment of the funds, it shall be the intent of the Board to give consideration to investments that enhance the general welfare of the state and its citizens where the investments offer quality, return and safety comparable to other investments currently available to the Board.

IV. INVESTMENT PHILOSOPHY

Investments in securities of companies with ties to Iran and Sudan may pose potentially unique risks and the Board desires that Investment Staff (“Staff”) identify and engage those companies. Failure of these Scrutinized Companies to remedy these potential risks may cause restrictions on new investments in the Scrutinized Companies and the divestment of existing investments in the Scrutinized Companies if comparable investments offering similar quality, return and safety are available.

These efforts will be conducted in a manner consistent with the Board’s fiduciary duty, demonstrating prudence and observing best practices.

V. OBJECTIVES

This Policy establishes a goal of reducing investment exposure to the potentially unique risks associated with investments in companies with ties to Iran and the Republic of the Sudan when comparable investments offering similar quality, return and safety are available.

VI. PROCESS

Staff will maintain an Iran and Sudan Divestment Procedure (“Procedure”) to identify and engage companies with ties to Iran and Sudan that includes restrictions on new investments and divestment of existing investments if comparable investments offering similar quality, return and safety are available.

VII. RISK MANAGEMENT

Divesting public equities and fixed income securities that are components of Asset Class and/or portfolio benchmarks may cause an increase in tracking error relative to the associated benchmarks. Staff will monitor the effect of this Policy on the returns and associated tracking errors.

VIII. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it.

B. Executive Director

The Executive Director is responsible for monitoring investment activities and reviewing reports related to this Policy.

C. Investment Staff

The Board delegates authority to the Chief Investment Officer (“CIO”) to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for ensuring that Investment Management Agreements and guidelines are consistent with this Policy and the Iran and Sudan Divestment Procedure.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS’ investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

D. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance (“IC”) is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

E. Corporate Governance Staff

The Corporate Governance Staff is responsible for performing assigned duties in the Procedure.

F. Legal Staff and Fiduciary Counsel

The Legal Services Division and fiduciary counsel are responsible for advising Staff and the Board regarding legal compliance and fiduciary duties and performing other duties assigned in the Procedure.

IX. MONITORING AND REPORTING

A. Periodically

The Assistant Director of Investment Accounting, Operations and Compliance (“AD”), or the AD’s designee will report to the Board concerning compliance with this Policy or any exceptions to it.

B. Upon Request

Staff shall provide to the Ohio Retirement Study Council (“ORSC”) such information about compliance with this Policy or any exceptions as the ORSC may from time to time request.



Ohio Public Employees Retirement System

Leverage Policy
March 2025⁴

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Revision History

Leverage Policy Established	February 19, 2014
Policy Revised	February 18, 2015
Policy Revised	January 20, 2016
Policy Revised	February 15, 2017
Policy Revised	March 21, 2018
Policy Revised	September 18, 2019
Policy Revised	March 17, 2021
Policy Revised	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
<u>Policy Revised</u>	<u>March 19, 2025</u>

I. SCOPE

This Policy applies to the use of leverage within the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit Fund (“DB Fund”) and Health Care 115 Trust Funds (“HC Fund”).

II. PURPOSE

This Policy provides the broad strategic framework for managing the Funds’ leverage in internally and externally managed portfolios.

III. LEGAL AUTHORITY

The investment powers and fiduciary responsibilities of the OPERS Retirement Board (“Board”) are established by Section 145.11 of the Ohio Revised Code (“ORC”). Section 145.11 states:

The members of the public employees retirement board shall be the trustees of the funds created by section 145.23 of the Revised Code. The board shall have full power to invest the funds. The board and other fiduciaries shall discharge their duties with respect to the funds solely in the interest of the participants and beneficiaries; for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administering the public employees retirement system; with care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims; and by diversifying the investments of the system so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so.

IV. PHILOSOPHY

Leverage is a term which has many meanings and applications. This is true even within the fields of corporate finance or investment management, where it is widely used. Broadly speaking, leverage is an ability to amplify an outcome in such a way that does not require a corresponding increase in resources or inputs. More specifically from an investments perspective, OPERS views leverage as a condition in which the economic or market exposure of an investment exceeds the total capital deployed. Additionally, the use of leverage may amplify profits or losses on a given amount of capital, thereby increasing the volatility of returns. OPERS uses leverage in varying forms, as described within this Policy, and incorporates the prudent use of leverage to enhance returns in a risk controlled manner as part the investment management program.

V. SOURCES OF LEVERAGE

Leverage may occur as a result of the following:

1. Derivatives activity, (derivatives as defined in OPERS Derivatives Policy, which include securities-based instruments with embedded leverage characteristics, futures, forwards, swaps and options);
2. Short selling (selling physical securities which are not owned);
3. Reinvestment or re-use of collateral (securities lending, repurchase agreements/reverse repurchase agreements); and
4. Borrowing (including the use of financing terms embedded in investment structures).

Within OPERS investment management activities, the following table lists potential leverage sources for each Asset Class and sub-asset class.

Potential Leverage Sources				
Asset Class / Sub-Asset Class	Derivatives*	Short selling	Collateral reinvestment	Borrowing
<i>Public Equity</i>				
U.S. Equity	X			
Non-U.S. Equity	X			
<i>Fixed Income</i>				
Core Fixed	X			
Investment Grade Credit	X			
Emerging Markets Debt	X			
Securitized Debt	X			
TIPS				
High Yield	X			
U.S. Treasury	X			
<i>Alternatives</i>				
Private Equity	X			X
Real Estate	X			X
REITs	X			
Opportunistic	X			
Commodities	X			
Private Credit	X			X
<i>Risk Parity</i>	X		X	
<i><u>Risk Mitigation Strategies</u></i>				
<i><u>Long Duration Treasury</u></i>	<u>X</u>			
<i><u>Trend Following</u></i>	<u>X</u>	<u>X</u>	<u>X</u>	
<i><u>Alternative Risk Premia</u></i>	<u>X</u>	<u>X</u>	<u>X</u>	
<i>Operating Cash</i>				
Activities				
<i>Rebalancing</i>	X			

<i>Tactical Asset Allocation</i>	X	
<i>Transition</i>	X	
<i>Securities Lending</i>		X

*Excluding securities-based derivatives (Category I as defined in the Derivatives Policy). Losses associated with securities-based derivatives are limited to invested capital and limitations for securities with embedded leverage characteristics are established in portfolio guidelines.

VI. RISK MANAGEMENT

A number of approaches are used to measure and manage risks associated with leverage, depending upon the source and resultant risk exposures, including a combination of controls in policies, portfolio guidelines, procedures and operative legal documents.

Leverage is measured as the total of the sum of (i) the net asset value of all long physical positions, excluding cash and cash equivalents, (ii) the notional value of all long derivative positions, (iii) the absolute net asset value of all short physical positions, and (iv) the absolute notional value of all short derivative positions divided by the portfolio net asset value. Netting rules (for offsetting long and short positions in which the underlying market exposures are alike) may be applied.

- Cash and cash equivalents are not considered to have market exposure. Market exposures which are fully backed or collateralized by cash and cash equivalents are not considered to be leveraged (i.e., leverage is approximately 1.0).
- Currency derivatives used for transactional purposes are excluded.
- Non-U.S. Dollar currency portfolio exposures which are hedged (either to U.S. Dollar or to the currency exposure of the relevant benchmark, subject to portfolio guidelines) are not considered leveraged and are excluded.
- In the determination of the economic or market exposure of derivative positions, the following guidelines apply:
 - For non-interest rate based swaps and futures, notional value is used to determine market exposure and resultant leverage.
 - For interest rate-based derivatives and physical securities, a duration-adjusted notional value, such as a 10-year bond or benchmark equivalent notional, may be used to determine market exposure and resultant leverage.
 - For options contracts, the delta-adjusted notional amount may be used to determine market exposure and resultant leverage. Delta is a scaling factor, ranging from -1.0 to +1.0, which indicates the sensitivity of the price of the option contract to a change in the price of the underlying security.

For investments in which borrowing or embedded financing is the primary source of leverage, such as in real estate investments, loan to value is the primary measure. This form of leverage, in which borrowing is used to create the condition where the economic or market exposure of an investment exceeds the total capital deployed, is often referred to as financial leverage. It is generally defined as the sum of debt or loan obligations divided by the gross asset value of the portfolio. Other measures, including debt to equity, debt to assets, or debt to debt plus equity are also used to measure financial leverage.

The primary risks and controls associated with leverage are shown below.

A. Volatility Risk

Increased market exposure resulting from leverage creates the risk of higher return volatility. Active and total risk measurement is used to manage the overall volatility risk associated with leverage.

The following table includes limits for applicable activities, strategies, Asset Classes and sub-asset classes listed in the previous table and in which a potential leverage source is employed. Additional portfolio level restrictions may apply. Portfolios which are invested using commingled accounts or using similar non-separate account investment vehicles may be excluded if all of the following conditions are met:

- OPERS does not control the underlying investments selected in the strategy;
- The investment vehicle limits potential losses to the capital contributed or committed;
- Leverage is not utilized as a primary investment strategy and resultant leverage is not considered to be significant; and
- The Chief Investment Officer has approved the investment in the portfolio.

Leverage Limit	
<i>Public Equity</i>	
U.S.	1.20
Non-U.S.	1.05
<i>Fixed Income</i>	
Core Fixed	~~1.30~~ 1.20
Investment Grade Credit	1.20
Emerging Markets Debt	1.10
Securitized Debt	1.45
High Yield	1.20
U.S. Treasury	1.10
<i>Alternatives</i>	
Private Equity ¹	N/A
Real Estate	60% (Loan to Value)
REITs	1.05
Opportunistic	
Internally Managed	3.00
Externally Managed	9.00
Commodities	1.20
Private Credit	3.00
<i>Risk Parity</i>	6.00
<u><i>Risk Mitigation Strategies</i></u>	<u>10.00</u>
Activities²	
<i>Rebalancing³</i>	1.05
<i>Tactical Asset Allocation³</i>	1.05
<i>Securities Lending</i>	1.30

¹ All Private Equity managers qualify under the above exclusions (as defined in Section VI.A. Volatility Risk), therefore, a leverage limit is not applicable.

² Liquidity Reserve and Transition accounts are included in the calculation of their respective asset or sub-asset class.

³ Leverage associated with tactical asset allocation and rebalancing activities is measured at the Fund level and is not permitted, other than a small (5%) amount of leverage as described above. Basis risk (i.e. a mismatch between the market exposures of derivatives or derivatives and securities or benchmarks) may exist and is permitted, given the limitations in fully replicating benchmark or portfolio exposures using derivative instruments. Additional portfolio guideline restrictions apply.

B. Derivatives Risk

Risks associated with derivatives usage are described in OPERS Derivatives Policy. Derivatives usage is permitted in selected portfolios, subject to portfolio guidelines, and relevant governing documents, throughout the Funds and must comply with the Derivatives Policy.

C. Liability/Recourse Risk

Except as provided for as part of the Liquidity Policy, borrowing agreements with recourse to the Funds are not permitted.

When borrowing is permitted within specific portfolios as a means to generate leverage, the investment structure must contain terms designed to limit the extent of the loss to the capital investment, such that there is no direct recourse to the Funds.

- For investments in Private Equity, Private Credit and Private Market Real Estate, Staff shall endeavor to utilize a limited liability structure such as a limited partnership or a limited liability company, with terms designed to limit the total potential loss, including losses caused by derivatives, to the amount initially invested or committed by OPERS.

For all other portfolios in which leverage exceeds 3.0 times, Staff shall endeavor to utilize a ~~limited liability~~ structure and/or terms that limit liability, such as a limited partnership or a limited liability company, with terms designed to limit the total potential loss, including losses caused by derivatives, to the amount initially invested or committed by OPERS.

D. Liquidity Risk

Liquidity risk associated with margin or collateralization requirements or instrument illiquidity may increase with the usage of leverage and is managed through derivative notional and leverage limitations.

E. Collateral Risk

Cash and cash equivalents used as collateral, may not perform as expected. In addition, the (1) reinvestment or (2) re-use (re-hypothecation) of collateral proceeds (both cash and securities) may produce leverage resulting from the added economic exposure of the reinvestment or re-hypothecation activity.

- (1) Re-investment of collateral received as part of the OPERS Securities Lending program is permitted, subject to the OPERS Securities Lending Policy and subject to the leverage limitation in Section VI. A.

- (2) For separate accounts, re-hypothecation of collateral used in repurchase agreement transactions or under derivatives trading agreements is not permitted.

F. Legal Risk

Use of leverage may rely on the successful implementation of various forms of operative documents, including but not limited to trading agreements, partnership agreements, and investment management agreements. OPERS Legal Services as well as external counsel are used to review contracts and operative documents to limit the risks of inadequate documentation.

VII. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer (“CIO”) to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for managing leverage within the framework of the Board-approved Policy and within the goals and objectives adopted by the Board in the Annual Investment Plan.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS’ investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance (“IC”) is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisor

The role of the Investment Advisor is specified in the Fund Policies.

VIII. MONITORING AND REPORTING

On a quarterly basis, or more frequently if appropriate, Compliance Staff will provide a report to the Board on compliance, including exceptions, with this Policy.



Ohio Public Employees Retirement System

Liquidity Policy
March 2025⁴

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Revision History

Liquidity Policy Established	February 15, 2017
Policy Revised	March 21, 2018
Policy Revised	September 18, 2019
Policy Revised	March 17, 2021
Policy Revised	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
<u>Policy Revised</u>	<u>March 19, 2025</u>

I. SCOPE

This Policy addresses liquidity management within the asset allocations of the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit (“DB Fund”) Fund and Health Care 115 Trust Funds (“HC Fund”).

II. PURPOSE

This Policy provides the broad strategic framework for managing the Funds’ liquidity involving investment assets, investment-related liabilities and short-term obligations including benefit payments.

III. LEGAL AUTHORITY

The investment powers and fiduciary responsibilities of the OPERS Retirement Board (“Board”) are established by Section 145.11 of the Ohio Revised Code (“ORC”). Section 145.11 states:

The members of the public employees retirement board shall be the trustees of the funds created by section 145.23 of the Revised Code. The board shall have full power to invest the funds. The board and other fiduciaries shall discharge their duties with respect to the funds solely in the interest of the participants and beneficiaries; for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administering the public employees retirement system; with care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims; and by diversifying the investments of the system so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so.

IV. PHILOSOPHY

In general, liquidity refers to the capacity to use and, if necessary, generate cash. Since most obligations are satisfied with cash, rather than other assets, this capacity is of paramount importance to the Funds.

The Board’s asset allocation is the first expression of liquidity preference. Any limits that the Board places on risk (while seeking return) are a reflection of self-imposed constraints in the form of downside protection, liquidity considerations, leverage limits, and so forth.

For an asset or collection of assets, liquidity is a term used to characterize the capacity of the asset(s) to be efficiently converted into cash. “Efficiently” considers (1) the time involved in the conversion, (2) the price at which the conversion occurs

and (3) the transaction costs. More liquid assets generally require less time to be converted into cash, can be converted into cash at or above “fair value”, and involve low transaction costs. Conversely, less liquid assets generally require more time to be converted into cash, may require discounting below “fair value” to be converted and may involve high transactions costs.

Liquidity is prized by the markets and, therefore, comes at a cost. Generally, the more liquid an asset is, the lower the expected return from it. For example, physical cash itself provides no future expected return.

OPERS seeks to balance the need for liquidity with the goal of targeted returns so that there are always sufficient funds available. During periods of market dislocations in which asset liquidity becomes impaired, maintaining the long term asset allocation is a secondary priority relative to the immediate cash flow needs for benefit payments.

V. SOURCES OF LIQUIDITY RISK

Liquidity risk is the potential for loss resulting from the diminished capacity, or inability of the Fund to efficiently meet its benefit and investment-related payment obligations. Three broad areas of liquidity risk are considered below.

A. Benefit Payments

Many factors influence the liquidity risk associated with the Funds benefit obligations. These include the structural characteristics of the Plans, including benefits offerings, contribution rates, and member demographics. For example, all else equal, a mature pension plan with a lower ratio of active members to retirees may have lower cash inflows than a plan in which the relationship of active members to retirees is higher. OPERS is currently considered to be a mature plan in which cash outflows (benefit payments) exceed cash inflows (contributions) plus net investment cash income.

This Policy relates only to the ultimate, short-term cash flow requirements associated with the cash payment of the benefits and not to the Plans’ structural benefit characteristics.

B. Assets

Asset liquidity is dependent upon several factors including:

- Market conditions (trading volumes, volatility, relative values of securities) at near normal levels;
- How quickly an asset can be bought and sold (this includes contractual provisions, such as gates, which may limit the ability to transact);
- Pricing efficiency;
- Transactions costs.

Generally speaking, and with consideration of the variables above, the level of liquidity of the Funds can be characterized, under normal market conditions, as follows:



* May include the ability to manage exposure and liquidity using derivatives

C. Investment-Related Liabilities and Cash Needs

Investment-related liabilities are those obligations resulting from investment activity and include:

- Derivatives related obligations including margin collateralization and other payment obligations;
- Transactional obligations; and
- Other contractual obligations.

Potential cash needs include the following:

- Asset allocation and Fund-level rebalancing activities;
- Internally managed portfolio fundings and transitions;
- Externally managed public and private markets portfolio capital commitments and transitions.

These liabilities and cash needs may also be impacted by market conditions and contractual provisions.

VI. RISK MANAGEMENT

In order to protect the pension funding, the Board has sought a balance of risk and return in its asset allocation. As part of that balance, the Board has elected to make allocations to private equity, private real estate and other illiquid asset classes and asset structures in order to better achieve their discount rate goals. This balance of risk and return is addressed by this policy which seeks to specifically give a roadmap of how OPERS addresses this balance of needs, while recognizing that any allocation that seeks returns will appear sub-optimal in the midst of a crisis. Therefore, it is necessary to build the liquidity strategy in advance of the need for it. A number of approaches are used to measure and manage the Fund's liquidity risks, including a combination of controls in policies, portfolio guidelines, account structures, procedures and operative legal and governing documents.

A. Assets

The liquidity characteristics of each Asset Class and sub-Asset Class are described in the preceding table, with additional detail provided below. Limitations on less liquid asset classes are driven by the top-down allocation and ranges which are included in the Investment Objectives and Asset Allocation Policies for the DB and HC Funds.

1. Operating cash

Operating cash accounts are used to make benefit payments.

2. Liquidity allocation

A dedicated allocation to U.S. Treasury securities is specified in the Investment Objectives and Asset Allocation Policies for the DB and HC Funds. This allocation, which is reviewed annually by the Investment Advisor, resides within the Fixed Income Asset Class and would be used as part of a Contingency Liquidity Plan to satisfy the Funds liquidity needs.

3. Liquidity Reserves and Rebalancing Portfolios

Numerous Liquidity Reserve portfolios are used at the Asset Class and sub-Asset Class level to manage liquidity and to facilitate both internally and externally managed portfolio fundings and transitions.

Fund-level rebalancing portfolios are used to manage the Funds liquidity and to manage the asset allocation.

Both liquidity reserve and rebalancing portfolios may utilize derivative instruments to take advantage of the following characteristics:

- Derivatives – particularly exchange traded (OPERS Category II) are often more liquid than the physical security, or underlying asset. That is, derivatives may be more readily transacted, at a comparable, or favorable cost, and at fair market prices, relative to physical securities.
- Relative to physical securities which may experience delayed availability when the securities are loaned, there is no impact on derivatives liquidity from securities lending.

4. Risk Mitigation Strategies

Long Duration U.S. Treasury portfolios are used at the Asset Class and sub-Asset Class level to manage liquidity and to facilitate both benefit payments and rebalancing.

Trend Following and Alternative Risk Premia portfolios may utilize derivative instruments to take advantage of market dislocations. It can be used at the Asset Class and sub-Asset Class liquidity and to facilitate both internally and externally managed portfolio rebalancing.

B. Liabilities

1. Securities Lending

OPERS conducts securities lending to enhance Fund returns by lending securities and re-investing the cash collateral with the expectation that the yield earned on the re-invested cash collateral exceeds the rebate fees paid. During the time that securities are on loan, they are unavailable for sale and therefore negatively impact liquidity of the Funds. In order to mitigate this reduced liquidity, the following approaches are utilized:

- A limit on the aggregate amount of securities lent relative to the total amount of securities which are eligible to be lent (public market separate account securities) is specified in the Securities Lending Policy.
- Individual portfolios may be restricted from securities lending.

2. Capital Commitments

Private equity, private credit and private real estate investments sometimes require the commitment of a ~~pool~~-capital pool which is then drawn, or funded, over time as needed (i.e., as investments are made). This unused (and unfunded) portion of capital, referred to as committed capital, represents a form of liability. At the time the manager calls for capital, the Funds must be prepared to provide cash to satisfy the call. The contingent liquidity requirements of private market capital commitments are closely monitored and managed accordingly.

3. Derivatives

Usage of derivatives results in additional liquidity needs as follows:

- Clearinghouse margining (collateralization) is required for Category II derivatives
- Collateralization with the counterparty to the derivative is required for Category III derivatives.
- Derivatives settlements may also result in liquidity needs.

C. Contingency Liquidity Plan

During a liquidity event, the CIO, working with the Board's Consultant and with subsequent notification to the Board, may utilize contingency liquidity actions to satisfy the Funds' liquidity needs.

In addition to assets held in the liquid reserves and rebalancing portfolios, liquid fixed income assets are held, in part, for liquidity management purposes and may be utilized to satisfy the Funds' liquidity needs. Specifically, Treasury securities are held in the following allocations and may be accessed as needed:

- U.S. Treasury (short and long duration portfolios)
- U.S. TIPS
- Core Fixed

Access may require a modification to approved Targets, Ranges and Benchmarks included in the Investment Objectives and Asset Allocation Policies for the DB and HC Funds Policies. For example, the benchmark of the Core Fixed allocation may be modified from the Bloomberg U.S. Aggregate to a customized Bloomberg U.S. Aggregate ex - U.S. Treasuries.

It may also become necessary to modify limitations in the Board's Derivatives Policy (or Leverage Policy) as the liquidity environment deteriorates since derivatives are, in general, a more liquid form of asset than underlying securities.

D. Contingency Funding

During a significant liquidity event, the CIO, working with the Executive Director, may utilize other contingency funding actions to satisfy the Funds' short-term liquidity needs. These may include use of a liquidity line of credit, repurchase agreements or cash collateral proceeds from securities lending to satisfy short term cash needs. The Board will receive a notification of actions taken with regards to contingency funding.

VII. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it. In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer (“CIO”) to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for managing leverage within the framework of the Board-approved Policy and within the goals and objectives adopted by the Board in the Annual Investment Plan.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS’ investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance (“IC”) is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisor

The role of the Investment Advisor is specified in the Fund Policies.

VIII. MONITORING AND REPORTING

On a quarterly basis, or more frequently if appropriate, Compliance Staff will provide a report to the Board on compliance, including exceptions, with this Policy.



Ohio Public Employees Retirement System

Material Non-public Information Policy
March 2025⁴

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Revision History

Material Non-public Information Policy Established	November 18, 2009
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I. SCOPE

This Policy applies to employees of the Ohio Public Employees Retirement System ("OPERS") who have access to information concerning OPERS investment assets and activities involving them. It sets expectations for such employees conduct to comport with applicable laws, ethical requirements and conditions of their employment.

II. PURPOSE

This Policy is intended to explain requirements of laws, ethics and conditions of employment relative to investment of OPERS assets. It is designed to set forth and formalize OPERS expectation that its employees shall not misuse Material Non-public Information ("MNPI") in a manner that might violate Federal or Ohio securities laws or otherwise engage in inappropriate trading activities on behalf of OPERS. It also delineates roles and responsibilities of persons involved in assuring compliance with its provisions.

III. LEGAL AUTHORITY

Section 145.11 of the Ohio Revised Code ("ORC") authorizes OPERS Retirement Board ("Board") to invest OPERS assets. It provides, in part, that the Board and other fiduciaries, such as OPERS employees,

shall discharge their duties with respect to the funds solely in the interest of the participants and beneficiaries; for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administering the public employees retirement system; with care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims; and by diversifying the investments of the system so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so.

Section 145.094 of the ORC establishes duties of OPERS Chief Investment Officer ("CIO"), including the duty to "reasonably supervise" employees "with a view toward preventing violations of Chapter 1707 of the Revised Code, the "Commodity Exchange Act," 42 Stat. 998, 7 U.S.C. and following, the "Securities Act of 1933," 48 Stat. 74, 15 U.S.C. and following, and the "Securities Exchange Act of 1934," 48 Stat. 881, 15 U.S.C. 78a, and following, and the rules and regulations promulgated under those statutes" (collectively, the "Securities Laws").

Section 145.094 further states that the CIO's "duty of reasonable supervision shall include the adoption, implementation, and enforcement of written policies and procedures reasonably designed to prevent persons employed by the public employees retirement system from misusing material, nonpublic information in violation of those laws, rules, and regulations."

ORC Sections 145.11 through 145.115 set standards of conduct for OPERS employees with respect to investment transactions. The Code of Ethics and Standards of Professional Conduct of the CFA Institute contain provisions similar to requirements of Ohio and Federal laws.

OPERS Employee Manual provides that all employees are employees at will and may be sanctioned for violating terms of their employment, including compliance with policies such as this Policy.

IV. OBJECTIVE

OPERS Ethics Policy states that OPERS seeks to carry out its mission in accordance with all applicable laws and in accordance with the strictest ethical standards to ensure its employees conduct themselves in a manner that fosters public confidence in the integrity of OPERS, its processes and its accomplishments.

In support of OPERS Ethics Policy, the Board has adopted the OPERS Personal Trading Policy to guide employees in their own investment activities. This Policy is intended to provide similar guidance to employees concerning investment of OPERS assets.

V. SECURITIES LAWS

A. Application of Statutes

The Securities Laws apply to all persons transacting business on United States securities or commodities exchanges. They also apply to entities, such as OPERS, when they transact such business even if they are public pension plans that are not subject to regulation by the United States Securities and Exchange Commission or Commodities Future Trading Commission.

B. Material Nonpublic Information

The Securities Laws prohibit the misuse of MNPI when trading securities or commodities.

Material information has been defined as information that a reasonable investor would consider important in determining whether to purchase or sell a security or a commodity. It is also information that, if made public, would likely affect the market price of such a security or commodity. Whether information is material depends on the facts and circumstances. Examples of material non-public information include, but are not limited to: (1) financial projections and results; (2) mergers, acquisitions, tender offers or divestments; (3) information about a company's earnings or dividends (e.g. whether earnings will increase or decrease); (4) information about a company's physical assets (e.g. an oil discovery, a fire that destroyed a factory, or an environmental problem); (5) significant changes in management or operations, including the entering into or cancellation of significant contracts; (6) significant litigation, claims, or government investigations; (7) significant personnel changes; (8) changes to a company's capital structure.

Information may be considered material even if it relates to future, speculative or contingent events and even if it is significant only when considered in combination with publicly available information. Information is considered to be non-public unless it has been publicly disclosed and adequate time has passed for securities or commodities markets to digest such information.

C. Trading Prohibited

A person with actual knowledge of MNPI, including an OPERS employee, must not trade securities or commodities on the basis of such knowledge. Insider trading laws also prohibit the tipping of material non-public information. An employee may not directly or indirectly convey MNPI to anyone who could trade on that information.

Employees should also refer to the OPERS Personal Trading Policy for guidance.

D. Post-Employment Restrictions

OPERS employees are subject to the provisions of this Policy following termination of employment or service for 15 days after the date on which if ever, that MNPI, as defined in Section V.B of this Policy, in the possession of such employee becomes publicly available.

VI. FIDUCIARY LAWS

A. The Duty of Undivided Loyalty

Fiduciaries have always been held to the highest standard of conduct, including the requirement that they discharge their responsibilities solely in the interest of the beneficiaries of the assets they manage. ORC Section 145.11 requires the Board and OPERS employees to discharge their duties, including investment responsibilities, solely in the interest of OPERS Funds.

This obligation is referred to as a fiduciary's duty of undivided loyalty.

B. One Qualification to the Duty of Undivided Loyalty

The duty of undivided loyalty being central to the conduct of a fiduciary's office, the common law recognized only limited exceptions or qualifications to it. One of those few qualifications relieved a fiduciary of the need to act illegally, even if doing so would benefit the beneficiary of their trust.

C. Expectations of OPERS Employees

Accordingly, OPERS employees are not required to violate any laws, and are specifically prohibited from violating Securities Laws, even if doing so might result in a benefit or benefits to the Funds.

VII. MANAGING MATERIAL NONPUBLIC INFORMATION

A. Preventing Dissemination of Information

The CIO shall adopt, implement and enforce written procedures reasonably designed to prevent Investment Division employees who come into possession of MNPI from disseminating such information, overtly or inadvertently, to other members of the Investment Staff.

In developing such procedures, the CIO shall consult with OPERS General Counsel ("GC") and may also consult with others, as appropriate.

B. Reporting Requirements

If any OPERS employee becomes aware of MNPI concerning a security or commodity, by virtue of their employment at OPERS or otherwise, they must immediately so notify GC. If GC determines that the information is, in fact, MNPI given the facts and circumstances, GC will then notify Investment Compliance area of Investment Accounting, Operations and Compliance ("IC").

C. Trading Restrictions

IC shall immediately place a restriction on any security or commodity that might be affected by the MNPI so reported such that OPERS traders of equity and fixed income securities are prohibited from purchasing or selling that security or commodity.

IC shall also add such securities to the Restricted List created by OPERS Personal Trading Policy to block personal trading activities of Covered Persons.

D. Removal of Trading Restrictions

IC shall not authorize OPERS traders to purchase or sell any security or commodity that might be affected by the MNPI, or remove any security or commodity from the Restricted List, until GC informs IC that the information is public and known to the market. In case of doubt as to whether information has become public, IC shall consult with the GC.

IC may approve restricted trades for purposes of rebalancing or funding of an account that must replicate an index and hold the representative weights of the underlying securities in the index. Generally, trading a basket¹ to rebalance is permissible when the restricted stock is less than 5% of the basket.

VIII. SANCTIONS

Willful disregard of this Policy will subject OPERS employees to sanctions that may include formal reprimands, adverse performance reviews and termination of employment.

IX. ROLES AND RESPONSIBILITIES

The following section outlines roles and responsibilities of the parties involved in maintaining and executing this Policy.

A. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

¹ An order to buy or sell a group of securities simultaneously. Basket trading is essential for institutional investors and investment funds who wish to hold a large number of securities in certain proportions. In order for a trade to be considered a "basket trade," it must typically involve the sale or purchase of 15 or more securities.

B. Chief Investment Officer

The CIO, in consultation with IC, shall develop and enforce written procedures to prevent violations of this Policy. The CIO is responsible for reviewing adherence to this Policy by OPERS employees, and shall ensure that any violations, or willful disregard, of its provisions are reported to the GC, Director of Internal Audit (“DIA”), the Director of Human Resources, IC, and if applicable to the employee’s division head.

In case of a violation of this Policy, the CIO shall work with the Director of Human Resources to impose appropriate sanctions. The CIO, in consultation with the GC and IC, shall periodically review this Policy and recommend changes, if any, to the Board.

C. General Counsel

The GC shall review any reported violations, or cases of willful disregard, of this Policy to determine if any further action is required.

In collaboration with IC, the GC will review with OPERS employees, at least once each calendar year, requirements of the Securities Laws, including those relative to MNPI.

D. Director of Internal Audit

The DIA shall review any suspected violations or suspected willful disregard of this Policy reported by the CIO or discovered independently. The DIA will report any findings concerning such reviews to the GC and the Board’s Audit Committee in accordance with OPERS Reporting of Suspected Misconduct Policy.

The DIA shall also ensure that a review of OPERS securities trading activities is included in the annual audit plan and shall review results of such audits with the Board’s Audit Committee.

E. Director of Human Resources

The Director of Human Resources shall review any sanctions proposed for imposition in connection with this Policy. In collaboration with the CIO and the Assistant Director of Investment Accounting, the Director of Human Resources shall document any sanctions imposed under this Policy.

F. Investment Compliance

Whenever notified by GC that OPERS employees have become privy to MNPI, IC is responsible for placing trading restrictions on the applicable securities and commodities. The trading restrictions shall prohibit OPERS traders of equity and fixed income securities from purchasing or selling the restricted security or commodity.

IC shall also add such securities to the Restricted List created by OPERS Personal Trading Policy to block personal trading activities of Covered Persons.

IC shall report any violations to the CIO, with copies of the report delivered to the GC, DIA and Director of Human Resources. IC shall report to the Board annually, concerning compliance with this Policy.

IC will determine on a case by case basis if restricted trades may be approved for purposes of a rebalance or funding of an account that must replicate an index.

In collaboration with the GC, IC will review with OPERS employees who are covered by the OPERS Personal Trading Policy, at least once each calendar year, requirements of laws and regulations applicable to MNPI.

G. OPERS Employees

OPERS employees are expected to comply with both the letter and spirit of this Policy.

X. MONITORING AND REPORTING

A. Continuously

- If OPERS employees become aware of MNPI, they will notify GC who will inform IC to place restrictions on trading in accordance with this Policy.
- IC will report to the CIO, with copies to the GC, DIA and Director of Human Resources, concerning compliance with this Policy.

B. Annually

- The GC and IC will review requirements of the Securities Laws with OPERS employees who are covered by the OPERS Personal Trading Policy.
- IC will report to the Board concerning compliance with this Policy.
- The DIA shall include a review of OPERS trading activities in the annual audit plan, and will review the results of such audit with the Board's Audit Committee.



Ohio Public Employees Retirement System

Office of Foreign Assets Control Compliance Policy
March 2025⁴

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Revision History

Office of Foreign Assets Control Compliance Policy Established	March 20, 2013
Policy Revised	May 21, 2014
Policy Revised	February 18, 2015
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Policy Revised	September 18, 2019
Policy Revised	March 17, 2021
Policy Revised	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
Policy Revised	March 19, 2025

I. SCOPE

This Policy applies to all investment transactions that the Ohio Public Employees Retirement System ("OPERS") initiates and investment transactions entered into on behalf of OPERS by external investment managers.

II. PURPOSE

This Policy addresses compliance obligations with respect to controls on investment transactions imposed by the United States Department of the Treasury, Office of Foreign Assets Control ("OFAC").

III. LEGAL AUTHORITY

Section 145.11 (A) of the Ohio Revised Code ("ORC") provides that OPERS Retirement Board ("Board") is to discharge its duties solely in the interest of participants and beneficiaries for the exclusive purpose of providing benefits and defraying reasonable costs.

Section 145.11 (B) of the ORC provides that: "In exercising its fiduciary responsibility with respect to the investment of the funds, it shall be the intent of the Board to give consideration to investments that enhance the general welfare of the state and its citizens where the investments offer quality, return and safety comparable to other investments currently available to the Board."

The Board's fiduciary duty requires it to adhere to OFAC's controls on investment transactions because failure to do so would violate federal law and expose OPERS to civil and criminal penalties.

IV. OBJECTIVES

With regard to investment transactions that OPERS initiates, this Policy aims to create and implement thorough, targeted and reasonable procedures designed to mitigate the risk of OPERS engaging in investment transactions prohibited by OFAC.

With regard to investment transactions entered into on behalf of OPERS by external investment managers, this Policy aims to ensure that the OPERS Standard Form of Investment Manager Agreement contains appropriate language concerning OFAC compliance.

V. PROCESS

The Assistant Director of Investment Accounting, Operations and Compliance in conjunction with Legal Services will create and maintain an OFAC Compliance Procedure ("Procedure") to identify investment transactions prohibited by OFAC. In developing the Procedure, the relevant OFAC regulations and compliance guidance issued and available on OFAC's website will be reviewed.

In particular, the Procedure will require OPERS to divest as soon as lawfully permissible from any investment prohibited by OFAC. Staff shall not analyze pursuant to the OPERS Iran and Sudan Divestment Policy, any investment prohibited by OFAC, as this Policy alone shall govern such investments.

Effective October 2017, as Standard Form of Investment Manager Agreements are updated, Staff, in conjunction with the Legal Services Division, will update the provision regarding OFAC compliance in accordance with revisions proposed by OPERS investment counsel. Additionally, Staff, in conjunction with the Legal Services Division, will ensure that external investment managers are contractually bound to indemnify OPERS for any and all violations of OFAC's controls on investment transactions.

Currently, subject to further developments, the nations included on the OFAC list of embargoed countries should be assumed to be under an embargo for purposes of investment activities or transactions.

VI. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates the Chief Investment Officer ("CIO") to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for ensuring that Investment Manager Agreements and guidelines are consistent with this Policy and the Procedure.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS' investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance ("IC") is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC and Legal determines that an exception to this Policy has occurred, IC shall immediately notify Staff, the CIO, and the Executive Director. The OPERS Retirement Board will be notified once next steps have been determined.

D. Legal Staff and Fiduciary Counsel

The Legal Services Division and fiduciary counsel are responsible for advising Staff and the Board regarding legal compliance and fiduciary duties and performing other duties assigned in the Procedure.

VII. MONITORING AND REPORTING

IC will report to the Board concerning compliance with this Policy annually.



Ohio Public Employees Retirement System

Ohio-Qualified and Minority-Owned Manager Policy
March 2025⁴

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Revision History

Policy Established	July 8, 2002
Policy Revised	January 14, 2002
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Policy Revised	March 17, 2021
Policy Revised	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
Policy Revised	March 19, 2025

I. SCOPE

This Policy applies to the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit Fund (“DB Fund”) and Health Care 115 Trust Funds (“HC Fund”).

II. PURPOSE

This Policy addresses OPERS’ utilization of Ohio-qualified and minority-owned managers in its efforts to fulfill investment objectives. This Policy does not preclude OPERS from hiring Ohio-qualified or minority-owned managers as conducted through any other OPERS search process.

III. LEGAL AUTHORITY

Section 145.11 (A) of the Ohio Revised Code (“ORC”) states, in part:

The members of the public employees retirement board shall be the trustees of the funds created by section 145.23 of the Revised Code. The board shall have full power to invest the funds. The board and other fiduciaries shall discharge their duties with respect to the funds solely in the interest of the participants and beneficiaries; for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administering the public employees retirement system; with care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims; and by diversifying the investments of the system so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so.

Through Section 145.11 (B) of the ORC, it is expected that,

In exercising its fiduciary responsibility with respect to the investment of the funds, it shall be the intent of the Board to give consideration to investments that enhance the general welfare of the state and its citizens where the investments offer quality, return and safety comparable to other investments currently available to the Board. In fulfilling this intent, equal consideration shall also be given to investments otherwise qualifying under this section that involve minority owned and controlled firms and firms owned and controlled by women either alone or in joint venture with other firms.

A. Ohio-Qualified

For purposes of this Policy, an Ohio-qualified investment manager is defined in ORC 145.114 and ORC 145.116 as an investment manager (and/or any parents, affiliates, or subsidiaries of the investment manager), designated as such by a particular retirement system, who is subject to taxation under Chapter 5725, 5726, 5733, 5747, or 5751 of the ORC and who meets one of the following requirements:

- Has its corporate headquarters or principal place of business in Ohio; or
- Employs at least 500 individuals in Ohio; or
- Has a principal place of business in Ohio and employs at least 20 residents of the state.

“Principal place of business means an office in which the [investment manager] regularly provides investment advisory services and solicits, meets with, or otherwise communicates with clients” O.R.C. 145.114(A)(5).

B. Minority-Owned

For purposes of this Policy, and consistent with provisions of the ORC, a minority shall be defined as an investment manager that is a U.S. domiciled registered investment adviser under the Investment Advisers Act of 1940, and is majority-owned by one, or any combination, of the following groups: African American, Native American, Hispanic American, and Asian American.

For purposes of this Policy, investment managers who are majority-owned by women or disabled veterans are included in the definition of minority-owned.

IV. INVESTMENT PHILOSOPHY

OPERS is supportive of economic growth in Ohio and recognizes the diversity of its stakeholders. The Board desires that Investment Staff (“Staff”) identify, research and evaluate Ohio-qualified and minority-owned managers in its efforts to fulfill its investments objectives. Opportunities will be evaluated on their merit, including risk-adjusted return expectations and consistency with the Annual Investment Plan. Efforts will be conducted in a manner consistent with fiduciary duty, demonstrating prudence and consistent with best practices.

V. OBJECTIVES

It is a goal of the Board to increase its utilization of Ohio-qualified and minority-owned investment managers when the investment managers offer quality, services and safety comparable to other investment managers. This Policy does not require OPERS to utilize Ohio-qualified or minority-owned investment managers. OPERS will hire investment managers in a manner that is consistent with its fiduciary duties, as outlined in ORC Sections 145.11 and other applicable laws.

VI. PROCESS

OPERS is supportive of economic growth in Ohio and the advancement of Minority owned businesses whenever possible. The Board has established a goal that for any RFI/RFP issued for broad based traditional asset management services by the Investments division, Staff will advance, if available, at least one Woman/Minority Owned manager or one Ohio Qualified manager to the semi-final stage of all asset manager searches, consistent with our procedure. These increased opportunities for minority owned and/or Ohio qualified firms will help provide them with experience and exposure to institutional investors and will provide OPERS with the best opportunity to increase representation of those firms we employ, while maintaining the focus on hiring only the best performing investment firms. All efforts will be consistent with OPERS investment objectives and goals.

Staff will identify potential managers through a process approved by the Chief Investment Officer ("CIO"). Staff is responsible for establishing the procedures to identify, hire, terminate, and monitor managers under this Policy. Staff relies on self-certification by managers as to their status.

VII. RISK MANAGEMENT

Allocations will be evaluated relative to the investment managers' total firm assets and assets in the product under consideration, consistent with fiduciary duty, prudence, and best practices. Staff and the Investment Advisor will closely monitor the performance of the allocation(s) and report to the Board as described in this Policy.

The number of firms recommended in a given year and the size of the mandates will be consistent with the objectives outlined in the OPERS Annual Investment Plan, as well as the capacity of each investment manager and Staff's ability to identify investment managers that are likely to meet or exceed OPERS investment objectives.

VIII. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the CIO to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is also responsible for managing the Ohio-qualified and minority-owned manager program within the framework of this Board approved Policy and within the objectives adopted by the Board in the Annual Investment Plan. Staff will select and evaluate managers in accordance with procedures approved by the CIO.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations, and Compliance ("IC") is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisor

The role of Investment Advisor ("Advisor") is specified in the Investment Objective and Asset Allocation Policies.

IX. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

A. Quarterly

Performance reports – Investment Advisor and/or Staff

B. Annually

OPERS Annual Investment Plan – Staff

Report concerning this Policy – CIO

C. Upon Request

Staff shall provide to the Ohio Retirement Study Council ("ORSC") such information about OPERS utilization of managers as the ORSC may from time to time request. Board members shall receive a copy of the report prior to filing with the ORSC.



Ohio Public Employees Retirement System

Personal Trading Policy
March 2025⁴

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I. SCOPE

This Policy applies to personal investments of Presumed and Deemed Covered Persons (“Covered Persons”) defined herein, of the Ohio Public Employees Retirement System (“OPERS”) who have access to information concerning OPERS’ investment assets and activities involving such assets. It sets expectations for such employees’ conduct to comport with applicable laws and ethical standards, including OPERS’ Ethics Policy, and conditions of their employment. This Policy cannot and is not intended to address all insider and personal trading issues that may arise in connection with a Covered Person’s activities.

II. PURPOSE

This Policy is intended to explain requirements of laws, ethical standards and conditions of employment relative to employees’ personal investments. It is designed to prevent such employees from misusing material non-public information in a manner that might violate Federal securities laws or from otherwise engaging in inappropriate trading activities such as front running. It also delineates roles and responsibilities of persons involved in assuring compliance with its provisions.

III. LEGAL AUTHORITY

Sections 2921.42 and 2921.43 of the Ohio Revised Code (“ORC”) prohibit any employee from having a personal interest in a public contract, including an OPERS investment transaction or asset. Section 145.094 of the ORC establishes duties of OPERS Chief Investment Officer (“CIO”), including the duty to reasonably assure employees do not violate applicable laws and regulations. ORC Sections 145.11 through 145.115 set standards of conduct for OPERS employees with respect to investment transactions.

Federal securities laws prohibit persons, including OPERS employees, from trading securities or commodities on the basis of material non-public information. The Code of Ethics and Standards of Professional Conduct of the CFA Institute contain ethics and disclosure provisions that are similar to requirements of the ORC and Federal laws.

OPERS’ Employee Manual provides that all employees, including Covered Persons, are employees at will and may be sanctioned for violating terms of their employment, including compliance with policies such as this Policy.

IV. OBJECTIVES OF THIS POLICY

OPERS' Ethics Policy states that it seeks to carry out its mission in accordance with all applicable laws and in accordance with the strictest ethical guidelines to ensure that its employees conduct themselves in a manner that fosters public confidence in the integrity of OPERS, its processes and its accomplishments. This Policy provides ethical guidance to employees concerning their personal investments in support of OPERS' Ethics Policy.

In support of OPERS' Ethics Policy, the Board has also adopted the OPERS Material Non-public Information Policy to guide employees with access to information concerning OPERS' investment assets. This Policy is intended to provide similar guidance to employees concerning their own investment activities.

V. PERSONS TO WHOM THIS POLICY APPLIES

This Policy applies to Covered Persons who are defined as OPERS employees with access to information concerning OPERS' investment assets and activities involving such assets. This Policy also applies to other people who are closely related to Covered Persons.

A. Presumed Covered Persons

The following OPERS employees are, by virtue of their positions, conclusively presumed to be Covered Persons:

- The Executive Director
- The Deputy Executive Director
- The Chief Investment Officer ("CIO")
- The General Counsel ("GC") and internal investment counsel
- All Directors
- All Internal Audit Division employees
- All Investments Division employees
- All Investment Accounting, Operations and Compliance employees
- All Corporate Governance Department employees

B. Deemed Covered Persons

Other OPERS employees may be deemed Covered Persons based on job responsibilities. Employees of divisions not specifically identified in Section V.A., including employees in the Information Technology Division, will be deemed Covered Persons if they are so identified by the Investment Compliance area of Investment Accounting, Operations and Compliance ("IC") in consultation with the applicable division head and the Director of Internal Audit ("DIA").

Employees Presumed or Deemed Covered Persons may be excluded by the unanimous consent of IC, DIA, GC, and the CIO. Employees who believe they have been incorrectly or unnecessarily determined to be a covered person should contact IC who will review their status with the DIA, GC, and the CIO.

OPERS employees who are not otherwise Presumed or Deemed Covered Persons should consider themselves to be covered by this Policy if they become aware of material non-public information.

C. Related Parties of Covered Persons

In addition to Covered Persons, this Policy applies to their Related Parties. Such parties include Covered Persons' spouses, their children under the age of 18, adult children financially dependent upon them and any other persons living in their household. This Policy also applies to any relative of a Covered Person, even if not living in their household, over whose investments a Covered Person has discretionary authority.

VI. ASSETS TO WHICH THIS POLICY APPLIES

This Policy applies to any and every type of investment and derivative instruments ("Covered Assets") except the following:

- Annuity contracts
- Bank deposits
- Exchange traded products (commonly referred to as Exchange Traded Funds or "ETFs")
- Foreign currency exchange transactions
- Hard assets
- Open-end mutual funds
- Real property
- Tangible personal property
- United States Treasury and Agency securities
- Holdings in non-publicly traded limited partnerships, limited liability companies, and/or corporations
- Cryptocurrencies (provided, however, that derivatives of cryptocurrencies shall not fall within this exception)
- Instruments and products based on a broad-market index

Covered Persons and Related Parties may not effect transactions in Covered Assets that are on OPERS' Restricted List, which is defined to include all open orders for the purchase or sale of such assets. This list is maintained by an automated system that is updated throughout each day that securities markets are open in the United States.

IC shall add to the Restricted List any additional securities as to which OPERS employees become aware of material non-public information. IC shall also add to the List any Covered Asset as to which the prospect of a purchase or sale is disseminated outside the Investments Division team responsible for such

transaction, and any Covered Asset identified on the Internal Active U.S. Equity Team's "Idea List". The "Idea List" is a list of equity securities maintained by the internal equity team that are currently being actively watched and/or reviewed for potential investment in the OPERS portfolios.

VII. ACCOUNTS AND INTERESTS TO WHICH THIS POLICY APPLIES

This Policy applies to any and every type of investment account ("Covered Accounts"), except the following:

- 401(k) accounts that are limited to only non-Covered Assets
- 457 accounts that are limited to only non-Covered Assets
- 403(b) accounts that are limited to only non-Covered Assets
- 529 accounts that are limited to only non-Covered Assets
- Traditional and Roth Individual Retirement Accounts that are limited to only non-Covered Assets
- Any other entity such as a corporation, trust or partnership in which a Covered Person or Related Party has a legal or beneficial interest less than 10%
- Accounts or interests in OPERS' Combined or OPERS' Defined Contribution Funds
- Accounts or interests in the Ohio Deferred Compensation Program

This Policy applies to such accounts if they are owned by a Covered Person, owned by a Related Party or, owned jointly by a Covered Person and a Related Party. Covered Accounts also include accounts that are managed by a third-party investment adviser or other person ("Managed Accounts"), even if such person has sole investment discretion over the account and the Covered Person and their Related Parties have no power to affect, or ability to control or influence, investment decisions in the Managed Account. For the avoidance of doubt, Managed Accounts are subject to the same reporting and pre-clearance requirements as all other Covered Accounts.

