

MWRA EMPLOYEES' RETIREMENT BOARD MEETING

AGENDA

**Thursday, November 17, 2022 10:00 a.m.
MWRA, 2 Griffin Way
Chelsea, MA 02150**

Item 1 10:00 a.m. Meeting called to order

OLD BUSINESS

- Item 2 Standing Committee Reports
- i. By-Laws Committee: Member Kevin McKenna
 - ii. Human Resources Committee: Member Thomas J. Durkin, Member Frank Zecha
 - iii. Special Committee, Stipend: Chair James M. Fleming, Member Kevin McKenna
 - iv. Job Review Committee: Member James M. Fleming, Member Thomas J. Durkin

NEW BUSINESS

- Item 3 Approval of Minutes – VOTE
- a) October 27, 2022 Minutes
 - b) October 27, 2022 Executive Session Minutes

- Item 4 Approval of Warrants – VOTE
- a) Warrant 11-2022
 - b) Warrant 11-2022A – Payroll

Item 5 Approval of Monthly Transfers 11-2022 – VOTE

Item 6 Approval of October 2022 Bank Reconciliation – VOTE

Item 7 Approval of CY2023 Budget – VOTE

- Item 8 NEPC
- a) Flash Report as of 10/31/22
 - b) Asset Allocation Rebalance Summary – VOTE
 - c) Q3 2022 Investment Report
 - d) Q2 Private Equity Performance Report
 - e) Q2 Real Estate Performance Report

FOR YOUR INFORMATION and REVIEW

- Item 99-1 PERAC MEMO #28/2022 – 840 CMR 28.00 Electronic Signatures
Item 99-2 Alcentra Memo Regarding Franklin Templeton's Acquisition

The Board reserves the right to consider items on the agenda out of order. The listing of items is those reasonably anticipated by the Chair to be discussed received at least forty-eight (48) hours prior to the meeting. Not all items listed may in fact be discussed and other items not listed may also be brought up for discussion to the extent permitted by law. Items identified for discussion in Executive Session may be conducted in open session, in addition to, or in lieu of discussion in Executive Session.

Date of next regularly scheduled Retirement Board meeting is Thursday, December 15, 2022, 10:00 a.m., Chelsea

**MWRA EMPLOYEES' RETIREMENT BOARD MEETING
OCTOBER 27, 2022**

A meeting of the MWRA Employees' Retirement Board was conducted in-person on Thursday, October 27, 2022. Remote access was provided to the public via Zoom, with call-in information provided on the official Meeting Notice posted to www.mwraretirement.com and the MA Secretary of State's website. Participating in the in-person meeting were Board members James Fleming, Thomas Durkin, and Kevin McKenna, staff members Carolyn Russo, Julie McManus, and Danielle DiRuzza, and Sebastian Grezjka representing NEPC. Board Counsel, as well as members of the public attended via remote access. Mr. Pappastergion was absent due to vacation. Mr. Fleming called the meeting to order at 10:00 a.m. Mr. Zecha joined the meeting at 10:13 a.m.

- 1) Call the meeting to order-roll call of members: Mr. Fleming, Mr. Durkin, and Mr. McKenna present.
- 2) Standing Committee Reports
 - i. By-Laws Committee: No report
 - ii. Human Resources Committee: No report
 - iii. Special Committee, Stipend: No report
 - iv. Job Review Committee: No report
- 3) Approval of Minutes of September 29, 2022 – VOTE
 - a) September 29, 2022 Minutes
 - b) September 29, 2022 Executive Session Minutes

On a motion made by Mr. McKenna and seconded by Mr. Durkin:

VOTED

to approve the minutes of the September 29, 2022 meeting as submitted by the Executive Director. 3-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, and Mr. Fleming voting yes.

On a motion made by Mr. Durkin and seconded by Mr. McKenna:

VOTED

to approve the Executive Session minutes of the September 29, 2022 meeting as submitted by the Executive Director. 3-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, and Mr. Fleming voting yes.