VIII. TRANSACTIONS TO WHICH THIS POLICY APPLIES

This Policy applies to all purchases, sales or exchanges ("Covered Transactions") of Covered Assets effected on a public securities exchange or through private arrangements. It also applies to Covered Assets acquired by gift.

Corporate actions such as mergers, stock dividends, tender offers, or stock splits are not considered to be Covered Transactions. Purchases of shares of stock pursuant to a direct investment plan that determines the timing of the purchase, such as a direct stock plan, employee stock purchase plan, direct purchase plan or a dividend reinvestment plan are also exempt from this Policy. Exchanges of Covered Assets by inheritance or survivorship are also exempt from this Policy, provided that the Covered Person receiving Covered Assets through an inheritance or survivorship shall promptly inform IC after becoming aware of such inheritance or survivorship.

IX. REPORTING REQUIREMENTS

Covered Persons are required to comply with reporting requirements as specified in a Personal Trading Procedure. Covered Persons are required to disclose all Covered Assets and Covered Accounts (including Managed Accounts) holding Covered Assets that are owned by the Covered Person or any of the Covered Person's Related Parties. No information can be redacted out of brokerage statements. Quarterly, Covered Persons shall aver that they have disclosed all Covered Accounts and Covered Assets owned by them or their Related Parties. Annually, Covered Persons shall file a Personal Trading Compliance statement averring that they understand, and will abide by, the requirements of this Policy.

New employees that are Covered Persons shall have 30 days from the date they were employed by OPERS to: (1) disclose all Covered Assets and Covered Accounts holding Covered Assets that are owned by the Covered Persons or any of the Covered Persons' Related Parties; and (2) file their Personal Trading Compliance Statements averring that they understand, and will abide by, the requirements of this Policy.

X. OTHER REQUIREMENTS

A. Pre-Clearance of Covered Transactions

Covered Persons must use, or ensure that the third parties that exercise investment discretion over Managed Accounts use, OPERS' automated system to pre-clear Covered Transactions of all Covered Assets not excluded in section VI.

Covered Persons will normally receive immediate notification that a proposed Covered Transaction is approved or denied. Requests shall be denied if the transaction would violate any of the trading restrictions set forth in this Policy.

In the event OPERS' automated system is not functioning, Covered Persons must pre-clear any Covered Transactions by sending an e-mail message to IC requesting a determination as to whether trading is allowed and must wait for approval from IC before entering into the transaction. IC will maintain a written record of any clearances so granted. Covered Transactions must be pre-cleared on any day that domestic securities markets are open, even if OPERS is closed.

Pre-clearance approvals granted by OPERS' automated system or by IC are valid only until the market close on the day they are given. If the proposed Covered Transaction is not executed within the approved time period, the Covered Person must re-start the pre-clearance process before undertaking a new transaction.

1. Pre-clearance of Derivatives

Each derivative trade in a Covered Account to buy or sell, including to exercise an option requires pre-clearance. However, pre-clearance is not required: (a) if the underlying asset of the derivative is not a Covered Asset; (b) to allow expiry of an option; or (c) when an option is closed out as a result of an action by a counterparty to exercise an option previously sold from the Covered Account (i.e. the option is assigned).

The pre-clearance of the underlying asset of the derivative is sufficient for this requirement, although it is preferred that the derivative trade be pre-cleared when possible.

2. Pre-clearance for Limit or Stop-Loss Orders

Limit or stop-loss orders create heightened risks for insider trading violations because there is no control over the timing of the purchases or sales and, as a result, a Covered Person could potentially execute a transaction when such Covered Person is in possession of material non-public information or when the transaction would otherwise be denied. For this reason, limit or stop-loss orders may not be used to extend pre-clearance beyond the one-day limit. The order must be pre-cleared daily prior to market opening.

A Covered Person's failure to pre-clear transactions in these types of Covered Assets will be considered a willful violation of this Policy and will subject such Covered Person to appropriate sanctions. Covered Persons also will be subject to appropriate sanctions – up to and including termination of employment – if their Related Parties, or the third parties that exercise investment discretion over Managed Accounts owned by the Covered Persons or their Related Parties, fail to pre-clear transactions in Covered Assets in accordance with this Policy.

B. Blackout Periods

From time to time, the CIO and IC may institute a blackout covering all publicly traded securities in an asset class or in a specific index. During a blackout period, all proposed Covered Transactions shall be denied.

C. Material Inside and Non-Public Information

Material inside information is non-public information that a reasonable investor would consider important in determining whether to purchase or sell a security. It is also information that, if made public, would likely affect the market price of a security or a commodity. Whether the information is material depends on the facts and circumstances. Examples of material non-public information include, but are not limited to: (1) financial projections and results; (2) mergers, acquisitions, tender offers or divestments; (3) information about

a company's earnings or dividends (e.g., whether earnings will increase or decrease); (4) information about a company's physical assets (e.g., an oil discovery, a fire that destroyed a factory, or an environmental problem); (5) significant changes in management or operations, including the entering into or cancellation of significant contracts; (6) significant litigation, claims, or government investigations; and (7) significant personnel changes; (8) changes to a company's capital structure.

Information may be considered material even if it relates to future, speculative or contingent events and even if it is significant only when considered in combination with publicly available information. Information is considered non-public unless it has been publicly disclosed and adequate time has passed for securities markets to digest such information. Covered Persons and Related Parties are forbidden to purchase or sell investment or derivative instruments on the basis of material inside and non-public information whether obtained as a result of their employment by OPERS or otherwise.

If a Covered Person is unsure whether information he or she obtains is material non-public information, he or she must consult with the GC before initiating any transactions with respect to the information. The GC and IC will review with Covered Persons, at least once a year, requirements of laws and regulations applicable to material inside and non-public information.

D. Tipping

Insider trading laws also prohibit the tipping of material non-public information. A Covered Person may not directly or indirectly convey material non-public information to anyone who could trade on that information.

E. Front Running

Covered Persons are prohibited from front running, which is defined as buying or selling investment or derivative instruments in advance of the time such a transaction would be blocked by the pre-clearance system or by a blackout period. Covered Persons who have actual knowledge of transactions that are being considered for implementation in OPERS' portfolios are prohibited from acting in advance thereof even if such purchase or sale in their or a Related Party's account would not otherwise be barred by the pre-clearance system or by a blackout period. Other activities may, based on OPERS' assessment of relevant facts and circumstance, also be considered to constitute inappropriate trading. Actual knowledge includes knowledge that all of the material terms of the transaction have been or will be agreed upon imminently, but need not know every detail of the potential transaction for the prohibition to attach.

F. Ohio Ethics Law and Commission

Certain OPERS employees, including some Covered Persons, may also be subject to provisions of ORC Sections 102.01 through 102.99 (“Ethics Law”), which impose additional reporting and other requirements. The GC will determine which employees are subject to these requirements and advise them concerning compliance with the same.

G. Initial Public Offerings

Covered Persons and Related Parties are prohibited from purchasing stock in any Initial Public Offering (“IPO”). They may accept IPO shares derived from a stock dividend on shares previously owned, from demutualization of an insurance company in which they are a policy holder or as the result of a Related Party’s employment by an IPO issuer.

H. New Bond Subscriptions

Covered Persons and Related Parties are prohibited from participating in subscriptions of new bond issues that are Covered Assets.

I. Management Expectations

Employees are expected to devote their full time and attention to performing their jobs. Trading strategies that require frequent buying and selling of Covered Assets during work hours should be avoided.

J. Conflicts of Authority

In the event provisions of this Policy conflict with Federal or Ohio laws, OPERS’ employment policies or requirements of the Ohio Ethics Commission, those laws, policies and requirements shall override provisions of this Policy.

K. Post-Employment Restrictions

Covered Persons are subject to the provisions of this Policy following the termination of their employment or service for the later of (i) 15 days after the date, if ever, that material non-public information, as defined in Section X.C. of this Policy in the possession of such Covered Person becomes publicly available, or, (ii) in the case of front running as defined in Section X.E. of this Policy, the date the last pending OPERS fund transaction in the subject security of which such Covered Person is aware has been fully executed.

XI. SANCTIONS

Willful disregard of this Policy will subject Covered Persons to sanctions as outlined in the personal trading procedure, and additional sanctions that may include formal reprimands, adverse performance reviews, disgorgement of profits and termination of employment.

XII. ROLES AND RESPONSIBILITIES

The following section outlines roles and responsibilities of the parties involved in maintaining and executing this Policy:

A. OPERS Retirement Board

The OPERS Retirement Board (“Board”) is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing the annual report concerning compliance with this Policy.

B. Chief Investment Officer

The CIO is responsible for reviewing adherence to this Policy by OPERS employees, and shall ensure that any violations of its ethical standards, or willful disregard of its provisions, are reported to the DIA, GC, IC, the Director of Human Resources (“DHR”), and, if applicable to the Covered Person’s division head.

In case of a violation of this Policy’s employment standards, OPERS will follow the processes outlined in the procedure.

The CIO, in consultation with IC shall periodically review this Policy and recommend changes, if any, to the Board.

C. Director of Internal Audit

The DIA shall review any suspected violations or suspected willful disregard of this Policy reported by the CIO, reported quarterly to the CIO, or discovered independently during the annual audit of personal trading. The DIA will report any findings concerning such reviews to the GC and the Board’s Audit Committee in accordance with OPERS Reporting of Suspected Misconduct Policy.

The DIA shall also ensure that a review of personal trading is included in the annual audit plan and shall review the results of such audits with the Board’s Audit Committee.

D. General Counsel

The GC is responsible for determining which OPERS employees, including Covered Persons, are subject to additional requirements of the Ohio Ethics Law and for advising them concerning those requirements. The GC shall also review any cases of willful disregard of this Policy and securities laws that are reported by the CIO, DIA and/or contained in IC quarterly report to the CIO to determine if any further action is required.

In collaboration with IC the GC will review with Covered Persons, at least once a calendar year, requirements of laws and regulations applicable to material inside and non-public information.

E. Director of Human Resources

The DHR shall review any sanctions proposed for imposition in connection with this Policy. In collaboration with the CIO and IC, the DHR shall document any sanctions imposed under this Policy.

F. Investment Compliance

IC, in consultation with the CIO, is responsible for establishing procedures to track Covered Persons' compliance with this Policy. IC shall report to the CIO quarterly, with copies of the quarterly report delivered to the GC, DIA and DHR. IC shall report to the Board annually, concerning compliance with this Policy.

If an employee of a division other than the Investments Division violates this Policy, IC will report that violation to the employee's division head.

In collaboration with the GC, IC will review with Covered Persons, at least once a calendar year, requirements of laws and regulations applicable to material inside and non-public information.

G. OPERS Employees including Covered Persons

In all of their personal investment activities, all OPERS employees, including Covered Persons, are expected to comply with both the letter and spirit of this Policy.

XIII. MONITORING AND REPORTING

A. Quarterly

IC will report to the CIO, with copies to the GC, DIA and DHR, concerning compliance with this Policy.

B. Annually

- The GC and IC will review requirements of Securities Laws with Covered Persons.
- IC will report to the Board concerning compliance with this Policy.
- The DIA shall include a review of personal trading activities in the annual audit plan, and will review the results of such audit with the Board's Audit Committee.



Ohio Public Employees Retirement System

Responsible Contractor Policy
March 2025⁴

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Policy Revised	September 18, 2019
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I. SCOPE

This Responsible Contractor Policy ("Policy") of the Ohio Public Employees Retirement System ("OPERS") is designed to guide, in a manner consistent with OPERS statutory standards of fiduciary responsibility and prudence in managing its investments, the OPERS selection of independent contractors who provide building operations services and construction services to real estate properties owned by OPERS separate account external managers through the Defined Benefit Fund ("OPERS' Properties"). The Policy seeks to ensure that OPERS contractors will be selected based upon demonstrated ability to provide high quality services, and thereby enhance the value of OPERS' Properties, as evidenced by their record of compliance with applicable statutes and payment of fair compensation and benefits to employees, as well as by their experience, reputation, responsiveness, fees, and dependability.

II. PURPOSE

OPERS supports and encourages fair compensation and fair benefits for workers employed by its contractors, subject to the requirements of Section 145.11(A) of the Ohio Revised Code ("ORC"), which states, in part:

The members of the public employees retirement board shall be the trustees of the funds created by section 145.23 of the Revised Code. The board shall have full power to invest the funds. The board and other fiduciaries shall discharge their duties with respect to the funds solely in the interest of the participants and beneficiaries; for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administering the public employees retirement system; with care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims; and by diversifying the investments of the system so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so.

OPERS Investment Staff ("Staff") and others, who are involved in the management of the DB Fund's assets, are subject to the same fiduciary standards as the Board.

In addition, Section 145.11(B) of the ORC requires that

In exercising its fiduciary responsibility with respect to the investment of the funds, it shall be the intent of the board to give consideration to investments that enhance the general welfare of the state [of Ohio] and its citizens where the investments offer quality, return, and safety comparable to other investments currently available to the board.

In keeping with that concern, the OPERS Retirement Board (“Board”) hereby adopts this Policy in order to support and encourage the engagement of contractors who can be expected to provide high quality services to OPERS’ Properties, utilizing properly-trained and fairly-compensated employees, subject to OPERS’ fiduciary principles of loyalty, care, skill, prudence, and diligence.

OPERS believes that the utilization of such contractors adds value to the investments by ensuring that essential building operations services and construction services are provided by adequately-trained, experienced, and motivated workers.

OPERS supports a healthy and profitable business environment through market competition, small business development, and control of operating costs. OPERS believes that an adequately compensated and trained workforce delivers a higher quality product and service.

III. DEFINITION OF RESPONSIBLE CONTRACTOR

A Responsible Contractor is a contractor who: (1) has the appropriate experience, reputation, employee relations, responsiveness, fees, and dependability to perform the required work; and (2) provides workers a fair compensation and fair benefits, as evidenced by payroll and employee records, for the required work, based on market conditions.

IV. LEGAL AUTHORITY

A. Fiduciary Responsibility

Notwithstanding any other considerations, the assets of OPERS shall be diligently and prudently invested and managed, in accordance with the fiduciary standards specified in Section 145.11 of the ORC, in the sole interest of plan participants and their beneficiaries, and for the exclusive purpose of providing benefits to its participants and their beneficiaries.

V. COMPETITIVE RATE OF RETURN

OPERS seeks to have its real estate investments managed and operated in a manner that is expected to produce a competitive rate of return for its participants and beneficiaries.

A. Legal Compliance

OPERS seeks to have all OPERS contractors comply with all applicable federal, state, and local laws, regulations, and ordinances, including (but not limited to) those related to insurance, withholding taxes, minimum wage, health and safety, and environmental matters.

B. Non-Discrimination

OPERS shall give equal consideration to minority owned and controlled firms, firms owned and controlled by women, and ventures involving those same firms that otherwise would meet the selection criteria for contractors and service providers.

VI. PREFERENCE FOR A RESPONSIBLE CONTRACTOR

Provided the basic requirements in the foregoing section have been satisfied, OPERS expresses a strong preference that Responsible Contractors be hired, in accordance with this Policy.

VII. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer ("CIO") to implement this Policy.

Staff shall review real estate separate account external managers' annual reports regarding compliance with the Policy and make recommendations as needed for action to correct any pattern of non-compliance.

Staff shall develop probation list procedures that require the approval of the CIO and General Counsel.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance ("IC") is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board. In addition, IC shall furnish annual reports to the Board on each external separate account manager's compliance with this Policy.

D. Separate Account External Managers

Separate account external managers shall communicate this Policy to property managers of OPERS' Properties and to managers of OPERS real estate investment vehicles.

Separate account external managers shall maintain a simplified bid summary for each applicable contract. The summary should include identifying contract successful bidder, and bidder's status as a Responsible Contractor.

Separate account external managers shall provide an annual report to OPERS Staff describing actions taken by such external manager to comply with this Policy, including those taken by property managers and their subcontractors.

Separate account external managers shall monitor and enforce compliance with this Policy including reasonable investigation of potential violations.

E. Property Manager

Property managers shall communicate this Policy in all bid documents seeking to secure construction or building service contracts subject to this Policy.

Property managers shall provide to separate account external managers property level annual reports regarding compliance with this Policy.

Property managers shall provide to separate account external managers, for each OPERS Property under management, a list of contracts subject to this Policy.

Property managers shall maintain a list of Responsible Contractors utilized at each OPERS Property.

F. Contractor

Contractors shall provide the property manager with Responsible Contractor documentation.

Contractors shall file with the property manager reports, certifications, and other forms as required by OPERS or the manager relating to this Policy.

VIII. MONITORING AND REPORTING

A. Applicable Contracts

This Policy applies to all contractors and subcontractors who provide building operations services and construction services to real estate properties owned by OPERS or through subsidiary entities. The contractors and subcontractors shall use their best efforts to comply with this Policy.

B. Notification

All current and prospective real estate separate account external managers shall be provided with a copy of this Policy.

C. Contract Solicitation

All requests for proposals and invitations to bid applicable contracts covered by this Policy shall be made in accordance with the terms of this Policy.

D. Contracts and Contract Renewals

All contracts and contract renewals entered into after the effective date of this Policy shall include the applicable provisions of this Policy. OPERS shall maintain a publicly available list of all of its properties, with relevant data that would allow any potential contractor to pursue a bid upon contract renewal.

E. Minimum Contract Size

This Policy shall apply to all contracts valued at \$25,000 or more. Contract value refers to the total project work to be contracted for without disaggregation by trade or task. Disaggregation designed to evade the requirements of this Policy shall not be permitted.

F. Reporting

All real estate separate account external managers and contractors shall collect and retain adequate data documenting their compliance with this Policy and shall be prepared to produce this data for review upon request. The Assistant Director of Investment Accounting ("AD") or the AD's delegee shall provide annual reports to the Board, in an acceptable format, demonstrating best efforts at compliance by external managers and contractors with this Policy.

G. Definition of Fair Wages and Benefits

This Policy does not mandate any strict definition of fair wages and benefits. This Policy recognizes and considers in the determination of fair wages and benefits indicators such as local wage practices, state law, labor market conditions, as well as prevailing wages.

H. Neutrality

When there is a legitimate attempt under the National Labor Relations Act by a labor organization to organize workers employed in construction, maintenance, operation, or services at an OPERS' property, OPERS encourages a position of neutrality.

With respect to other matters arising under the National Labor Relations Act at OPERS' property, including but not limited to bargaining, negotiations, and resolution of other matters, and subject to its fiduciary obligations, the Board shall remain neutral and delegate such matters to staff and its external managers to resolve in a manner that is consistent with this policy and in the best interest of OPERS.

I. Enforcement

OPERS shall place any external manager or property manager who fails to comply with this Policy on a probation list. OPERS shall review and monitor its relationship with any such external manager or property manager upon placement on the probation list according to the probation list procedures.



Ohio Public Employees Retirement System

Russia Divestment Policy
March 2025⁴

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Revision History

Russia Divestment Policy Established	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
Policy Revised	March 19, 2025

I. SCOPE

This Policy applies to investments of the Ohio Public Employees Retirement System (“OPERS”).

II. PURPOSE

This Policy addresses the management of unique risks associated with investments in Russia (“Russian Investments”).

III. LEGAL AUTHORITY

Section 145.11 (A) of the Ohio Revised Code (“ORC”) states in part:

The members of the public employees retirement board shall be the trustees of the funds created by section 145.23 of the Revised Code. The board shall have full power to invest the funds. The board and other fiduciaries shall discharge their duties with respect to the funds solely in the interest of the participants and beneficiaries; for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administering the public employees retirement system; with care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims; and by diversifying the investments of the system so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so.

Section 145.11 (B) of the ORC provides that:

In exercising its fiduciary responsibility with respect to the investment of the funds, it shall be the intent of the Board to give consideration to investments that enhance the general welfare of the state and its citizens where the investments offer quality, return and safety comparable to other investments currently available to the Board.

IV. INVESTMENT PHILOSOPHY

Investments in entities in Russia may pose potentially unique risks and the Board desires that Investment Staff (“Staff”) identify Russian Investments and endeavor to divest from such investments when divestment can be accomplished as provided in this Policy.

These efforts will be conducted in a manner consistent with the Board’s fiduciary duty, demonstrating prudence and observing best practices.

V. OBJECTIVES

This Policy establishes a goal of reducing investment exposure to Russian Investments when divestment can be accomplished in a manner consistent with the Board's fiduciary duty, demonstrating prudence and observing best practices.

VI. PROCESS

Staff will maintain a Russia Divestment Procedure ("Procedure") to identify Russian Investments and divest of existing investments in a manner consistent with the Board's fiduciary duty, demonstrating prudence and observing best practices.

VII. RISK MANAGEMENT

Divesting in accordance with this Policy from investments that are components of Asset Class and/or portfolio benchmarks may cause an increase in tracking error relative to the associated benchmarks. Staff will monitor the effect of this Policy on the returns and associated tracking errors.

VIII. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it. This policy will be reviewed by the Board at least annually.

B. Executive Director

The Executive Director is responsible for monitoring investment activities and reviewing reports related to this Policy.

C. Investment Staff

The Board delegates authority to the Chief Investment Officer ("CIO") to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board.

All members of Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS' investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

D. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance ("IC") is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

E. Corporate Governance Staff

The Corporate Governance Staff is responsible for performing assigned duties in the Procedure.

F. Legal Staff and Fiduciary Counsel

The Legal Services Division and fiduciary counsel are responsible for advising Staff and the Board regarding legal compliance and fiduciary duties and performing other duties assigned in the Procedure.

IX. MONITORING AND REPORTING

A. Periodically

The Assistant Director of Investment Accounting, Operations and Compliance ("AD"), or the AD's delegee will report to the Board concerning compliance with this Policy or any exceptions to it.

B. Upon Request

Staff shall provide to the Ohio Retirement Study Council ("ORSC") such information about compliance with this Policy or any exceptions as the ORSC may from time to time request.



Ohio Public Employees Retirement System

Securities Lending Policy
March 2025⁴

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Revision History

Securities Lending Policy Established	October 18, 2005
Policy Revised	February 17, 2010
Policy Revised	December 15, 2010
Policy Revised	December 14, 2011
Policy Revised	March 20, 2013
Policy Revised	February 19, 2014
Policy Revised	February 18, 2015
Policy Revised	January 20, 2016
Policy Revised	February 15, 2017
Policy Revised	March 21, 2018
Policy Revised	September 18, 2019
Policy Revised	March 17, 2021
Policy Revised	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
Policy Revised	March 19, 2024

I. SCOPE

This Policy applies to securities lending activities internally managed by the Ohio Public Employees Retirement System (“OPERS”).

II. PURPOSE

This Policy governs the securities lending activities of OPERS. It applies to the lending of securities of all asset class portfolios.

III. INVESTMENT PHILOSOPHY

The securities lending program (“Program”) actively lends securities with agreed upon terms and conditions such that, when combined with investment performance on the related underlying collateral, the risk-adjusted returns are expected to provide incremental income to the respective portfolios.

Borrowers shall provide liquid collateral in exchange for the right to borrow securities. Cash collateral portfolios shall follow the Cash Policy and their respective guidelines.

IV. ALLOCATION

Within the structure of the Program, the maximum percentage of assets that may be on loan is 50% of the Eligible Assets. In addition, in order to further control potential risks associated with lending, the maximum amount that may be on loan with any one borrower is 15% of the Eligible Assets.

V. ELIGIBLE ASSETS

Publicly traded assets held in separate accounts in the Defined Benefit and Health Care 115 Trust Funds are eligible for securities lending. OPERS Retirement Board (“Board”) or Investment Staff (“Staff”) may restrict lending for corporate governance, investment management or other purposes. Scrutinized Companies, as provided periodically by the Corporate Governance area, will be restricted from lending.

VI. PERFORMANCE OBJECTIVES

Staff will assess the performance of the Program on a no less than annual basis by comparing it to an appropriate benchmark or industry composite as determined by Staff. Staff will address any shortcomings in performance with recommendations to the Chief Investment Officer (“CIO”).

VII. RISK MANAGEMENT

Risk is managed through a combination of quantitative and qualitative constraints. Staff shall establish parameters to control the following risks:

A. Cash Reinvestment Risk

The primary risk associated with securities lending is the risk that the cash reinvestment assets would not be sufficient to cover the liabilities due to the borrowing brokers. This risk is to be managed by such activities as adherence to the OPERS Cash Policy and related guidelines for internal management with comparable guidelines or governing documents for external management.

B. Counterparty Risk

Counterparty risk is the risk that a borrowing broker would not return a security from loan. This risk is to be mitigated and managed by such activities as monitoring the amount on loan with each broker, holding excess collateral, marking collateral to market daily and having indemnification from lending agents against borrower default, as appropriate.

Additionally, the terms of all securities lending agreements shall provide for the return of securities at OPERS request within the standard settlement period of the market or five business days, whichever is less.

C. Collateral Risk

In instances where OPERS lends assets to borrowers versus non-cash collateral in a securities lending transaction, the following mitigants will be used to manage and limit the risk of this activity:

- Indemnification by the lending agent
- Over-collateralization of loans by counterparty
- Limits on collateral exposures

VIII. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it.

In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the CIO to implement this Policy. Staff is responsible for monitoring the Policy and recommending changes to the Board. Staff is responsible for contracting with any agents or principals in executing the securities lending program. Staff will monitor agents' compliance with this Policy on a regular basis. All documents associated with this Policy are reviewed and agreed to by the Legal Services Division prior to execution.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance (“IC”) is responsible for monitoring compliance with this Policy, including guidelines established pursuant to it. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director and the Board.

D. Investment Advisor

The role of the Investment Advisor is specified in the Investment Objective and Asset Allocation Policies.

E. Corporate Governance

The Corporate Governance area is responsible for providing a periodic (prior to any auctions or other lending commitments as necessary) list to Securities Lending of Scrutinized Companies, so that those issues may be restricted from lending. In addition, Corporate Governance provides a list of focus companies (Focus List) that may be restricted or called back in order to vote proxies on an annual basis. This Focus List is intended to balance annual revenue generated from securities lending and OPERS’ corporate governance efforts. (Historically this list has been 30 companies or fewer).

F. Investment Managers

Lending agents engaged by OPERS are responsible for complying with this Policy and their IMAs. They must confirm such compliance to OPERS quarterly and supply copies of their current insurance policies to OPERS, or its Insurance Consultant, at least annually.

IX. MONITORING AND REPORTING

To ensure monitoring and compliance with this Policy, the following reports will be reviewed with the Board:

A. Semi-Annually

Performance and compliance reports – Staff

Report on compliance – Investment Compliance Staff

B. Annually

OPERS Annual Investment Plan – Staff



Ohio Public Employees Retirement System

Soft Dollar Policy
March 2025⁴

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Revision History

Soft Dollar Policy Established	June 17, 2003
Policy Revised	September 14, 2005
Policy Revised	February 21, 2007
Policy Revised	October 20, 2010
Policy Revised	December 15, 2010
Policy Revised	December 14, 2011
Policy Revised	March 20, 2013
Policy Revised	February 19, 2014
Policy Revised	February 18, 2015
Policy Revised	January 20, 2016
Policy Revised	February 15, 2017
Policy Revised	March 21, 2018
Policy Revised	September 18, 2019
Policy Revised	March 17, 2021
Policy Revised	March 16, 2022
Policy Revised	March 15, 2023
Policy Revised	March 20, 2024
Policy Revised	March 19, 2025

I. SCOPE

This Policy applies to purchase and sale transactions involving internally and externally managed public market securities owned by or for the benefit of the Ohio Public Employees Retirement System (“OPERS”) Defined Benefit Fund (“DB Fund”) and Health Care 115 Trust Fund (“HC Fund”) that are paid for through commissions.

II. PURPOSE

This Policy establishes a framework for use of Soft Dollar and Other Commission Arrangements, which are defined in Section IV below, to minimize total transaction costs while maximizing the value of brokerage and investment research services received. It also provides for proper monitoring and oversight of Soft Dollar and Other Commission Arrangements.

III. LEGAL AUTHORITY

In accordance with Ohio Revised Code Section (“ORC”) 145.11, which establishes the fiduciary responsibilities of OPERS Retirement Board (“Board”), OPERS Investment Staff will use every effort to obtain Best Execution, as defined in Section IV below, with respect to all transactions.

IV. PHILOSOPHY

OPERS’ goal in all securities transactions is to obtain Best Execution. Best Execution means the execution of a purchase or sale transaction at a price and commission or fee that provides the most favorable total cost or total proceeds reasonably obtainable under the circumstances then prevailing. Best Execution does not necessarily mean paying the lowest possible commission. A brokerage commission is the fee paid to a broker-dealer for services rendered and is calculated as a lump sum or as a percentage of the amount of a transaction. Brokerage commissions compensate broker-dealers for executing transactions. Some commissions also compensate broker-dealers for providing investment research services, which are defined as advice, analysis, reports or other expressions of relevant reasoning or knowledge.

Amounts by which such brokerage commissions exceed the price of executing transactions are referred to as “Soft Dollars.” Soft Dollars used to purchase proprietary investment research services generated by a broker-dealer who executes a transaction are included in the cost of such transactions and are referred to as “Bundled Commission Arrangements.” Soft Dollars used by an executing broker to purchase investment research services from a third party for OPERS are referred to as “Commission Sharing Arrangements.”

OPERS may pay brokerage commissions that include either Bundled Commission Arrangements or Commission Sharing Arrangements. When it does, OPERS shall make a good faith determination that such price is reasonable in relation to the value of the brokerage and research services it receives. In doing so, OPERS will make a prudent and diligent effort to follow guidance provided to investment managers by regulators such as the Securities and Exchange Commission, which has done so pursuant to Section 28(e) of the Securities Exchange Act of 1934 (the “Act”).

V. OBJECTIVES

A. Internally Traded Investment Transactions

When selecting broker-dealers for transactions, whether internally or externally managed portfolio, OPERS Investment Staff shall follow its policies and procedures to choose the firm most capable of providing the brokerage services necessary to obtain Best Execution.

Investment Staff shall comply with ORC 145.11(B), which requires the Board to give equal consideration to firms that are owned or controlled by minorities or women.

Investment Staff shall comply with ORC 145.114 to increase the use of Ohio-qualified agents for the execution of transactions when an Ohio-qualified agent offers quality, services, and safety comparable to other agents available to OPERS.

1. Bundled Commission Arrangements

Staff determines which broker-dealers to use in executing Bundled Commission Arrangements. In doing so, Staff will consider its need for research and the cost and quality of services to be obtained through such transactions. Staff reports results of its allocation of Bundled Commission Arrangements to the Investments Division’s Broker Review Committee (“BRC”) on a regular basis.

2. Commission Sharing Arrangements

The BRC will, at least annually, review a forecast of the estimated amount of credit that will be available to OPERS through transactions involving Commission Sharing Arrangements. All requests by Investment Staff to spend these credits must be made to the BRC, which will consider the costs and benefits of such requests and maintain records of its decisions concerning them.

B. Externally Traded Investment Transactions

OPERS may permit its public market external investment managers to utilize Soft Dollars as long as they: (i) seek to obtain Best Execution of their transactions; and (ii) to comply with Section 28(e) of the Act and/or other comparable laws and regulations, such as those of the Financial Conduct Authority and Prudential Regulation Authority of the United Kingdom.

VI. ROLES AND RESPONSIBILITIES

A. OPERS Retirement Board

The Board is responsible for reviewing and approving this Policy and any changes to it. In addition, the Board is responsible for reviewing reports related to this Policy.

B. Investment Staff

The Board delegates authority to the Chief Investment Officer (“CIO”) to implement this Policy. Investment Staff shall monitor compliance with this Policy and report to the CIO concerning it. Staff is also responsible for recommending changes to this Policy.

All members of the Investment Staff are accountable to the CIO. The CIO is responsible for all Staff actions relative to the management of OPERS’ investments. In this regard, it is the responsibility of the CIO to satisfy himself/herself that all Policies and directives of the Board are implemented.

C. Investment Compliance

The Investment Compliance area of Investment Accounting, Operations and Compliance (“IC”) is responsible for determining in advance, and documenting in writing, whether expenses proposed for payment with Soft Dollars qualify for such treatment under Section 28(e) of the Act. If IC determines that an exception to this Policy has occurred, IC shall notify Staff, the CIO, the Executive Director, and Board.

D. Broker Review Committee

The BRC is responsible for recommending to the CIO the annual commission targets to be generated through Commission Sharing Arrangements and for determining which investment research services to purchase with such commissions. It will also monitor the use of Bundled Commissions Arrangement by the Investment Staff. It will report on Bundled Commissions and Commission Sharing Arrangements to the CIO and to the Board, as appropriate but at least annually. The Committee is also responsible for recommending changes to this Policy and for maintaining appropriate documentation of its activities.

E. External Public Market Investment Managers

External public market investment managers report, as appropriate, concerning their efforts to achieve Best Execution of securities transactions and their compliance with Section 28(e) of the Act and/or other applicable laws and regulations.

VII. MONITORING AND REPORTING

A. Quarterly

Investment Compliance Staff requires public market external managers to provide statements averring compliance with Section 28(e) of the Act and/or other comparable laws and regulations.

B. Semi-Annually

Staff requires public market external managers to provide reports documenting the nature, benefit and source of services obtained through Soft Dollars, and, where possible, a trade evaluation report, provided by a third party vendor, analyzing transactions with broker-dealers.

C. Annually

BRC report on OPERS Soft Dollar expenses and the investment research services.

D. Periodically

The BRC monitors the quality of trade execution results relative to the remuneration received in the form of rebated commissions and periodically presents reports concerning them to the CIO and the Board.



Ohio Public Employees Retirement System
Corporate Governance Policy & Proxy Voting Guidelines
March 2024⁴⁵

Ohio Public Employees Retirement System
Corporate Governance Policy & Proxy Voting Guidelines

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I. SCOPE

The OPERS Corporate Governance Policy & Guidelines (Policy & Guidelines) apply to all internally and externally managed public market portfolios over which OPERS retains proxy voting rights and supports OPERS' investment objective to provide secure retirement benefits for its members.

II. PURPOSE

The Policy & Guidelines support OPERS' investment objective to provide secure retirement benefits for its members by providing instruction for managing corporate governance activities, including proxy voting and shareholder engagement.

III. PHILOSOPHY

The shareholder rights arising out of OPERS' investments in companies are assets of the retirement system (system) and must be exercised solely in the economic interests of OPERS' members and beneficiaries. OPERS may not subordinate the interests of its members and beneficiaries to factors that are not reasonably related to maximizing the value of its assets.

As a fiduciary, OPERS strives to manage its assets in a prudent manner within its investment objectives and legal authority. The Corporate Governance Program (Program) furthers this goal by engaging with companies and voting for governance practices that, based upon research and experience, can enhance shareholder value and protect and preserve shareholder rights.

OPERS is an institutional investor with a long time horizon and exposure to both U.S. and international equity markets and believes the primary purpose of a company is to increase shareholder value. As such, the OPERS Board of Trustees (Board) has approved the Policy & Guidelines to demonstrate its commitment to good governance principles and communicate its expectation that companies will effectively consider and mitigate risks that could harm the long-term economic interests of shareholders.

Effective corporate governance, including prudent proxy voting and good faith engagement with companies, significantly contributes to the long-term financial performance of a company by fostering a culture of corporate integrity, financial accountability, leadership, and achievement of long-term strategic goals. OPERS does not generally support divestment strategies as a means of encouraging change within the companies in which it invests.

IV. ACTIVITIES

As noted above, OPERS may engage in a variety of corporate governance activities as part of its efforts to maximize its investment returns and protect its assets, including:

Proxy Voting

Along with shareholder engagement, prudent proxy voting is one of the primary functions of the Program. OPERS casts proxy votes in accordance with its Proxy Voting Core Categories (See Section X below), which are approved by the Board and comply with Chapter 145 of the Ohio Revised Code.

The Policy & Guidelines is reviewed periodically to address emerging or evolving governance issues that may negatively impact long-term shareholder value or shareholders' rights. To facilitate a thoughtful and thorough review process, OPERS convenes a Corporate Governance Working Group to provide feedback prior to submission of recommended changes to the Board for review and approval.

Where possible, OPERS retains the right to vote its proxies according to its Policy & Guidelines and will not allow third parties to apply their own voting methodologies to the assets covered by this policy. OPERS engages in the practice of lending its securities to enhance the return on its investment portfolio. In the process of lending securities, the right to vote shares is transferred to the borrower of the securities during the period that the securities are on loan, and OPERS' right to vote the shares is forfeited unless OPERS elects to recall the shares in a timely manner from the borrower.

Shareholder Engagement

OPERS may actively engage with companies to discuss corporate governance issues and/or recommend best practices that mitigate the risk of decreased returns. OPERS does not generally support divestment strategies or filing shareholder resolutions as a means of impacting company behavior and will instead engage with companies in good faith to collaborate on strategies that will maximize the long-term value of shareholders' investments.

Shareholder Resolutions

OPERS may support or prepare shareholder resolutions if shareholder engagement has failed, and it determines that the relevant shareholder resolution is in the best interests of its members. OPERS believes that proponents of proposed shareholder resolutions must draw a clear link between their proposal and the protection of shareholder rights and/or enhancement of shareholder value.

V. RISKS

As previously discussed, the Program strives to maximize shareholder value and mitigate the risk of losses stemming from poor corporate governance practices. In its experience as an institutional investor, OPERS has observed that reductions in shareholder value or rights can result from a variety of ill-considered or unaddressed risks, including lax internal controls and misplaced focus. Where possible, OPERS will seek to discuss these risks directly with companies through shareholder engagement.

VI. MONITORING AND REPORTING

Not less than quarterly, staff will provide a status report on Corporate Governance activity and significant emerging or evolving issues that may affect the value of OPERS' investments.

Staff will report to the Board annually regarding Program performance and future areas of focus.

Corporate Governance Staff also perform monthly and quarterly audits of the proxy firm's performance to mitigate risk of votes against the Policy & Guidelines or any circumstances where no vote action occurred ~~missed votes~~.

VII. ROLES AND RESPONSIBILITIES

A. Board of Trustees

The Board is responsible for reviewing and approving the Corporate Governance Policy & Proxy Voting Guidelines.

B. Corporate Governance Staff

Corporate Governance staff is responsible for:

- Implementing the Program in compliance with the Policy & Guidelines;
- Proposing changes to the Policy & Guidelines as appropriate;
- Proposing corporate governance activities to achieve the Program's goals and executing those activities;
- Identifying, evaluating, and addressing heightened issues and/or proxy votes;
- Working to shape and advocate for policies that benefit OPERS' members and beneficiaries, including responding to media inquiries;
- Informing the Executive Director of corporate governance activities;
- Monitoring and reporting corporate governance activities to the Board;
- Contracting with, and monitoring the performance of the proxy firm and custodian(s) in executing the Program's goals and objectives;

- Administering the daily operations of the Program;
- Auditing proxy voting procedures and votes;
- Convening the Corporate Governance Working Group as needed;
- Identifying and managing enterprise risk associated with the Program; and
- Facilitating Board education of corporate governance issues and best practices as requested.

VIII. LEGAL AUTHORITY

Under Section 145.11(A) Investment and fiduciary duties of the board, of the Ohio Revised Code:

The members of the public employees retirement board shall be the trustees of the funds created by section 145.23 of the Revised Code. The board shall have full power to invest the funds. The board and other fiduciaries shall discharge their duties with respect to the funds solely in the interest of the participants and beneficiaries; for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administering the public employees retirement system; with care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims; and by diversifying the investments of the system so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so.

IX. PROXY VOTING PROCEDURES

Given OPERS' significant exposure to U.S. and international equity markets, as well as the need to efficiently utilize system resources, OPERS contracts with a proxy firm for research and proxy vote workflow. As noted above, where possible, OPERS retains absolute control over its proxy votes, which are cast according to the Policy & Guidelines. The Policy & Guidelines direct the OPERS Corporate Governance Staff and the proxy firm regarding how they should analyze and vote U.S. and international proxies, consistent with all applicable laws and regulations.

In the event the Program encounters a vote regarding a corporate merger or acquisition, the OPERS Investments Division will be consulted as appropriate to ensure preservation and/or maximization of shareholder value. Proxy votes that have the potential to impact OPERS' public image or reputation are reported to the Board.

Corporate Governance Staff, in collaboration with the proxy firm, will make all best efforts to cast votes originating within U.S. and international OPERS-invested companies by working directly with the Domestic and International Custodians.

X. PROXY VOTING CORE CATEGORIES

A. Board of Directors

Boards of Directors are shareholders' representatives within a company. As noted above, OPERS believes the primary purpose of the Board is to represent shareholders by maximizing shareholder value. Although OPERS is often aligned with board and/or company interests, the ~~S~~system generally believes boards should be held accountable for the consistent implementation of appropriate corporate governance practices and standards. This accountability will necessarily differ from company to company and director to director, depending on a specific company's sector and market, and a specific director's role on the board and on various board committees.

Director Principles

Generally, OPERS will vote:

- For board nominees in uncontested elections; and
- Against the lead independent chair or lead independent director and/or members of accountable committees when the Board:
 - Fails to act on or implement shareholder proposals that receive a majority of votes and have a direct and substantial impact on Shareholders' fundamental rights or long-term economic interests;
 - Is not responsive to shareholders' outreach and engagement efforts;
 - Amends the company's charter, articles of incorporation or by-laws intended to entrench directors or to reduce the rights of shareholders;
 - Permits a company insider or affiliated outsider to sit on the board's audit, compensation, or nomination/governance committees;
 - Fails to facilitate quality, independent auditing or substantial accounting or prevent financial reporting irregularities;
 - Takes actions that are contrary to the long-term economic interest of shareholders; and
 - Fails to remove a director with a pattern of poor attendance, who is overboarded, or whose skill set does not align with the company's long-term strategy.
 - Permits dual class share structures with unequal voting rights that do not include a sunset period or opportunity for shareholder input on continuation of the structure.

Board Structure Principles

OPERS generally supports the following principles regarding appropriate board structures.

- In most cases, the chairperson and CEO positions should be separated, however OPERS will not automatically oppose a combined role for the chairperson and CEO if there is a well-defined role for a lead independent director on the board.
- There should be an independent board chair.
- The board should have access to independent advisors.
- Members of the audit, compensation, and nominating/governance committees should be independent.
- There should be annual director elections.
- The board, including each of its committees and every individual director should be evaluated regularly.
- Ideally, the board size should be between three and 15 directors.

Board Committee Principles

OPERS generally expects:

- The audit committee to ensure timely disclosure and remediation of accounting irregularities, reissuance or revision of financial statements or material weakness disclosures;
- The compensation committee to link executive compensation to the company's performance, work with an independent compensation consultant and independent counsel as necessary to advise on linking executive pay to performance, and disclose to shareholders the method and key performance indicators selected in a manner that is not excessively complex;
- The nominating and governance committee to commit to identifying qualified candidates to ensure a robust and comprehensive consideration of differing thoughts, perspectives, viewpoints, and experiences, and incorporate their commitment to procedures for board nominee searches. Further, the nominating and governance committee should attest in governing documents that director searches will consider suitable nominees from corporate backgrounds beyond the executive suite (e.g., academia, government, nonprofit); and
- Committee chairs and members to provide oversight of risks and take action to protect the long-term interests of shareholders.

B. Shareholder Rights

OPERS supports the following principles regarding shareholder rights:

- Individual directors represent all shareholders.
- One share, one vote is preferable to dual-class structures, but OPERS will consider temporary dual-class structures (e.g., the structure sunsets after a period of up to seven years or permits shareholders to vote on continuation of the structure) in certain initial public offerings or where such a structure

may be necessary to allow a founder to implement their vision for the company.

- Proxy votes should be confidential and free from undue influence.
- Proxy voting decisions should be disclosed following the meeting.
- Shareholders should have the right to approve each matter or proposal by a majority of the total number of shares voted on the matter or proposal.
- Abstain votes should not be counted in the total number of votes except where such votes are needed to establish a quorum.
- Shareholders should have access to independent directors.
- Shareholders should have access to the proxy.
- A universal proxy is the best method for shareholders to elect directors during a contested election.
- Shareholders should have the right to approve by majority vote increases in the authorized number of common shares.
- Each shareholder should receive equal financial treatment and receive the highest price paid to any shareholder during a specified period before the commencement of a tender offer by an acquiring company (i.e., Fair Price Provision).
- Anti-takeover provisions (e.g., poison pills, staggered boards) are generally not in the best economic interest of shareholders as they may insulate underperforming management.
- Proxy issues should not be intentionally bundled by the board.
- Shareholders should have the right to vote annually on the ratification of the independent external auditors.
- A shareholder notice period of between 30 and 65 calendar days is reasonable.
- Shareholders should have the right to approve executive compensation plans and evaluate any ties between executive compensation and performance, corporate strategy, and the enhancement of long-term shareholder value.
- Shareholders should have the right to vote on the frequency of Say on Pay Resolutions.

C. Governance Risks

OPERS supports the implementation of corporate governance best practices, consistent with the principles described above under Shareholder Rights, because it is OPERS' belief that, as a result of research and experience, these practices will help to maximize shareholder value.

As a fiduciary, OPERS must consider and evaluate all risks that can harm the economic interests of ~~the~~ OPERS' members and beneficiaries. Protecting and enhancing the value of its investments and continuing to provide safe and secure retirement income for its current retirees, as well as future generations of Ohio's public servants is the sole purpose of the Program.

Board Meeting VII.A

MEMORANDUM

TO: OPERS Board of Retirement
FROM: Meketa Investment Group (Meketa)
DATE: March 10, 2025
RE: **VII. Discussion Items:**
A. Market and Performance Update: 4Q2024 DB, HC and DC Plans

Market Commentary

Although most major markets finished 2024 in positive territory, in the fourth quarter, with the exception of US stocks, the majority of markets declined.

Markets had mixed returns in the fourth quarter. US equities rose on optimism over potential pro-growth policies from the incoming administration while inflation concerns and a strong dollar, respectively, weighed on bonds and international equities.

Equities:

US stocks rose broadly in the fourth quarter on a post-election rally. However, value stocks did not participate and ended the quarter lower. In the large cap space, the Russell 1000 Value index's omission of several "Magnificent 7" stocks, such as NVIDIA, Amazon, and Tesla, drove much of the divergence.

For the full year, US equities gained 23.8%. NVIDIA was the leading contributor among all stocks in the Russell 3000 index. The stock appreciated 171% during the year and was responsible for 20% of total index gains. The "Magnificent 7" stocks contributed just under 50% of the 2024 index gains.

Growth stocks outperformed value stocks across the market cap spectrum in 2024, which was more pronounced in the large cap space. Larger companies (Russell 1000) produced more than double the returns of smaller companies (Russell 2000) for the year.

Continued strength in the US dollar weighed on developed market shares, with declines in local terms significantly lower (-0.6% versus -8.1%). An unstable political environment, potential tariffs from the US, and weak growth all weighed on eurozone equities. Japan was a bright spot, outperforming the US for the quarter, with renewed yen weakness boosting the outlook for exporters.

Emerging markets reacted poorly to Mr. Trump's win in the fourth quarter, due largely to tariff fears and the Fed's decreased likelihood of reducing rates in 2025. A strong dollar also weighed on results but not as much as in developed markets. China declined less than the broader index for the quarter (-7.7% versus -8.0%).

Over the full 2024 calendar year, international equities significantly trailed US equities.

Fixed Income:

Fixed income indexes largely declined over the quarter due to rising interest rates as investors considered proposed policies like tariffs and deportations and their respective risks to inflation.

The broad US bond market (Bloomberg Aggregate) fell 3.1% over the quarter, with TIPS performing similarly at longer maturities. Long-term Treasury bonds experienced the largest declines, with a drop of 8.6%.

High yield bonds outperformed as investor risk appetite remained robust, while emerging market debt weakened on uncertainty about the path of proposed US tariffs by the incoming administration as well as by higher US interest rates.

OPERS Funds Review:**Defined Benefit Plan (DB):**

The OPERS total DB portfolio had an aggregate value of \$104 billion as of December 31, 2024. This includes negative performance over the most recent quarter of -1.4%. In addition, the DB plan returned 8.8% and 2.3% 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 6.6% net of fees and outperformed the policy benchmark by 0.2% 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 outperforming by 1.9% for the latest 1-year period.

Health Care Trust (HC 115):

The health care trust returned -2.3% net of fees for the quarter ending December 31, 2024, outperforming the policy benchmark by 30 basis points. This decreased the plan assets to roughly \$13.4 billion. For the latest 1-year period the HC portfolio was up 10.0% net of fees and outperformed its policy benchmark by 50 basis points. Over longer periods the HC trust has outperformed its policy benchmark and provided positive annualized returns.

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

Defined Contribution Plan:

As of December 31, 2024, the defined contribution portfolio had assets of roughly \$3.0 billion. This total market value was roughly in line with the same value as of September 30, 2024. Performance for the DC funds was mixed during the quarter with most turning negative. Performance for the year ending 2024 was strong.

Ohio Public Employees Retirement System

Q4 2024

DB, HC and DC Plan Performance

Agenda

1. **Economic and Market Update as of December 31, 2024**
2. **Defined Benefit Plan Performance**
3. **Health Care Trust 115 Performance**
4. **Defined Contribution Performance**
5. **Disclaimer**

Economic and Market Update

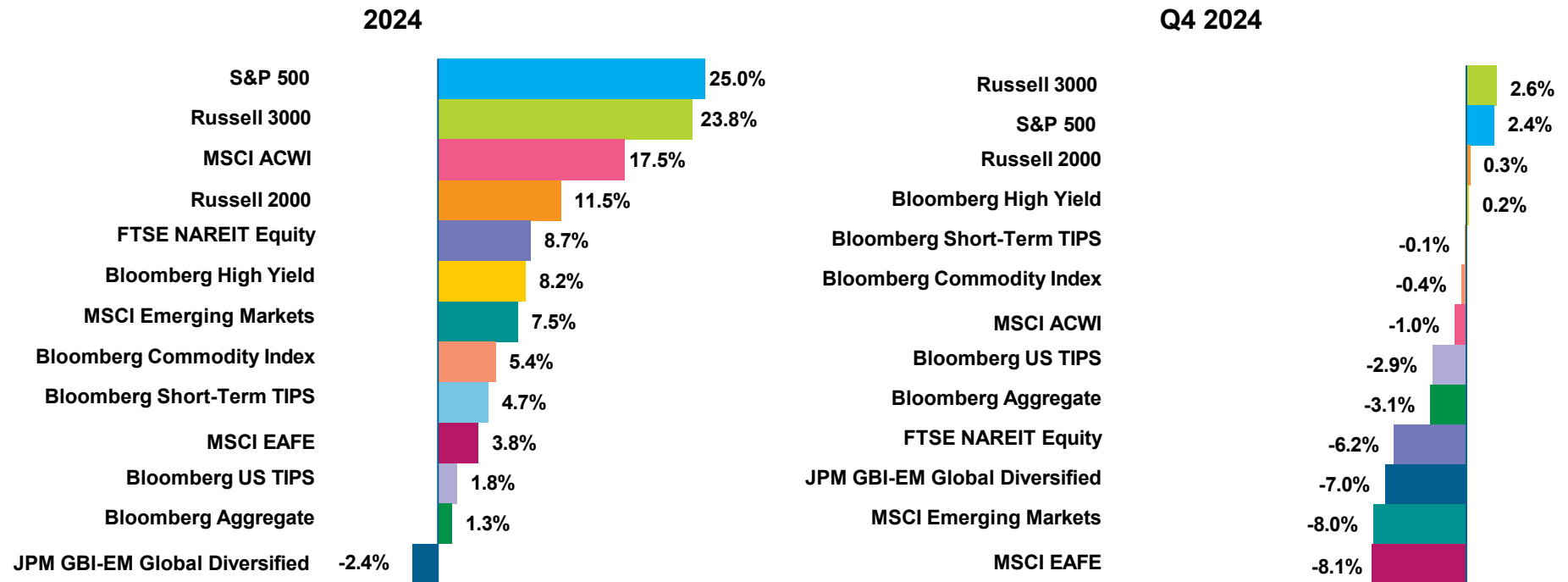
Data as of December 31, 2024

Commentary

Although most major markets finished 2024 in positive territory, in the fourth quarter, with the exception of US stocks, the majority of markets declined.

- Trump's victory along with a now Republican controlled Congress, supported US equity markets in the fourth quarter on anticipation of pro-growth policies. Domestic equity markets (Russell 3000) posted a return of 2.6% in the quarter and an impressive 23.8% for the year driven by large cap technology stocks.
- Non-US developed stocks sold-off in the fourth quarter (MSCI EAFE: -8.1%) largely driven by the strength of the US dollar, as well as slowing growth in Europe and the potential for trade wars. For the year, they trailed US equities by a wide 20% margin (3.8% versus 23.8%).
- Emerging market stocks also fell (MSCI Emerging Markets: -8.0%) in the fourth quarter, again driven by the strong dollar and concerns about US tariffs. In 2024, emerging markets beat developed international markets (7.5% versus 3.8%) but significantly trailed the US.
- The Federal Reserve cut its policy rate another 0.25% in December, but its Summary of Economic Projections and hawkish comments provoked a repricing of future rate cuts and their timing.
- Most fixed income markets fell for the quarter with interest rates rising given fears of inflation from the proposed policies of the incoming US administration. The broad US bond market (Bloomberg Aggregate) declined 3.1% for the quarter, reducing its 2024 gain to 1.3%. For the year, most major bond markets delivered positive returns on cooling global inflation.
- Looking ahead, uncertainty related to the policies of the new Trump Administration and its impact on the economy, inflation, and Fed policy will be key. The path of China's economy and concerns over elevated valuations and technology driven concentration in the US equity market will also be important focuses of 2025.

Index Returns¹



- In 2024, most major assets classes posted gains, led by the S&P 500's 25.0% return.
- Markets had mixed returns in the fourth quarter. US equities rose on optimism over potential pro-growth policies from the incoming administration while inflation concerns and a strong dollar, respectively, weighed on bonds and international equities.

¹ Source: Bloomberg. Data is as of December 31, 2024.

Domestic Equity Returns¹

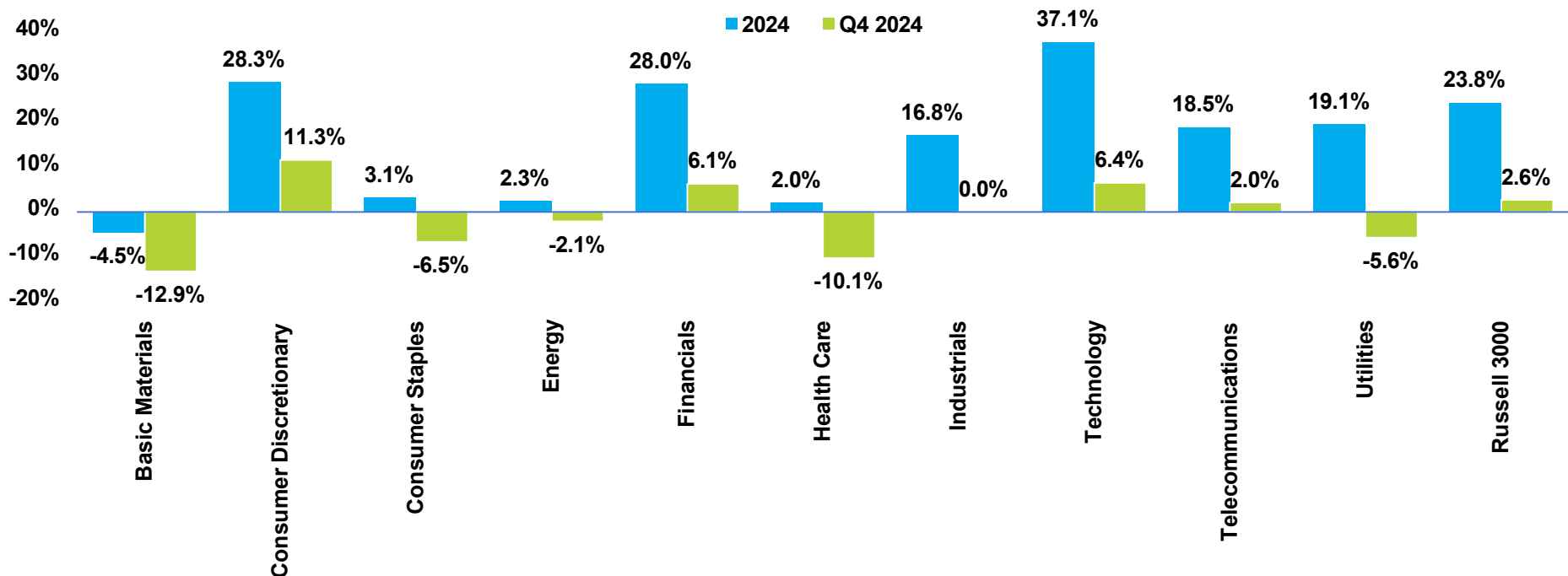
Domestic Equity	December (%)	Q4 2024 (%)	2024 (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	-2.4	2.4	25.0	8.9	14.5	13.1
Russell 3000	-3.1	2.6	23.8	8.0	13.9	12.5
Russell 1000	-2.8	2.7	24.5	8.4	14.3	12.9
Russell 1000 Growth	0.9	7.1	33.4	10.5	19.0	16.8
Russell 1000 Value	-6.8	-2.0	14.4	5.6	8.7	8.5
Russell MidCap	-7.0	0.6	15.3	3.8	9.9	9.6
Russell MidCap Growth	-6.2	8.1	22.1	4.0	11.5	11.5
Russell MidCap Value	-7.3	-1.7	13.1	3.9	8.6	8.1
Russell 2000	-8.3	0.3	11.5	1.2	7.4	7.8
Russell 2000 Growth	-8.2	1.7	15.2	0.2	6.9	8.1
Russell 2000 Value	-8.3	-1.1	8.1	1.9	7.3	7.1

US Equities: The Russell 3000 rose 2.6% in the fourth quarter, bringing the year-to-date results to +23.8%.

- US stocks rose broadly in the fourth quarter on a post-election rally. However, value stocks did not participate and ended the quarter lower. In the large cap space, the Russell 1000 Value index's omission of several "Magnificent 7" stocks, such as NVIDIA, Amazon, and Tesla, drove much of the divergence.
- For the full year, US equities gained 23.8%. NVIDIA was the leading contributor among all stocks in the Russell 3000 index. The stock appreciated 171% during the year and was responsible for 20% of total index gains. The "Magnificent 7" stocks contributed just under 50% of the 2024 index gains.
- Growth stocks outperformed value stocks across the market cap spectrum in 2024, which was more pronounced in the large cap space. Larger companies (Russell 1000) produced more than double the returns of smaller companies (Russell 2000) for the year.

¹ Source: Bloomberg. Data is as of December 31, 2024.

Russell 3000 Sector Returns¹



- US equity sectors experienced mixed results in the final quarter of the year but all sectors except materials, experienced gains in 2024.
- Technology stocks rose 37.1% last year, which led all sectors. Within technology, NVIDIA and Broadcom accounted for more than half of the sector's contribution to overall index gains.
- After technology, consumer discretionary (+28.3%) and financials (+28.0%) were next driven by Amazon and Tesla and a steepening yield curve/strong economy, respectively.

¹ Source: Bloomberg. Data is as of December 31, 2024.

Foreign Equity Returns¹

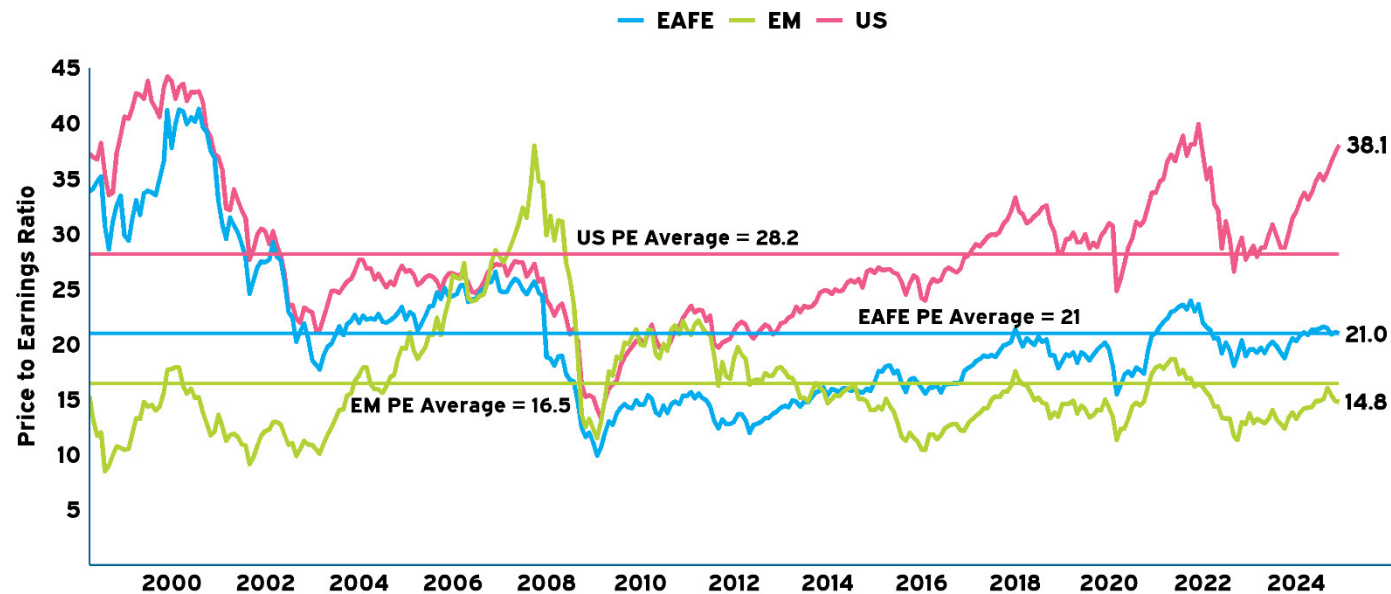
Foreign Equity	December (%)	Q4 2024 (%)	2024 (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI Ex US	-1.9	-7.6	5.5	0.8	4.1	4.8
MSCI EAFE	-2.3	-8.1	3.8	1.6	4.7	5.2
MSCI EAFE (Local Currency)	0.4	-0.6	11.3	6.3	7.5	7.1
MSCI EAFE Small Cap	-2.3	-8.4	1.8	-3.2	2.3	5.5
MSCI Emerging Markets	-0.1	-8.0	7.5	-1.9	1.7	3.6
MSCI Emerging Markets (Local Currency)	1.2	-4.4	13.1	1.6	4.5	6.0
MSCI EM ex China	-1.2	-8.1	3.6	0.1	4.4	4.7
MSCI China	2.7	-7.7	19.4	-6.1	-3.4	1.9

Foreign Equity: Developed international equities (MSCI EAFE) fell -8.1% in the fourth quarter but rose 3.8% for the year, while emerging market equities (MSCI Emerging Markets) fell -8.0% in the quarter but returned 7.5% for the year.

- Continued strength in the US dollar weighed on developed market shares, with declines in local terms significantly lower (-0.6% versus -8.1%). An unstable political environment, potential tariffs from the US, and weak growth all weighed on eurozone equities. Japan was a bright spot, outperforming the US for the quarter, with renewed yen weakness boosting the outlook for exporters.
- Emerging markets reacted poorly to Mr. Trump's win in the fourth quarter, due largely to tariff fears and the Fed's decreased likelihood of reducing rates in 2025. A strong dollar also weighed on results but not as much as in developed markets. China declined less than the broader index for the quarter (-7.7% versus -8.0%).
- Over the full 2024 calendar year, international equities significantly trailed US equities.

¹ Source: Bloomberg. Data is as of December 31, 2024.

Equity Cyclically Adjusted P/E Ratios¹



- Valuations in US stocks continued to move higher over the quarter while valuations for international equities fell.
- US stocks, priced at 38.1 times earnings, continue to trade well above their long-run PE average of 28.2.
- Non-US developed market valuations are trading at their long-term average. Emerging market stock valuations declined the most over the quarter (16.1 to 14.8) and remain below their long-term 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 December 2024. The average line is the long-term average of the US, EM, and EAFE PE values from April 1998 to the recent month-end, respectively.

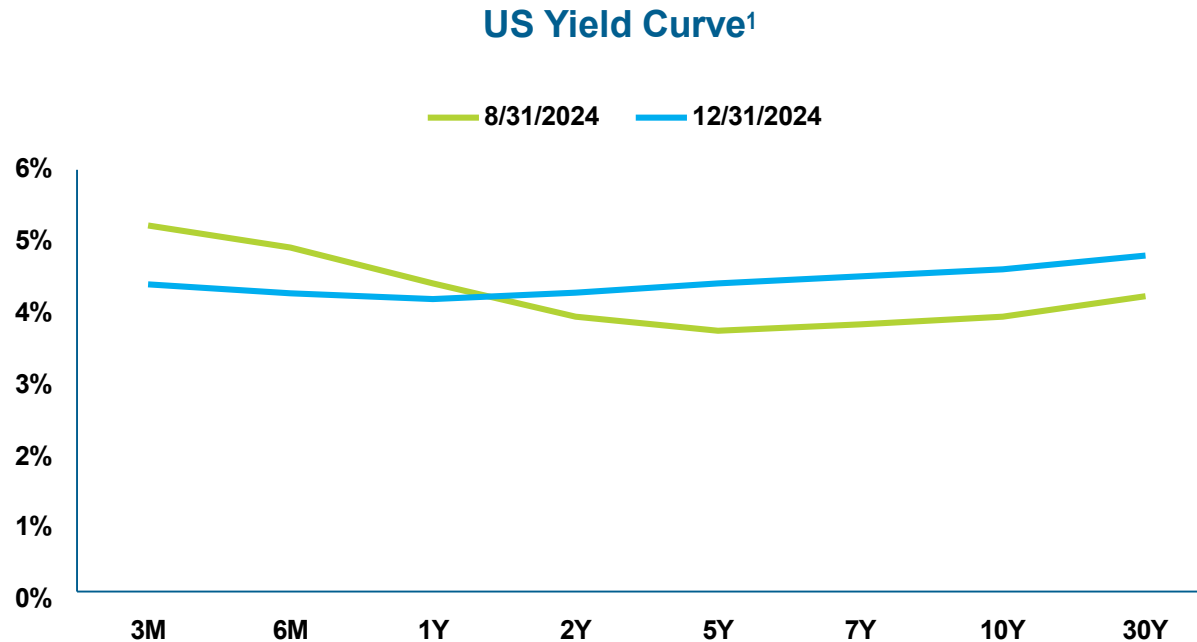
Fixed Income Returns¹

Fixed Income	December (%)	Q4 2024 (%)	2024 (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	-1.5	-2.7	2.0	-1.9	0.1	1.7	5.1	5.9
Bloomberg Aggregate	-1.6	-3.1	1.3	-2.4	-0.3	1.3	4.9	6.1
Bloomberg US TIPS	-1.6	-2.9	1.8	-2.3	1.9	2.2	4.6	6.5
Bloomberg Short-term TIPS	-0.1	-0.1	4.7	2.1	3.3	2.6	4.4	2.4
Bloomberg US Long Treasury	-5.3	-8.6	-6.4	-12.0	-5.2	-0.6	4.9	14.9
Bloomberg High Yield	-0.4	0.2	8.2	2.9	4.2	5.2	7.5	3.5
JPM GBI-EM Global Diversified (USD)	-1.9	-7.0	-2.4	-1.0	-1.9	-0.4	--	--

Fixed Income: The Bloomberg Universal index fell 2.7% in the quarter, bringing the year-to-date return to +2.0%.

- Fixed income indexes largely declined over the quarter due to rising interest rates as investors considered proposed policies like tariffs and deportations and their respective risks to inflation.
- The broad US bond market (Bloomberg Aggregate) fell 3.1% over the quarter, with TIPS performing similarly at longer maturities. Long-term Treasury bonds experienced the largest declines, with a drop of 8.6%.
- High yield bonds outperformed as investor risk appetite remained robust, while emerging market debt weakened on uncertainty about the path of proposed US tariffs by the incoming administration as well as by higher US interest rates.

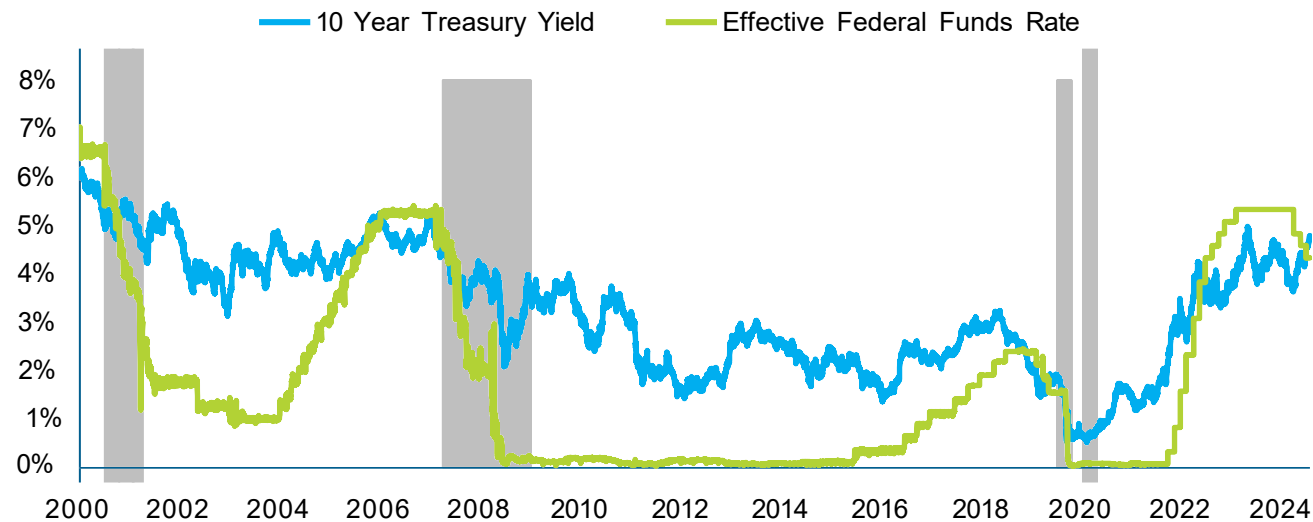
¹ Source: Bloomberg. Data is as of December 31, 2024. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration, respectively. JPM GBI-EM data is from J.P. Morgan. Current yield and duration data is not available.



- With the exception of the very shortest maturities, US Treasury yields rose in the fourth quarter driven by resilient growth and increased inflation expectations. Term premium (a measure of interest rate uncertainty) spiking over the quarter was a key driver of higher rates.
- Over the quarter, the more policy sensitive 2-year Treasury yield rose from 3.64% to 4.24%, while the 10-year Treasury yield rose from 3.78% to 4.57%.
- The yield curve was no longer inverted (short-term interest rates higher than long-term interest rates) at year-end given expectations for the Fed to continue to reduce rates and resilient economic growth and persistent inflation.

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

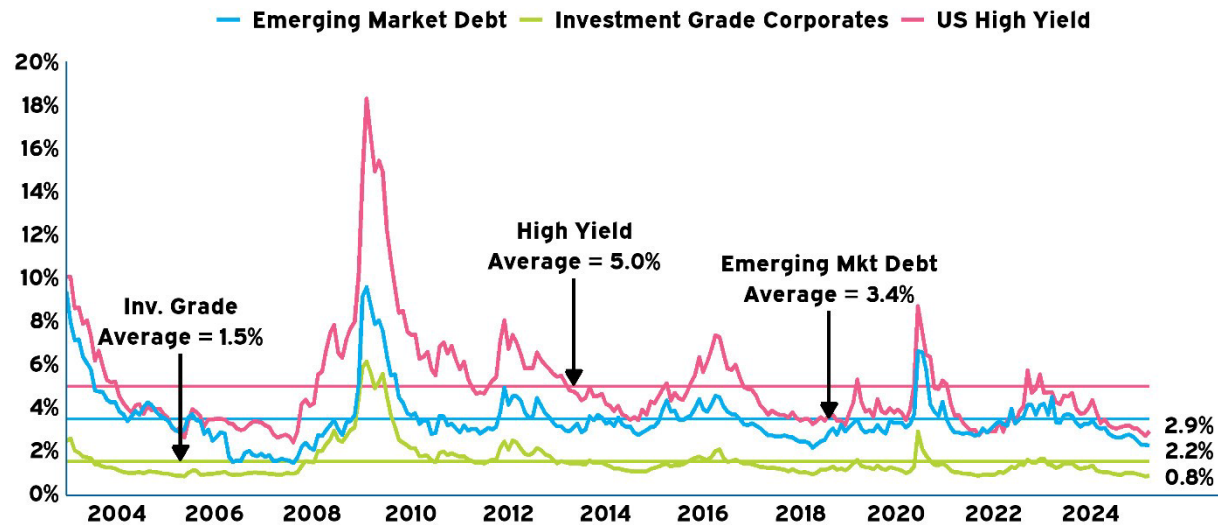
10-Year Treasury Yield versus Fed Funds Rate¹



- Typically, when the Fed cuts interest rates, the yield on the ten-year Treasury follows as rate cuts often come in an environment of falling inflation and rising unemployment.
- The recent dynamic has been very unusual with the Fed cutting interest rates by a total of 1.0% since September and the ten-year Treasury increasing by a similar amount over the same time period.
- Questions remain about why this is happening with some saying it is related to fiscal concerns and others pointing to lower demand for our debt from overseas. It is also possible the market feels the Fed has overcut rates already.

¹ Source: FRED. Data is as of January 15, 2025.

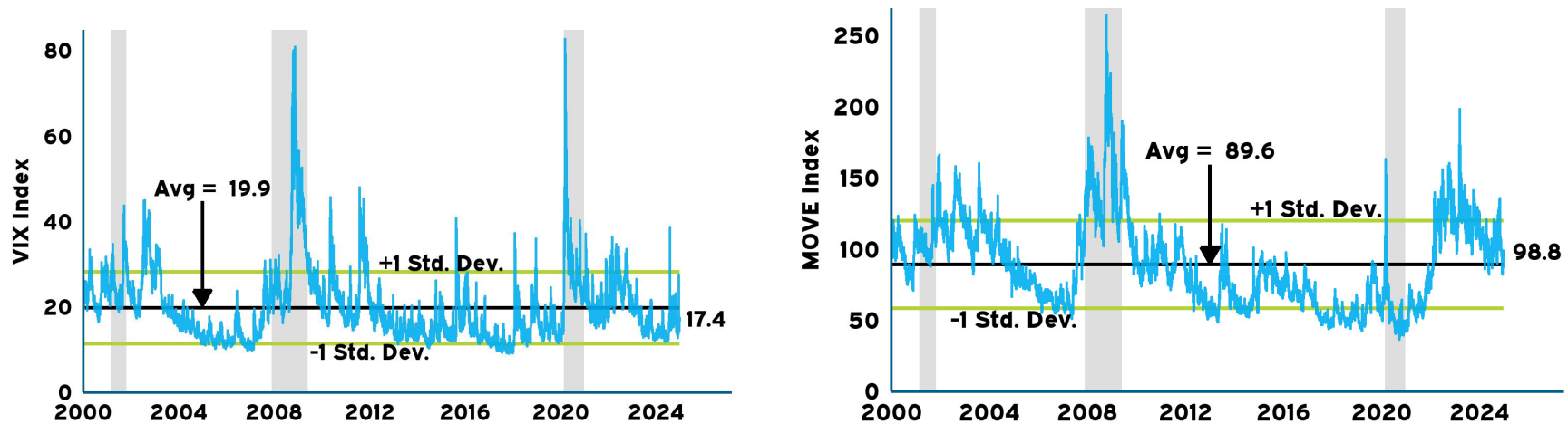
Credit Spreads vs. US Treasury Bonds¹



- Spreads (the yield above a comparable maturity Treasury) all continued to tighten over the quarter.
- All yield spreads remained below their respective long-run averages, particularly high yield (2.9% versus 5.0%).
- Although spreads are tight, absolute yields remain at above-average levels compared to the last two decades.

¹ Source: Bloomberg. Data is as December 31, 2024. 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.

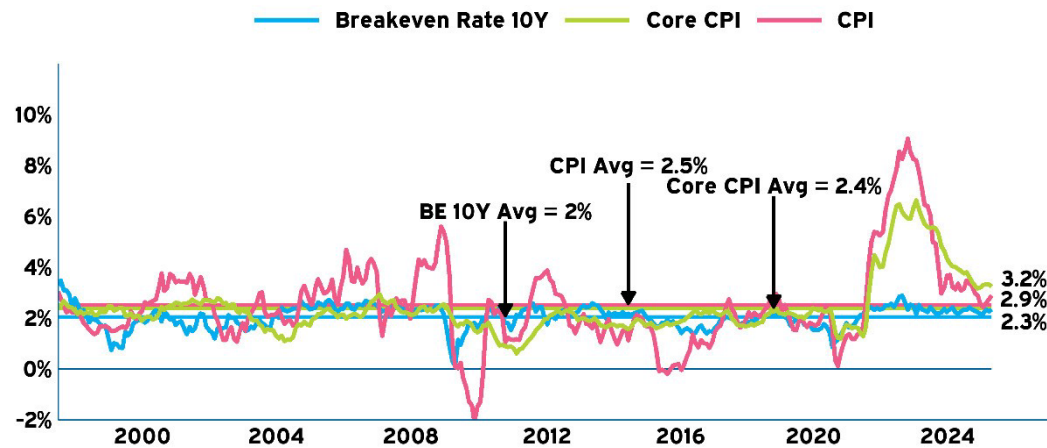
Equity and Fixed Income Volatility¹



- Bond and equity volatility experienced several spikes over the quarter ahead of the election but finished lower after the clear results.
- Volatility levels (VIX) in the US stock market finished the quarter below its long-run average, while volatility in the bond market (MOVE) ended December above its long-run average.

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 December 31, 2024. The average line indicated is the average of the VIX and MOVE values between January 2000 and December 2024.

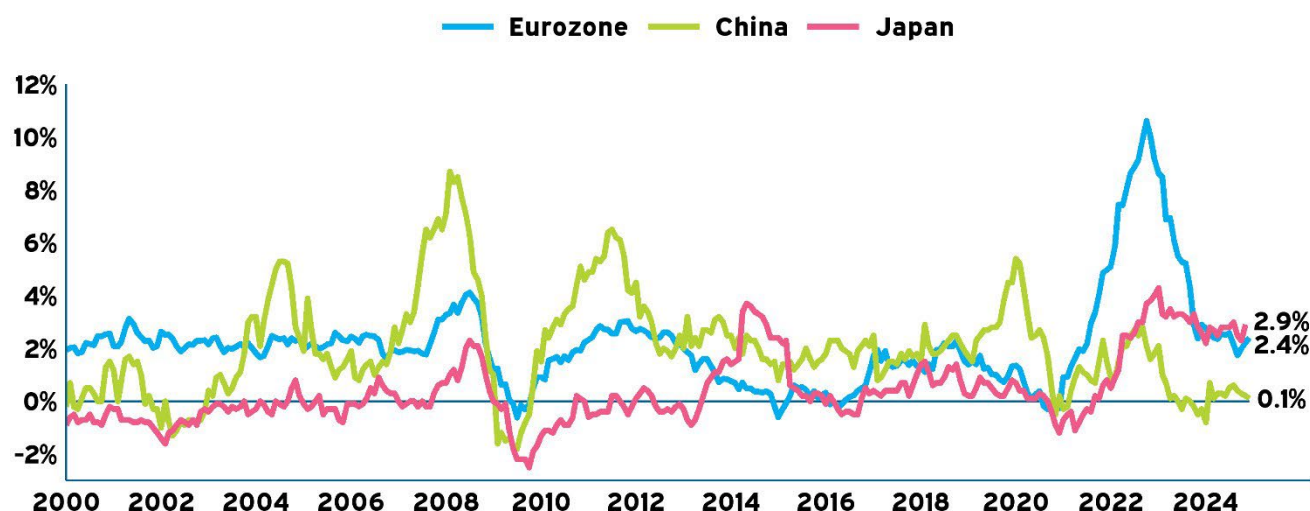
US Ten-Year Breakeven Inflation and CPI¹



- In December, inflation rose 0.4% month-over-month with energy prices accounting for 40% of the monthly increase.
- Year-over-year inflation increased from 2.4% to 2.9% over the quarter largely driven by base year effects. In the December reading shelter (+4.6%), transportation (+7.3%), and medical care (+3.4%) contributed to the annual gain while energy prices (-0.5%) fell over the past year despite the December (+2.6%) gains.
- Year-over-year core inflation (excluding food and energy) fell slightly over the quarter (3.3% to 3.2%).
- Inflation expectations (breakevens) rose over the quarter from the September lows of 2.0%, on continued uncertainty regarding the likelihood and magnitude of potential policies of the next US president.

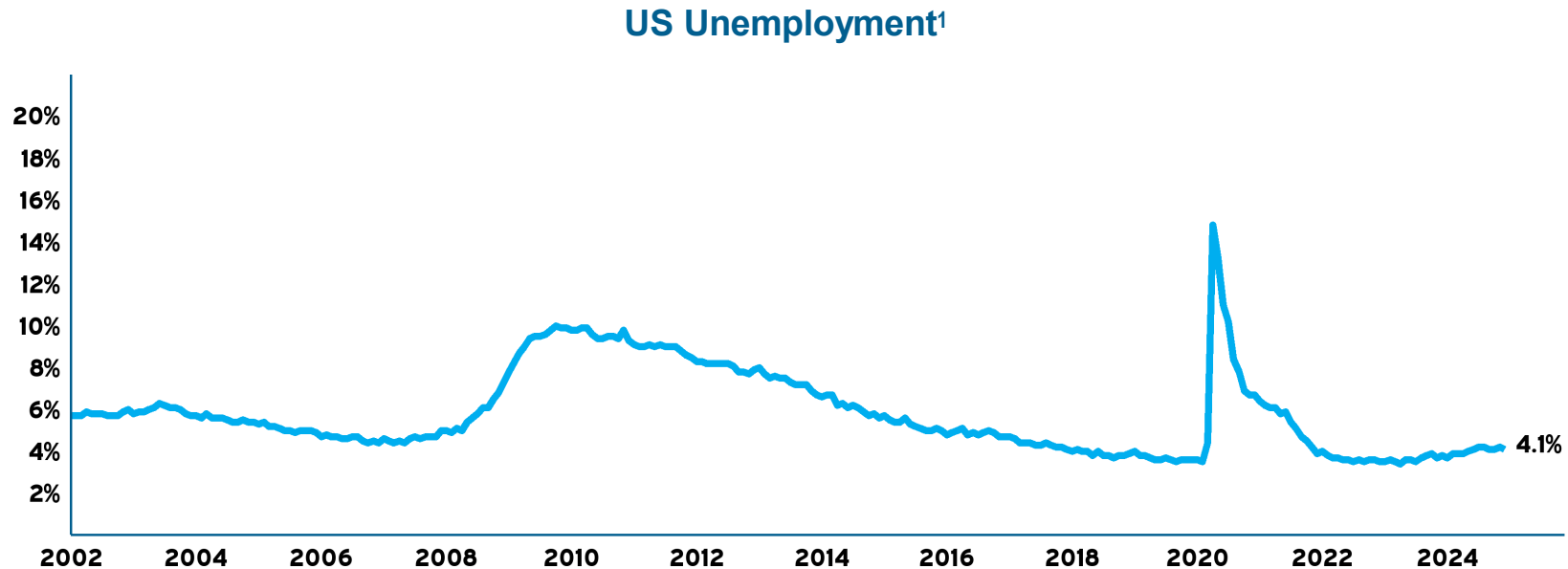
¹ Source: FRED. Data is as of December 2024. The CPI and 10 Year Breakeven average lines denote the average values from February 1997 to the present month-end, respectively. Breakeven values represent month-end values for comparative purposes.

Global Inflation (CPI Trailing Twelve Months)¹



- In the eurozone, inflation rose each month over the quarter (1.7% to 2.4%) but levels remain below the US. The increase was largely driven by last year's significant fall in energy prices no longer being included in the calculation.
- Inflation in Japan rose over the quarter due in part to an increase in food prices and the end of energy subsidies driving electricity and gas prices higher.
- Inflation in China grinded lower in the fourth quarter (0.4% to 0.1%). China continues to experience deflationary pressures despite recent stimulus measures.

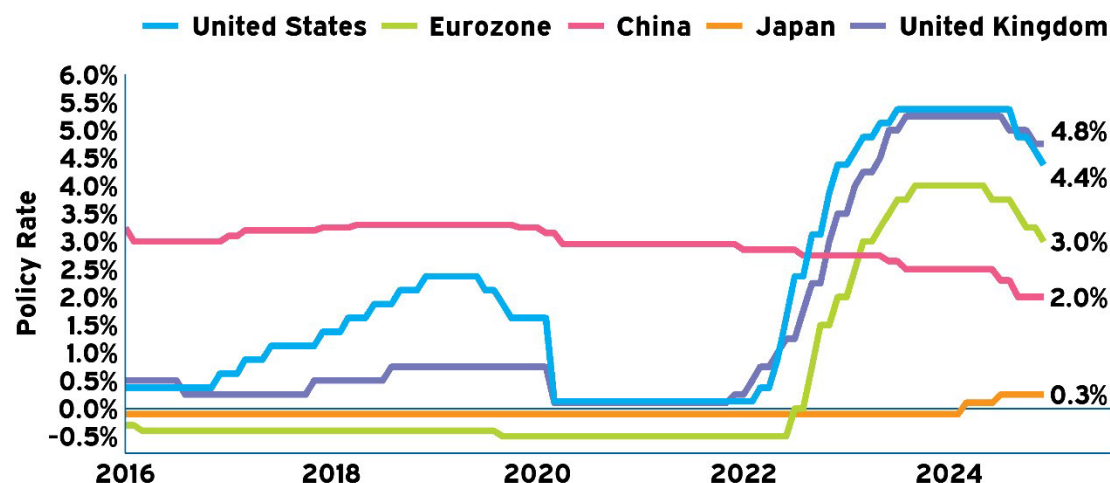
¹ Source: Bloomberg. Data is as December 2024, except Japan which is as of November 2024.



- The unemployment rate stayed stable over the quarter at 4.1% with close to 500k jobs added to the economy since the end of September.
- In December, the health care (+46K), retail (+43K), and government (+33K) sectors added jobs, while retail – which lost jobs in November – rebounded (+43K) jobs.
- Job openings (8.1M) rose over last month's openings (7.7M) but are well below pandemic highs (>12M); the number of openings exceeds the number of unemployed workers looking for work (6.9M).
- Separations (5.1M) and hires (5.3M) remain steady and average hourly wages continue to grow at approximately 3.9% a year.

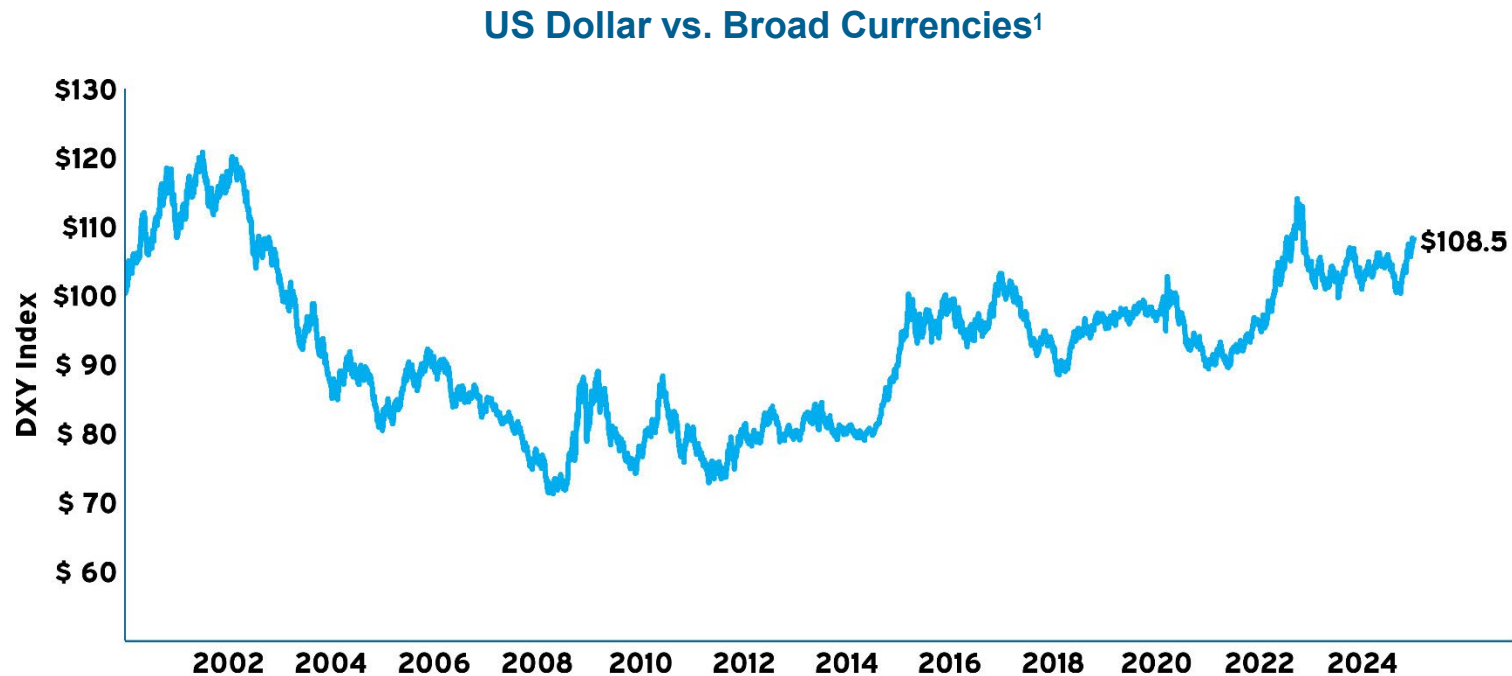
¹ Source: FRED and BLS. Data is as of December 31, 2024.

Policy Rates¹



- In the US, the Fed reduced interest rates by 0.25% twice over the quarter to a range of 4.25% to 4.50%, in moves largely expected by investors. Going forward, questions remain about the timing and amount of additional cuts given the strength of the economy and persistent above-target inflation.
- The Bank of England left rates unchanged in December after their November 0.25% cut, while the European Central Bank cut rates by another 0.25% in early December.
- After exiting negative interest rates in 2024 and making several rate increases, rate cutting by other major central banks are complicating prospects for further policy rate hikes in Japan.

¹ Source: Bloomberg. Data is as of December 31, 2024. 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.



- Over the quarter, the US dollar sharply strengthened (+8.0%) versus other currencies.
- A rise in interest rates driven by potential inflationary impacts of proposed higher tariffs, lower taxes, and immigration policies from candidate, and now president-elect Trump, drove the dollar's gains.

¹ Source: Bloomberg. Data as of December 31, 2024.

Summary

Key Trends:

- According to the International Monetary Fund's (IMF) October report, global growth in 2025 is expected to be similar to 2024 at around 3.2% with most major economies predicted to avoid a recession.
- Questions remain about what policies will be implemented by the new administration in the US. Although deregulation and tax cuts could support growth, these policies, along with higher tariffs and restrictive immigration, could fan inflation. This will likely lead to additional uncertainty regarding the timing and pace of interest rate cuts in the coming year.
- US consumers could feel pressure as certain components of inflation (e.g., shelter) remain high, borrowing costs stay elevated, and the job market may weaken further.
- A focus for US equities 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 be important.
- We have started to see divergences in monetary policy. Some central banks, such as the Fed, European Central Bank, and the Bank of England, have started to cut interest rates and others, like the Bank of Japan, have increased interest rates. This disparity will likely influence capital flows and currencies.
- China appears to have shifted focus to more policy support for the economy/asset prices with a suite of fiscal and financial policy stimulus measures. Thus far, these efforts have not increased weak consumer spending or helped the lingering trouble in the real estate sector. It is still not clear what the long-term impact of these policies will be on the economy and if policy makers will remain committed to these efforts.

Defined Benefit Plan Performance

Fund Summary | As of December 31, 2024

	Allocation vs. Targets			
	Balance (\$)	Current Allocation (%)	Policy (%)	Policy Range (%)
Domestic Equity	22,952,071,086	22	21	16 - 26
Int'l Equity	19,959,370,083	19	20	15 - 25
Core Fixed Income	9,373,385,382	9	9	6 - 12
Investment Grade Credit	2,919,566,933	3	3	0 - 5
High Yield	4,161,668,851	4	4	0 - 6
Emerging Market Debt	1,098,057,164	1	1	0 - 5
Securitized Debt	1,740,029,293	2	1	0 - 5
US Treasury	2,815,292,424	3	3	0 - 5
TIPS	3,312,681,850	3	3	0 - 100
Commodities	2,201,324,222	2	2	0 - 100
Private Equity	15,435,988,477	15	15	10 - 20
Real Estate	12,048,257,430	12	12	7 - 17
REITS	834,057,130	1	1	0 - 5
Hedge Fund	1,512,130	0	0	0 - 1
Opportunistic	1,920,468,754	2	2	0 - 5
Risk Parity	2,011,694,275	2	2	0 - 5
Cash Equivalents	1,093,095,628	1	0	0 - 5
Additional Annuity	14,806,199	0	1	0 - 1
Other Pension Assets	340	0	0	0 - 0
Global High Yield	3,521	0	0	0 - 0
Total Fund (DB)	104,096,748,121	100	100	

Performance Summary | As of December 31, 2024

Trailing Period Performance									
	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fund (DB)	104,096,748,121	100.0	-1.4	8.8	2.1	6.6	7.1	7.0	Jan-96
Policy Index DB			-1.3	8.0	1.9	6.3	6.8	--	
Over/Under			-0.2	0.8	0.2	0.2	0.3	--	
Domestic Equity	22,952,071,086	22.0	2.6	23.7	8.1	13.8	12.4	9.6	Jan-96
Domestic Equity Blend BM			2.6	23.8	8.0	13.9	12.5	10.2	
Over/Under			0.0	-0.1	0.1	-0.1	-0.1	-0.6	
eV All US Equity Median			0.6	15.4	5.2	10.5	9.8	10.1	
Int'l Equity	19,959,370,083	19.2	-6.9	7.0	1.0	5.1	6.0	5.6	Jan-96
Custom Int'l Eq Benchmark			-7.6	5.5	0.3	4.0	4.9	--	
Over/Under			0.7	1.5	0.7	1.1	1.1	--	
eV All ACWI ex-US Equity Median			-7.1	5.2	0.3	4.7	5.5	6.4	
Core Fixed Income	9,373,385,382	9.0	-3.1	1.4	-2.4	0.1	1.6	4.2	Jan-96
Blmbg. U.S. Aggregate Index			-3.1	1.3	-2.4	-0.3	1.3	4.1	
Over/Under			0.0	0.1	0.0	0.4	0.3	0.1	
eV US Core Fixed Inc Median			-3.0	1.7	-2.2	0.0	1.6	4.2	
Investment Grade Credit	2,919,566,933	2.8	-3.1	2.0	--	--	--	12.0	Apr-23
Blmbg. U.S. Corporate Investment Grade Index			-3.0	2.1	--	--	--	4.0	
Over/Under			-0.1	-0.1	--	--	--	8.0	
eV US Interm Duration Fixed Inc Median			-1.6	3.1	--	--	--	3.5	
High Yield	4,161,668,851	4.0	0.0	7.1	2.5	3.9	4.9	6.1	Jan-10
Blmbg. U.S. Corp: High Yield Index			0.2	8.2	2.9	4.2	5.2	6.4	
Over/Under			-0.2	-1.1	-0.4	-0.3	-0.3	-0.3	
eV US High Yield Fixed Inc Median			0.2	7.7	3.0	3.9	4.7	6.0	

Performance Summary | As of December 31, 2024

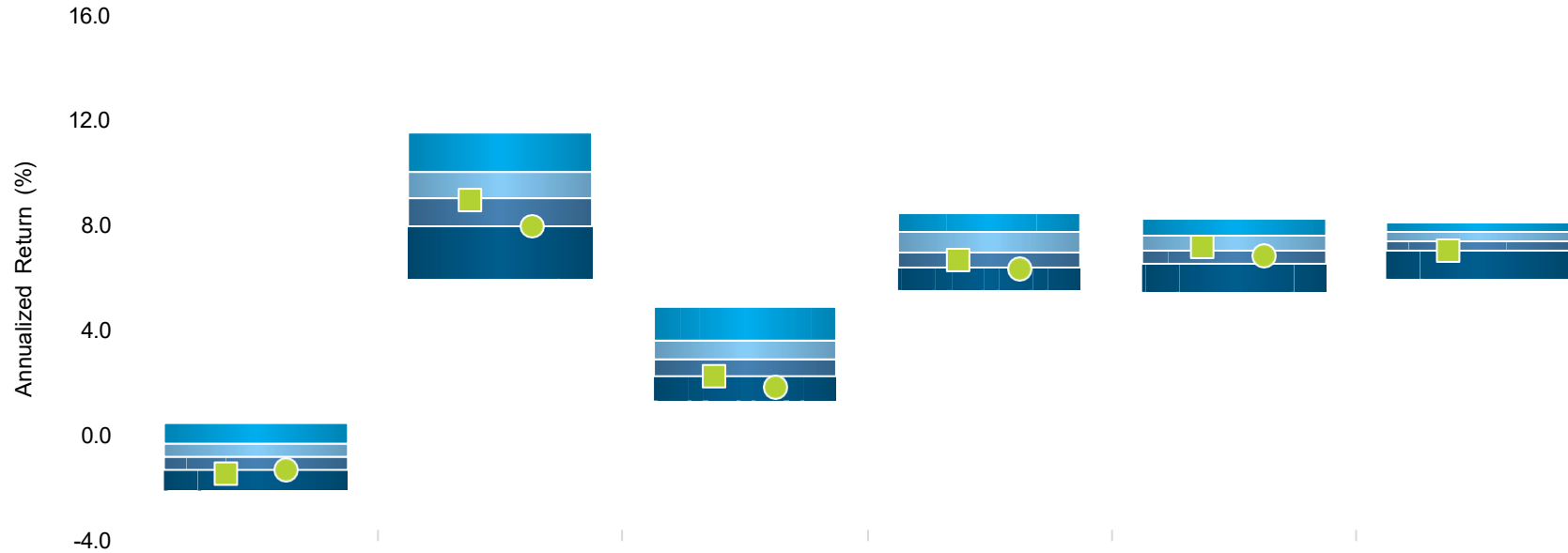
	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Emerging Market Debt	1,098,057,164	1.1	-3.3	4.0	1.5	0.8	2.6	2.2	Aug-11
Custom 50/50 JPM EMB and Govt			-4.6	1.6	-0.9	-0.7	1.8	1.6	
Over/Under			1.3	2.4	2.3	1.6	0.8	0.5	
eV All Emg Mkts Fixed Inc Median			-1.8	6.1	0.2	0.8	2.9	3.2	
Securitized Debt	1,740,029,293	1.7	0.4	13.7	2.0	3.7	4.4	8.0	Dec-11
Custom Securitized Debt Benchmark			0.1	14.7	-0.3	0.9	3.2	4.0	
Over/Under			0.3	-1.0	2.2	2.7	1.2	4.0	
eV US Securitized Fixed Inc Median			-1.3	4.4	-0.3	0.6	2.0	2.3	
US Treasury	2,815,292,424	2.7	-3.2	0.4	-3.0	-0.7	--	0.7	Mar-15
Blmbg. U.S. Treasury Index			-3.1	0.6	-2.9	-0.7	--	0.7	
Over/Under			-0.1	-0.2	-0.1	0.0	--	0.0	
eV US Interm Duration Fixed Inc Median			-1.6	3.1	-0.2	0.9	--	1.7	
TIPS	3,312,681,850	3.2	-2.9	1.8	-2.3	1.8	2.2	1.5	Feb-13
Blmbg. U.S. TIPS Index			-2.9	1.8	-2.3	1.9	2.2	1.5	
Over/Under			0.0	0.0	0.0	0.0	0.0	0.0	
eV US TIPS / Inflation Fixed Inc Median			-2.9	2.0	-2.2	1.9	2.2	1.5	
Commodities	2,201,324,222	2.1	-0.3	5.6	4.2	3.9	-0.1	-3.7	Feb-13
Custom Commodities Benchmark			-0.4	5.4	4.1	3.1	-0.7	-4.3	
Over/Under			0.1	0.2	0.2	0.8	0.6	0.6	
Private Equity	15,435,988,477	14.8	0.6	9.3	3.6	13.4	12.5	14.1	Jan-96
Custom Private Equity Benchmark			1.4	7.3	3.8	13.7	12.1	--	
Over/Under			-0.8	1.9	-0.2	-0.3	0.4	--	
Real Estate	12,048,257,430	11.6	-0.8	-4.1	1.2	4.4	7.1	8.1	Jan-03
Custom Real Estate Benchmark			0.2	-7.2	-0.2	2.9	6.0	7.4	
Over/Under			-0.9	3.1	1.4	1.5	1.0	0.7	

Performance Summary | As of December 31, 2024

	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
REITS	834,057,130	0.8	-5.9	8.0	--	--	--	0.4	Mar-22
Dow Jones U.S. Select REIT			-5.9	8.0	--	--	--	0.3	
Over/Under			0.0	0.0	--	--	--	0.1	
eV US REIT Median			-6.6	6.7	--	--	--	0.3	
Hedge Fund	1,512,130	0.0	0.0	0.6	2.5	4.1	3.6	3.8	Jan-11
Custom Hedge Fund Benchmark			2.1	9.2	4.9	6.3	4.8	5.1	
Over/Under			-2.1	-8.6	-2.4	-2.1	-1.2	-1.3	
Opportunistic	1,920,468,754	1.8	5.5	27.0	7.8	--	--	9.3	Dec-20
OPERS Custom Opportunistic			0.0	18.8	5.6	--	--	7.9	
Over/Under			5.5	8.2	2.2	--	--	1.4	
Risk Parity	2,011,694,275	1.9	-4.0	5.8	-6.9	-0.9	3.2	3.3	Mar-13
Custom Risk Parity			-4.2	5.1	-7.6	-1.5	2.9	3.8	
Over/Under			0.2	0.7	0.7	0.6	0.3	-0.4	
Cash Equivalents	1,093,095,628	1.1	1.3	5.6	4.3	2.8	2.1	1.6	Jan-05
90 Day U.S. Treasury Bill			1.2	5.3	3.9	2.5	1.8	1.6	
Over/Under			0.1	0.3	0.4	0.3	0.3	-0.1	
Additional Annuity	14,806,199	0.0	0.7	2.9	2.4	2.1	2.1	2.6	Jan-05
90 Day U.S. Treasury Bill			1.2	5.3	3.9	2.5	1.8	1.6	
Over/Under			-0.5	-2.3	-1.5	-0.3	0.3	1.0	
Other Pension Assets	340	0.0							
Global High Yield	3,521	0.0							

Peer Group Annualized Return Analysis | As of December 31, 2024

InvMetrics Public DB > \$1B (gross)

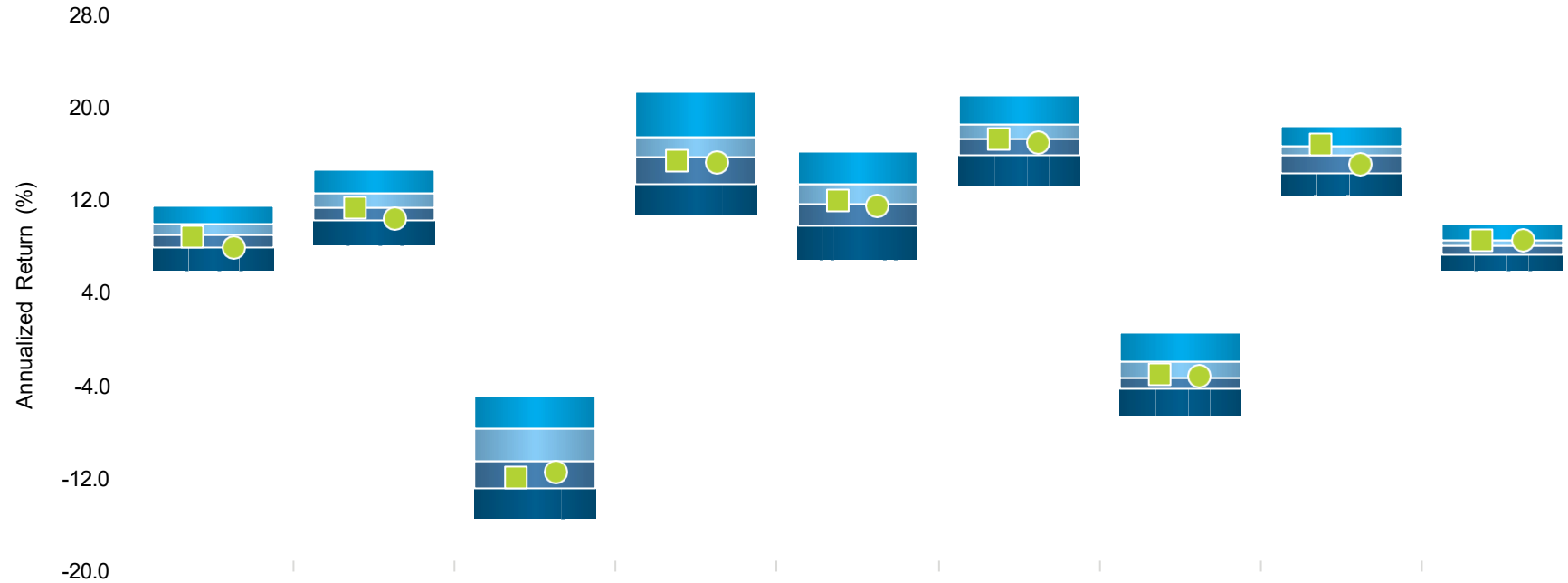


	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception (%)
Total Fund (DB)	-1.4 (79)	9.0 (53)	2.3 (76)	6.7 (65)	7.2 (43)	7.1 (76)
Policy Index DB	-1.3 (75)	8.0 (76)	1.9 (88)	6.3 (80)	6.8 (59)	-
5th Percentile	0.5	11.5	5.0	8.5	8.3	8.2
1st Quartile	-0.3	10.1	3.6	7.8	7.6	7.8
Median	-0.8	9.1	2.9	7.0	7.1	7.4
3rd Quartile	-1.3	8.0	2.3	6.4	6.6	7.1
95th Percentile	-2.0	6.0	1.3	5.6	5.5	6.0
Population	111	110	107	106	103	37

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

Peer Group Annualized Return Analysis | As of December 31, 2024

InvMetrics Public DB > \$1B (gross)

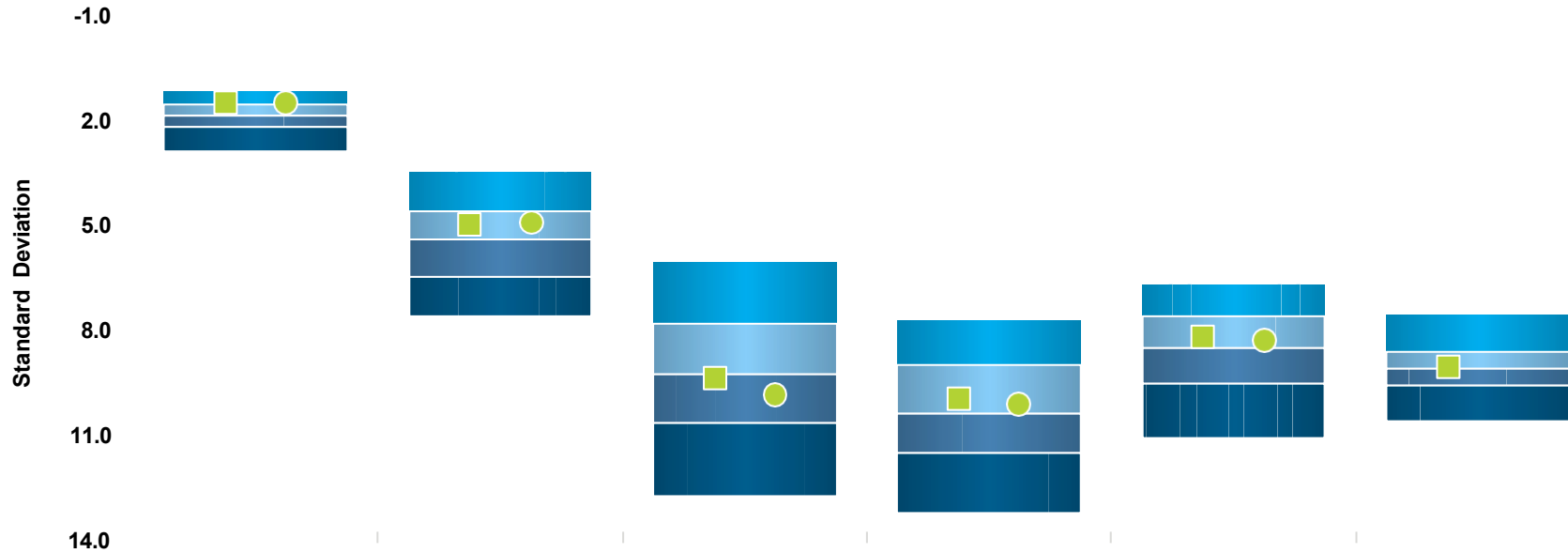


	2024 (%)	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)
Total Fund (DB)	9.0 (53)	11.4 (51)	-11.9 (70)	15.4 (54)	12.1 (48)	17.3 (49)	-2.9 (42)	16.9 (22)	8.6 (28)
Policy Index DB	8.0 (76)	10.5 (73)	-11.4 (64)	15.3 (55)	11.6 (52)	17.1 (54)	-3.1 (45)	15.2 (60)	8.6 (24)
5th Percentile	11.5	14.7	-4.8	21.4	16.3	21.1	0.7	18.4	10.1
1st Quartile	10.1	12.7	-7.7	17.6	13.5	18.6	-1.8	16.8	8.6
Median	9.1	11.4	-10.4	15.8	11.8	17.3	-3.2	15.9	8.1
3rd Quartile	8.0	10.3	-12.7	13.5	9.8	15.9	-4.1	14.4	7.3
95th Percentile	6.0	8.1	-15.4	10.8	6.8	13.4	-6.5	12.6	6.0
Population	110	191	197	231	239	199	176	185	182

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Peer Group Standard Deviation Analysis | As of December 31, 2024

InvMetrics Public DB > \$1B (gross)

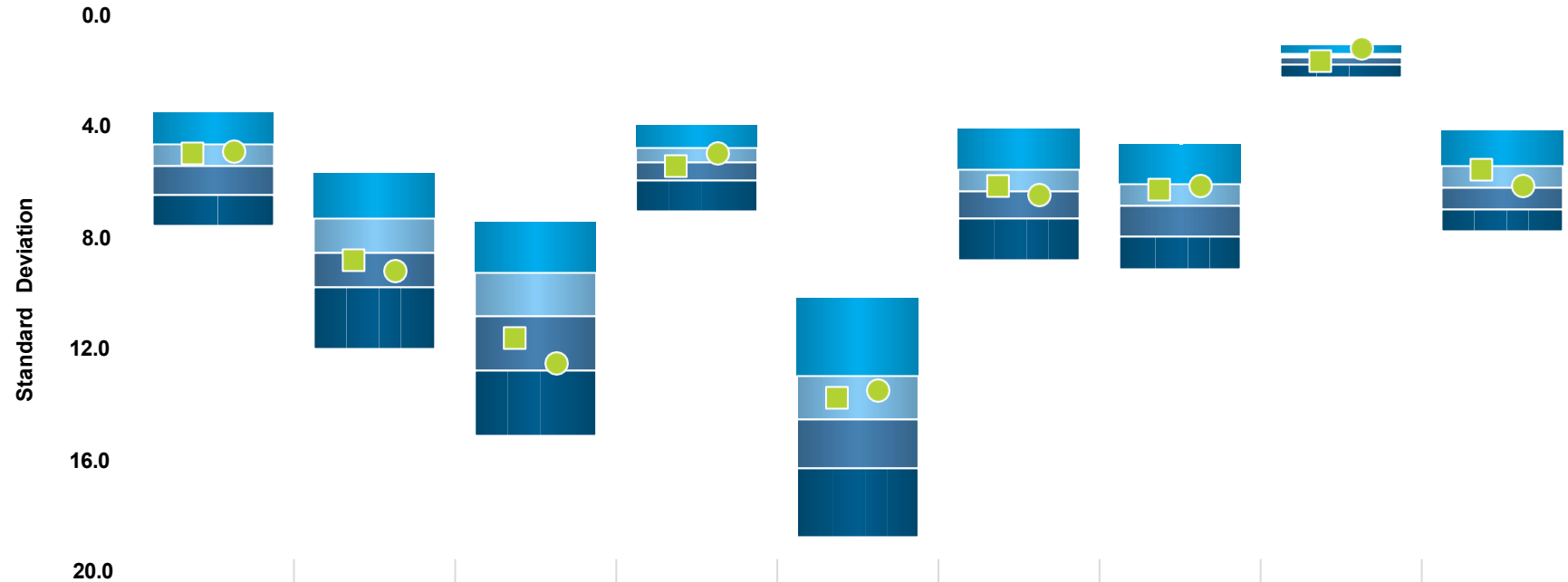


	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception (%)
■ Total Fund (DB)	1.5 (23)	5.0 (32)	9.4 (50)	9.9 (42)	8.2 (37)	9.0 (46)
● Policy Index DB	1.5 (23)	4.9 (31)	9.8 (61)	10.1 (46)	8.3 (44)	-
5th Percentile	1.2	3.5	6.0	7.7	6.7	7.5
1st Quartile	1.5	4.6	7.8	8.9	7.6	8.6
Median	1.9	5.4	9.2	10.3	8.5	9.1
3rd Quartile	2.2	6.5	10.6	11.5	9.5	9.6
95th Percentile	2.9	7.6	12.7	13.2	11.1	10.6
Population	111	110	107	106	103	37

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

Peer Group Standard Deviation Analysis | As of December 31, 2024

InvMetrics Public DB > \$1B (gross)

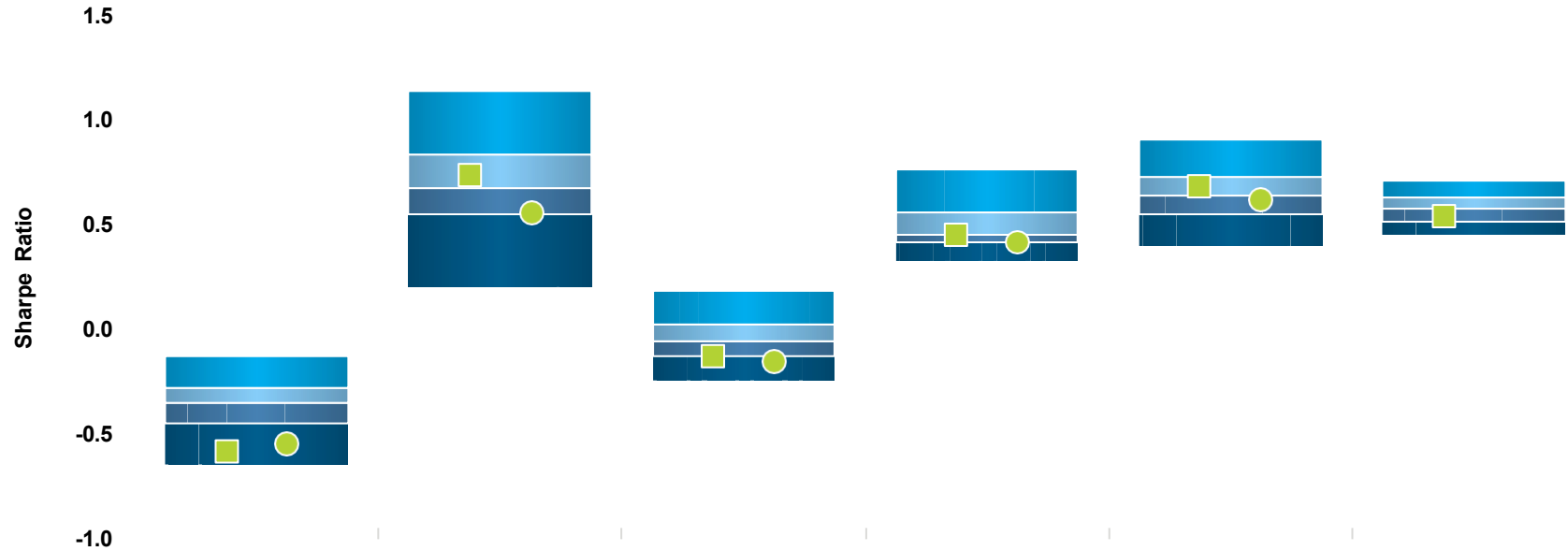


	2024 (%)	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)
■ Total Fund (DB)	5.0 (32)	8.8 (55)	11.6 (61)	5.4 (55)	13.7 (36)	6.1 (41)	6.3 (28)	1.6 (63)	5.5 (28)
● Policy Index DB	4.9 (31)	9.2 (63)	12.5 (71)	5.0 (33)	13.5 (31)	6.5 (53)	6.1 (25)	1.2 (12)	6.1 (44)
5th Percentile	3.5	5.7	7.4	3.9	10.2	4.0	4.6	1.1	4.1
1st Quartile	4.6	7.3	9.3	4.7	13.0	5.5	6.1	1.4	5.4
Median	5.4	8.5	10.8	5.3	14.5	6.3	6.8	1.5	6.2
3rd Quartile	6.5	9.8	12.7	5.9	16.3	7.3	7.9	1.7	6.9
95th Percentile	7.6	12.0	15.1	7.0	18.8	8.8	9.1	2.2	7.7
Population	110	191	197	231	239	199	176	185	182

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Peer Group Sharpe Ratio Analysis | As of December 31, 2024

InvMetrics Public DB > \$1B (gross)

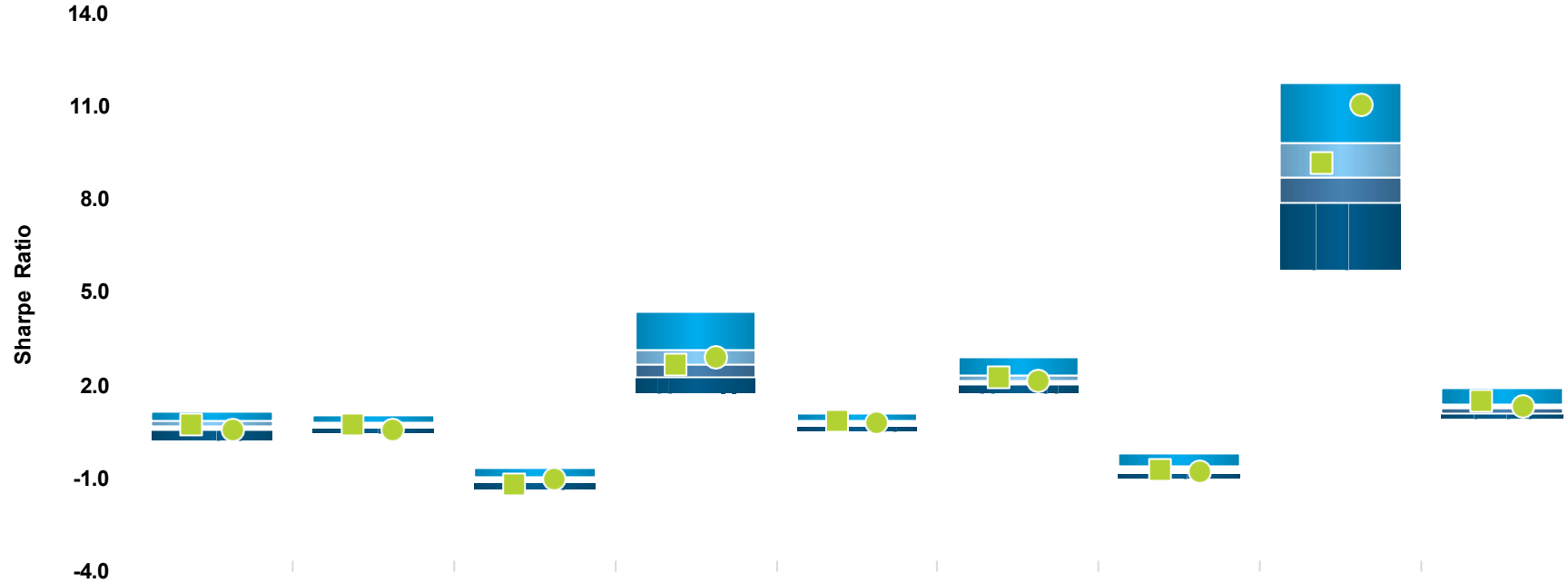


	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception (%)
■ Total Fund (DB)	-0.6 (93)	0.7 (39)	-0.1 (77)	0.5 (51)	0.7 (40)	0.5 (64)
● Policy Index DB	-0.5 (91)	0.6 (75)	-0.2 (83)	0.4 (73)	0.6 (54)	-
5th Percentile	-0.1	1.1	0.2	0.8	0.9	0.7
1st Quartile	-0.3	0.8	0.0	0.6	0.7	0.6
Median	-0.3	0.7	-0.1	0.5	0.6	0.6
3rd Quartile	-0.4	0.6	-0.1	0.4	0.6	0.5
95th Percentile	-0.6	0.2	-0.2	0.3	0.4	0.5
Population	111	110	107	106	103	37

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

Peer Group Sharpe Ratio Analysis | As of December 31, 2024

InvMetrics Public DB > \$1B (gross)



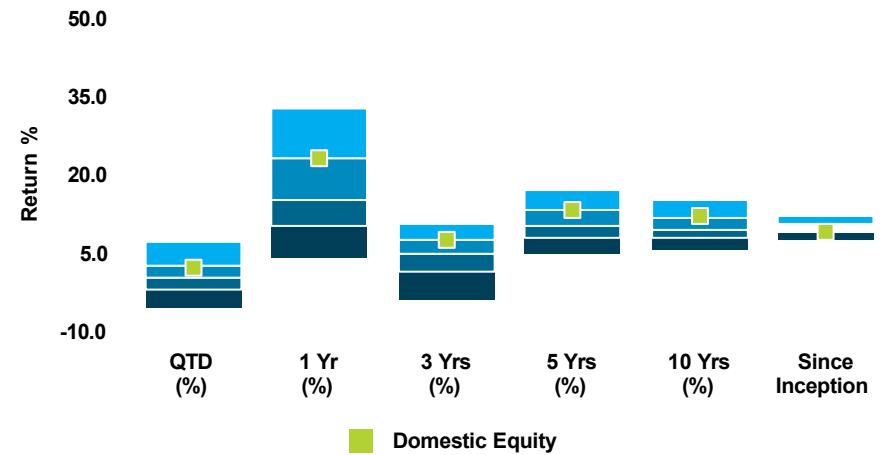
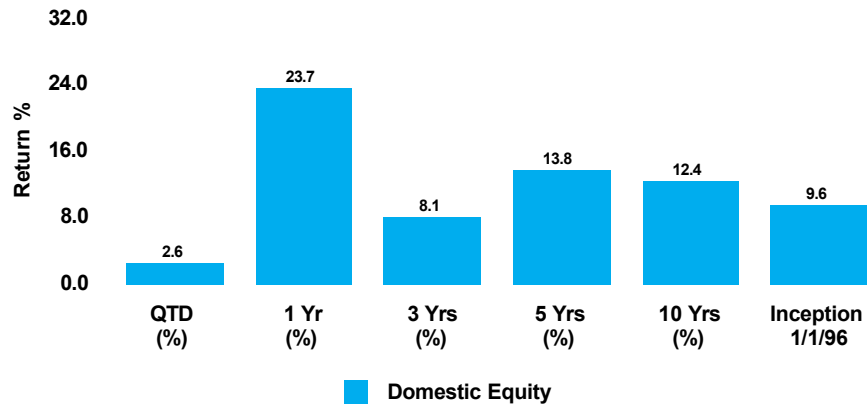
	2024 (%)	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)	2017 (%)	2016 (%)
■ Total Fund (DB)	0.7 (39)	0.7 (55)	-1.2 (82)	2.7 (51)	0.8 (38)	2.3 (35)	-0.7 (58)	9.2 (42)	1.5 (22)
● Policy Index DB	0.6 (75)	0.6 (84)	-1.0 (43)	2.9 (40)	0.8 (43)	2.1 (59)	-0.8 (67)	11.1 (9)	1.4 (31)
5th Percentile	1.1	1.0	-0.7	4.4	1.1	2.9	-0.2	11.8	1.9
1st Quartile	0.8	0.8	-0.9	3.2	0.9	2.4	-0.6	9.8	1.4
Median	0.7	0.7	-1.0	2.7	0.8	2.2	-0.7	8.7	1.3
3rd Quartile	0.6	0.6	-1.1	2.3	0.7	2.0	-0.8	7.9	1.1
95th Percentile	0.2	0.4	-1.3	1.8	0.5	1.8	-1.0	5.8	1.0
Population	110	191	197	231	239	199	176	185	182

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Domestic Equity (DB)

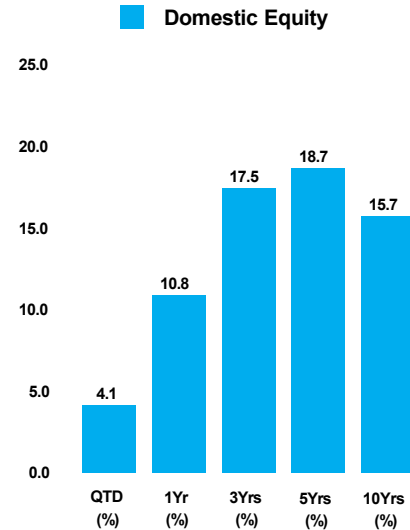
Domestic Equity Composite Characteristics | As of December 31, 2024

Return Summary

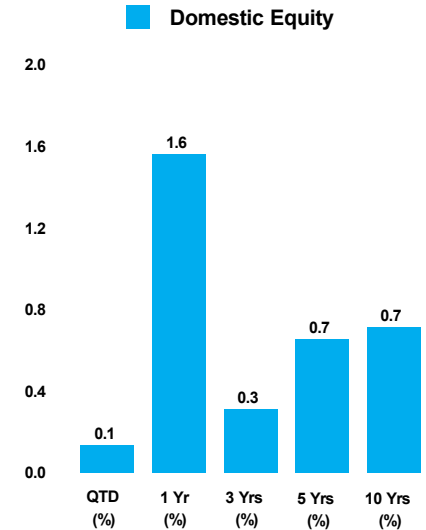


	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Domestic Equity	2.6	23.7	8.1	13.8	12.4	9.6	01/01/1996
Domestic Equity Blend BM	2.6	23.8	8.0	13.9	12.5	10.2	
Excess Return	0.0	-0.1	0.1	-0.1	-0.1	-0.6	
eV All US Equity Median	0.6	15.4	5.2	10.5	9.8	10.1	

Annualized Standard Deviation



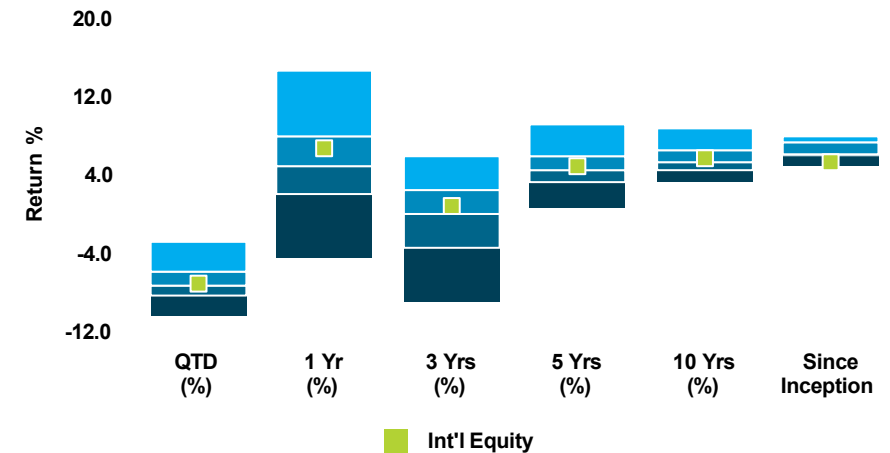
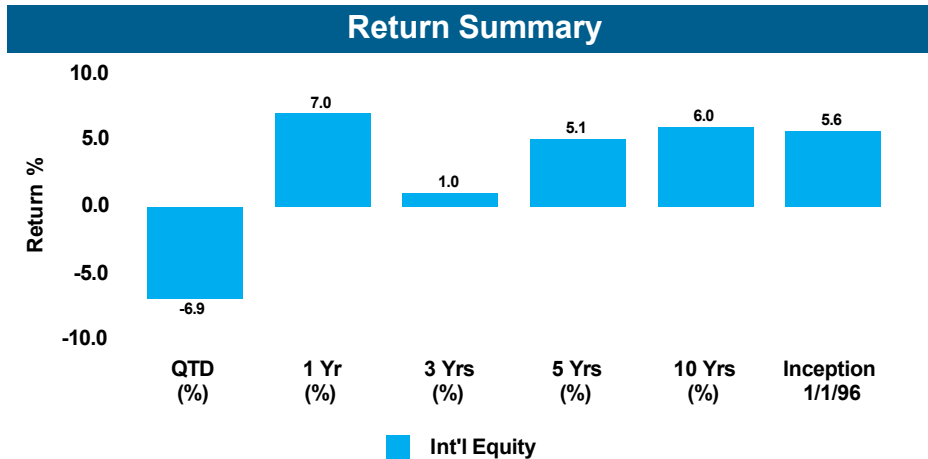
Sharpe Ratio



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

International Equity (DB)

International Equity Composite Characteristics | As of December 31, 2024



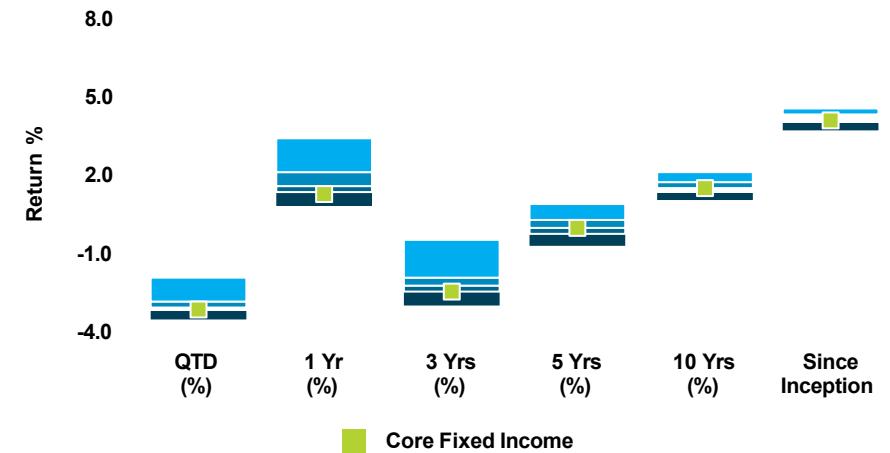
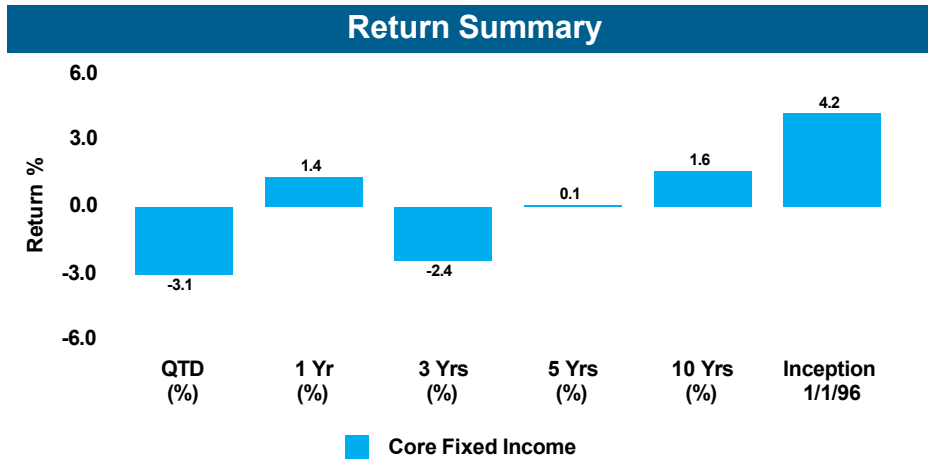
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Int'l Equity	-6.9	7.0	1.0	5.1	6.0	5.6	01/01/1996
Custom Int'l Eq Benchmark	-7.6	5.5	0.3	4.0	4.9	-	
Excess Return	0.7	1.5	0.7	1.1	1.1	-	
eV All ACWI ex-US Equity Median	-7.1	5.2	0.3	4.7	5.5	6.4	



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 December 31, 2024



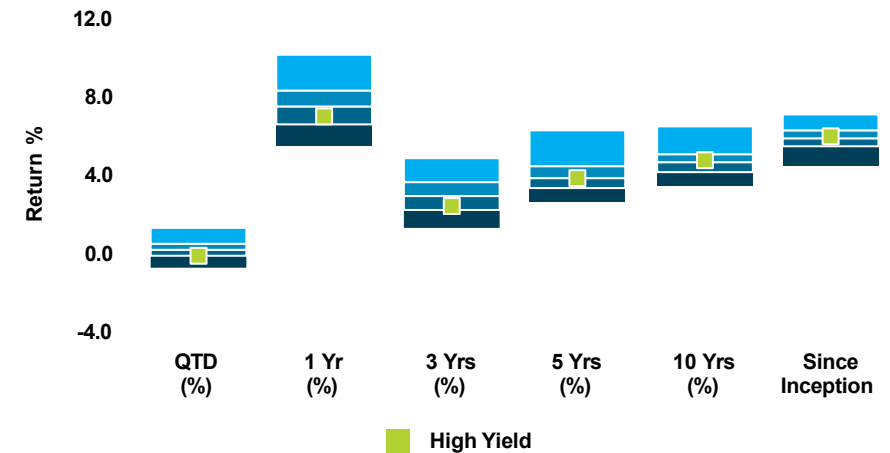
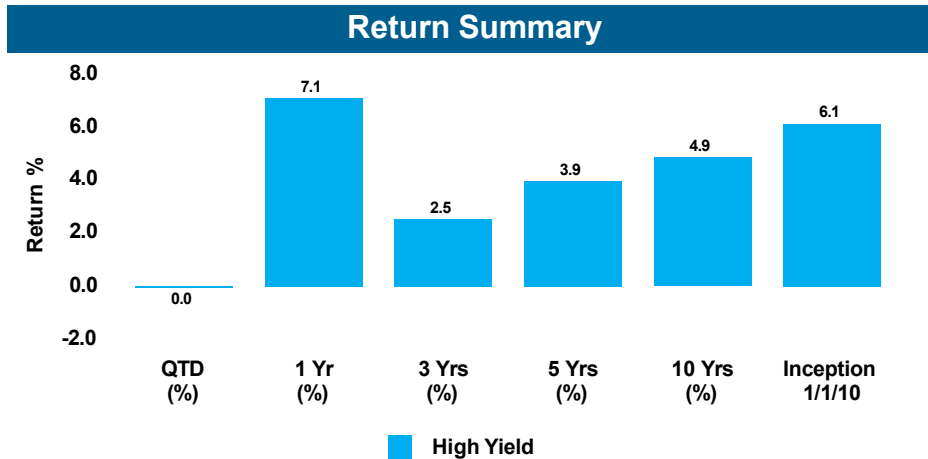
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Core Fixed Income	-3.1	1.4	-2.4	0.1	1.6	4.2	01/01/1996
Bimbg. U.S. Aggregate Index	-3.1	1.3	-2.4	-0.3	1.3	4.1	
Excess Return	0.0	0.1	0.0	0.4	0.3	0.1	
eV US Core Fixed Inc Median	-3.0	1.7	-2.2	0.0	1.6	4.2	



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

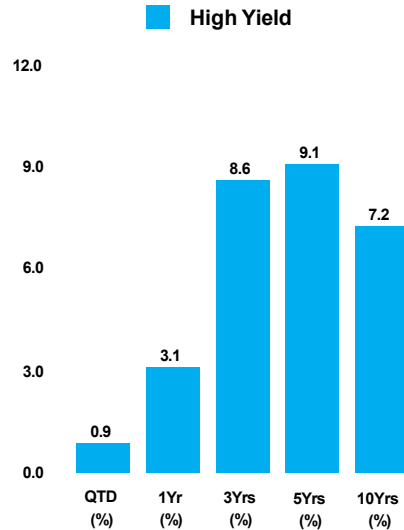
High Yield (DB)

High Yield Composite Characteristics | As of December 31, 2024

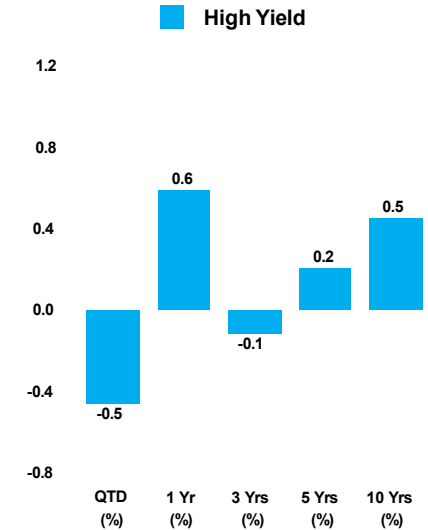


	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
High Yield	0.0	7.1	2.5	3.9	4.9	6.1	01/01/2010
Bimbg. U.S. Corp: High Yield Index	0.2	8.2	2.9	4.2	5.2	6.4	
Excess Return	-0.2	-1.1	-0.4	-0.3	-0.3	-0.3	
eV US High Yield Fixed Inc Median	0.2	7.7	3.0	3.9	4.7	6.0	

Annualized Standard Deviation



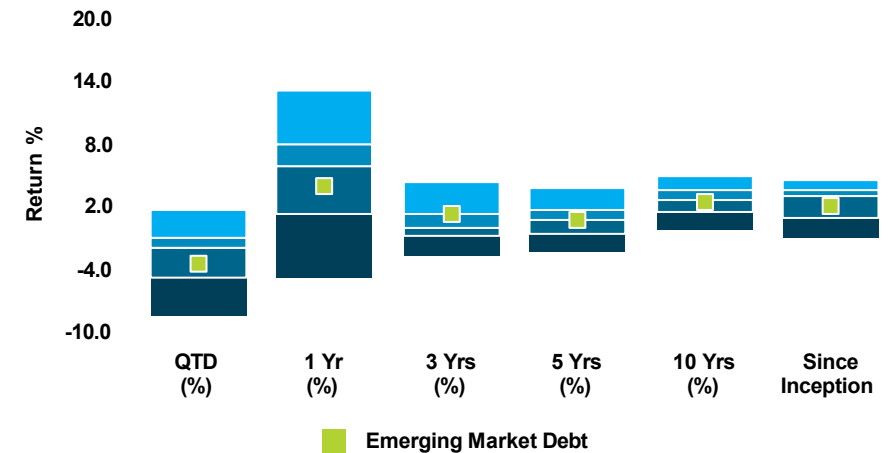
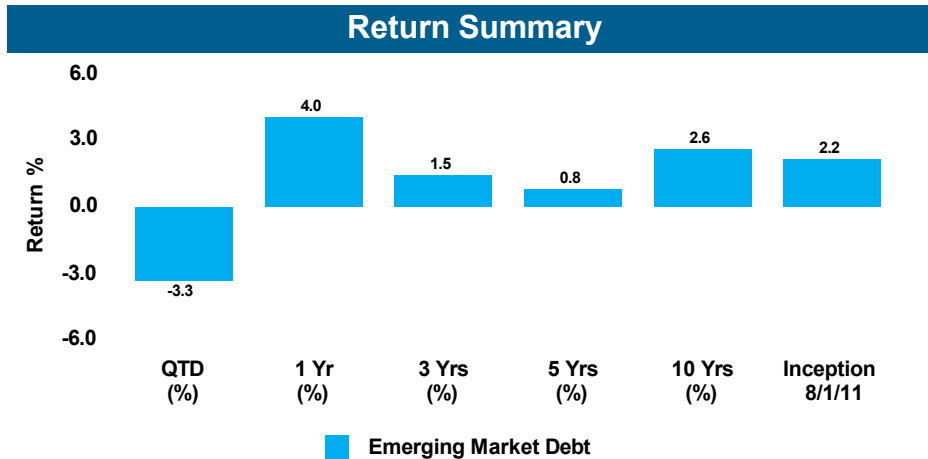
Sharpe Ratio



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

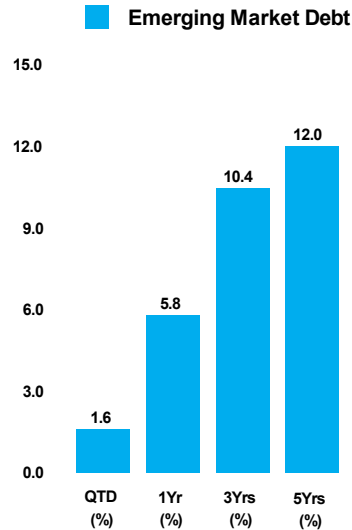
Emerging Market Debt (DB)

Emerging Market Debt Composite Characteristics | As of December 31, 2024

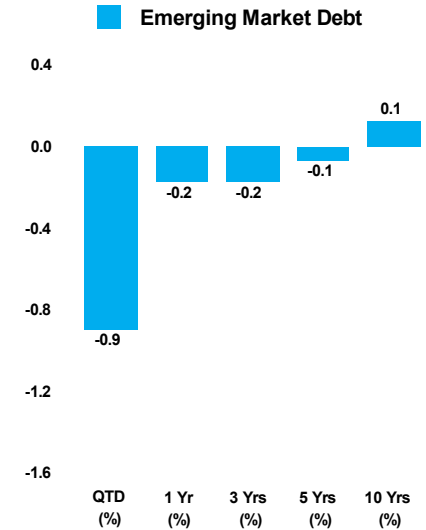


	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Emerging Market Debt	-3.3	4.0	1.5	0.8	2.6	2.2	08/01/2011
Custom 50/50 JPM EMB and Govt	-4.6	1.6	-0.9	-0.7	1.8	1.6	
Excess Return	1.3	2.4	2.3	1.6	0.8	0.5	
eV All Emg Mkts Fixed Inc Median	-1.8	6.1	0.2	0.8	2.9	3.2	

Annualized Standard Deviation



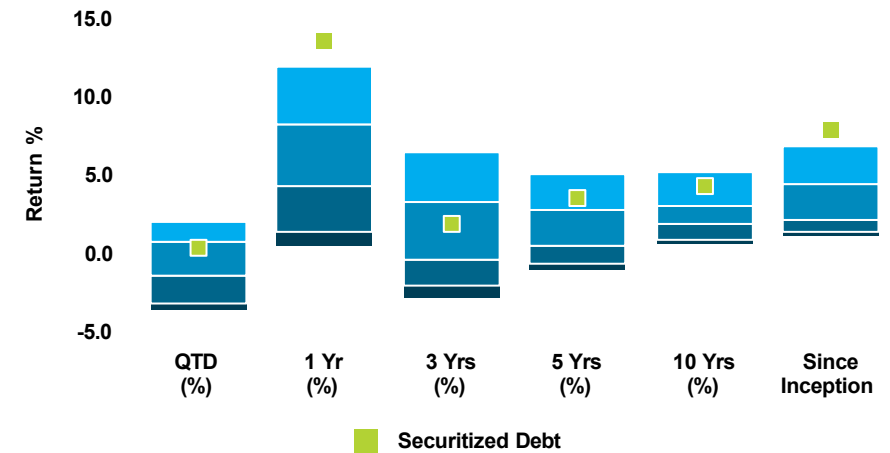
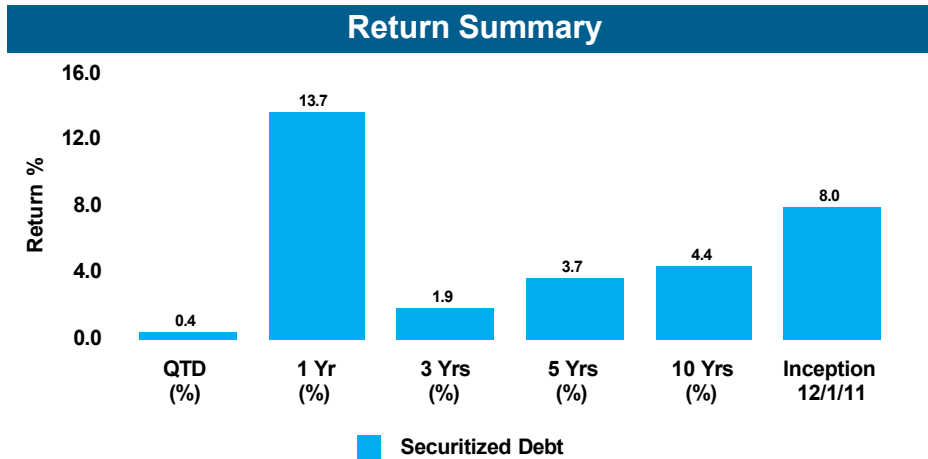
Sharpe Ratio



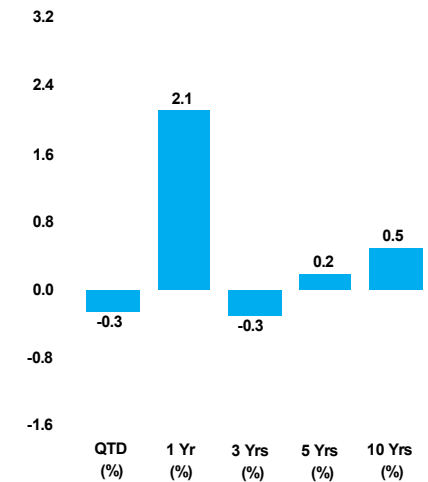
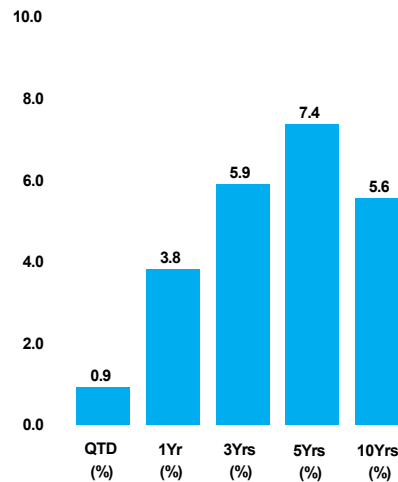
Performance is net of management fees.
Peer Universe: eV All Emg Mkts Fixed Inc (Net).

Securitized (DB)

Securitized Debt Composite Characteristics | As of December 31, 2024



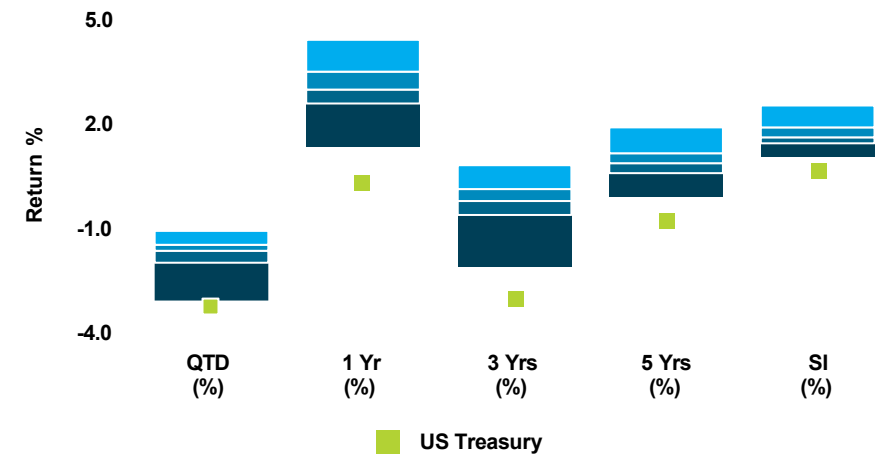
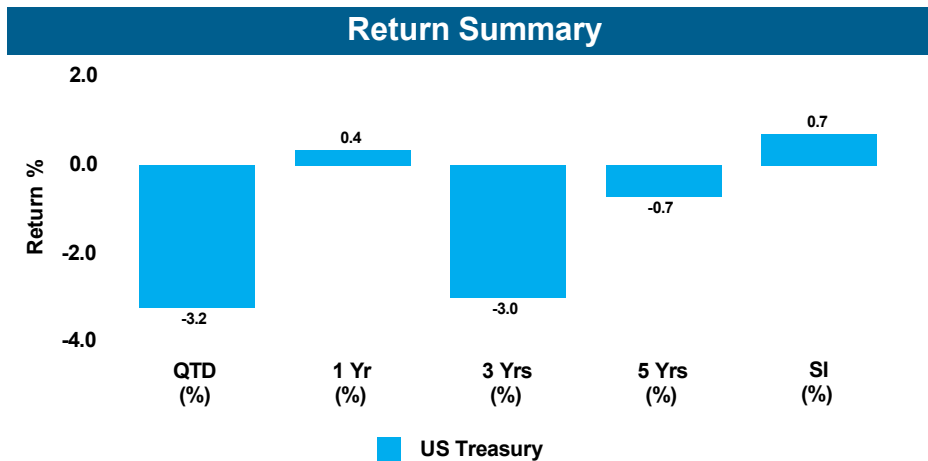
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Securitized Debt	0.4	13.7	1.9	3.7	4.4	8.0	12/01/2011
Custom Securitized Debt Benchmark	0.1	14.7	-0.3	0.9	3.2	4.0	
Excess Return	0.3	-1.0	2.2	2.7	1.2	4.0	
eV US Securitized Fixed Inc Median	-1.3	4.4	-0.3	0.6	2.0	2.3	



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

US Treasury (DB)

U.S. Treasury Composite Characteristics | As of December 31, 2024



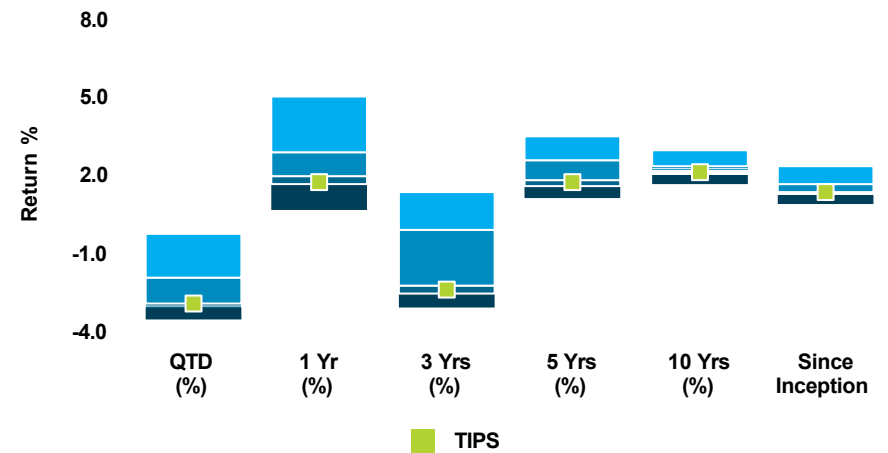
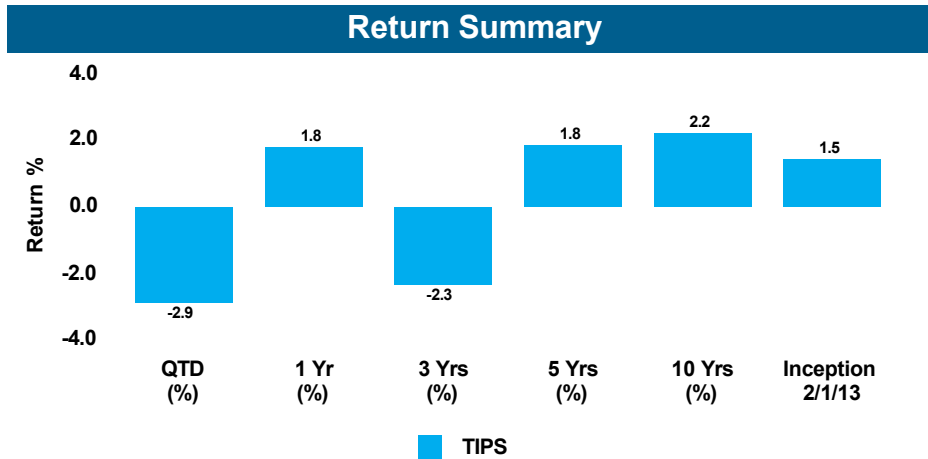
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	SI (%)	Inception Date
US Treasury	-3.2	0.4	-3.0	-0.7	0.7	03/01/2015
Bimbg. U.S. Treasury Index	-3.1	0.6	-2.9	-0.7	0.7	
Excess Return	-0.1	-0.2	-0.1	0.0	0.0	
eV US Interm Duration Fixed Inc Median	-1.6	3.1	-0.2	0.9	1.7	



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

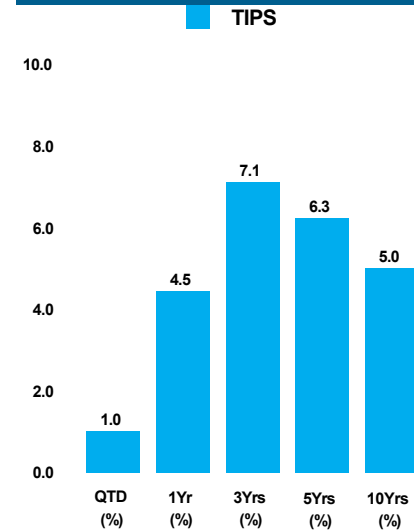
TIPS (DB)

TIPS Composite Characteristics | As of December 31, 2024

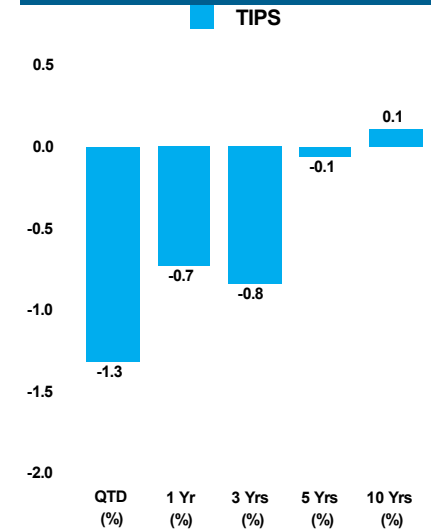


	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
TIPS	-2.9	1.8	-2.3	1.8	2.2	1.5	02/01/2013
Bloomberg U.S. TIPS Index	-2.9	1.8	-2.3	1.9	2.2	1.5	
Excess Return	0.0	0.0	0.0	0.0	0.0	0.0	
eV US TIPS / Inflation Fixed Inc Median	-2.9	2.0	-2.2	1.9	2.2	1.5	

Annualized Standard Deviation



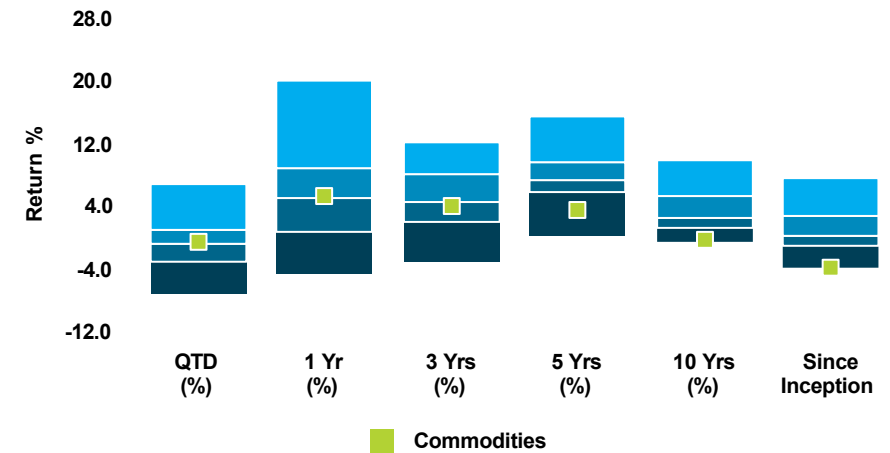
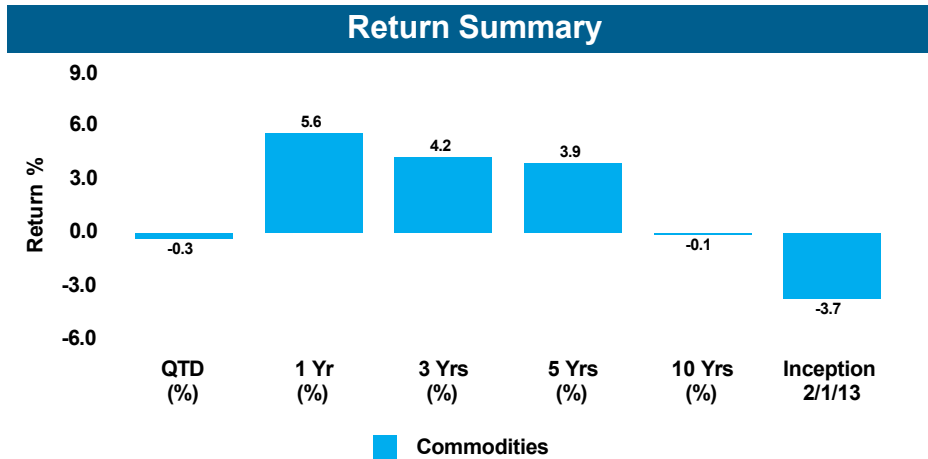
Sharpe Ratio



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

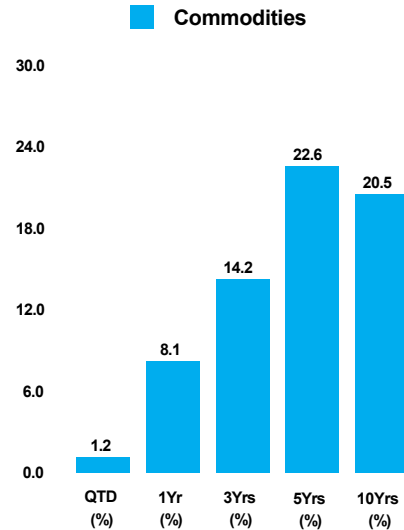
Commodities (DB)

Commodities Composite Characteristics | As of December 31, 2024

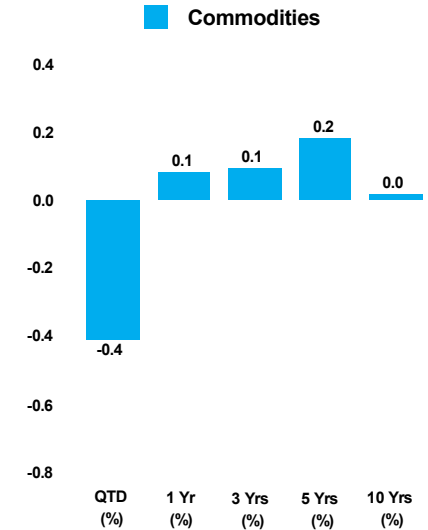


	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Commodities	-0.3	5.6	4.2	3.9	-0.1	-3.7	02/01/2013
Custom Commodities Benchmark	-0.4	5.4	4.1	3.1	-0.7	-4.3	
Excess Return	0.1	0.2	0.2	0.8	0.6	0.6	

Annualized Standard Deviation



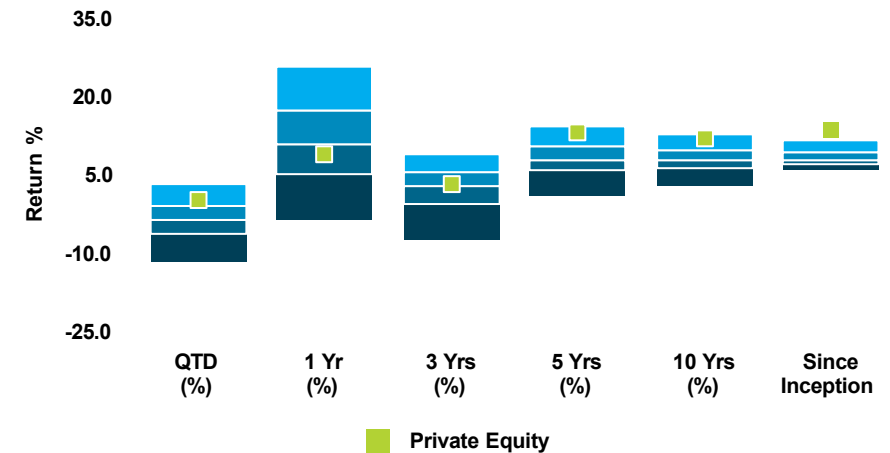
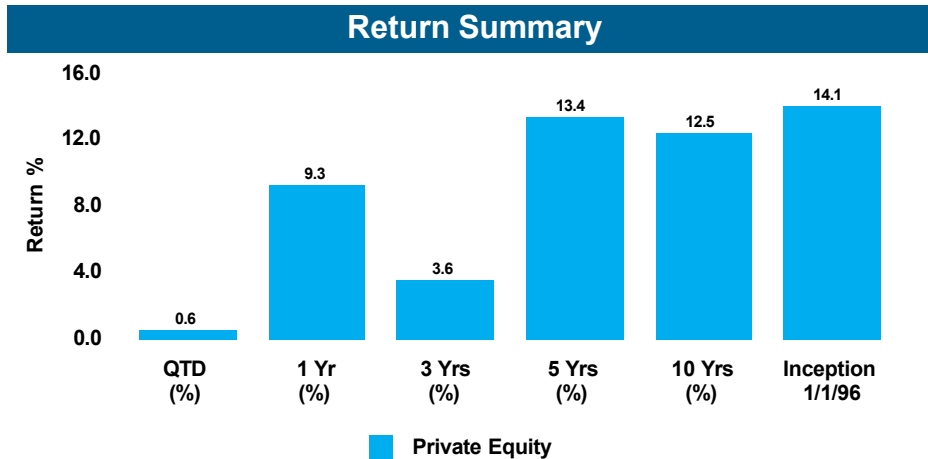
Sharpe Ratio



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

Private Equity (DB)

Private Equity Composite Characteristics | As of December 31, 2024



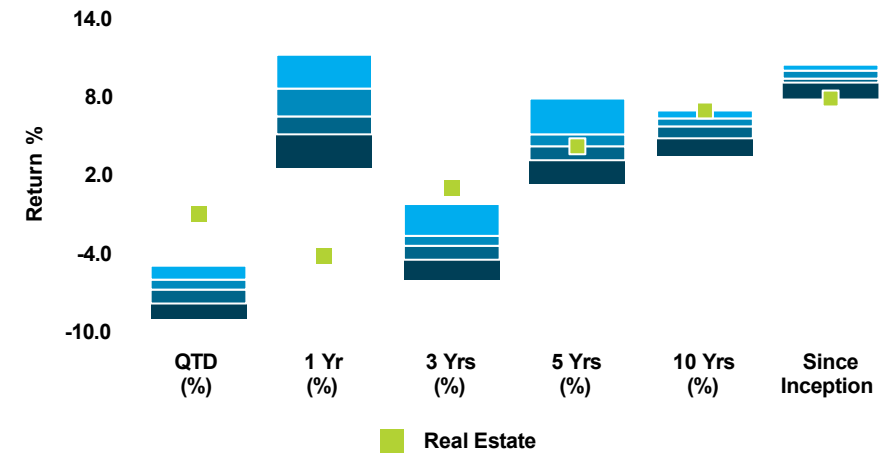
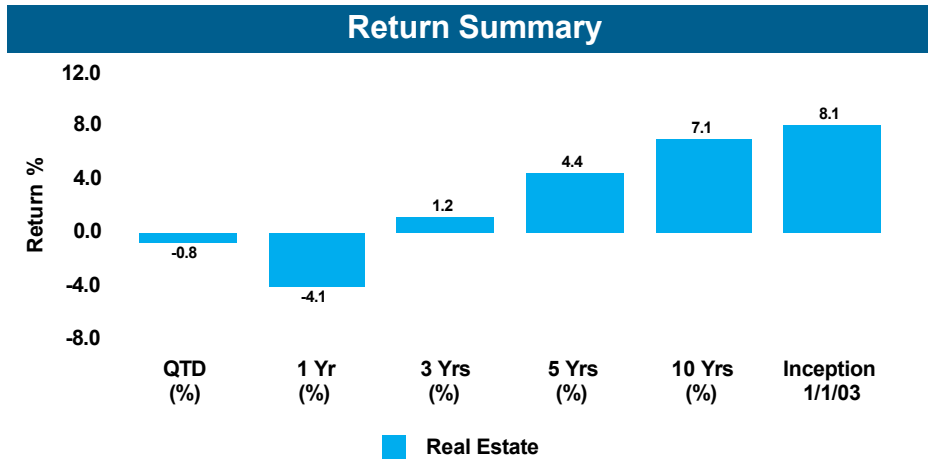
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Private Equity	0.6	9.3	3.6	13.4	12.5	14.1	01/01/1996
Custom Private Equity Benchmark	1.4	7.3	3.8	13.7	12.1	-	
Excess Return	-0.8	1.9	-0.2	-0.3	0.4	-	



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

Real Estate (DB)

Real Estate Composite Characteristics | As of December 31, 2024



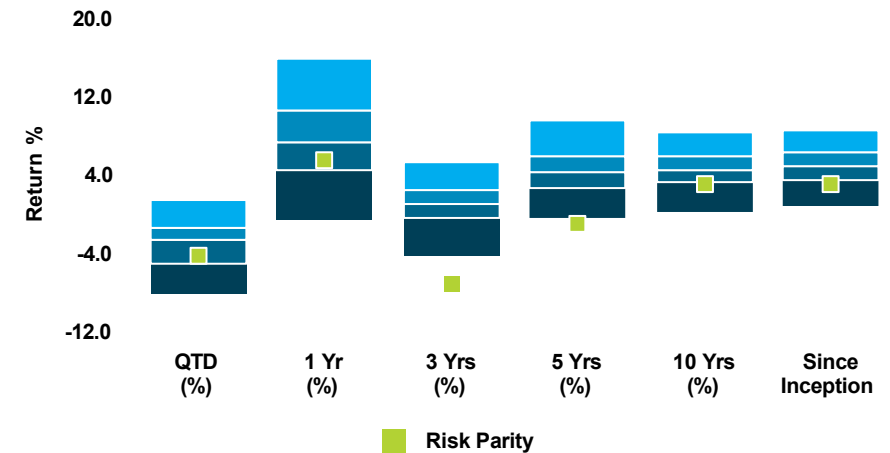
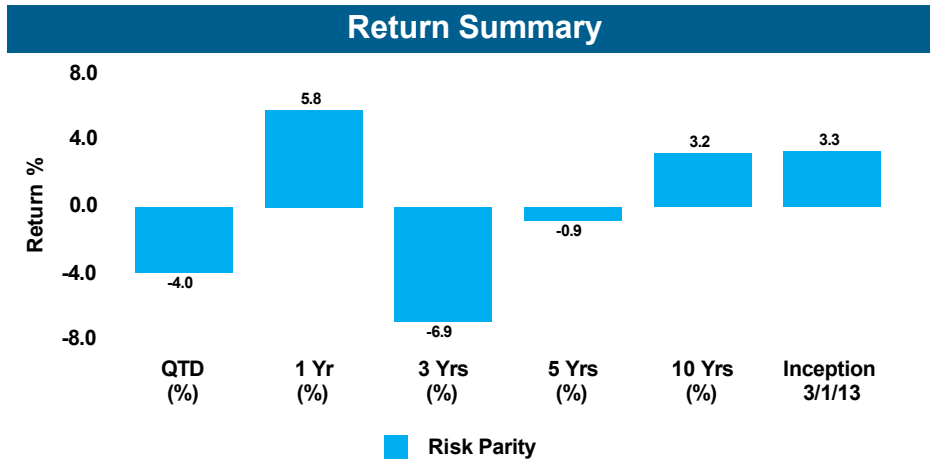
	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Real Estate	-0.8	-4.1	1.2	4.4	7.1	8.1	01/01/2003
Custom Real Estate Benchmark	0.2	-7.2	-0.2	2.9	6.0	7.4	
Excess Return	-0.9	3.1	1.4	1.5	1.0	0.7	



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

Risk Parity (DB)

Risk Parity Composite Characteristics | As of December 31, 2024



	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Risk Parity	-4.0	5.8	-6.9	-0.9	3.2	3.3	03/01/2013
Custom Risk Parity	-4.2	5.1	-7.6	-1.5	2.9	3.8	
Excess Return	0.2	0.7	0.7	0.6	0.3	-0.4	



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 (%)
Domestic Equity	3,524,360,650	26	25	20 - 30
Int'l Equity	3,234,862,755	24	25	20 - 30
Core Fixed	2,064,388,589	15	16	11 - 21
High Yield	671,880,275	5	5	0 - 8
Emerging Market Debt	134,642,312	1	1	0 - 5
Securitized Debt	418,860,730	3	3	0 - 5
TIPS	894,902,757	7	7	0 - 9
US Treasury	250,412,709	2	2	0 - 5
Commodities	418,770,279	3	3	0 - 5
REIT's	645,313,969	5	5	0 - 8
Hedge Fund	915,964	0	0	0 - 1
Risk Parity	385,124,715	3	3	0 - 5
Opportunistic	239,530,651	2	2	0 - 5
Cash	83,901,097	1	0	0 - 2
Global High Yield	17,665	0	0	0 - 1
Investment Grade Credit	398,157,846	3	3	0 - 5
Total	13,366,042,961	100	100	

Performance Summary | As of December 31, 2024

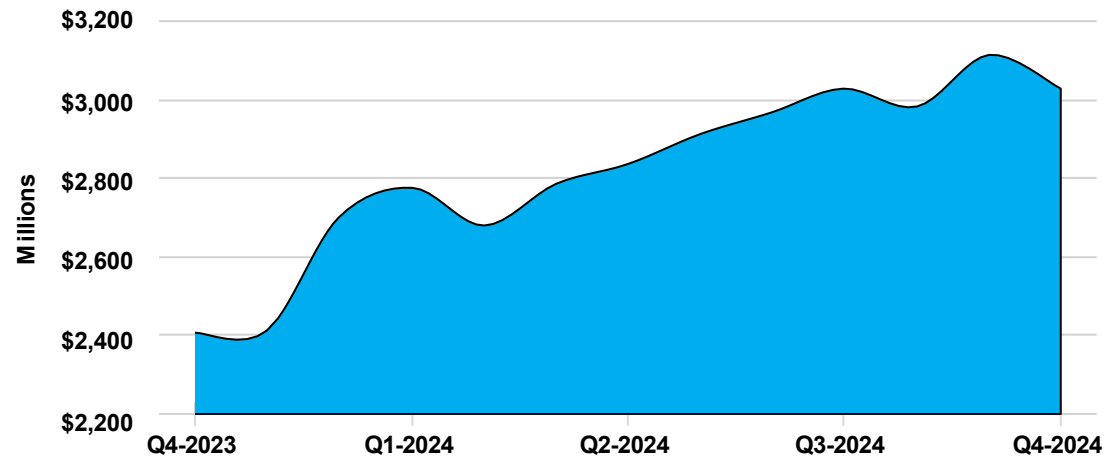
Trailing Period Performance									
	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Health Care 115 Trust Fund	13,366,042,961	100.0	-2.3	10.0	1.9	6.1	6.3	6.2	Jan-05
Policy Index Health Care 115 Trust Fund			-2.6	9.5	1.7	5.7	6.0	6.0	
Over/Under			0.3	0.5	0.3	0.4	0.3	0.2	
Domestic Equity	3,524,360,650	26.4	2.6	23.7	8.1	13.8	12.4	10.1	Jan-05
Domestic Equity Blend BM			2.6	23.8	8.0	13.9	12.5	10.2	
Over/Under			0.0	-0.1	0.1	-0.1	-0.1	-0.2	
Int'l Equity	3,234,862,755	24.2	-6.9	7.0	1.1	5.1	6.0	5.8	Jan-05
Custom Int'l Eq Benchmark			-7.6	5.5	0.3	4.0	4.9	4.9	
Over/Under			0.7	1.5	0.7	1.1	1.1	0.9	
Core Fixed	2,064,388,589	15.4	-3.1	1.4	-2.4	0.1	1.6	3.1	Jan-05
Blmbg. U.S. Aggregate Index			-3.1	1.3	-2.4	-0.3	1.3	3.0	
Over/Under			0.0	0.2	0.0	0.4	0.3	0.1	
Investment Grade Credit HC1	398,157,846	3.0	-3.1	2.0	--	--	--	12.6	Apr-23
Blmbg. U.S. Corporate Investment Grade Index			-3.0	2.1	-2.3	0.3	2.4	4.0	
Over/Under			-0.1	-0.1	--	--	--	8.6	
High Yield	671,880,275	5.0	0.0	7.1	2.5	3.9	4.9	6.1	Jan-10
Blmbg. U.S. Corp: High Yield Index			0.2	8.2	2.9	4.2	5.2	6.4	
Over/Under			-0.2	-1.1	-0.4	-0.3	-0.3	-0.3	
Emerging Market Debt	134,642,312	1.0	-3.3	4.0	1.5	0.9	2.6	3.7	Oct-07
Custom 50/50 JPM EMB and Govt			-4.6	1.6	-0.9	-0.7	1.8	3.5	
Over/Under			1.3	2.4	2.3	1.6	0.8	0.2	
Securitized Debt	418,860,730	3.1	0.4	13.7	2.0	3.7	4.4	8.0	Dec-11
Custom Securitized Debt Benchmark			0.1	14.7	-0.3	0.9	3.2	4.0	
Over/Under			0.3	-1.0	2.2	2.7	1.2	4.0	

Performance Summary | As of December 31, 2024

	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
TIPS	894,902,757	6.7	-2.9	1.8	-2.3	1.9	2.2	3.4	Mar-05
Blmbg. U.S. TIPS Index			-2.9	1.8	-2.3	1.9	2.2	3.4	
Over/Under			0.0	0.0	0.0	0.0	0.0	0.1	
US Treasury	250,412,709	1.9	-3.2	0.4	-3.0	-0.7	--	0.7	Feb-15
Blmbg. U.S. Treasury Index			-3.1	0.6	-2.9	-0.7	0.8	0.6	
Over/Under			-0.1	-0.2	-0.1	0.0	--	0.1	
Commodities	418,770,279	3.1	-0.3	5.6	4.2	3.9	-0.1	-2.2	Jan-10
Custom Commodities Benchmark			-0.4	5.4	4.1	3.1	-0.7	--	
Over/Under			0.1	0.2	0.2	0.8	0.6	--	
REIT's	645,313,969	4.8	-5.9	8.0	-3.0	3.4	4.9	6.6	Jan-05
Custom REIT Benchmark			-5.9	8.0	-3.1	3.4	4.9	6.4	
Over/Under			0.0	0.0	0.1	0.0	0.0	0.2	
Hedge Fund	915,964	0.0	0.0	0.6	2.5	4.1	3.6	3.8	Jan-11
Custom Hedge Fund Benchmark			2.1	9.2	4.9	6.3	4.8	5.1	
Over/Under			-2.1	-8.6	-2.4	-2.1	-1.2	-1.3	
Risk Parity	385,124,715	2.9	-4.0	5.8	-6.9	-0.9	3.2	3.3	Mar-13
Custom Risk Parity			-4.2	5.1	-7.6	-1.5	2.9	3.8	
Over/Under			0.2	0.7	0.7	0.6	0.3	-0.4	
Opportunistic	239,530,651	1.8	5.5	27.0	7.8	--	--	9.5	Nov-20
OPERS Custom Opportunistic			0.0	18.8	5.6	--	--	9.1	
Over/Under			5.5	8.2	2.2	--	--	0.4	
Cash	83,901,097	0.6	1.3	5.6	4.3	2.8	2.1	2.0	Jan-05
90 Day U.S. Treasury Bill			1.2	5.3	3.9	2.5	1.8	1.6	
Over/Under			0.1	0.3	0.4	0.3	0.3	0.4	
Global High Yield	17,665	0.0							

Defined Contribution Plan Performance

Market Value History 1 Year Ending December 31, 2024



Summary of Market Values

	QTD	3Q24	2Q24	1Q24

Total Plan

Beginning Market Value	3,030,258,627	2,838,862,748	2,778,220,535	2,409,004,653
Net Change	-970,565	191,395,879	60,642,213	369,215,882
Ending Market Value	3,029,288,061	3,030,258,627	2,838,862,748	2,778,220,535

Performance Summary | As of December 31, 2024

Trailing Period Performance							
	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Total Plan	3,029,288,061	100.0					
Target Date Funds	1,525,962,452	50.4					
BlackRock LifePath Index Retirement Fund N	165,704,289	5.5	-2.2	7.1	0.5	4.0	4.6
<i>Blackrock LifePath Retirement N-L Custom Index</i>			-2.2	7.1	0.6	4.0	4.6
<i>Target-Date Retirement Median</i>			-2.1	6.6	0.6	3.5	3.9
<i>Target-Date Retirement Rank</i>			63	33	52	15	10
BlackRock LifePath Index 2030 Fund N	225,699,769	7.5	-2.2	9.1	1.6	5.7	6.3
<i>Blackrock LifePath 2030 Non-Lendable Custom Bmk</i>			-2.2	9.1	1.6	5.7	6.3
<i>Target-Date 2030 Median</i>			-2.0	9.4	1.6	5.9	6.5
<i>Target-Date 2030 Rank</i>			61	62	55	66	64
BlackRock LifePath Index 2035 Fund N	278,566,459	9.2	-2.1	10.9	2.4	6.8	7.2
<i>Blackrock LifePath 2035 Non-Lendable Custom Bmk</i>			-2.1	10.9	2.4	6.8	7.1
<i>Target-Date 2035 Median</i>			-2.0	11.2	2.4	7.1	7.2
<i>Target-Date 2035 Rank</i>			60	60	48	65	55
BlackRock LifePath Index 2040 Fund N	331,947,936	11.0	-2.0	12.6	3.3	7.8	7.9
<i>Blackrock LifePath 2040 Non-Lendable Custom Bmk</i>			-1.9	12.6	3.2	7.8	7.8
<i>Target-Date 2040 Median</i>			-1.9	12.8	3.1	7.9	7.8
<i>Target-Date 2040 Rank</i>			58	58	41	56	45
BlackRock LifePath Index 2045 Fund N	254,425,510	8.4	-1.8	14.3	4.1	8.8	8.6
<i>Blackrock LifePath 2045 Non-Lendable Custom Bmk</i>			-1.7	14.3	4.1	8.7	8.5
<i>Target-Date 2045 Median</i>			-1.8	13.9	3.6	8.6	8.2
<i>Target-Date 2045 Rank</i>			48	31	20	32	31

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 December 31, 2024

	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
BlackRock LifePath Index 2050 Fund N	147,306,269	4.9	-1.5	15.6	4.7	9.4	8.9
Blackrock LifePath 2050 Non-Lendable Custom Bmk			-1.5	15.7	4.6	9.4	8.8
Target-Date 2050 Median			-1.8	14.2	3.7	8.7	8.4
Target-Date 2050 Rank			39	12	11	13	17
BlackRock LifePath Index 2055 Fund N	66,973,035	2.2	-1.4	16.2	4.9	9.6	9.0
Blackrock LifePath 2055 Non-Lendable Custom Bmk			-1.3	16.3	4.9	9.6	8.9
Target-Date 2055 Median			-1.7	14.3	3.8	8.8	8.4
Target-Date 2055 Rank			34	8	11	10	14
BlackRock LifePath Index 2060 Fund N	31,679,919	1.0	-1.3	16.3	4.9	9.6	9.0
Blackrock LifePath 2060 Non-Lendable Custom Bmk			-1.3	16.4	4.9	9.6	8.9
Target-Date 2060 Median			-1.8	14.4	3.8	8.8	8.7
Target-Date 2060 Rank			35	7	11	12	23
BlackRock LifePath Index 2065 Fund N	23,659,266	0.8	-1.3	16.4	5.0	9.6	--
Blackrock LifePath 2065 Non-Lendable Custom Benchm			-1.3	16.4	4.9	9.6	--
Target-Date 2065+ Median			-1.8	14.4	3.9	8.8	--
Target-Date 2065+ Rank			34	9	14	9	--
Core Options	1,440,924,307	47.6					
Invesco Stable Value Trust - Class B1	154,558,695	5.1	0.7	2.9	2.4	2.2	2.1
ICE BofA 3 Month U.S. T-Bill			1.2	5.3	3.9	2.5	1.8
eV US Stable Value Fixed Inc Median			0.6	2.8	2.2	2.0	1.9
eV US Stable Value Fixed Inc Rank			27	42	24	28	31

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 December 31, 2024

	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
BlackRock U.S. Debt Index Fund J	80,860,972	2.7	-3.0	1.4	-2.3	-0.3	1.4
<i>Blmbg. U.S. Aggregate Index</i>			-3.1	1.3	-2.4	-0.3	1.3
<i>Intermediate Core Bond Median</i>			-3.1	1.5	-2.5	-0.3	1.3
<i>Intermediate Core Bond Rank</i>			46	57	38	51	40
BlackRock Russell 3000 Index Fund J	441,783,770	14.6	2.6	23.8	8.0	13.9	12.6
<i>Russell 3000 Index</i>			2.6	23.8	8.0	13.9	12.5
<i>Large Blend Median</i>			2.1	23.3	7.9	13.4	11.9
<i>Large Blend Rank</i>			20	43	47	38	26
BlackRock Russell 1000 Index Fund J	449,783,651	14.8	2.7	24.5	8.4	14.3	12.9
<i>Russell 1000 Index</i>			2.7	24.5	8.4	14.3	12.9
<i>Large Blend Median</i>			2.1	23.3	7.9	13.4	11.9
<i>Large Blend Rank</i>			16	33	37	26	14
BlackRock Russell 2000 Index Fund J	183,552,119	6.1	0.3	11.5	1.3	7.5	7.9
<i>Russell 2000 Index</i>			0.3	11.5	1.2	7.4	7.8
<i>Small Blend Median</i>			0.0	10.9	2.1	8.2	7.9
<i>Small Blend Rank</i>			34	40	65	66	49
BlackRock MSCI ACWI ex-US Index Fund J	115,856,010	3.8	-7.6	5.4	0.9	4.2	5.1
<i>MSCI AC World ex USA (Net)</i>			-7.6	5.5	0.8	4.1	4.8
<i>Foreign Large Blend Median</i>			-7.5	4.3	0.7	4.3	4.9
<i>Foreign Large Blend Rank</i>			55	34	44	55	43
Fisher US Total Return	6,301,313	0.2	1.3	--	--	--	--
<i>Russell 1000 Index</i>			2.7	24.5	8.4	14.3	12.9
<i>eV US Large Cap Core Equity Median</i>			1.6	22.0	7.4	13.0	11.7
<i>eV US Large Cap Core Equity Rank</i>			55	--	--	--	--

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 December 31, 2024

	Market Value \$	% of Portfolio	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
JPMorgan Core Bond R6	2,152,547	0.1	-3.0	--	--	--	--
<i>Blmbg. U.S. Aggregate Index</i>			-3.1	1.3	-2.4	-0.3	1.3
<i>Intermediate Core Bond Median</i>			-3.1	1.5	-2.5	-0.3	1.3
<i>Intermediate Core Bond Rank</i>			38	--	--	--	--
Lazard ACW ex-US Equity CIT	1,260,662	0.0	-5.5	--	--	--	--
<i>MSCI AC World ex USA index</i>			-7.5	6.1	1.3	4.6	5.3
<i>eV ACWI ex-US All Cap Core Eq Median</i>			-7.0	5.2	0.4	4.9	5.4
<i>eV ACWI ex-US All Cap Core Eq Rank</i>			21	--	--	--	--
T.Rowe Price Intergrated US Small-Mid Cap Core Eq	4,814,568	0.2	-0.5	--	--	--	--
<i>Russell 2500 Index</i>			0.6	12.0	2.4	8.8	8.8
<i>eV US Small-Mid Cap Core Equity Median</i>			0.1	12.7	3.1	9.8	9.4
<i>eV US Small-Mid Cap Core Equity Rank</i>			67	--	--	--	--
Schwab Self-Directed Brokerage	62,401,302	2.1					

Performance Summary | As of December 31, 2024

Calendar Year Performance							
	2024 (%)	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)
Total Plan							
Target Date Funds							
BlackRock LifePath Index Retirement Fund N	7.1	11.2	-14.6	7.0	12.0	15.6	-3.5
<i>Blackrock LifePath Retirement N-L Custom Index</i>	7.1	11.1	-14.5	7.0	11.8	15.6	-3.5
BlackRock LifePath Index 2030 Fund N	9.1	14.3	-16.0	11.4	12.9	20.8	-5.7
<i>Blackrock LifePath 2030 Non-Lendable Custom Bmk</i>	9.1	14.2	-15.9	11.5	12.7	20.7	-5.8
BlackRock LifePath Index 2035 Fund N	10.9	16.3	-16.7	13.8	13.6	22.9	-6.5
<i>Blackrock LifePath 2035 Non-Lendable Custom Bmk</i>	10.9	16.3	-16.7	13.9	13.4	22.8	-6.6
BlackRock LifePath Index 2040 Fund N	12.6	18.3	-17.3	16.0	14.1	24.7	-7.2
<i>Blackrock LifePath 2040 Non-Lendable Custom Bmk</i>	12.6	18.3	-17.4	16.0	14.0	24.6	-7.3
BlackRock LifePath Index 2045 Fund N	14.3	20.2	-17.9	17.7	14.8	26.0	-7.8
<i>Blackrock LifePath 2045 Non-Lendable Custom Bmk</i>	14.3	20.1	-18.0	17.7	14.6	26.0	-8.0
BlackRock LifePath Index 2050 Fund N	15.6	21.3	-18.2	18.7	15.2	26.6	-8.1
<i>Blackrock LifePath 2050 Non-Lendable Custom Bmk</i>	15.7	21.2	-18.3	18.6	15.1	26.5	-8.3
BlackRock LifePath Index 2055 Fund N	16.2	21.6	-18.3	18.8	15.3	26.7	-8.1
<i>Blackrock LifePath 2055 Non-Lendable Custom Bmk</i>	16.3	21.6	-18.4	18.8	15.2	26.6	-8.3
BlackRock LifePath Index 2060 Fund N	16.3	21.6	-18.3	18.8	15.3	26.7	-8.1
<i>Blackrock LifePath 2060 Non-Lendable Custom Bmk</i>	16.4	21.6	-18.4	18.8	15.2	26.6	-8.3
BlackRock LifePath Index 2065 Fund N	16.4	21.6	-18.3	18.8	15.1	--	--
<i>Blackrock LifePath 2065 Non-Lendable Custom Benchm</i>	16.4	21.6	-18.4	18.8	15.2	--	--
Core Options							

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 December 31, 2024

	2024 (%)	2023 (%)	2022 (%)	2021 (%)	2020 (%)	2019 (%)	2018 (%)
Invesco Stable Value Trust - Class B1	2.9	2.7	1.6	1.4	2.1	2.5	2.4
<i>ICE BofA 3 Month U.S. T-Bill</i>	5.3	5.0	1.5	0.0	0.7	2.3	1.9
BlackRock U.S. Debt Index Fund J	1.4	5.7	-13.0	-1.6	7.6	8.8	0.1
<i>Blmbg. U.S. Aggregate Index</i>	1.3	5.5	-13.0	-1.5	7.5	8.7	0.0
BlackRock Russell 3000 Index Fund J	23.8	26.1	-19.2	25.7	21.0	31.1	-5.2
<i>Russell 3000 Index</i>	23.8	26.0	-19.2	25.7	20.9	31.0	-5.2
BlackRock Russell 1000 Index Fund J	24.5	26.6	-19.1	26.4	20.9	31.5	-4.7
<i>Russell 1000 Index</i>	24.5	26.5	-19.1	26.5	21.0	31.4	-4.8
BlackRock Russell 2000 Index Fund J	11.5	17.1	-20.4	14.9	20.0	25.7	-10.9
<i>Russell 2000 Index</i>	11.5	16.9	-20.4	14.8	20.0	25.5	-11.0
BlackRock MSCI ACWI ex-US Index Fund J	5.4	15.6	-15.7	7.9	11.0	21.8	-14.0
<i>MSCI AC World ex USA (Net)</i>	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 investors 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.

Annual Investment Expense Analysis				
	Fee Schedule	Market Value (\$)	Expense Ratio (%)	Estimated Expense (\$)
Target Date Funds		1,525,962,452	0.06	876,037
BlackRock LifePath Index Retirement Fund N	0.06 % of Assets	165,704,289	0.06	91,137
BlackRock LifePath Index 2030 Fund N	0.06 % of Assets	225,699,769	0.06	126,392
BlackRock LifePath Index 2035 Fund N	0.06 % of Assets	278,566,459	0.06	158,783
BlackRock LifePath Index 2040 Fund N	0.06 % of Assets	331,947,936	0.06	192,530
BlackRock LifePath Index 2045 Fund N	0.06 % of Assets	254,425,510	0.06	147,567
BlackRock LifePath Index 2050 Fund N	0.06 % of Assets	147,306,269	0.06	86,911
BlackRock LifePath Index 2055 Fund N	0.06 % of Assets	66,973,035	0.06	39,514
BlackRock LifePath Index 2060 Fund N	0.06 % of Assets	31,679,919	0.06	19,008
BlackRock LifePath Index 2065 Fund N	0.06 % of Assets	23,659,266	0.06	14,196
Index Funds		1,271,836,522	0.02	277,837
BlackRock U.S. Debt Index Fund J	0.03 % of Assets	80,860,972	0.03	27,493
BlackRock Russell 3000 Index Fund J	0.02 % of Assets	441,783,770	0.02	75,103
BlackRock Russell 1000 Index Fund J	0.02 % of Assets	449,783,651	0.02	67,468
BlackRock Russell 2000 Index Fund J	0.02 % of Assets	183,552,119	0.02	44,053
BlackRock MSCI ACWI ex-US Index Fund J	0.06 % of Assets	115,856,010	0.06	63,721
Actively Managed Funds		169,087,786	0.33	565,654
Invesco Stable Value Trust - Class B1	0.31 % of Assets	154,558,695	0.31	479,132
JPMorgan Core Bond R6	0.34 % of Assets	2,152,547	0.35	7,534
Fisher US Total Return	0.45 % of Assets	6,301,313	0.45	28,356
Lazard ACW ex-US Equity CIT	0.35 % of Assets	1,260,662	0.35	4,412
Schwab Self-Directed Brokerage		62,401,302	-	-
Schwab Self-Directed Brokerage		62,401,302	-	-
Total Plan		3,029,288,061	0.06	1,719,528

BlackRock LifePath Index 2025 Fund N ended 10/31.

Disclaimer

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PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

2024

ANNUAL INVESTMENT PLAN

Defined Benefit Fund
Health Care 115 Trust Fund

**Quarterly Update For the Period Ending
December 31, 2024**

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Purpose

This Annual Investment Plan (“AIP”) Update is a quarterly report prepared by the Investment Staff to:

- (1) Provide an update of Staff’s progress towards meeting its AIP projections. In this report, projections made in late 2023 for 2024 are compared with fourth quarter 2024 results;
- (2) Provide current forecast risk metrics;
- (3) Present notable Investments Division activities; and
- (4) Provide reports containing information that is not otherwise available in Staff memorandums, investment advisor reports, or other sources.
 - a. Reports and analysis are produced by Investment Staff using the best data available, compiled from various sources such as the SimCorp system and BNY Mellon. In some cases, unaudited data is used and therefore some differences may exist with final audited reporting. Staff strives to maintain accuracy while also producing a complete analysis in a timely manner.
 - b. Fund-level and total fund risk reports are produced using the Aladdin Risk system - a multi-asset class, factor-based forecasting model. In cases where assets are not natively supported by the Aladdin system or in cases when holdings data are not available, OPERS Staff and BlackRock assign returns-based or holdings-based proxies as appropriate.
 - c. Policy dashboards and analysis are produced by Investment Staff using a single asset-class based forecasting models from BlackRock’s Aladdin for equity securities and for fixed income securities. In cases where assets are not natively supported by analytic systems, OPERS Investment Staff may assign proxies to replicate exposures.

Section 1 – Fund at a Glance

Adjusted Market Value versus Target Allocation

The following tables show the market value of Defined Benefit (“DB”) and Health Care 115 Trust (“HC”) Fund assets, adjusted by the notional amount of derivatives used to rebalance Asset Class and Sub-Asset Class exposures, relative to current target allocations and Policy ranges.

Adjusted Market Value versus Target Allocation

Defined Benefit Fund							
December 31, 2024							
Asset Class / Sub-Asset Class	Adjusted Market Value (\$B)	% of Total Adjusted Market Value	Current Target	Variance	Policy Minimum		Policy Maximum
U.S. Equity	\$22.95	22.0%	21.6%	0.4%	17%	-	27%
Non-U.S. Equity	\$19.96	19.2%	20.0%	-0.8%	15%	-	25%
Fixed Income	\$25.42	24.4%	24.8%	-0.4%	17%	-	33%
Private Equity	\$15.44	14.8%	15.0%	-0.2%	10%	-	20%
Real Estate	\$12.05	11.6%	12.0%	-0.4%	7%	-	17%
Private Credit	\$0.20	0.2%	0.2%	0.0%	0%	-	5%
REITS	\$0.83	0.8%	1.0%	-0.2%	0%	-	5%
Opportunistic	\$1.92	1.8%	1.4%	0.4%	0%	-	5%
Commodities	\$2.20	2.1%	2.0%	0.1%	0%	-	5%
Risk Parity	\$2.01	1.9%	2.0%	-0.1%	0%	-	5%
Cash/Other Assets	\$1.11	1.1%	0.0%	1.1%	0%	-	5%
Total Defined Benefit	\$104.10	100%	100%				

Adjusted Market Value versus Target Allocation

Asset Class	Variance
U.S. Equity	0.4%
Non-U.S. Equity	-0.8%
Fixed Income	-0.4%
Private Equity	-0.2%
Real Estate	-0.4%
Private Credit	0.0%
REITS	-0.2%
Opportunistic	0.4%
Commodities	0.1%
Risk Parity	-0.1%
Cash/Other Assets	1.1%

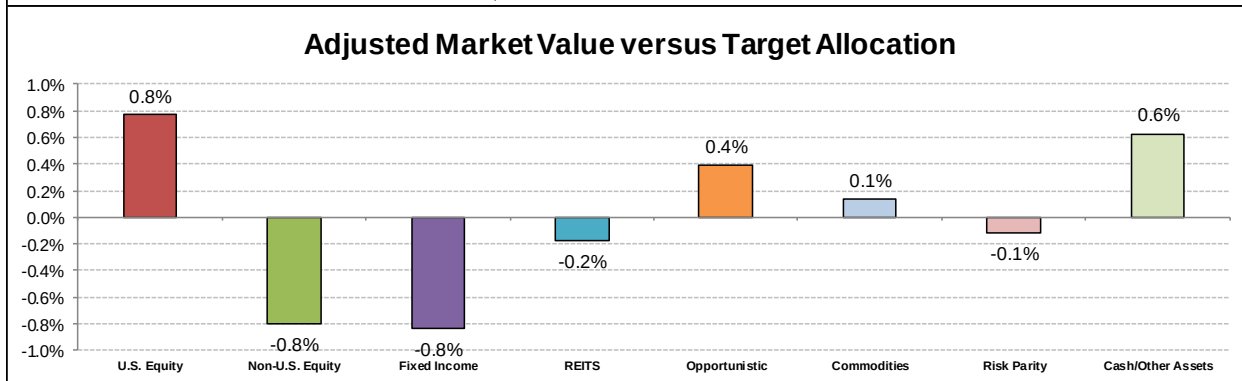
Section 1 – Fund at a Glance

Adjusted Market Value versus Target Allocation

Health Care 115 Fund

December 31, 2024

Asset Class / Sub-Asset Class	Adjusted Market Value (\$B)	% of Total Adjusted Market Value	Current Target	Variance	Policy Minimum	Policy Maximum
U.S. Equity	\$3.52	26.4%	25.6%	0.8%	21%	- 31%
Non-U.S. Equity	\$3.23	24.2%	25.0%	-0.8%	20%	- 30%
Fixed Income	\$4.83	36.2%	37.0%	-0.8%	26%	- 48%
REITS	\$0.65	4.8%	5.0%	-0.2%	0%	- 8%
Opportunistic	\$0.24	1.8%	1.4%	0.4%	0%	- 5%
Commodities	\$0.42	3.1%	3.0%	0.1%	0%	- 5%
Risk Parity	\$0.39	2.9%	3.0%	-0.1%	0%	- 5%
Cash/Other Assets	\$0.08	0.6%	0.0%	0.6%	0%	- 5%
Total Health Care 115	\$13.37	100%	100%			



Section 1 – Fund at a Glance

Total Fund – Forecast Total and Active Risk

The following table shows the forecast annual total risk and forecast annual active risk (tracking error) by Asset Class and Sub-Asset Class as of December 31, 2024. Total risk is shown in percentage terms and active risk is shown in basis points. Forecast total and active risk is produced using Aladdin Risk.

Forecast Total and Active Risk Summary

December 31, 2024						
Asset Class / Sub-Asset Class	Adjusted Market Value (\$B) ¹	Forecast Total Risk (%) ²	Forecast Active Risk (b.p.) ³	Active Risk Target (b.p.)	Active Risk Range	
					Minimum	Maximum
U.S. Equity	\$26.48	20.0%	54	36	0	- 100
Non-U.S. Equity	\$23.19	18.0%	112	150	0	- 300
Fixed Income	\$30.25	5.7%	46	50	0	- 200
Private Equity	\$15.44	27.2%	409	-	0	- 1500
Real Estate	\$12.05	13.5%	597	-	0	- 1500
Private Credit	\$0.20	8.2%	540	-	-	-
REITS	\$1.48	24.8%	5	10	0	- 250
Opportunistic	\$2.16	13.5%	430	350	-	-
Commodities	\$2.62	16.3%	42	90	0	- 300
Risk Parity	\$2.40	15.1%	17	0	0	- 200
Cash/Other Assets	\$1.19	0.2%	23	-	-	-
Total Fund	\$117.46	14.4%	73	-	-	-
Defined Benefit Fund	\$104.10	14.6%	81	105	0	- 300
Health Care 115 Fund	\$13.37	12.6%	38	75	0	- 300
¹ The market value reported by Bank of New York Mellon adjusted for the notional exposure of derivatives positions held in rebalancing portfolios. ² The forecast annual return volatility. ³ The forecast annual return volatility relative to the benchmark return, due to active management.						

Section 2 – Fund Updates

Defined Benefit Fund – Expected Asset Growth

The change in the DB assets relative to the 2024 AIP is shown in the following table. The projected values for the DB Fund are based on the values listed on page five of the 2024 AIP, which was reviewed and approved by the OPERS Retirement Board in January 2024 and assumes a smooth, straight-line investment return throughout the 2024 calendar year.

Operating Expenses: Budgeted and Reported Year-to-Date through December 31, 2024			
	Projected	Reported	Difference
Personnel Expenses	\$18,268,571	\$19,379,616	\$1,111,045
Professional Services	\$9,450,422	\$9,906,782	\$456,360
Information Technology	\$1,182,214	\$1,036,632	-\$145,582
Office Supplies & Equipment	\$5,900	\$1,062	-\$4,838
Training and Travel Expenses	\$284,479	\$181,595	-\$102,884
Total	\$29,191,586	\$30,505,687	\$1,314,101

Defined Benefit Fund – Return and Risk

The policy asset mix (benchmark), tactical and active and total fund returns, and variability risk (standard deviation and tracking error) for the DB Fund are shown in the adjacent table. The projected return and risk figures are from page seven of the 2024 AIP and assume a smooth, straight-line investment return throughout the calendar year. The reported returns are from the BNY Mellon monthly performance report, which is generated in accordance with the OPERS Performance Guidelines. Current forecast variability risk is produced using Aladdin.

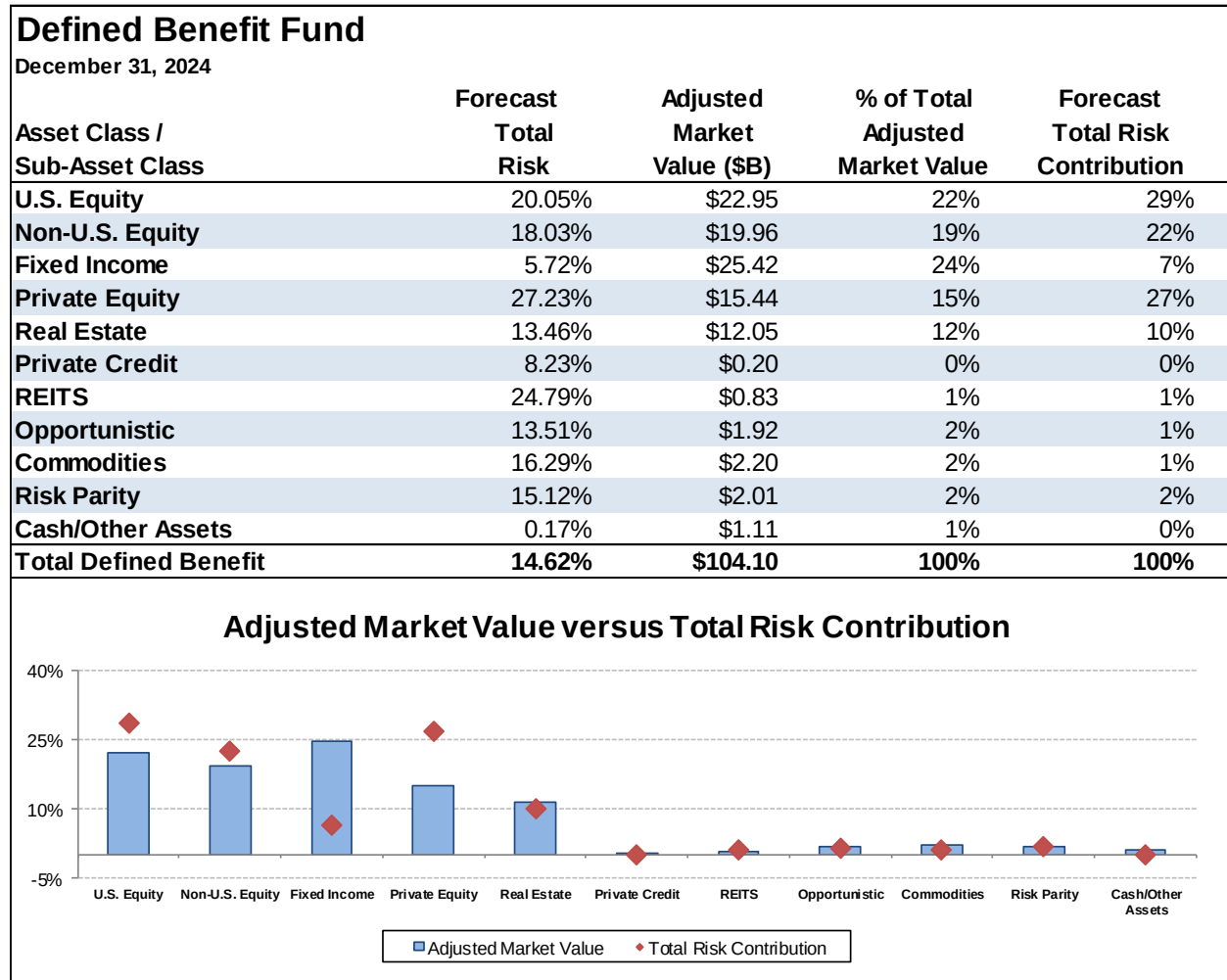
Return and Risk - Defined Benefit Fund Year-to-Date through December 31, 2024		
Asset Class Returns	Return	
	Projected	Reported
Public Equity		
U.S. Equity	5.18%	23.71%
Non-U.S. Equity	7.00%	7.06%
Fixed Income		
Core Fixed	5.35%	1.48%
Emerging Markets Debt	7.71%	4.13%
Securitized Debt	7.23%	13.82%
High Yield	7.23%	7.08%
TIPS	5.19%	1.83%
U.S. Treasury	4.84%	0.37%
Investment Grade Credit	6.30%	1.98%
Alternatives		
Private Equity	9.32%	9.21%
Real Estate	5.77%	-4.11%
Commodities	4.71%	5.62%
Opportunistic	6.88%	26.15%
REITs	6.82%	8.01%
Risk Parity	6.33%	5.74%
Policy Asset Mix (Benchmark Return)	6.99%	7.92%
Tactical & Active Return	0.42%	0.90%
Total DB Fund Return	7.41%	8.82%
Variability Risk		
Sources of Variability Risk	Projected	
	Projected	Current Forecast
Policy Risk	14.01%	14.58%
Tactical & Active Risk	1.05%	0.81%
Total DB Fund Variability Risk	14.68%	14.62%

Section 2 – Fund Updates

Defined Benefit Fund – Forecast Total Risk Contribution

The following table and chart show the forecast total risk contribution in relation to the adjusted market value for the DB Fund. Forecast total risk is produced using Aladdin.

Forecast Total Risk Contribution



Section 2 – Fund Updates

Defined Benefit Fund – Active and Tactical Return

The projected and reported active and tactical returns are shown in the following table. The projected figures are from page six of the 2024 AIP and assume a smooth, straight-line investment return throughout the calendar year. The reported figures are from the BNY Mellon monthly performance report.

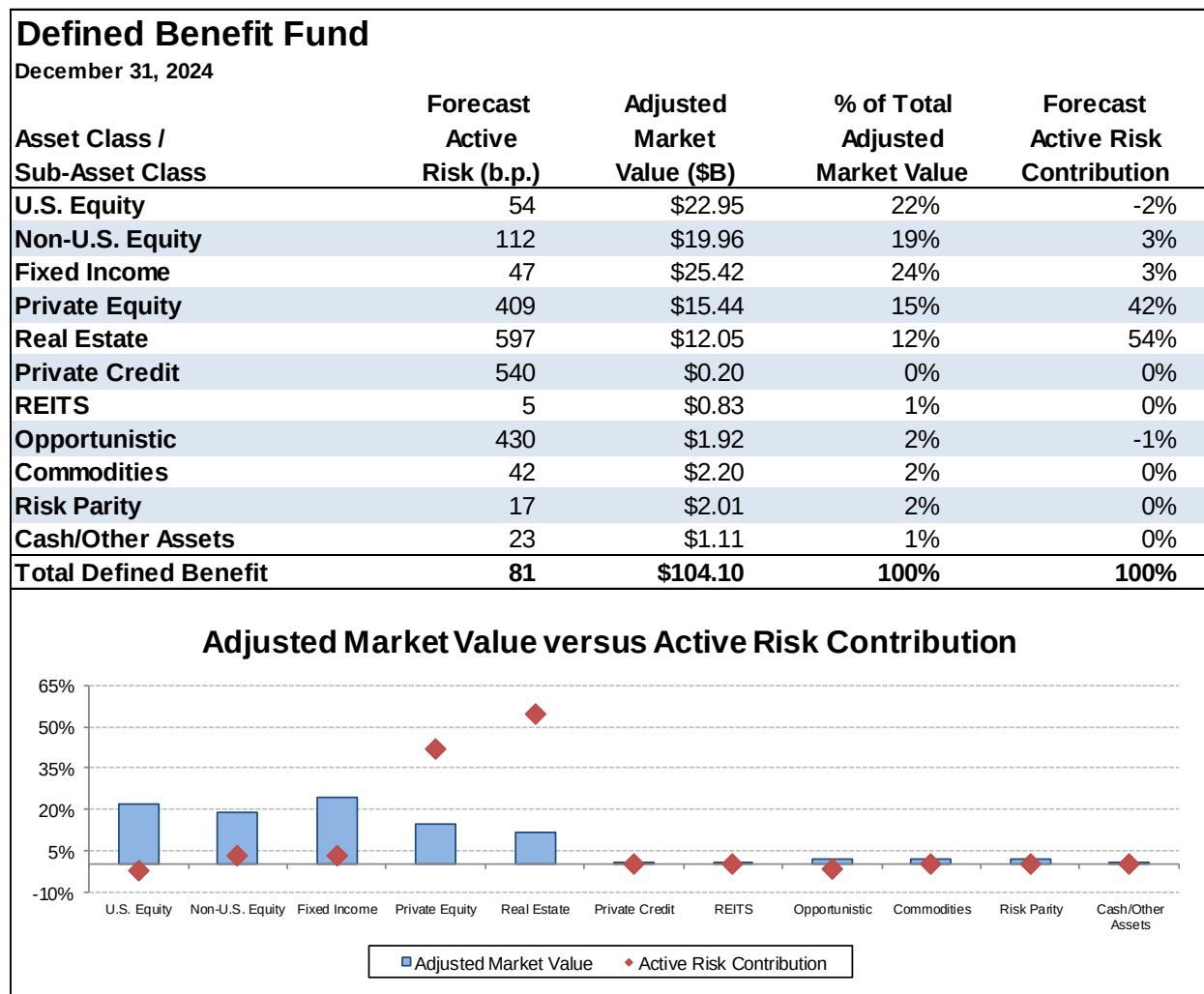
Active and Tactical Return - Defined Benefit Fund						
Year-to-Date through December 31, 2024						
Asset Class	Projected (basis points)		Relative to Index	Reported (basis points)		
	Relative to Index	Total Contribution		Active Contribution	Tactical Contribution	Total Contribution
U.S. Equity	14	3	-10	-1	-5	-6
Non-U.S. Equity	60	12	165	34	-1	33
Fixed Income	17	4	-4	-1	7	6
Alternatives/Other	70	24	168	56	1	57
DB Fund	N/A	43		88	2	90

Section 2 – Fund Updates

Defined Benefit Fund – Forecast Active Risk Contribution

The following table and chart show the forecast active risk contribution in relation to the adjusted market value for the DB Fund. Forecast active risk is produced using Aladdin.

Forecast Active Risk Contribution



Section 2 – Fund Updates

Health Care 115 Trust Fund – Expected Asset Growth

The change in the HC115 assets relative to the 2024 AIP is shown in the following table. The projected values for the HC115 Fund are based on the values listed on page eight of the 2024 AIP and assume a smooth, straight-line investment return throughout the calendar year.

Expected Asset Growth - Health Care 115 Fund Year-to-Date through December 31, 2024		
	Projected	Reported
Beginning Market Value (\$ billions) 12/31/23	\$12.76	\$12.76
Year-to-Date Total Return (%)	6.78%	10.00%
Year-to-Date Total Return (\$ billions)	\$0.86	\$1.28
Estimated Year-to-Date Net Cash Flow (\$ billions)	-\$1.08	-\$0.66
Ending Market Value (\$ billions) 12/31/2024	\$12.54	\$13.37

Health Care 115 Trust Fund - Return and Risk

The policy asset mix (benchmark), tactical and active and total fund returns, and variability risk for the HC115 Fund are shown in the following table. The projected return and risk figures are from page ten of the 2024 AIP and assume a smooth, straight-line investment return throughout the calendar year. The reported returns are from the BNY Mellon monthly performance report, which is generated in accordance with the OPERS Performance Guidelines. Current forecast variability risk is produced using Aladdin.

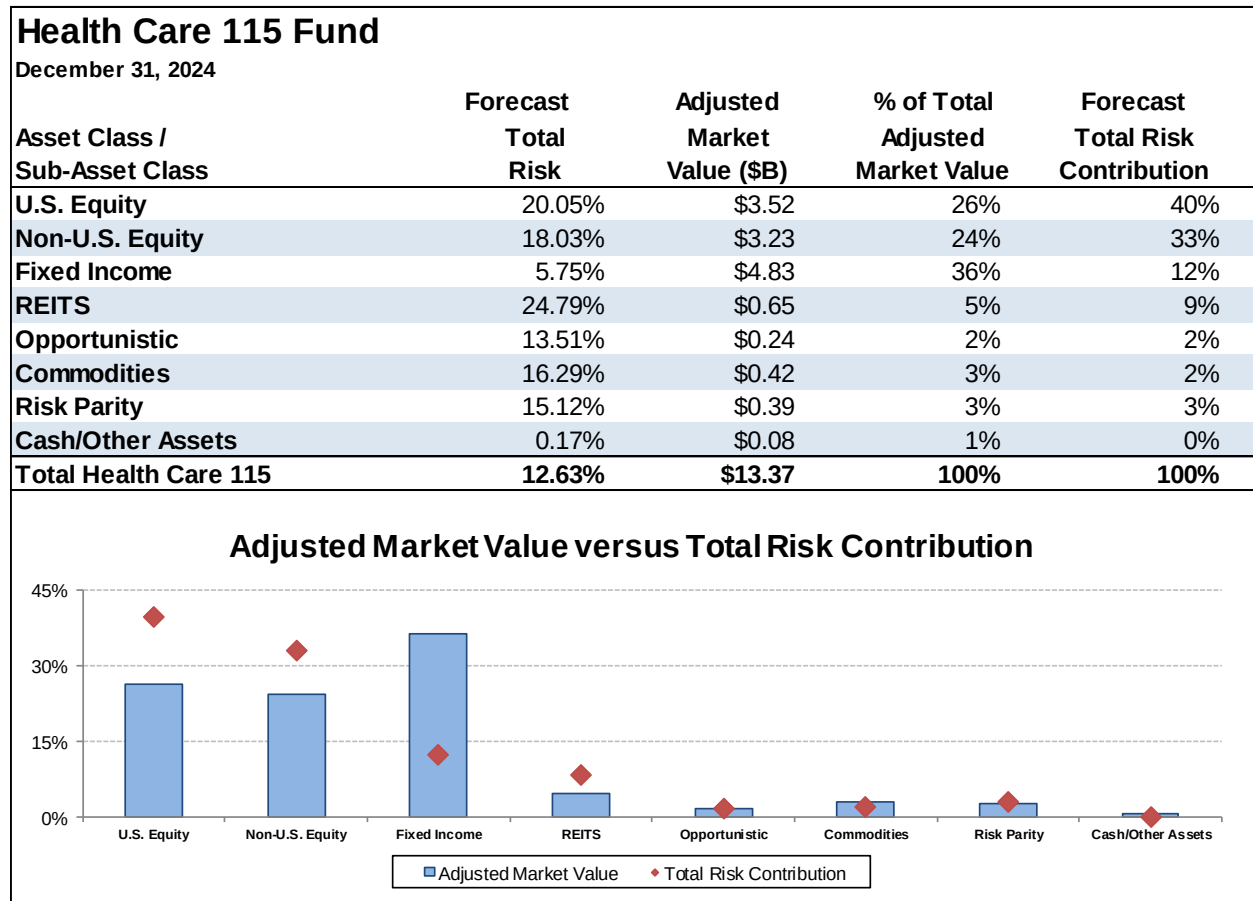
Return and Risk - Health Care 115 Fund Year-to-Date through December 31, 2024		
Asset Class Returns	Return	
	Projected	Reported
Public Equity		
U.S. Equity	5.18%	23.71%
Non-U.S. Equity	7.00%	7.06%
Fixed Income		
Core Fixed	5.35%	1.48%
Emerging Markets Debt	7.71%	4.13%
Securitized Debt	7.23%	13.82%
High Yield	7.23%	7.08%
TIPS	5.19%	1.83%
U.S. Treasury	4.84%	0.37%
Investment Grade Credit	6.30%	1.98%
Alternatives		
REITs	6.82%	8.01%
Commodities	4.71%	5.62%
Opportunistic	6.88%	26.15%
Risk Parity	6.33%	5.74%
Policy Asset Mix (Benchmark Return)	6.78%	9.53%
Tactical & Active Return	0.30%	0.47%
Total HC Fund Return	7.08%	10.00%
Variability Risk		
Sources of Variability Risk	Projected	
	Projected	Current Forecast
Policy Risk	11.88%	12.82%
Tactical & Active Risk	0.75%	0.38%
Total HC Fund Variability Risk	12.21%	12.63%

Section 2 – Fund Updates

Health Care 115 Trust Fund – Forecast Total Risk Contribution

The following table and chart show the forecast total risk contribution in relation to the adjusted market value for the HC 115 Fund. Forecast total risk is produced using Aladdin.

Forecast Total Risk Contribution



Section 2 – Fund Updates

Health Care 115 Trust Fund – Active and Tactical Return

The projected and reported active and tactical returns are shown in the following table. The projected figures are from page nine of the 2024 AIP and assume a smooth, straight-line investment return throughout the calendar year. The reported figures are from the BNY Mellon monthly performance report.

Active and Tactical Return - Health Care 115 Fund Year-to-Date through December 31, 2024						
Asset Class	Projected (basis points)		Reported (basis points)			
	Relative to Index	Total Contribution	Relative to Index	Active Contribution	Tactical Contribution	Total Contribution
U.S. Equity	14	4	-10	-2	-2	-4
Non-U.S. Equity	60	15	165	42	-1	41
Fixed Income	18	7	-3	-1	1	0
Alternatives/Other	39	5	84	11	-1	10
HC115 Fund	N/A	31		50	-3	47

Section 2 – Fund Updates

Health Care 115 Trust Fund – Forecast Active Risk Contribution

The following table and chart show the forecast active risk contribution in relation to the adjusted market value for the HC115 Fund. Forecast active risk is produced using Aladdin.

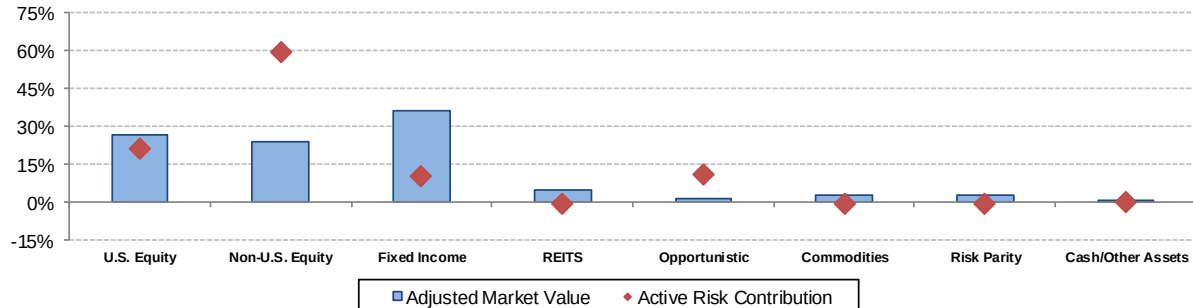
Forecast Active Risk Contribution

Health Care 115 Fund

December 31, 2024

Asset Class / Sub-Asset Class	Forecast Active Risk (b.p.)	Adjusted Market Value (\$B)	% of Total Adjusted Market Value	Forecast Active Risk Contribution
U.S. Equity	54	\$3.52	26%	21%
Non-U.S. Equity	112	\$3.23	24%	59%
Fixed Income	40	\$4.83	36%	10%
REITS	5	\$0.65	5%	0%
Opportunistic	430	\$0.24	2%	11%
Commodities	42	\$0.42	3%	-1%
Risk Parity	17	\$0.39	3%	0%
Cash/Other Assets	23	\$0.08	1%	0%
Total Health Care 115	38	\$13.37	100%	100%

Adjusted Market Value versus Active Risk Contribution



Section 4 – Reporting

Staffing Resources

Staff turnover, such as departures and additions, internal transfers, and the number of open positions is summarized in the following tables. Staff turnover details are provided for investment professionals – those responsible and accountable for investment decisions. Providing such detail is a common practice in the investment industry. In addition to staffing changes related to Investment Plan expectations, management occasionally directs staffing changes to meet evolving needs, which may include involuntary terminations.

Year-to-Date Staffing Activity			
Additions			
Department	Position	Name	Date
Transfers			
Department From/To	Position From/To	Name	Date
Departures			
Department	Position	Name	Date
Private Alternatives	Portfolio Manager	Lewis Tracy	Sep-24

Current Open Positions	
Department	Number of Open Positions
Office of the CIO	-
Investment Risk Management	-
Fixed Income	-
External Management	2
Private Alternatives	1
Equity Trading	-
Cash/Sec. Lending	-
Fund Management	-
Internal Global Equity	-
Quantitative Research	-
Total	3

Section 4 – Reporting

Operating Expenses

The year-to-date reported operating expenses are provided in the following table.

Operating Expenses: Budgeted and Reported Year-to-Date through December 31, 2024			
	Projected	Reported	Difference
Personnel Expenses	\$18,268,571	\$19,379,616	\$1,111,045
Professional Services	\$9,450,422	\$9,906,782	\$456,360
Information Technology	\$1,182,214	\$1,036,632	-\$145,582
Office Supplies & Equipment	\$5,900	\$1,062	-\$4,838
Training and Travel Expenses	\$284,479	\$181,595	-\$102,884
Total	\$29,191,586	\$30,505,687	\$1,314,101

*Professional Services – Timing of Invoices for the risk system and hence under budget.

Section 4 – Reporting

External Investment Management Fees

The fees paid to external investment managers are listed in the following table. The projected fees are based on the values listed on page twenty-two of the 2024 AIP. All public market manager fees are shown on an accrual basis.

External Investment Management Fees (\$ Millions)			
Year-to-Date through December 31, 2024			
Asset Classes / Sub-Asset Classes	Projected	Reported¹	Difference
Public Equity	\$76.80	\$75.52	-\$1.28
U.S. Equity	\$7.60	\$5.68	-\$1.92
Non-U.S. Equity	\$69.20	\$69.84	\$0.64
Fixed Income	\$9.50	\$15.08	\$5.58
Core Fixed	\$2.00	\$1.55	-\$0.45
Emerging Markets Debt	\$3.60	\$6.12	\$2.52
High Yield	\$3.90	\$7.42	\$3.52
Alternatives	\$250.20	\$197.16	-\$53.04
Private Equity	\$164.00	\$115.21	-\$48.79
Real Estate	\$83.00	\$78.37	-\$4.63
Private Credit	\$2.90	\$0.84	-\$2.06
Commodities³	\$0.30	\$2.74	\$2.44
Risk Parity ²	\$4.60	\$1.65	-\$2.95
Total	\$341.10	\$289.41	-\$51.69

¹ Reported fees are calculated by Investment Accounting from the invoices received to-date.

² Reported fees are estimated based on each manager's fee schedule and month-end account balances provided by the Final BNY Mellon performance reports.

³ Reported fees are estimated based on the derivative financing rate and the beginning of month notional value of derivatives.

Section 4 – Reporting

Initiatives

The following is a list of the planned 2024 Investment Division initiatives and updates.

- **Strategic and Tactical Asset Allocation Internal Framework**
Since the beginning of the year, Investments has launched a comprehensive project to enhance the internal framework for both strategic and tactical asset allocation decisions. This significant initiative, led by the Chief Investment Officer in collaboration with senior members of the Investment Division, has resulted in the formation of the Strategic and Tactical Asset Allocation Team (STAT). The first STAT meeting took place in August, and the team will continue to meet at least monthly.
- **Amended Derivatives Policy**
Staff completed a thorough assessment of the OPERS Derivatives Policy, considering industry best practice, peer comparisons, current derivatives utilization, and projected activities, and in conjunction with NEPC, proposed changes that were approved by the OPERS Board on March 20, 2024. Six new derivatives-based, sub-asset class portfolios (for U.S. Equity, Non-U.S. Equity and Core Fixed) were initiated to employ tactical asset allocation and risk mitigation strategies, including options-based approaches.
- **Alternative Portfolio System Upgrade Imminent Completion**
The upgrade of the alternatives portfolio management system has been completed. This enhancement was primarily focused on strengthening the reporting and oversight of private equity, real estate, and private credit allocations.

Section 4 – Reporting

Investment Policy Amendments and Sponsors

OPERS' investment policies, the date they were last amended, and their sponsor are listed in the following table.

Fund Policies	Revised	Policy Sponsor
Defined Benefit	March 2024	Fund Manager - Fund Management
Health Care 115	March 2024	Fund Manager - Fund Management
Defined Contribution	March 2024	Fund Manager - Fund Management
Asset Class Policies	Revised	Policy Sponsor
Cash	March 2024	Fund Manager - Fund Management
Commodities	March 2024	Fund Manager - Fund Management
Fixed Income	March 2024	Fund Manager - Fund Management
Risk Parity	March 2024	Fund Manager - Fund Management
Public Equity	March 2024	Fund Manager - Fund Management
Opportunistic	March 2024	Fund Manager - Fund Management
Private Credit	March 2024	Fund Manager - Fund Management
Private Equity	March 2024	Fund Manager - Fund Management
Real Estate	March 2024	Fund Manager - Fund Management
REITs	March 2024	Fund Manager - Fund Management
Investment-Wide Policies	Revised	Policy Sponsor
Benchmarks Policy	March 2024	Fund Manager - Fund Management
Broker Dealer	March 2024	Fund Manager - Fund Management
Derivatives	March 2024	Fund Manager - Fund Management
External Investment Manager's Insurance	March 2024	Investment Compliance
Iran and Sudan Divestment	March 2024	Investment Compliance
Russia Divestment	March 2024	Investment Compliance
Leverage Policy	March 2024	Fund Manager - Fund Management
Liquidity Policy	March 2024	Fund Manager - Fund Management
Material Nonpublic Information	March 2024	CIO
Office of Foreign Assets Control (OFAC)	March 2024	Investment Compliance
Ohio Qualified & Minority-Owned Manager	March 2024	Fund Manager - Fund Management
Personal Trading	March 2024	CIO
Responsible Contractor	March 2024	Portfolio Manager - Real Estate
Securities Lending	March 2024	Fund Manager - Fund Management
Soft Dollar	March 2024	Fund Manager - Fund Management
Corporate Governance and Proxy Voting	Revised	Policy Sponsor
Corporate Governance Policy & Proxy Voting	March 2024	Corporate Governance

Section 4 – Reporting

Policy Dashboards

The following is a selection of Policy dashboard reports produced and used by Investment Staff to monitor and manage the Funds.

Public Equity Policy Dashboard

Public Equity Policy Dashboard As of 12/31/2024		
	US Equity 12/31/2024	Non-US Equity 12/31/2024
Assets (\$billion)	\$26.5	\$23.2
	53.3%	46.7%
Tracking Error/Value at Risk		
Tracking Error - Annualized	 53	 103
Tracking Error Range	0 - 100	0 - 300
DB Public Equity Allocation¹ (12/31/2024)	 22%	 19%
DB Public Equity Custom Allocation Policy Target	21.4%	20.0%
DB Public Equity Custom Allocation Policy Range	16.4 - 26.4%	15 - 25%
HC115 Public Equity Allocation¹ (12/31/2024)	 26%	 24%
HC Public Equity Custom Allocation Policy Target	25.3%	25.0%
HC Public Equity Custom Allocation Policy Range	20.6 - 30.3%	20 - 30%
Largest External Active Manager Weight	 1.1%	 11.6%
policy maximum	15%	15%
1 In DB, target allocations for U.S. & Non-U.S. are static at 21% and 23%, respectively. In HC, target allocations for U.S. & Non-U.S. are static at 25% and 25%, respectively. In DB, 2.6% of the 4% allocation for the Opportunistic Asset Class is included in the U.S. Equity allocation. In HC, the 2.6% of the 3% allocation is included in the U.S. Equity allocation.  Within Policy Constraint  Within 90% of Policy Constraint Boundaries  Outside of Policy Constraint Boundaries		

Section 4 – Reporting

Fixed Income Policy Dashboard

December 31, 2024		
Tracking Error		
Tracking Error - Annualized (b.p.)		49
Tracking Error Range - Annualized (b.p.)		0 - 200
Interest Rate Risk		
Portfolio - Option Adjusted Duration		5.6
Benchmark - Option Adjusted Duration		5.6
Option-Adjusted Duration Minimum		4.5
Option-Adjusted Duration Maximum		6.7
Country Exposure		
Portfolio - Non-U.S. Parent Company		9.9%
Benchmark Non-U.S. Parent Company		10.9%
Non-U.S. Issuer Maximum		25.9%
Currency Exposure		
Portfolio - Non-U.S. Dollar Based		1.7%
Benchmark Non-U.S. Dollar Based		1.9%
Non-U.S. Dollar Maximum		16.9%
Credit Risk		
Portfolio Non-Investment Grade Percentage		19.3%
Benchmark Non-Investment Grade Percentage		16.8%
Portfolio Non-Investment Grade Minimum		31.8%
Manager Risk		
Largest Fixed Income Active Manager		4.3%
Largest Active Manager Maximum		15.0%
Sources: Reporting is produced using unaudited data from sources such as Blackrock's Aladdin and BNY Mellon.		
 Within Policy Constraint  ≤ 10% of Policy Budget Remaining  Outside of Policy Constraint Boundaries		
Note: Blue font represents specific Policy constraints		

Section 4 – Reporting

Cash and Securities Lending Policy Dashboard

December 31, 2024		Aggregate Cash Portfolio
Interest Rate Risk		
Weighted Average to Final Maturity (Years)		0.58
Weighted Average to Final Maturity Range (Years)		0 - 1.3
Weighted Average Maturity to Reset (Days)		103.0
Weighted Average Maturity to Reset Range (Days)		0 - 120
Liquidity Risk		
Instruments Maturing Overnight		12.5%
Instruments Maturing Overnight Range		10% - 100%
Rule 2a-7 Eligible		87.3%
Rule 2a-7 Eligible Range		50% - 100%
Instruments > Maximum Maturity		0
Policy - 3 Year Maximum Maturity		0
Securities Lending		
Largest Counterparty		4.8%
Largest Counterparty Maximum		15.0%
Total Eligible Assets on Loan		20.6%
Eligible Assets on Loan Maximum		50.0%
Sources: Reporting is produced using unaudited data from sources such as, BlackRock's Aladdin and e-Sec Lending.		
 Within Policy Constraint  ≤ 10% of Policy Budget Remaining  Outside of Policy Constraint Boundaries		
Note: Blue font represents specific Policy constraints		

Section 4 – Reporting

Derivatives Policy Dashboard

December 31, 2024				
Derivatives - Liquidity Risk				
Billions	Gross Notional Exposure	Public Market Assets	Gross Notional as a Percentage of Public Market Assets	Policy Maximum
Category III Derivatives	\$8.1 /	\$86.0 =	9.4%	
Category III Foreign Exchange Derivatives	\$0.1			
Category III Derivatives less Category III Foreign Exchange Derivatives	\$8.0 /	\$86.0 =	9.3%	
Category II Derivatives	\$14.6	\$86.0		
Category II Foreign Exchange Derivatives	\$0.0			
Category II Derivatives less Category II Foreign Exchange Derivatives	\$14.6			
Category II & Category III Derivatives ¹	\$22.7 /	\$86.0 =	26.4%	 50.0%
Category II & III Foreign Exchange Derivatives	\$0.1			
Category II & III Derivatives less Category II and III Foreign Exchange Derivatives	\$22.6 /	\$86.0 =	26.3%	
¹ The combined gross notional exposure of Category II and Category III derivatives will not exceed 50% of the total market value of public market assets held in separate accounts, excluding foreign exchange derivatives used for hedging purposes. <u>Note:</u> For the puposes of this dashboard, both derivatives liquidity risk limits are conservatively calculated assuming that no foreign currency derivatives are used for hedging purposes. For comparative purposes, the same limits are also calculated and shown assuming that all foreign currency derivatives are used for hedging purposes. In the event that actual derivatives usage approaches the limit(s), Staff will determine the nature of foreign currency derivatives in order to determine the precise exposure.				

Section 4 – Reporting

Leverage Policy Dashboard

	Leverage Policy						
	Limits ¹	Actual		As of	Availability	Data Source	Analytics System
Public Equity							
US Equity ¹	1.20	0.98	●	12/31/2024	Daily	BNY Mellon	Excel
Non-US Equity ¹	1.05	0.98	●	12/31/2024	Daily	BNY Mellon	Excel
Fixed Income							
Core Fixed	1.20	1.11	●	12/31/2024	Daily	BNY Mellon	Aladdin
Investment Grade Credit	1.20	1.12	●	12/31/2024	Daily	BNY Mellon	Aladdin
Emerging Markets Debt	1.10	0.92	●	12/31/2024	Daily	BNY Mellon	Aladdin
Securitized Debt	1.45	1.40	●	12/31/2024	Daily	BNY Mellon	Aladdin
High Yield	1.20	1.00	●	12/31/2024	Daily	BNY Mellon	Aladdin
U.S. Treasury	1.10	1.01	●	12/31/2024	Daily	BNY Mellon	Aladdin
Alternatives							
Private Equity ²	N/A	N/A		N/A	N/A		
Real Estate (Loan to Value)	60%	35.9%	●	6/30/2024	Quarterly	E-Front	n/a
REITs ¹	1.05	1.00	●	12/31/2024	Daily	BNY Mellon	Excel
Commodities ¹	1.20	1.04	●	12/31/2024	Monthly	Counterparties	Excel
Opportunistic							
Internally Managed	3.00	1.00	●	12/31/2024	Daily	BNY Mellon, Bloomberg	n/a
Externally Managed	9.00	2.20	●	12/31/2024	Monthly	Manager	Aladdin
Private Credit	3.00	N/A			Monthly	Managers	n/a
Risk Parity ⁵	6.00	2.30	●	12/31/2024	Monthly	BNY Mellon	Excel
Activities							
Rebalancing ⁴							
DB Rebalancing	1.05	1.00	●	12/31/2024	Daily	BNY Mellon	n/a
HC 115 Rebalancing	1.05	1.00	●	12/31/2024	Daily	BNY Mellon	n/a
DB Tactical Asset Allocation ⁴	1.05	1.00	●	12/31/2024	Daily	BNY Mellon	n/a
HC Tactical Asset Allocation ⁴	1.05	1.00	●	12/31/2024	Daily	BNY Mellon	n/a
Securities Lending	1.30	1.09	●	12/31/2024	Daily	E-Sec Lending	n/a
● Within Policy Constraint ● When U.S. & Non-U.S. Index portfolios, REITs, Commodities and Transition portfolios are >1. When Enhanced Quantitative, Fixed Income, Private Equity, Risk Parity, and Securities Lending are within 95% of Policy Constraint Boundaries. When Rebalancing/TAA Portfolios are within 99.5% of Policy Constraint Boundaries. ● Outside of Policy Constraint Boundaries Leverage is measured as the total of the sum of (i) the net asset value of all long physical positions, excluding cash and cash equivalents, (ii) the notional value of all long derivative positions, (iii) the absolute net asset value of all short physical positions, and (iv) the absolute notional value of all short derivative positions divided by the portfolio net asset value. Netting rules (for offsetting long and short positions in which the underlying market exposures are alike) may be applied. ¹To allow for complete (100%) market exposure coverage of supporting cash and cash equivalents, and pending activity backing derivatives, a 5% leverage allowance ²All Private Equity managers qualify under the above exclusions (as defined in Section VI.A. Volatility Risk), therefore, a leverage limit is not applicable. ³Transition accounts are included in the calculation of their respective asset or sub-asset class. ⁴Leverage associated with tactical asset allocation and rebalancing activities is measured at the Fund level and is not permitted, other than a small (5%) amount of leverage as described above. Basis risk (i.e. a mismatch between the market exposures of derivatives or derivatives and securities or benchmarks) may exist and is permitted, given the limitations in fully replicating benchmark or portfolio exposures using derivative instruments. Additional portfolio guideline restrictions apply. ⁵This is a combination of External Risk Parity leverage as of the month-end at least 45 days prior and the most recent Internal Risk Parity leverage.							

Section 4 – Reporting

Approved Brokers

The following are broker dealer counterparties approved by Investment Staff for trading in internally managed and internally traded portfolios as of December 20, 2024.

Name	2023/2024 Ohio Qualified Agent	2023/2024 Ohio Qualified - Minority Business Enterprise	Equity	Fixed Income	OTC Derivatives
Academy Securities, Inc.	No	No	•	✓	•
AmeriVet Securities, Inc.	No	No	•	✓	•
Arcola Securities, Inc.3	No	No	•	•	•
Bank of America NA	No	No	•	•	✓
Bank of Montreal, Chicago Branch	No	No	•	✓	•
Bank of Oklahoma Financial	No	No	•	✓	•
Barclays Bank PLC	No	No	•	•	✓
Barclays Capital Inc.	Yes	No	✓	✓	•
Barclay's PLC	No	No	•	•	•
Bay Crest Partners, LLC	No	No	•	✓	•
BBVA Securities Inc.	No	No	•	✓	•
BMO Capital Markets Corp.	No	No	•	✓	•
BNP Paribas	No	No	•	•	✓
BNP Paribas Securities Corp.1,2	No	No	✓	✓	•
BNY Mellon Capital Markets, LLC	No	No	•	✓	•
BofA Securities, Inc.2	No	No	✓	✓	•
Brean Capital , LLC	No	No	•	✓	•
Brownstone Investment Group, LLC	No	No	•	✓	•
BTIG, LLC	No	No	•	✓	•
Buckler Securities3	No	No	•	•	•
Canadian Imperial Bank of Commerce***	No	No	•	•	✓
Cantor Fitzgerald & Co.	No	No	✓	✓	•
CastleOak Securities LP	No	No	•	✓	•
CF Secured, LLC3	No	No	•	•	•
CIBC World Markets Corp.	No	No	•	✓	•
Citadel Securities Institutional LLC	No	No	•	✓	•
Citigroup Global Markets Inc.2	No	No	✓	✓	•
Clear Street LLC	No	No	•	✓	•
Cowen And Company, LLC	Yes	No	✓	•	•
Credit Agricole Securities Inc2	No	No	•	✓	•
Curvature Securities LLC3	No	No	•	•	•
Daiwa Capital Markets America Inc	No	No	•	✓	•
Deutsche Bank AG	No	No	•	•	✓
Deutsche Bank Securities Inc.2	No	No	•	✓	•
FHN Financial Securities Corp.	No	No	•	✓	•
Fifth Third Securities Inc	Yes	No	•	✓	•
Goldman Sachs International	No	No	•	•	✓
Goldman, Sachs & Co. LLC2	No	No	✓	✓	•
Guggenheim Securities, LLC	No	No	•	✓	•
Healthcare of Ontario Pension Plan****	No	No	•	•	•
Hilltop Securities Inc.	No	No	•	✓	•
HSBC Securities (USA) Inc.	No	No	✓	✓	•

Continued

Section 4 – Reporting

Name	2023/2024 Ohio Qualified Agent	2023/2024 Ohio Qualified - Minority Business Enterprise	Equity	Fixed Income	OTC Derivatives
Huntington Securities, Inc.	No	No	•	✓	•
J.P. Morgan Securities LLC2	Yes	No	✓	✓	•
Jane Street Execution Services, LLC	No	No	✓	✓	•
Janney Montgomery Scott LLC	Yes	No	•	✓	•
Jefferies LLC	No	No	✓	✓	•
Keybank Capital Markets Inc.	Yes	No	✓	✓	•
Landesbank Baden-Wuerttemberg	No	No	•	✓	•
Liquidnet, Inc.	No	No	✓	•	•
Lloyd's Securities Inc.	No	No	•	✓	•
Loop Capital Markets LLC	No	No	•	✓	•
Macquarie Futures USA LLC	No	No	•	•	•
Marex Capital Markets Inc	No	No	•	✓	•
MarketAxess Corporation	No	No	•	✓	•
Merrill Lynch International	No	No	•	•	✓
Mesirow Financial, Inc.	No	No	•	✓	•
Millennium Advisors LLC	No	No	•	✓	•
Mizuho Securities USA LLC1,2	No	No	•	✓	•
Morgan Stanley & Co. International PLC	No	No	•	•	✓
Morgan Stanley & Co. LLC	Yes	No	✓	✓	•
MUFG Securities Americas Inc.	No	No	•	✓	•
NAB Securities, LLC	No	No	•	✓	•
National Bank Of Canada Financial Inc.	No	No	•	✓	•
National Financial Services LLC3	Yes	No	•	•	•
Natixis NY Branch	No	No	•	✓	•
Natixis Securities Americas LLC	No	No	•	✓	•
NatWest Markets Securities, Inc.	No	No	•	✓	•
Nomura Securities International, Inc.2	No	No	•	✓	•
Odeon Capital Group LLC	No	No	•	✓	•
Old Mission Markets, LLC	No	No	•	✓	•
Oppenheimer & Co. Inc.	Yes	No	•	✓	•
Oscar Gruss & Son, Inc	No	No	✓	•	•
Performance Trust Capital Partners LLC	No	No	•	✓	•
Piper Sandler Cos	No	No	✓	✓	•
PNC Capital Markets LLC	Yes	No	•	✓	•
Prudential Financial Inc. *	No	No	•	✓	•
R. Seelaus & Co., LLC	No	No	•	✓	•
Raymond James & Associates, Inc.	Yes	No	✓	✓	•
RBC Capital Markets, LLC	Yes	No	✓	✓	•
Robert W. Baird & Co. Incorporated1	Yes	No	✓	✓	•
Santander US Capital Markets, LLC	Yes	No	•	✓	•
Scotia Capital (USA) Inc.	No	No	•	✓	•
Seaport Global Securities LLC	No	No	•	✓	•
SG Americas Securities, LLC2	No	No	•	✓	•
SMBC Nikko Securities America Inc.	No	No	•	✓	•
Societe Generale SA	No	No	•	✓	✓
State of Wisconsin Investment Board****	No	No	•	•	•
State Street Bank & Trust **	No	No	•	•	•

Continued

Section 4 – Reporting

Name	2023/2024 Ohio Qualified Agent	2023/2024 Ohio Qualified - Minority Business Enterprise	Equity	Fixed Income	OTC Derivatives
State Street Global Markets LLC	No	No	•	✓	•
Stephens Inc.	No	No	•	✓	•
Stifel, Nicolaus & Company, Incorporated	Yes	No	•	✓	•
StoneX Financial Inc.1	Yes	No	•	✓	•
Susquehanna Financial Group, LLLP	No	No	•	✓	•
TD Securities (USA) LLC	Yes	No	•	✓	•
Teacher Retirement System of Texas****	No	No	•	•	•
Toyota Motor Credit Corporation*	No	No	•	✓	•
Tradeweb Direct LLC	No	No	•	✓	•
Truist Securities2	No	No	•	✓	•
U.S. Bancorp Investments, Inc.	Yes	No	•	✓	•
UBS AG	No	No	•	•	✓
UBS AG Stamford***	No	No	•	•	•
UBS Securities LLC	No	No	✓	✓	•
WallachBeth Capital, LLC	No	No	✓	•	•
Wells Fargo Bank, NA	No	No	•	•	•
Wells Fargo Securities, LLC	Yes	No	✓	✓	•

* Commercial paper issuers (non-broker dealers) are assigned up to \$300MM (CP) money market limits for direct purchases of commercial paper only.

** As part of its custodian functions this counterparty provides foreign exchange transactions only.

*** Used for executing spot foreign exchange transactions.

**** This counterparty is to be used for indemnified repo transactions only

1These counterparties have an MSFTA in place

2These counterparties are repo counterparties

3These counterparties are repo-only counterparties whose limits are prescribed in the cash portfolio guidelines.

Board Meeting VII.B



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

MEMORANDUM

DATE: March 6, 2025

TO: OPERS Retirement Board Members

FROM: Allen Foster – Deputy Executive Director
Sara Baker – Manager - Communications

RE: **VII. Discussion Items:**
B. Communications Survey Results

Purpose – The purpose of this memorandum is to provide the Board with an overview of the communications preferences survey process, the survey's methodology, the audience surveyed, response rates and next steps.

Background – As a part of the strategic planning process, we look to continue delivering high quality service to our members and provide consistent, high value member experiences. We believe the way we can achieve this is by listening to the voice of our members.

In 2024, the communications department executed a full RFP process and contracted with Great Lakes Marketing and Research in Toledo to assist us with the development and interpretation of a communications preferences survey. This survey is designed to help us understand the optimal formats and frequency for member and retiree communications. The survey also will help us define the topics that are of most interest to our membership. The survey data could help us to strategically prepare communications and educational offerings geared toward early and mid-career members who would benefit by considering retirement early in their career.

Project Status - The 37-question survey was sent in two research phases (non-overlapping samples):

- 1) Mailing to 10,000 current members, 5,000 retired members, and 5,000 inactive vested members.
- 2) Mailing to 7,500 current members under the age of 50 plus an online survey sent to 7,500 current members under the age of 50.

The questionnaire was customized for each member segment and was mailed to the address of record for sample members. Response options included: returning the survey by postal mail or taking the survey online.

As of Feb. 14, 2025, the overall response rate was about 10%.

Current Members: Sample=1,607 (response rate of 6%)
1,109 returned in mail, 498 responded online

Retired Members: Sample=1,109 (response rate of 22%)
943 returned in mail, 166 responded online

Inactive, Vested Members: Sample=591 (response rate of 12%)
432 returned in mail, 159 responded online

Questions within the survey included topics such as retirement preparedness, retirement savings outside of OPERS, preferred communications and delivery methods, online and social media preferences and article topics of most interest to the respondents.

The goal of obtaining and analyzing this data is to serve as the basis for developing a communication plan that meets the needs of the distinct audiences.

Current Status and Next Steps:

- Great Lakes conducted an in-depth analysis of the data received and will provide OPERS with a comprehensive report which includes data interpretation for each group surveyed.
- Based on the data analysis, Great Lakes will provide OPERS with recommendations for communication methods, frequency and content going forward.
- At the March 2025 Board meeting staff, along with Lori Mitchell Dixon, PhD, Great Lakes Marketing, will present a summary of the data analysis as well as conclusions and recommendations in alignment with the survey results and the trends identified.

Lori Mitchell Dixon, PhD, Principle, Owner



Lori Mitchell Dixon, PhD, is the owner of Great Lakes Marketing and is celebrating 47 years with the company. She holds a doctorate in marketing and statistics from Kent State University and MBA from The University of Toledo.



GLM is an accredited testing and consumer insights firm, and certification body. It has a GSA contract with the federal government and has conducted marketing research studies for the past sixty years for clients in 46 states and 29 countries.

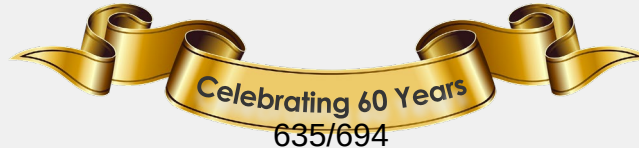


COMMUNICATIONS RESEARCH OVERVIEW

CURRENT, RETIRED, AND VESTED MEMBERS

March 19, 2025

GLM# 24025



RESEARCH OVERVIEW AND DEMOGRAPHICS



RESEARCH OVERVIEW

OBJECTIVES

To develop a communications plan that is impactful for each member segment.

METHODOLOGY

Two research phases (non-overlapping samples):

- 1) Mailing to **10,000 current members, 5,000 retired members, and 5,000 vested members.**
- 2) Mailing to **7,500 current members under the age of 50**
plus an online survey sent to **7,500 current members under the age of 50**

The questionnaire was customized for each member segment.

4-page questionnaire booklet was mailed to the address of record for sample members.
Response options included: returning the survey by postal mail or taking the survey online.

RESPONSE RATE

Overall response rate of about 10%.

Current Members: Sample=**1,607** (response rate of **6%**)

- **1,109** returned in mail, **498** responded online

Retired Members: Sample=**1,109** (response rate of **22%**)

- **943** returned in mail, **166** responded online

Vested Members: Sample=**591** (response rate of **12%**)

- **432** returned in mail, **159** responded online

AUDIENCE

Ages 25 to 80

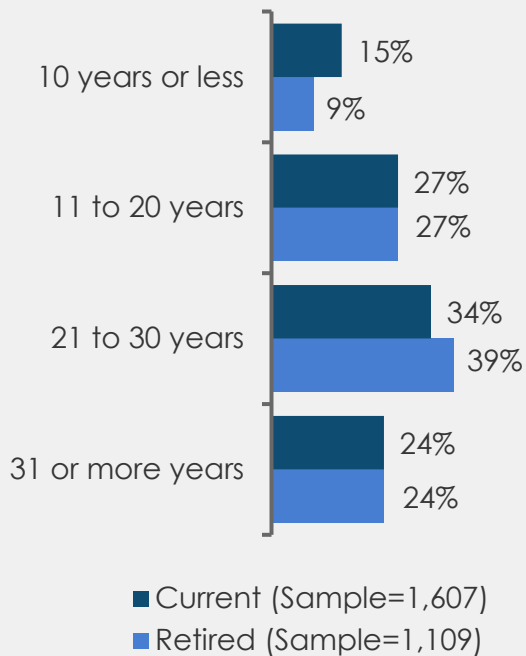
DATA COLLECTION

Wave 1 - August 21, 2024 – October 15, 2024

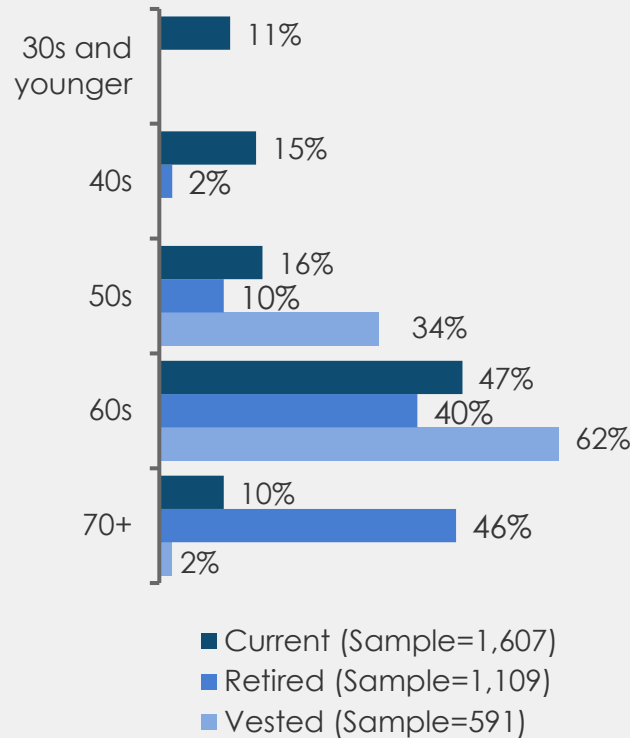
Wave 2 – January 19, 2025 – February 18, 2025

DEMOGRAPHICS

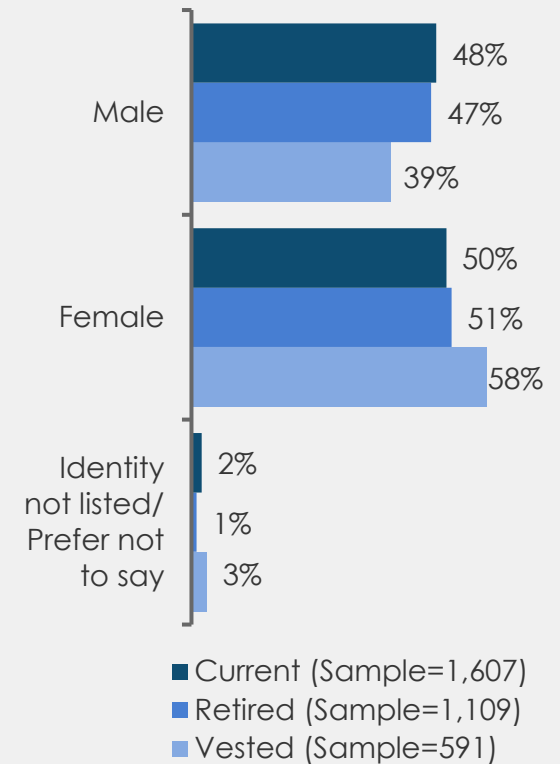
Current/Retired: How long have/were you a member of OPERS?



What is your age?



Are you...?

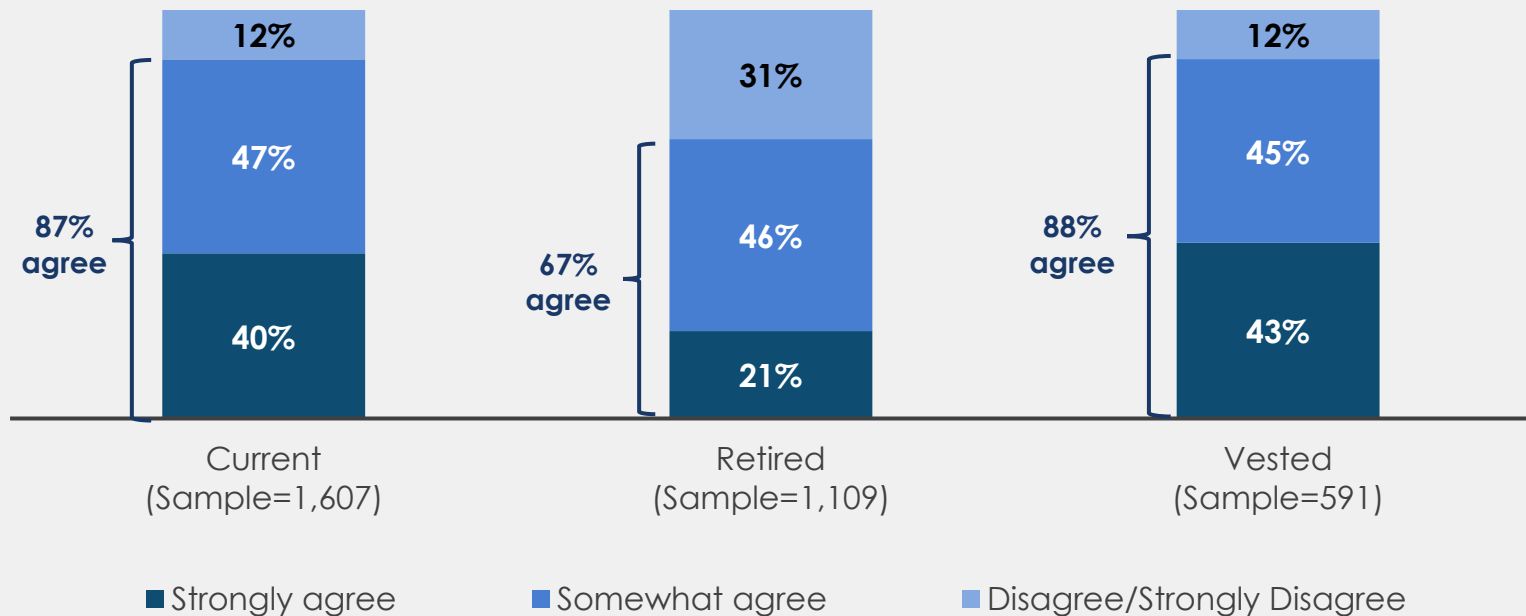


DATA RESULTS: PLANNING FOR RETIREMENT



PROACTIVELY PLANNING FOR RETIREMENT

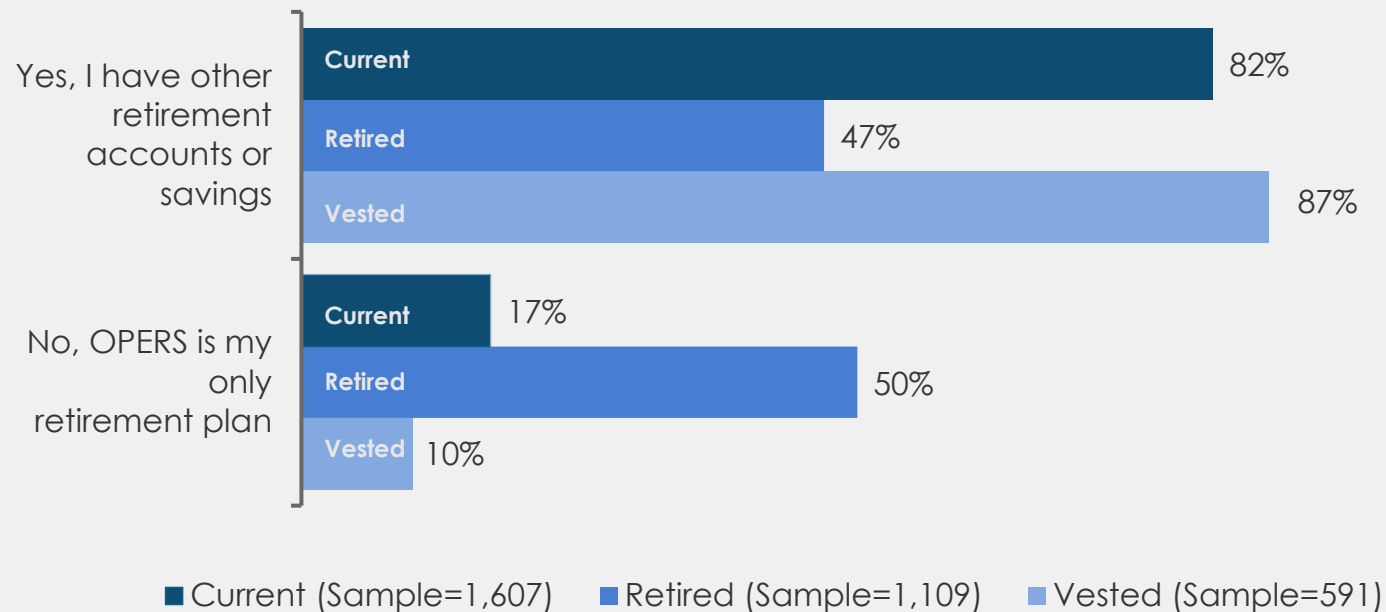
How much do you agree with this statement? *I am proactively planning/planned for retirement.*



RETIREMENT ACCOUNTS

Current/Vested: Excluding your retirement account with OPERS, do you currently have other retirement savings accounts (Ohio Deferred Compensation, 401(K), etc.) to help reach your retirement goals?

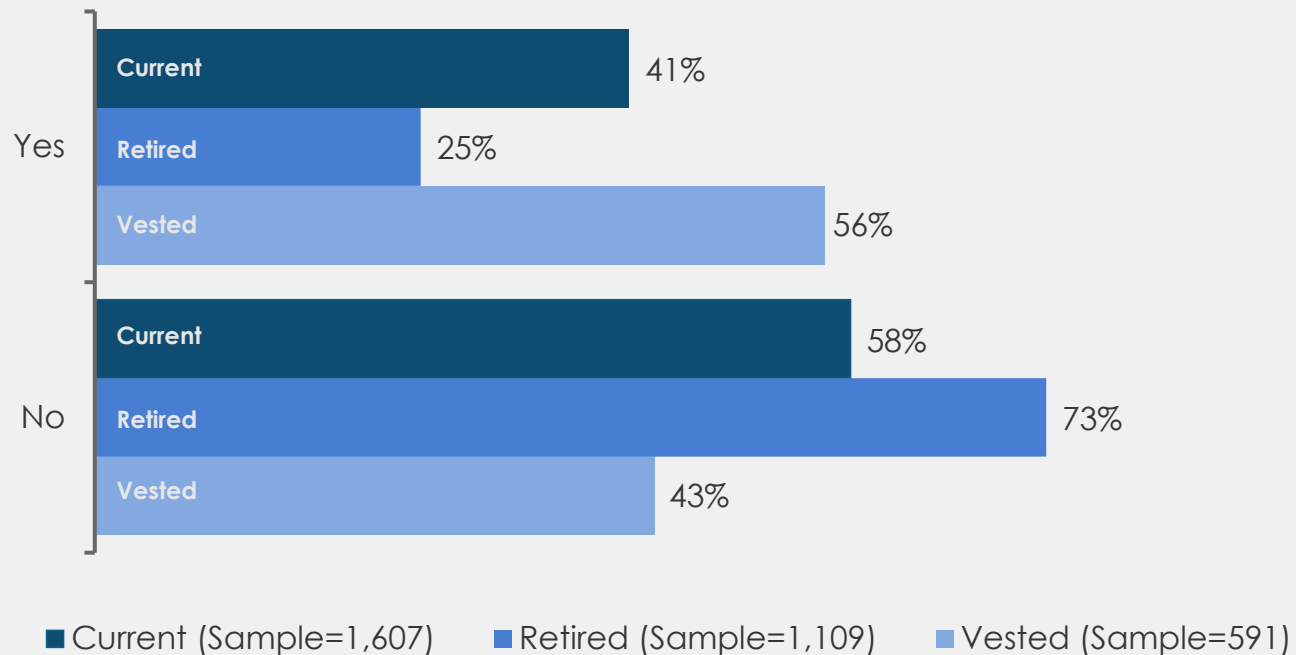
Retired: Excluding your retirement account with OPERS, do you have income from other retirement savings accounts (Ohio Deferred Compensation, 401(K), other retirement system, etc.)?



CONSULT A PERSONAL FINANCIAL ADVISOR

Current/Vested: Other than OPERS, do you consult a personal financial advisor to assist with retirement planning?

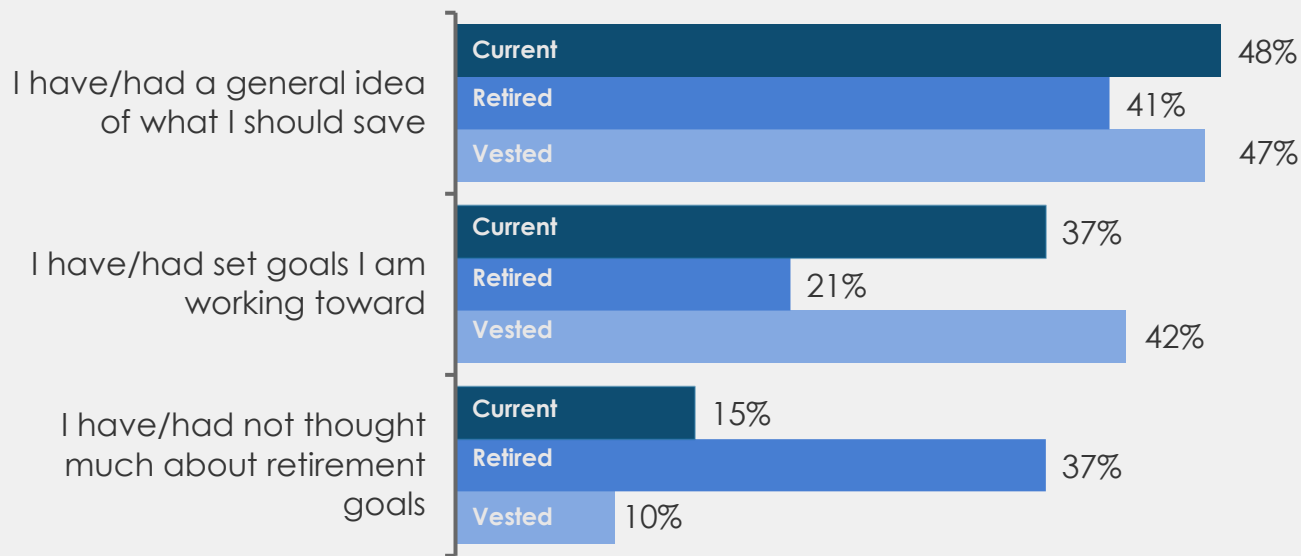
Retired: Other than OPERS, did you consult a personal financial advisor to assist with retirement planning?



RETIREMENT PLANNING GOALS

Current/Vested: Which is most true of your retirement planning goals? [Aided]

Retired: Which is most true of your planning prior to retirement? [Aided]

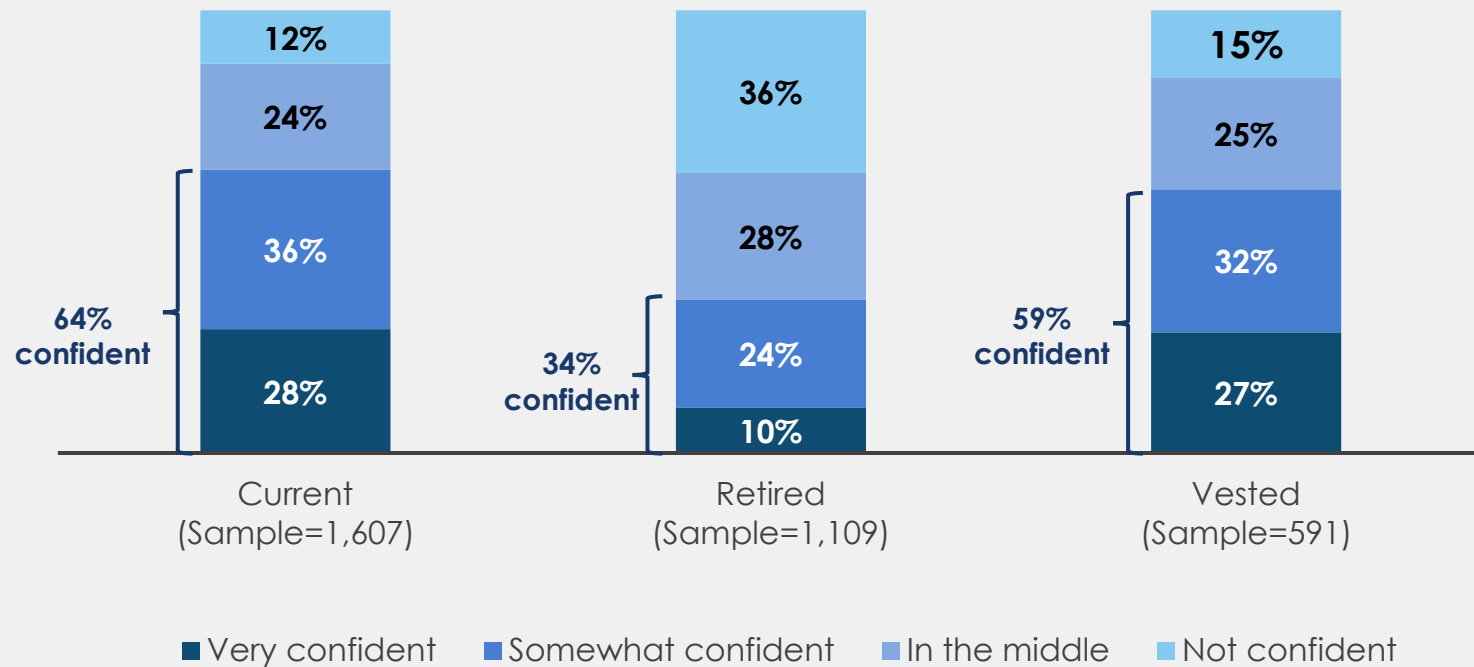


■ Current (Sample=1,607) ■ Retired (Sample=1,109) ■ Vested (Sample=591)

CONFIDENCE IN REACHING RETIREMENT GOALS

Current/Vested: How confident are you that you will reach your retirement financial goals when it is time for your retirement?

Retired: At the time of you retired, how confident were you that you had reached your retirement financial goals?



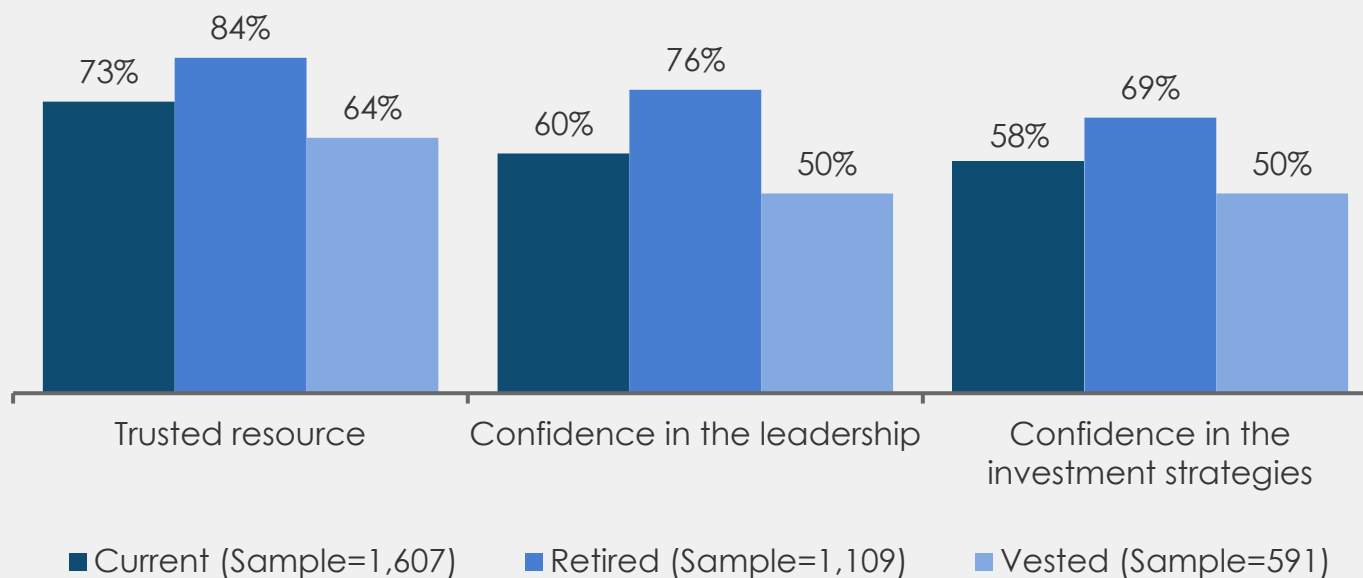
DATA RESULTS: OPERS EVALUATION



EVALUATION OF OPERS (SLIDE ONE OF TWO)

How much do you agree or disagree with the following about OPERS?

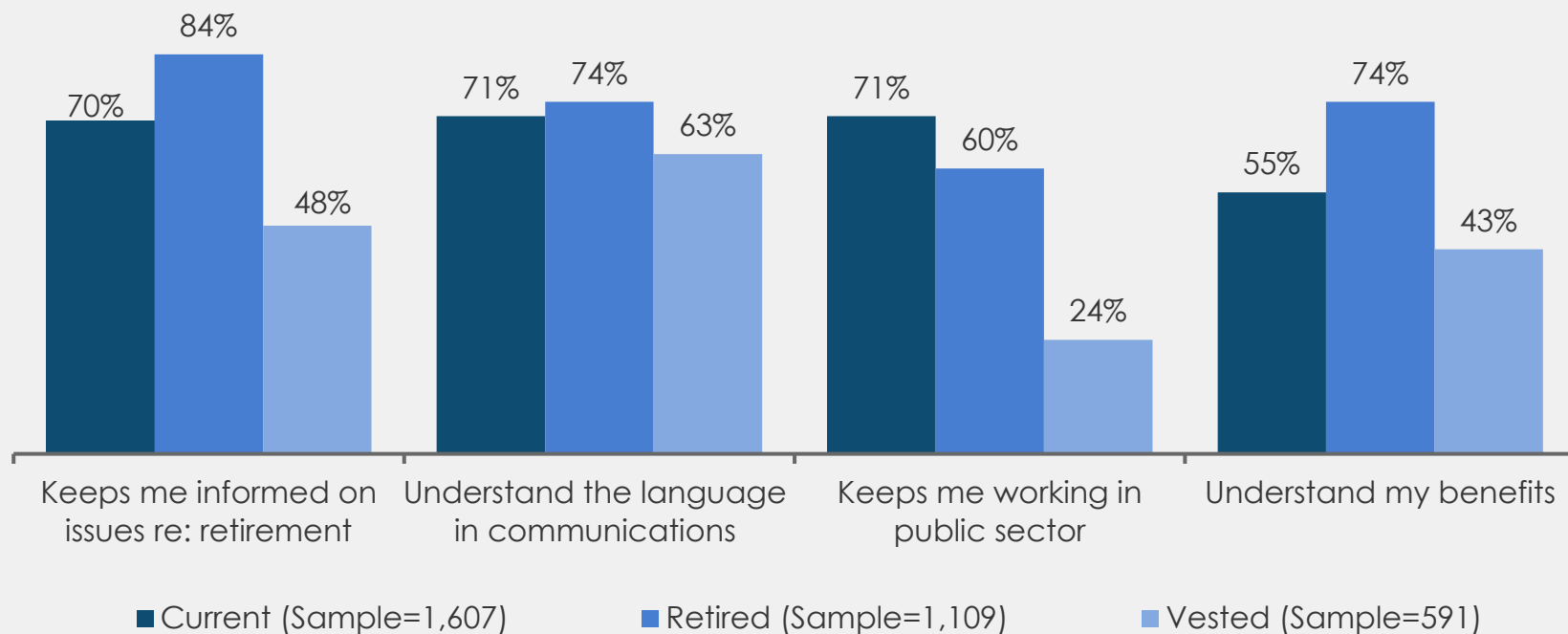
Top two-box



EVALUATION OF OPERS (CONTINUED)

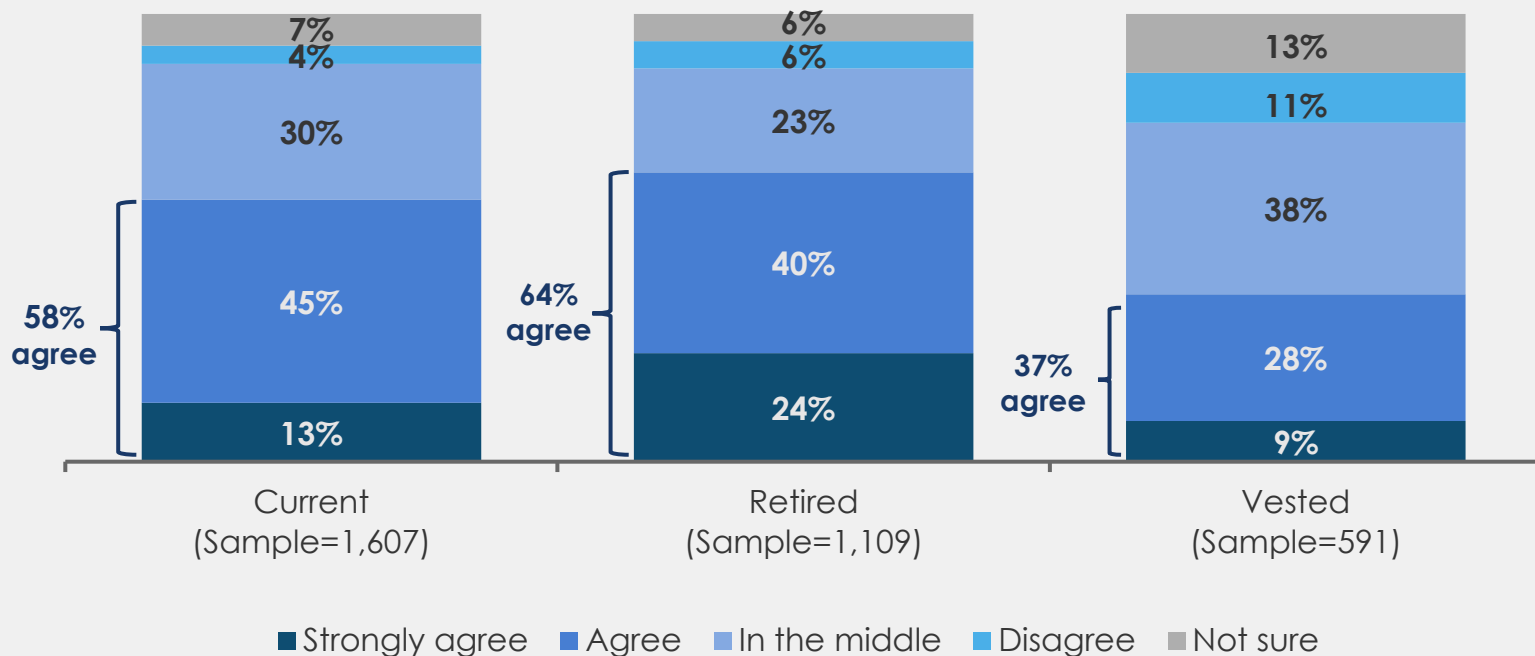
How much do you agree or disagree with the following about OPERS?

Top two-box



OPERS PLANS ALIGN WITH RETIREMENT GOALS

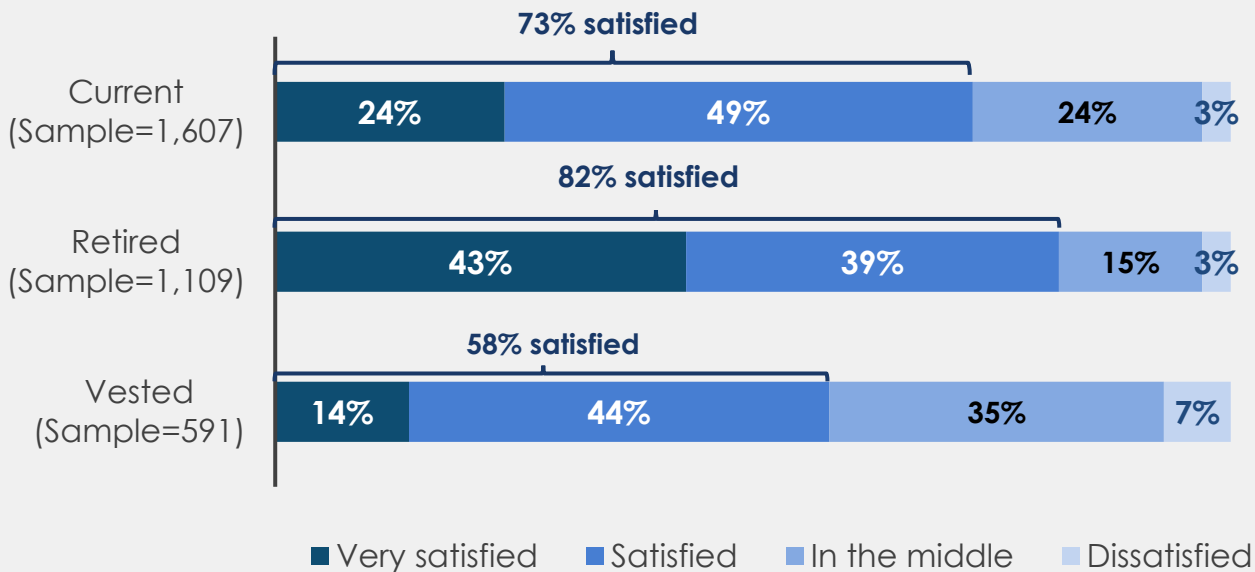
How much do you agree or disagree with the following about OPERS? *The plans OPERS offers meet my retirement goals*



SATISFACTION WITH OPERS

Current/Vested: Overall, how satisfied are you with OPERS and the retirement benefits you expect to receive?

Retired: Overall, how satisfied are you with OPERS and the retirement benefits you receive?

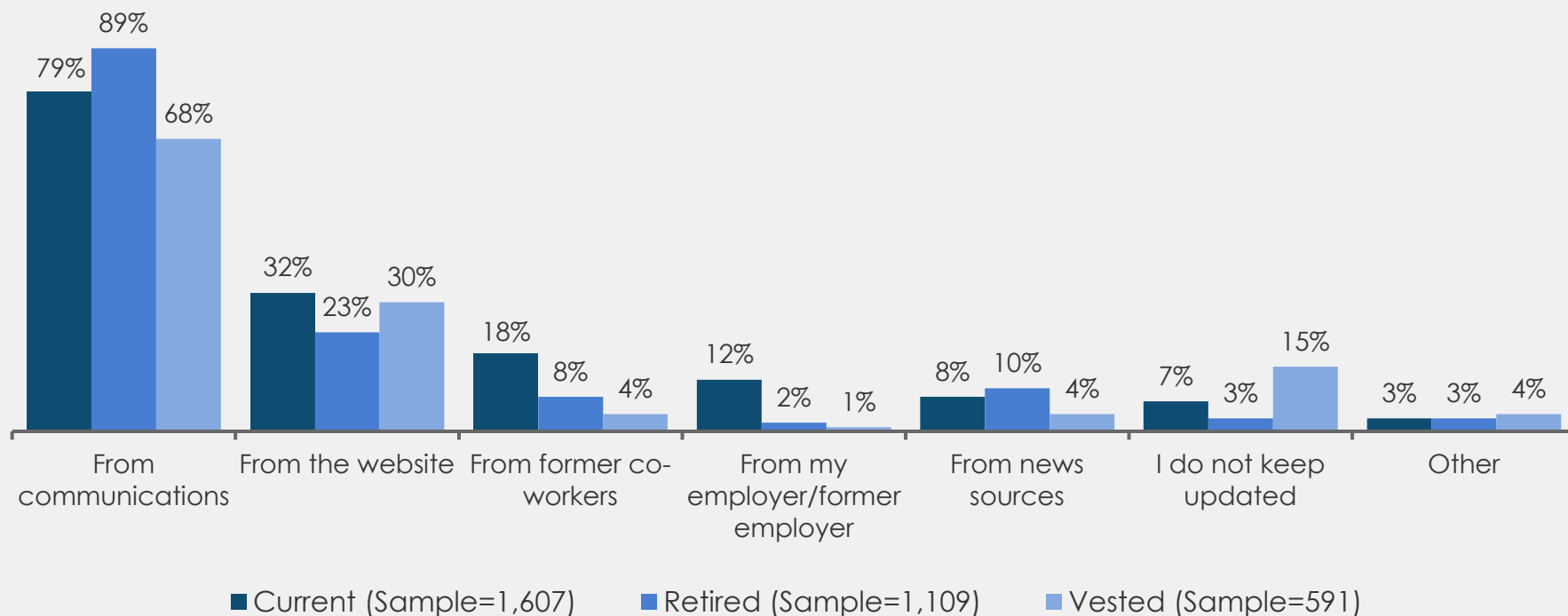


DATA RESULTS: OPERS OFFERINGS AND COMMUNICATIONS



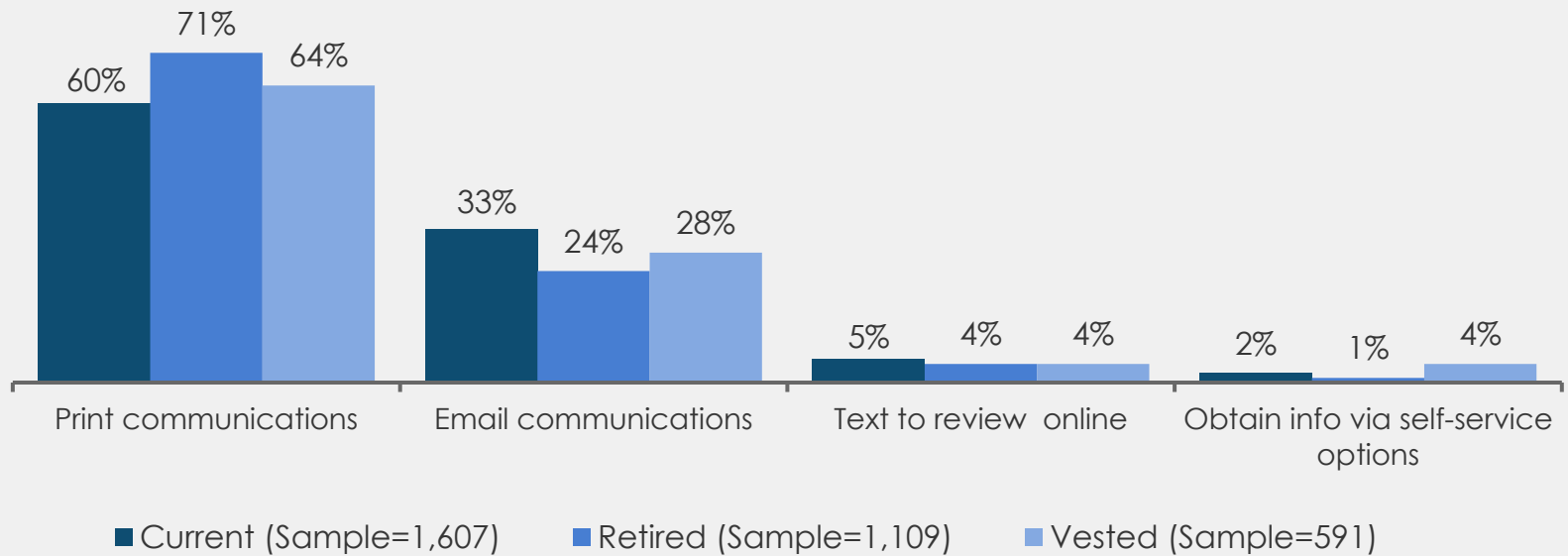
KEEP UPDATED WITH OPERS BENEFITS, POLICIES, ETC.

How do you keep updated on your OPERS benefits, policies, and changes? [Aided/Multiple Mentions]



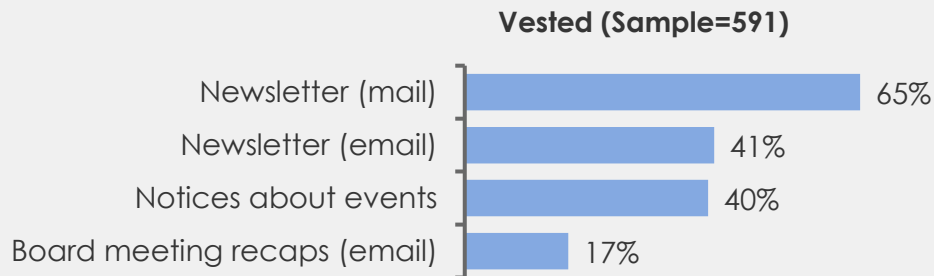
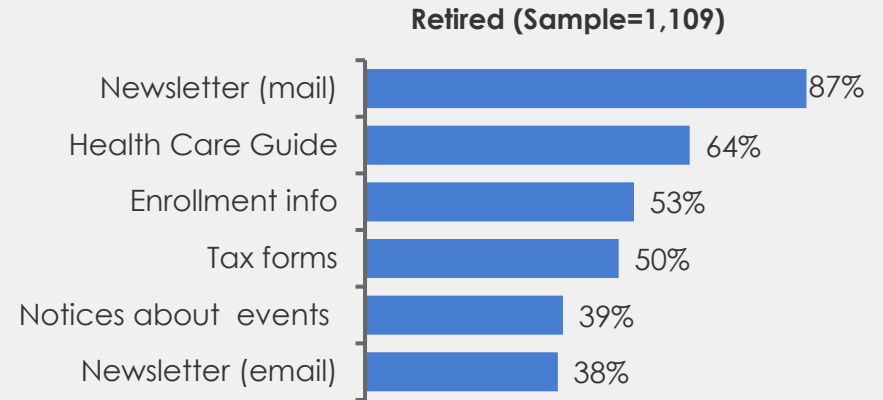
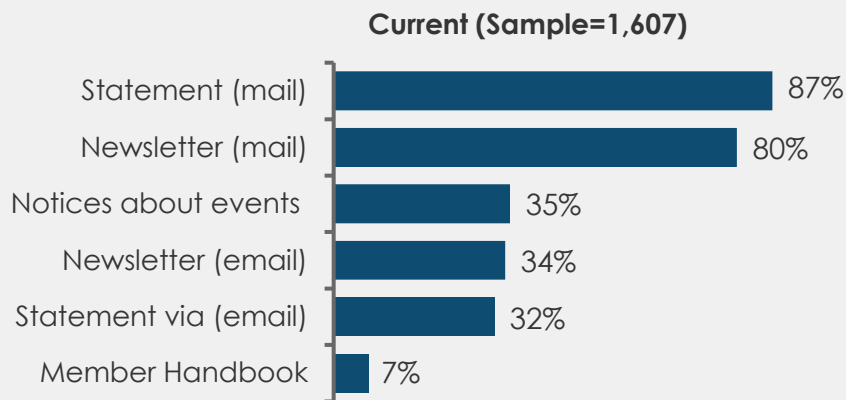
PREFERRED METHOD TO RECEIVE OPERS INFORMATION

Which of the following methods do you most prefer when receiving information from OPERS? [Aided]



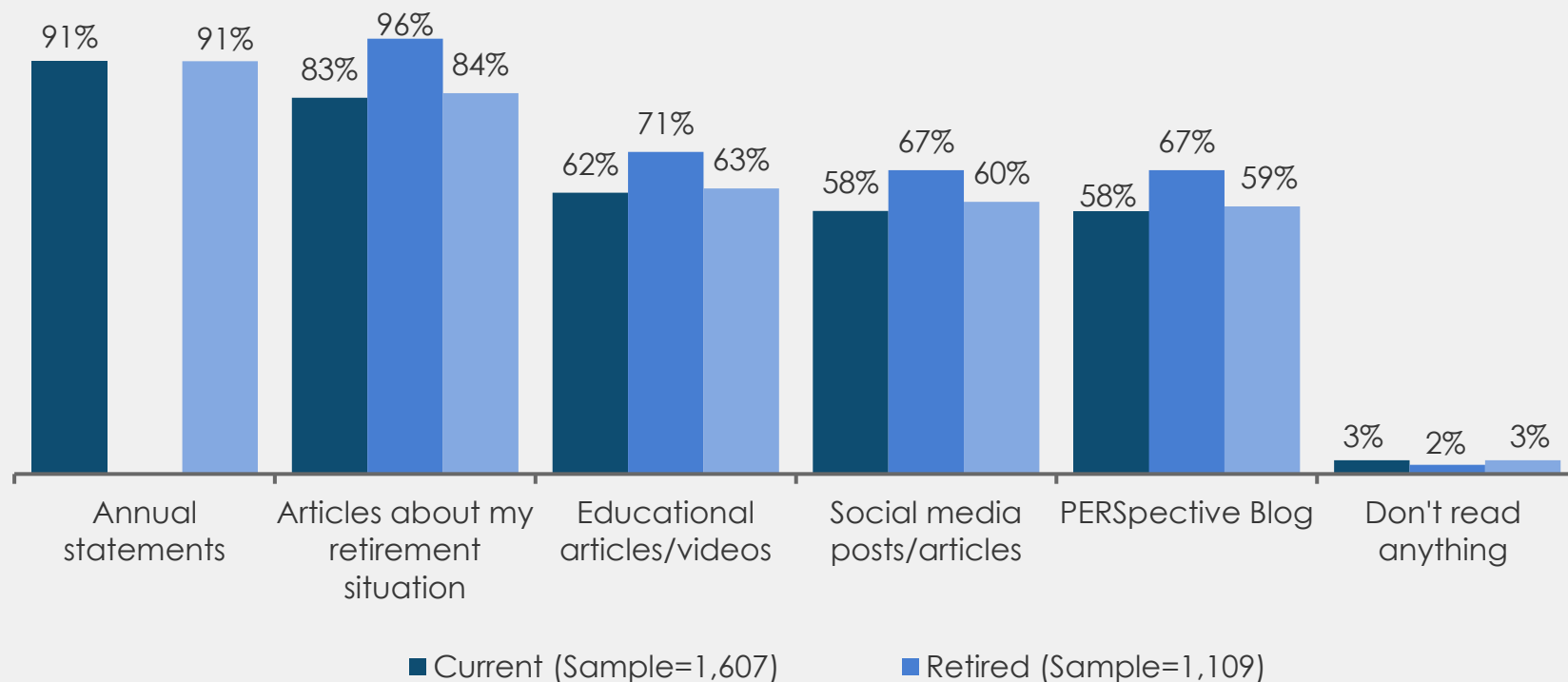
RECEIVING OPERS COMMUNICATIONS

Which of the following communications would you like to receive/have you received from OPERS?
[Aided/Multiple Mentions]



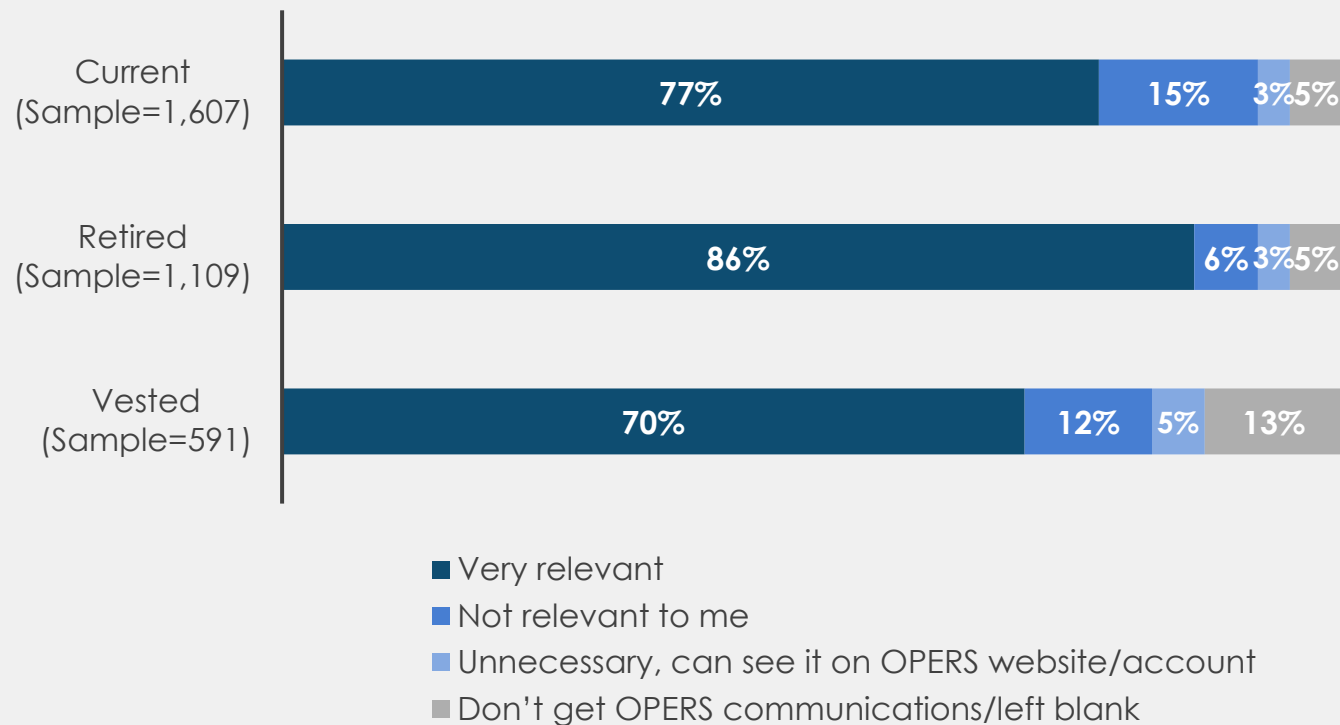
OPERS COMMUNICATIONS READ/REVIEWED

Which of the following do you read/review when you get it from OPERS? [Aided/Multiple Mentions]



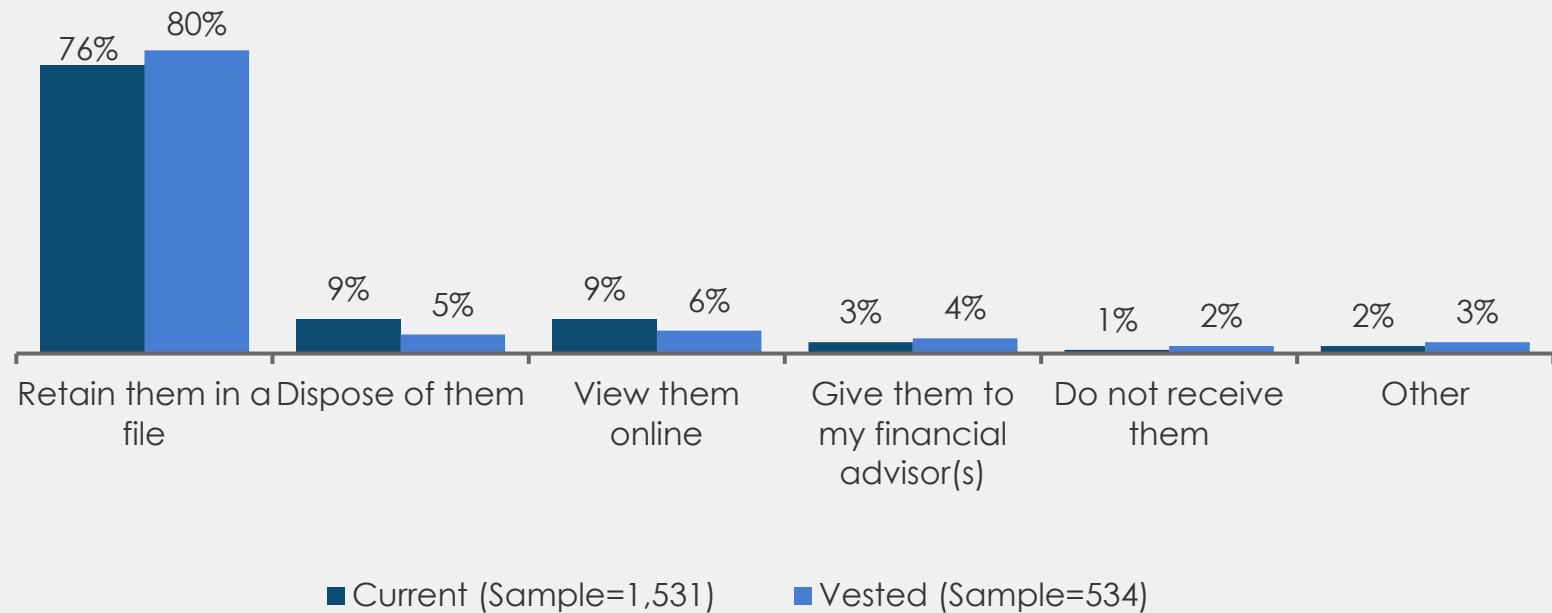
DESCRIBE OPERS COMMUNICATIONS

How would you describe the communications you get from OPERS?



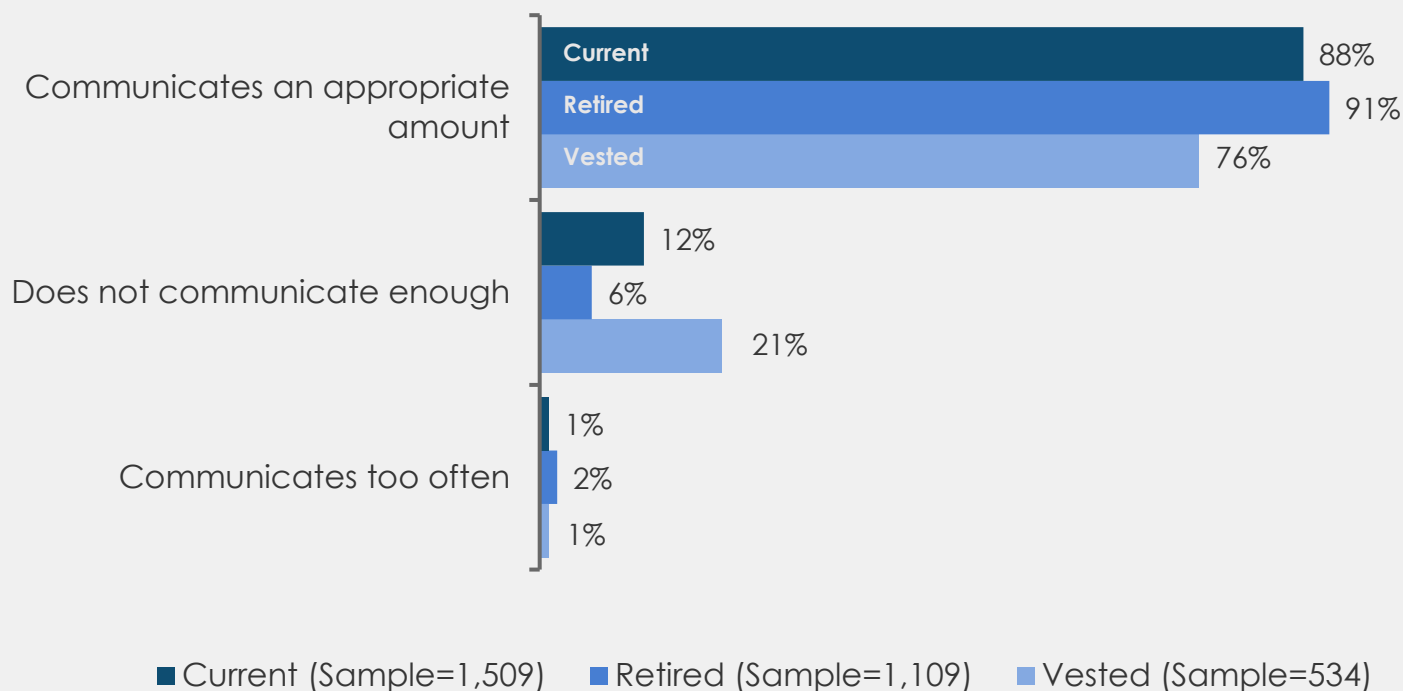
ANNUAL STATEMENTS

Current/Vested: IF RECEIVE COMMUNICATIONS FROM OPERS: What do you do with your annual statements? [Aided]



FREQUENCY OF OPERS COMMUNICATIONS

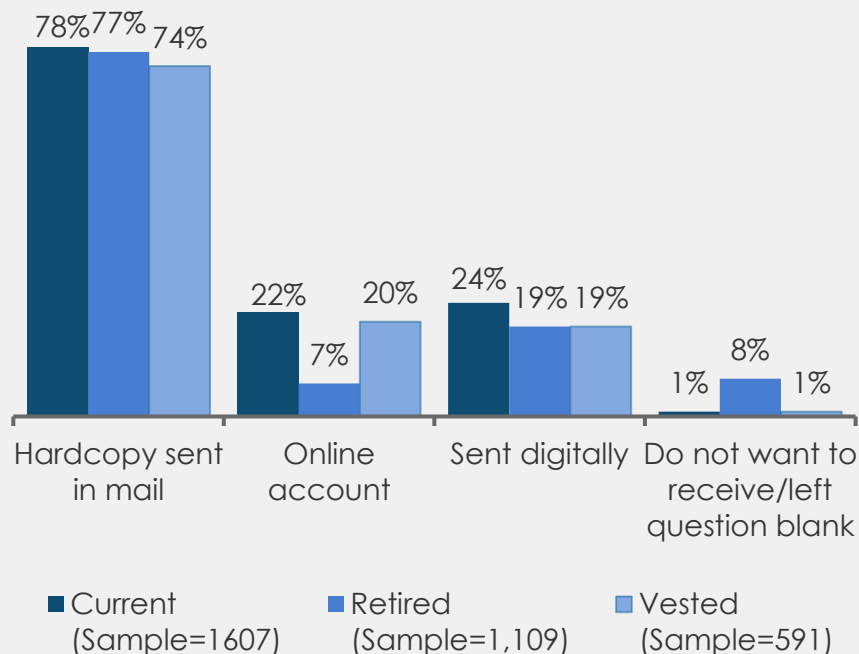
IF RECEIVE COMMUNICATIONS FROM OPERS: Which do you feel is most true regarding the frequency of communications you get from OPERS? [Aided]



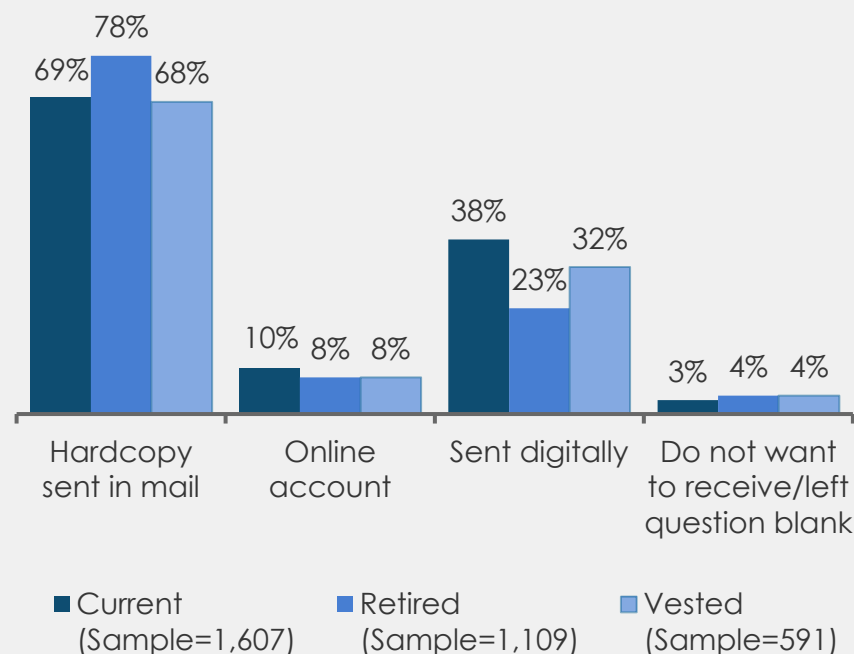
FORMAT FOR OPERS COMMUNICATIONS (SLIDE ONE OF TWO)

Do you want to receive _____ from OPERS? If so, how do you want to receive it? [Aided/Multiple Mentions]

Current/Vested: Annual statement of estimated benefits
Retired: Annual open enrollment materials



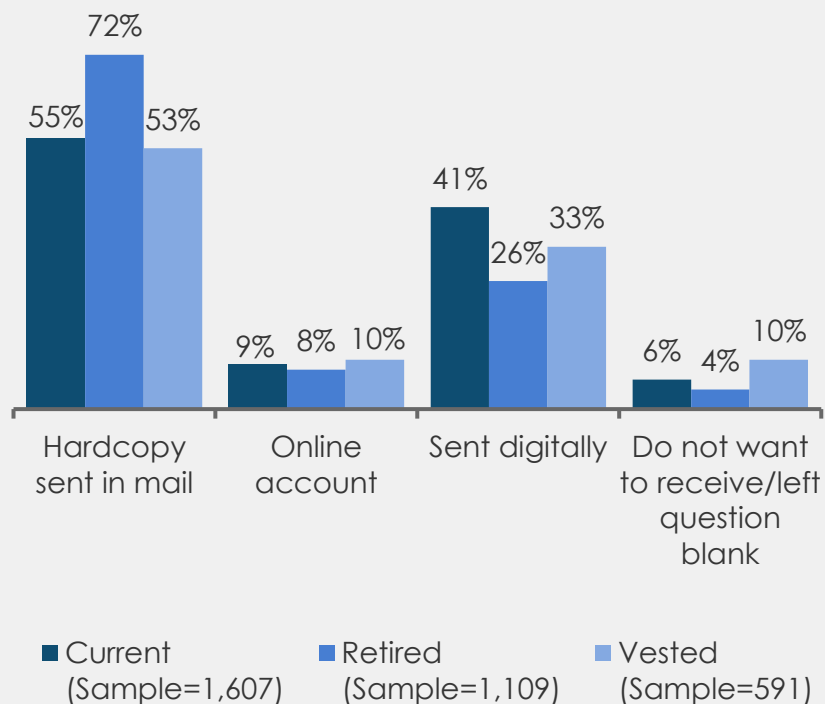
Letters containing important deadlines/dates



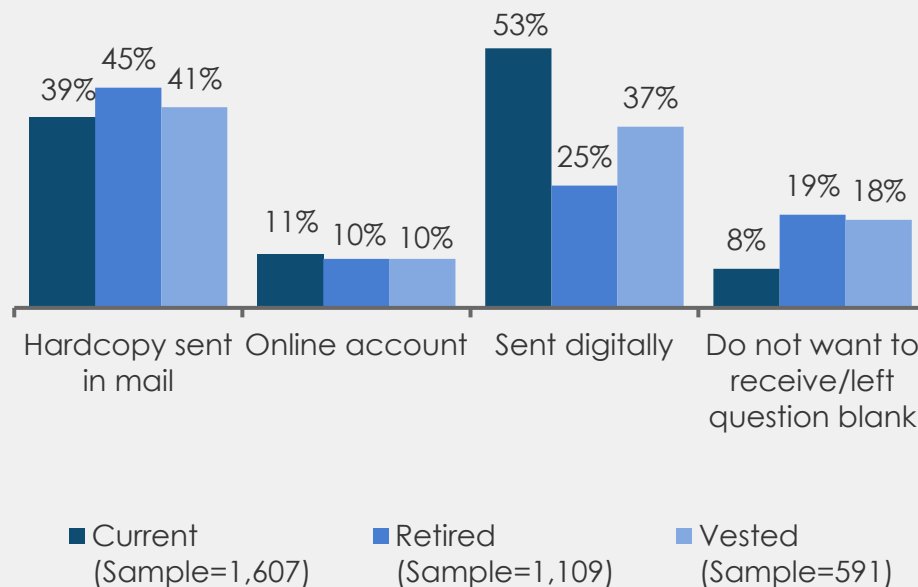
FORMAT FOR OPERS COMMUNICATIONS (CONTINUED)

Do you want to receive _____ from OPERS? If so, how do you want to receive it? [Aided/Multiple Mentions]

Newsletters

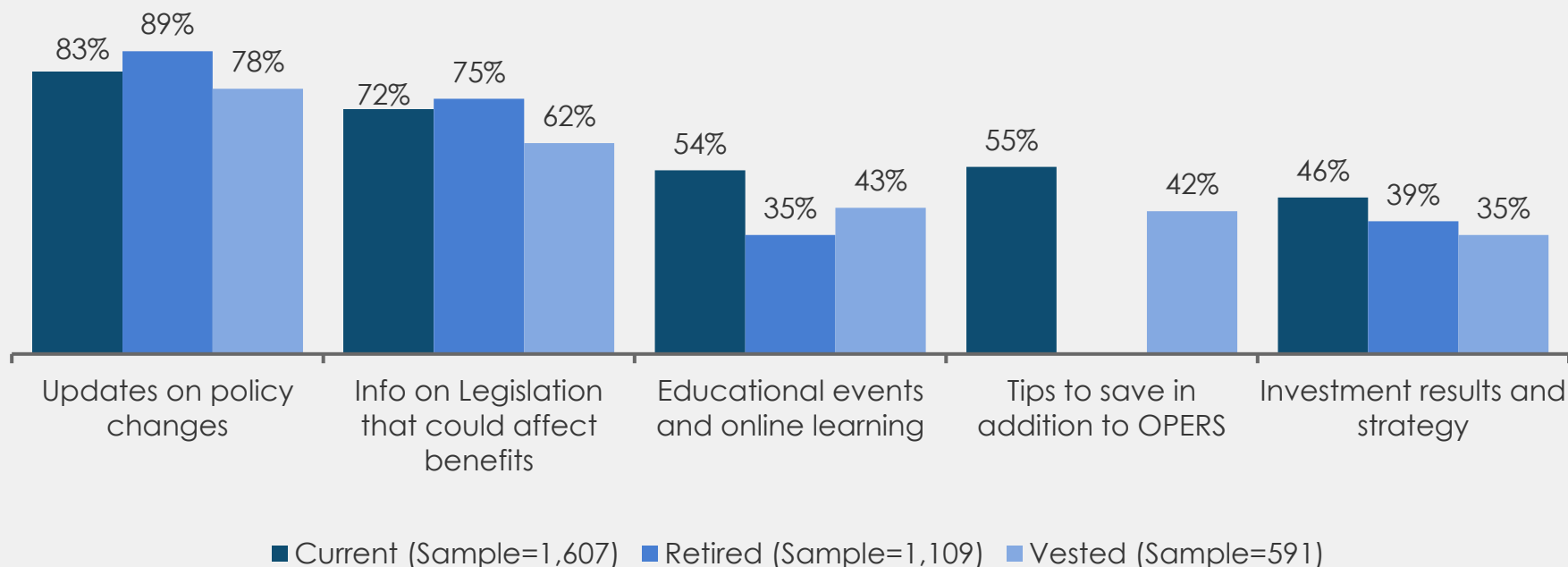


Invitations to OPERS educational events



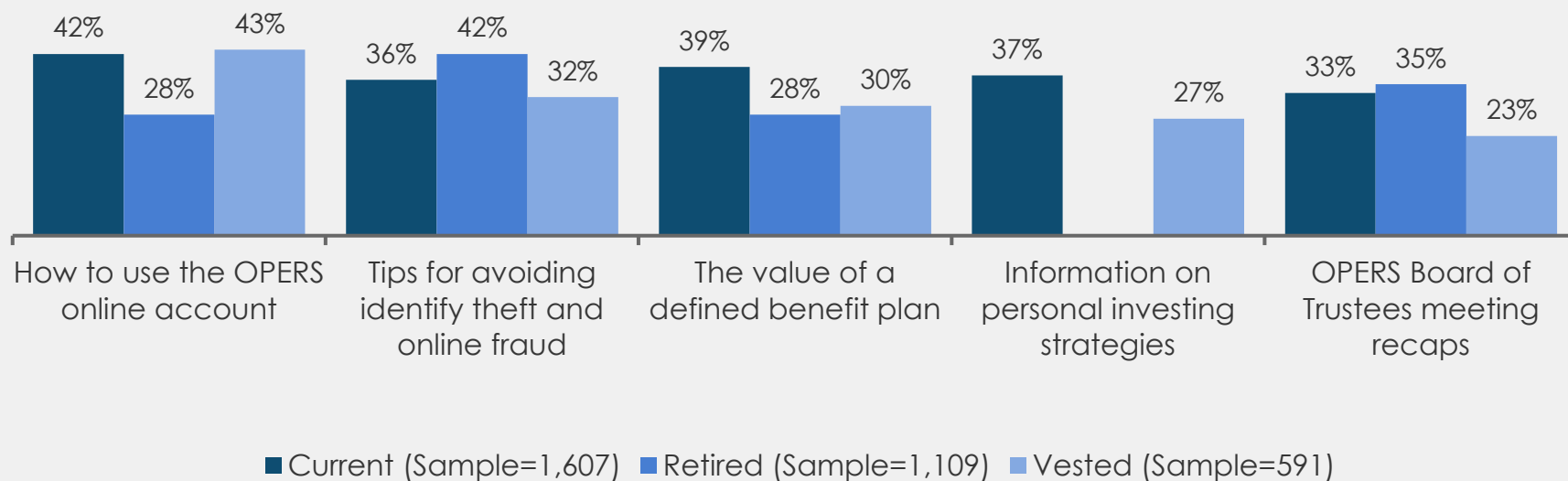
OPERS TOPICS OF INTEREST (SLIDE ONE OF TWO)

What topics do you want to read about? [Aided/Multiple Mentions]



OPERS TOPICS OF INTEREST (CONTINUED)

What topics do you want to read about? [Aided/Multiple Mentions]



RECOMMENDATIONS



PRELIMINARY COMMENTS

➤ Good News



- More members are proactively planning for retirement, have more than one retirement account/savings, and use a personal financial advisor than those who have retired. So, your message is getting out to your current members.

➤ Format Preference



- Important information (statements and letters containing deadlines) needs to be offered in hardcopy format.

➤ Remaining Relevant



- As members age, their communication preferences will change.
- 99% of American adults ages 18 – 49 use the internet.
- “Digital literacy” encompasses critical thinking, problem-solving, and communication in digital environments.
 - Tracking the impact of “digital literacy” will be important since that dictates how members will want to process and store information.

➤ A Challenge



- Giving members confidence in investment strategies knowing that they are not interested in reading about OPERS investment strategies.

PRELIMINARY RECOMMENDATIONS



➤ **Continue...**

- The momentum of encouraging retirement planning (i.e., the value of other retirement resources and professional advice).
- Making print always available with the *option* of digital only by communication piece (i.e., statement, invitation, newsletter, etc.).
- Communicating about issues that directly impact their benefits.



➤ **Encourage the use of...**

- Tools for retirement goal setting.



➤ **Brag about...**

- OPERS benefits.
 - Members will remember them when they become relevant, so repetition is necessary.

➤ **Consider...**

- Auditing how employers communicate about OPERS.
- Shifting communications with vested members to digital with the option of print.

GREAT LAKES MARKETING RESEARCH



**OPERS
COMMUNICATIONS
RESEARCH**

March 2025

If you have questions about the findings within this report, please contact:

LORI MITCHELL DIXON, PHD

President

419.534.4710

LDixon@GLM.com

Board Meeting VII.C

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

MEMORANDUM

DATE: March 14, 2025

TO: OPERS Retirement Board Members

FROM: Karen Carraher, Executive Director

RE: **VII. Discussion Items:**
C. Executive Director Report

Below is my Executive Director Report.

Legal

- As a reminder, Board members are required to **file Financial Disclosure Statements** with the Ohio Ethics Commission on an annual basis. This year the statements are due by **May 15, 2025**. You have the option of filing electronically and we strongly urge you to consider using this option. The information entered is pre-populated for future filings, making for a much more efficient filing process. Only those items that change from year to year need to be addressed each year when using the electronic filing. Whether you file via paper or electronically, please submit your draft form to General Counsel Eric Harrell for review no later than **April 23, 2025**, prior to final submission.

Finance

- The Financial Reporting department has been notified by the Government Finance Officers Association (GFOA) that OPERS annual comprehensive financial report (annual report) and popular annual financial report (PAFR) have received the annual **Certificate of Achievement for Excellence in Financial Reporting Program and Award for Outstanding Achievement in Popular Annual Financial Reporting**, respectively, for the fiscal year ended December 31, 2023 reports. The annual report certificate is the highest form of recognition in governmental accounting and financial reporting for organizations that go beyond the minimum requirements of generally accepted accounting principles to prepare comprehensive reports that evidence the spirit of transparency and full disclosure. The PAFR award is judged based on reader appeal, understandability, distribution methods, creativity, and other elements, and can only be obtained by organizations that receive the certificate of achievement for the annual report for the same year.

- The **Financial Reporting** group has completed the year-end financial close process and provided the financial statements to our actuaries, Gabriel, Roeder, Smith & Company, to begin work on the actuarial valuations. The department is now working with several areas to compile the remainder of the Annual Comprehensive Financial Report and prepare for the external audit to be performed beginning in March. The audit is expected to be finalized in early May and we will present our annual report to the Board during the May meeting.

Ohio Deferred Compensation has provided their draft annual report, including financial statements and footnotes, and staff are currently reviewing this information for incorporation into our report as a fiduciary component unit.

- The **Investment Operations** team completed modeling the 2024 incentive compensation amounts for Investment Division staff who participate in the Incentive Compensation Plan. The team's results were validated through full recalculation by Internal Audit staff and reviewed by an external consultant. The next steps in the process involve Human Resources incorporating actual base salaries into the calculation models and reviewing results with plan participants. Starting with the process for 2025 to be completed this time next year, Investment Operations will implement Appendix D of the Plan, approved by the Board, to clarify and simplify aspects of the individual award calculations.
- The **Investment Compliance** team implemented a new training tool designed to remind Investment Division personnel and other personnel with access to investment information of their responsibilities to report knowledge of Material Non-Public Information (MNPI) and the importance of steering clear of insider trading. All personnel required to perform this annual training complied in a timely manner and the Investment Compliance team received positive feedback on the new training tool. We intend to use the same tool, updated as necessary, for next year's training exercise.

Government Relations

- The 136th Ohio General Assembly is shaping up to be very active for OPERS.

Though OPERS is not tied directly to the state of Ohio budget, the biennial budget bill (**House Bill 96**) contains three provisions that, as drafted, would impact OPERS. Those provisions are as follows:

- 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. Additionally, the budget bill removes the requirement that members be actively employed by an OP&F employer to transfer service credit to OP&F. For members to take advantage of this provision, they must apply for retirement not later than 90 days after the effective date of the bill's effective date.
- A provision that would add "state fire marshal law enforcement officer, fire and explosion investigation bureau" investigators to **OPERS Law**

Enforcement Division. This provision would apply to those who elect to become members of OPERS LE and to new hires after the effective date of the bill. For existing OPERS members who elect to become OPERS LE members, they would NOT receive Law Enforcement credit prior to the election.

- 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.

Staff are discussing these provisions with appropriate representatives in an effort to remove them from the budget bill to allow more time to develop alternative solutions.

Investments

- **Non-U.S. Equity Asset Class Update.** OPERS manages approximately \$25.1 billion within the Non-U.S. Equity sub-asset class; 20% of the assets are managed internally. The Non-U.S. Equity sub-asset class is benchmarked to a OPERS custom benchmark (4 underlying MSCI indices namely Developed Market Large Cap 55%, Developed Markets Small Cap 10%, Emerging Markets Large Cap 31% and Emerging Markets Small Cap 4%). MSCI indices do four quarterly reconstitutions each year during the months of February, May, August and November. The Internal Index management team rebalanced seven Non-U.S. Equity Portfolios with a market value of approximately \$3.9 billion in late February in conjunction with the quarterly MSCI index reconstitution. The rebalance resulted in over 4,000 companies with an approximate total traded value of \$246 million across 56 countries. The MSCI rebalance trades were completed utilizing the Internal Equity trading team. The Equity trading desk used a competitive bidding process to engage Goldman Sachs to execute the trades.
- **Fund Management Update.** In the first week of February, Fund Management completed the termination of EM Large-Cap manager, T. Rowe (3225). The funds are currently held in liquid with equity futures to provide future funding to a new external manager. Additionally, Fund Management coordinated the \$500 million funding of the new external High Yield manager, Payden & Rygel (1545). The funds were sourced from within the High Yield composite, from three external managers: Fort Washington (1500), Nomura (1530) and Post (1525). Also in February, U.S. Treasury futures held in the Liquidity Reserves Portfolios totaling approximately \$1 billion were rolled from the March 2025 contracts to the June 2025 contracts utilizing the Fixed Income desk.

Information Technology

- **Operational support and tech debt initiatives** are well in flight this year. Notable progress or completions include upgrades to Sonar, SQL Server, RabbitMQ, Tableau, Great Plains, Systems Center, Recast, Windows 2022, VMware, Dell, Horizon VDI, Wyse thin clients, Bitlocker, Kong, GitHub Copilot, Teamforge, and software patching.

- **IT-Application Development** produced 244,436 Pension 1099 forms and 20,000 Refund 1099 forms for the 2025 annual run.
- The **newly implemented death audit processing** with the PBI vendor has reported 1,382 deaths to OPERS so far this year.
- The **Employment & Earnings Online Application** launched in February. So far, we've received 5,554 forms, with only 2% submitted as paper forms.

Benefits

- **Member Services.** We have been experiencing extremely high call volume due to requests for 1099's, questions on the new Employment & Earnings process, as well as the Social Security Fairness Act. The Social Security Administration frequently updates information on the repeal of GPO/WEP and we are monitoring it in real time and sharing across the organization.
- **Community Memorial Hospital – Hicksville.** In May 2024, the hospital ceased operations and appears to only have a small staff in place working to resolve their financial issues, attempting to sell the business, and keeping certain certifications in place to maximize the value of the business for sale purposes. As referenced in the February Significant Litigation update, the hospital is in receivership and various creditors (including OPERS) continue to pursue their rights to collect from the hospital's assets. This process will continue over the next several months. As of February 2025, the total outstanding liability owed to OPERS is approximately 3 million dollars (**3,020,492.61**). This is comprised of \$385K in estimated member contributions from 2024, employer contributions over 2 million dollars (2,315,434.90) from 2023 and 2024, and penalty and interest charges totaling nearly \$320K (\$320,057.71). As it relates to the current and past employees associated with this liability, they are as follows in the chart below:

Current Plan Status	Member Count	Average Service Credit	Average Account Value	Average Refund Amount
ACTV	42	13.3 years	\$ 103,801	
INAC	165	6.3 years	\$ 43,907	\$ 4,549
PENS	12	28.4 years		
RFND	71			\$ 83,781
	<u>290</u>			

Board Meeting VIII.B



OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM

277 EAST TOWN STREET, COLUMBUS, OH 43215-4642

1-800-222-PERS (7377)

www.opers.org

MEMORANDUM

DATE: March 10, 2025

TO: OPERS Retirement Board Members

FROM: Tonya Brown, Director of Member Operations

RE: **VIII. For Your Information:**
B. Health Care – Annual Update

Purpose

Historically, Health Care staff submits a Memo each March providing an update on the open enrollment season. With this year's Memo, Staff has transitioned to providing an update on open enrollment and all the OPERS health care programs.

Included in this memo are the following sections:

- Open Enrollment Recap
- Enrollment Headcounts Across Medical, Dental, and Vision Plans
- Via Benefits / HRA Program
 - Pre-Medicare: Funding Decisions
 - Pre-Medicare: Enrollment
 - Medicare: Enrollment
 - Pre-Medicare & Medicare: HRA
- Dental & Vision
- Retiree Medical Account
- COBRA
- Vendor Enhancements

OPEN ENROLLMENT RECAP

During this year's Open Enrollment season, Via Benefits experienced unprecedented attrition among their call staff, which created longer wait and hold times for our population. In addition to staffing challenges, Via Benefits contended with the following:

- Significant amount of disruption with Medicare plans – some carriers (e.g., Medical Mutual of Ohio) pulled back the ability for Via Benefits (and other external brokers) to offer their Medicare Advantage plans and/or terminated available plans; and the impact of the Inflation Reduction Act on Part D plans caused carriers to adjust / terminate their available Part D plans.
- Because of the above, Via Benefits experienced 10 times more retirees shopping for new plans across their book of business.
- As could be expected, calls with Medicare retirees took longer (35% increase in handle time) than previous seasons because once they got connected with Via Benefits call staff, retirees wanted to ensure that they got all of their questions answered, completed their enrollment, etc.

OPERS staff met with Via Benefits leadership on January 30th and March 6th to take a deep-dive into the 2024 open enrollment season to proactively plan for 2025. The largest area of focus during discussions was resource planning and staff training to ensure a reduction in wait and hold times for our next open enrollment. These discussions will continue until the issues are resolved.

HEADCOUNTS ACROSS MEDICAL, DENTAL, AND VISION PLANS

The table below shows the enrolled headcount across the different plans within the Pre-Medicare and Medicare retiree populations.

- The Pre-Medicare population has an Open HRA model (there is no enrollment requirement to receive the OPERS HRA Allowance) whereas the Medicare population has a Closed HRA model (there is an enrollment requirement to receive the OPERS HRA Allowance).
- Some benefit recipients may be dually enrolled in dental and/or vision plans offered through OPERS and Via Benefits.
- “All Others” includes spouses, surviving spouses, and children.

Available Plans	PRE-MEDICARE		MEDICARE		TOTAL
	Retirees	All Others	Retirees	All Others	
Medical – Individual ¹	8,514	831	110,447	28,466	148,258
Prescription – Individual ²	NA	NA	70,341	18,159	88,500
Dental – OPERS	16,497	9,143	96,553	33,700	155,893
Dental – Via Benefits	238	70	3,535	1,001	4,844
Vision – OPERS	16,379	9,404	92,601	32,967	151,351
Vision – Via Benefits	279	70	4,237	1,204	5,790

- Of the participants enrolled in a dental plan, 97% are enrolled in the OPERS dental plan whereas 3% are enrolled through Via Benefits.
- Of the participants enrolled in a vision plan, 96% are enrolled in the OPERS vision plan whereas 4% are enrolled through Via Benefits.

¹ Pre-Medicare retirees have the option to enroll in an Individual or Family plan. Headcount data included above is inclusive of both types of plans for that population.

² Prescription coverage is included in Pre-Medicare medical plans; retirees in this population do not need a separate prescription plan.

VIA BENEFITS / HRA Program

Pre-Medicare: Funding Decisions

The table below shows what type of funding decisions our Pre-Medicare population has made specific to their HRA.

- If a retiree has opted out of the HRA, our presumption is that they have opted into receiving a premium tax credit through the federal government.
- There continues to be a population of retirees who haven't made a funding decision to opt in or out of the HRA. They are eligible to receive an HRA, but they have chosen not to take action. OPERS and Via Benefits staff have partnered to implement various communication strategies ever since the Pre-Medicare group plan was terminated to ensure that our retirees are aware of the OPERS HRA. On an annual basis, OPERS reminds retirees of their HRA eligibility in the open enrollment materials.
- Over the last three years, the number of Pre-Medicare retirees who have opted into the HRA has increased by 4%.

	January 2025	January 2024	January 2023
Opted Into HRA	84%	82%	80%
Opted Out of HRA	6%	7%	6%
No Funding Decision	10%	11%	14%

Pre-Medicare: Enrollment

The table below shows the Pre-Medicare retiree population that has enrolled with Via Benefits. As a reminder, Pre-Medicare retirees have an Open HRA Model, which means they are not required to enroll into a medical plan with Via Benefits. Because of this, we do not have enrollment data on the full Pre-Medicare retiree population.

- Over the last three years, the number of Pre-Medicare retirees who are enrolled in a plan through Via Benefits has increased by 8%.

	January 2025	January 2024	January 2023
Enrolled with Via Benefits	34%	22%	26%
Not Enrolled with Via Benefits	66%	78%	74%

Medicare: Enrollment

The table below shows the Medicare retiree population that has enrolled with Via Benefits. As a reminder, Medicare retirees have a Closed HRA Model, which means they are required to enroll into a medical plan with Via Benefits to receive their monthly HRA allowance.

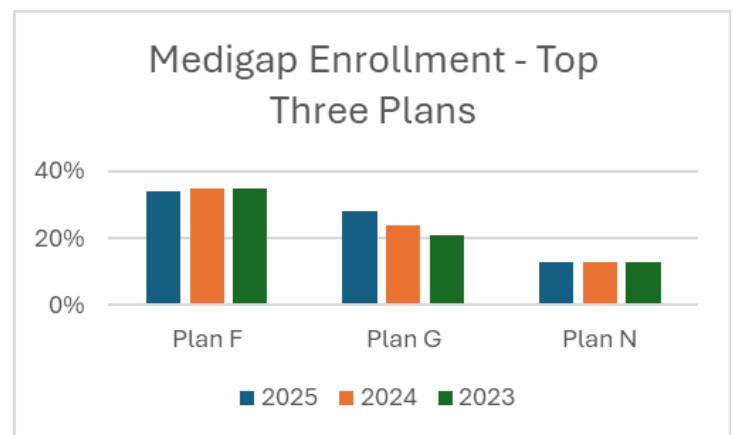
- The percentage of Medicare retirees who enroll with Via Benefits has remained fairly consistent over the last three years.
- Of the 75% of Medicare retirees who are enrolled with Via Benefits, 71% are enrolled in a Medigap plan whereas 29% are enrolled in a MAPD plan.

	January 2025	January 2024	January 2023
Enrolled with Via Benefits	75%	71%	67%
Not Enrolled with Via Benefits	25%	29%	33%

- The top three Medigap carriers who have the most OPERS Medicare enrollees are Medical Mutual of Ohio, AARP Medicare Supplement Insured by UnitedHealthcare, and Humana Connect.
- The top three Medicare Advantage with Prescription Drug (MAPD) carriers who have the most OPERS Medicare enrollees are Humana, Medical Mutual of Ohio, and AARP Medicare Supplement Insured by UnitedHealthcare.
- The top three Prescription carriers who have the most OPERS Medicare enrollees are Wellcare, SilverScript/Aetna, and Humana.

The top three Medigap plans that our retirees enroll in include Plan F, Plan G, and Plan N. Enrollment in Plan F will continue to decline because enrollment closed effective January 1, 2020, meaning retirees who turned 65 after that date are ineligible to enroll. The charts below show how the percentage of retirees enrolled in the three most popular Medigap plans has changed over the last three years.

	January 2025	January 2024	January 2023
Plan F	34%	35%	35%
Plan G	28%	24%	21%
Plan N	13%	13%	13%



- Plan F – Covers the most including the Part B deductible and excess charges.
- Plan G – Is similar to Plan F but does not cover the Part B deductible.
- Plan N – Offers the lowest premium but requires more cost-sharing.

Pre-Medicare & Medicare: HRA

The table below shows the number of active Pre-Medicare and Medicare HRAs¹. Headcounts include retirees who have met the funding eligibility requirements.

	January 2025	January 2024	January 2023
# of HRAs – Pre-Medicare & Medicare Retirees	129,193	130,472	132,531

¹The HRA headcount data in the above chart will not total what's included in the Enrollment headcount data. This is because the Pre-Medicare retiree population isn't required to enroll in a plan through Via Benefits to become HRA eligible.

DENTAL / VISION

Pre-Medicare and Medicare retirees have a few different options for dental / vision coverage:

- Enroll into the OPERS group plans administered by MetLife.
- Enroll into an individual plan with Via Benefits.
- Enroll into an individual plan on their own.

Each year, OPERS staff evaluates the dental / vision market to ensure that we continue to provide quality dental / vision plans at an affordable price.

Staff also identify retirees who are dually enrolled in coverage with OPERS and Via Benefits. A letter is mailed to that small group – prior to open enrollment - encouraging them to reassess their enrollment to ensure that they aren't paying for more coverage than what they need.

The table below shows what plans OPERS retirees (and spouses / dependents) have enrolled in either through OPERS or Via Benefits. For a comparison between Pre-Medicare and Medicare enrollment, please refer to the chart in the Enrollment Headcount section of this Memo.

	January 2025	January 2024	January 2023
OPERS Dental – Total	157,398	160,656	161,838
<i>High Plan</i>	<i>122,461</i>	<i>124,481</i>	<i>125,270</i>
<i>Low Plan</i>	<i>34,937</i>	<i>36,175</i>	<i>36,568</i>
OPERS Vision - Total	152,841	156,467	157,627
<i>High Plan</i>	<i>127,340</i>	<i>129,804</i>	<i>130,572</i>
<i>Low Plan</i>	<i>25,501</i>	<i>26,663</i>	<i>27,055</i>
Via Benefits Dental	4,354	4,283	4,780
Via Benefits Vision	5,790	5,093	4,600

RETIREE MEDICAL ACCOUNT (RMA)

OPERS members who elect to enroll in the Member-Directed Plan have contributions notionally deposited into an RMA. Similar to an HRA, an RMA is an account that can be used to pay for qualified health expenses.

There are three sub-populations within the RMA population.

- **Active Members** – Includes employees who are still actively working at an OPERS employer (and contributions are being made to the RMA) or participants who no longer work for an OPERS employer but haven't yet applied for retirement (or refunded their OPERS account).
- **Inactive Members** – Includes participants who have retired or refunded their OPERS account. Contributions are no longer being made to the RMA allowing the participant to receive reimbursements from their RMA.
- **Deceased, Refunded or Retired Members** – Includes participants who have passed away. Upon submitting a Survivor Certification Form to Inspira (the RMA Administrator), qualified survivors may assume control of the remaining balance in the RMA.

The chart below shows the headcount within each population.

	January 2025	January 2024	January 2023
Active Members	17,818	17,119	16,453
Inactive Members	6,792	6,862	7,388
Deceased, Refunded or Retired Members	148	136	133

COBRA

The Consolidated Omnibus Budget Reconciliation Act (COBRA) allows individuals to maintain their current health care coverage when a qualifying event occurs. Specific to the OPERS retiree population, COBRA becomes available in the following situations:

- Retiree becomes divorced; spouse is eligible for COBRA coverage.
- Retiree passes away; spouse is eligible for COBRA coverage.
- Retiree's child turns 26; child is eligible for COBRA.

COBRA coverage is available for the HRA and RMA programs; however, there has historically been minimal enrollment, and we have not had anyone take COBRA coverage for these programs for several years. The chart below is specific to COBRA enrollment for dental / vision coverage.

	January 2025	January 2024	January 2023
Spouse	118	127	182
Children Over the Age of 26	15	21	22

VENDOR ENHANCEMENTS

During 2024, both Via Benefits and MetLife deployed enhancements to improve the retiree experience.

Via Benefits

- Developed a communication/message center for both the website and mobile app which allows retirees to view any outbound messages, notifications and documents that they may have received from Via Benefits. This provides the retirees with a resource should they want to refer back to something that they have received.
- Incorporated educational touchpoints within the website and mobile app simplifying the retiree experience.
- Automated the reinstatement of the retiree's reimbursement for their Part B premium when their funding qualification is reinstated.

MetLife

- Incorporated OPERS-specific plan design details into the dental cost estimator. This allows retirees to get a more accurate estimate of an upcoming dental service.
- Added the OPERS customized phone number to the dental and vision ID cards.

Board Meeting VIII.C

MEMORANDUM

TO: OPERS Board of Retirement
FROM: Meketa Investment Group (Meketa)
DATE: March 19, 2025
RE: **VIII. For Your Information:**
C. Benchmarks Policy Update

Summary:

This memo informs the OPERS Retirement Board (“Board”) of benchmark changes approved by the Investment Advisor, Meketa. This report provides a listing of the approved benchmarks utilized by OPERS Investments staff at the Policy, Portfolio, and external manager mandates as of December 31, 2024.

Discussion:

Benchmarks within the OPERS Investment program are used in three primary ways, as summarized in the following table.

Benchmark Usage	Role		
	Board	Investment Advisor	Staff
Policy (Fund, Asset Class, Sub-Asset Class)	Approve	Advise	Advise
Portfolio	Inform	Approve	Approve
External Managers	Inform	Approve	Approve

Status Update

There were no changes to the policy or external manager benchmarks during the fourth quarter of 2024.

Board Meeting VIII.D



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

MEMORANDUM

DATE: March 10, 2025

TO: Audit Committee Members of the OPERS Retirement Board

FROM: Caroline Stinziano, Director – Internal Audit

RE: **VIII. For Your Information:**
D. Internal Audit Update

Purpose

This memo provides an update on Internal Audit related activities and initiatives occurring since the Audit Committee meeting on November 19, 2024.

Background

Based on the Board communications plan, the OPERS Internal Audit Department provides a written update on department activities and initiatives in February and August in addition to the in-person updates as part of the May and November Audit Committee meetings.

Status of the 2025 Annual Internal Audit Plan

The following table shows the status of current Internal Audit projects. The table includes all 2025 projects approved in 6 month increments by the Audit Committee in November 2024 as well as carryover projects from prior audit plans.

Status of Internal Audit Projects - March 2025						
Description	Investments	IT	Benefits & Health Care	Finance	Executive/Other	Total
Planning/In Progress:	0	3	2	1	2	8
Reporting:	2	1	1	0	3	7
Completed:	0	0	0	0	0	0
Not Started:	2	1	0	0	3	6
Parking Lot:	0	0	1	0	1	2
Total						23

The following projects are **in the final stages** of testing/reporting:

- Annual Incentive Compensation Audit (Investments)
- IT Penetration Testing (IT) - outsourced
- Public External Managers (Investments)
- Member Overpayments (Benefits)
- Fiduciary Audit Review – Investments (Exec./Other) - outsourced
- Proxy Voting Reconciliations – Follow-up Audit (Exec./Other)
- Procurement (Exec./Other)

Updates to the Parking Lot list

The following Parking Lot updates have been made:

- As a result of the overpayment audit project added in 2024, the planned Disability Benefits Audit was placed on the Parking Lot in 2024 and is anticipated to be moved into the active audit queue in the back half of 2025.
- The Ethics Policy Audit pertaining to testing controls associated with the potential receipt and reporting of gifts has been placed on the Parking Lot and is intended to come off in 2026. This audit work was last performed in 2024 with the expectation that it would continue to be executed every other year. Other procedures related to the OPERS Ethics Policy are executed annually as part of our continuous auditing procedures.
- The IT Risk Assessment which had been on the Parking Lot in 2024 has been added back into the active queue and Internal Audit is in the process of drafting an RFP for this work.

Ad hoc Projects

- Internal Audit is currently executing a targeted audit validating Internal Audit system capabilities based on assigned access in the Compass System.
- Management has asked Internal Audit to execute an audit over the recordkeeping process at Ohio Deferred Compensation.

In addition to specific audit projects covered throughout the audit plan, we continue to perform continuous audit procedures in the areas of Finance, Benefits, Health Care & Investments throughout the year.

Status of Prior Audit Recommendations

The following chart highlights changes to the status of prior audit recommendations from the previous update provided during the November Audit Committee meeting.

Audit Recommendations Rollforward - March 2025				
Description	OPEN	OPEN pending IA validation	CLOSED	Total
New Recommendations (since November AC update)	0	0	0	0
Previously Reported Recommendations:				
Reported in 2024	4	2	9	15
Reported in prior years	1	0	0	1
Total Recommendations	5	2	9	16

Satisfactory progress is being made toward implementing outstanding audit recommendations. One of the sixteen audit recommendations presented in the chart is rated high and has been closed since the November meeting.

This chart does not include recommendations from the outsourced IT Pen Testing Assessment executed in 2023. These items are tracked separately and will be updated as part of the May Audit Committee meeting. Management has continued with their focus in addressing these recommendations since the November update.

Other Department Updates

Staffing

The department is fully staffed. Additionally, we will continue to take advantage of historical strategic staffing initiatives to execute project work including outsourcing, co-sourcing, and use of guest auditors.

Departmental Strategic Planning

In December 2024, Internal Audit worked to formalize a department level strategic plan that outlines specific departmental goals in the areas of people, processes, and systems over a period of 1-5 years. This aligns with enhancements made from recent updates to the Internal Audit Standards that were discussed in the November Audit Committee meeting and went into effect on January 9, 2025.

Next Steps

The next update will be provided as part of the May 2025 Audit Committee meeting. This meeting will include the following updates:

- External audit results for 2024,
- Presentation of the Annual Financial Report for 2024,
- An update on recent Internal Audit activities and the status of prior audit recommendations, and
- Approval of the 2025 Six-Month Internal Audit Plan for July – December.

INVESTMENTS MARKET UPDATE

Net Asset Value & Performance

	NAV (\$ B) 1/31/2025	PERFORMANCE					NAV (\$ B) 03/14/2025
		MTD Feb	YTD Feb	YTD February Benchmark	March 1 to 14 Estimated	Benchmark Mar. 1 to 14 Estimated	
DB Fund	\$105.11	0.30%	2.12%	2.12%	-0.78%	-0.99%	\$104.28
HC115 Fund	\$13.63	0.70%	3.09%	3.03%	-1.26%	-1.40%	\$13.47

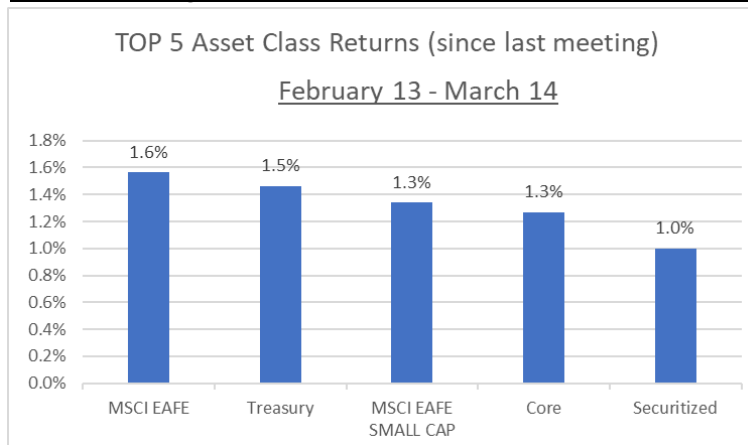
Market Events Summary

- In February, both the Consumer Price Index (CPI) and Core CPI increased by 0.2% (MoM), falling short of the consensus estimates of 0.3%. On an annual basis, the headline CPI rose by 2.8%, slightly below the projected 2.9%, while the Core CPI increased by 3.1%, just below estimates of 3.2%.
- The U.S. total unemployment increased 4.1% in February, which was above consensus estimates of 4.0%. Total nonfarm payroll in February rose to 151,000; well below the consensus estimates of 160,000. January's revised estimates declined by 18,000 to 125,000 and December's estimates were revised upward 16,000 to 323,000.
- The Bank of Canada has reduced its policy rate by 0.25%, bringing it down to 2.75%. Policymakers also highlighted that the ongoing trade conflict with the U.S. could have a severe economic impact on Canada's economy. This comes as Canada announced a 25% tariff on all U.S. made products, including aluminum and steel, in response to President Trump's recent imposition of a 25% tariff on all imported steel and aluminum.

Portfolio Changes

- The Non-U.S. Equity Liquidity Reserves portfolio received \$100 million in cash redemptions. The cash was equitized with futures and sourced from internal Non-U.S. Equity portfolio creating additional liquidity within the sub-asset class.

Best Performing Public Market Asset Classes (Feb 13 – March 14)



Worst Performing Public Market Asset Classes (Feb 13 – March 14)