- 4) Approval of Warrants – VOTE
 - a) Warrant 10-2022
 - b) Warrant 10-2022A-payroll

On a motion made by Mr. McKenna and seconded by Mr. Durkin:

VOTED

to approve Warrant 10-2022. 3-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, and Mr. Fleming voting yes.

The Executive Director stated that she is awaiting direction from PERAC's Legal Unit as to the interest calculation for a death refund, but if she receives a response in time, would like the Board's permission to add the refund to the payroll warrant. The inactive member died in 2018, and an estate had to be established in order to make the payment.

On a motion made by Mr. McKenna and seconded by Durkin:

VOTED

to approve Warrant 10-2022A to include the payroll and the death refund, provided that the Board has received PERAC's response and conditioned upon the Board's receiving a copy of the Warrant upon its completion. 3-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, and Mr. Fleming voting yes.

5) Approval of Monthly Transfers 10-2022 – VOTE

The Retirement Coordinator noted that the vote will be on the amended transfer list provided to the Board. A transfer had been omitted from the initial version.

On a motion by Mr. McKenna and seconded by Mr. Durkin:

VOTED

to approve the amended list of monthly transfers as presented and as recommended by NEPC. 3-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, and Mr. Fleming voting yes.

6) Acknowledgement of retirement applications under G.L. c 32 §5 – VOTE

- a) Carlos Haye DOR 9/15/2022
- b) Kevin Coughlin DOR 10/4/2022

On an omnibus motion made by Mr. McKenna and seconded by Mr. Durkin:

VOTED

to acknowledge the two §5 retirements as detailed above. 3-0, roll call with Mr. Mr. Durkin voting yes, Mr. McKenna voting yes, and Mr. Fleming voting yes.

7) Approval of 12(2)d Survivor Benefit re. Chelsea Clain, daughter of Bruce Clain, DOD 9/20/2022 – VOTE

On a motion by Mr. McKenna and seconded by Mr. Durkin:

VOTED

to approve the 12(2)d Survivor Benefit re. Chelsea Clain, daughter of Bruce Clain. 3-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, and Mr. Fleming voting yes.

- 8) Approval of 12B Survivor Benefit re. (Minor Child), daughter of Peter Francis, DOD 10/4/2022 (calculation not completed) – VOTE

The Executive Director explained that Mr. Francis had died without a valid Option D beneficiary designation, and that, therefore, a 12B benefit may be payable to his daughter until she turns twenty-two. She explained that the minor child's mother is also deceased, so another family member is seeking guardianship and has a court date in November. The Executive Director is requesting the Board's approval so that if she receives the guardianship appointment in time, she can make the first payment on the November payroll.

On a motion by Mr. McKenna and seconded by Mr. Durkin:

VOTED

to approve the 12B Survivor Benefit payable on behalf of (Minor Child), daughter of Peter Francis. 3-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, and Mr. Fleming voting yes.

At 10:13 a.m., Mr. Zecha alerted the Board to his remote presence, stating that he signed on at 10:06 a.m. but experienced audio difficulties.

- 9) Kathleen Leahy request for creditable service pursuant to 4(1)(c) – VOTE

On a motion by Mr. McKenna and seconded by Mr. Durkin:

VOTED

to approve one month of creditable service for Kathleen Leahy pursuant to 4(1)(c). 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes.

- 10) Approval of Bank Reconciliations – VOTE

- a) August 2022
- b) September 2022

On a motion by Mr. McKenna and seconded by Mr. Durkin:

VOTED

to approve the August 2022 and September 2022 bank reconciliations. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes.

- 11) Discussion requested by Mr. Zecha regarding amounts and types of retiree data published – Executive Session under Purpose 4, Security

On a motion made by Mr. Durkin and seconded by Mr. McKenna:

VOTED:

to convene in Executive Session under purpose 4. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes and Mr. Fleming voting yes.

The Board convened in Executive Session at 10:19 a.m. A breakout room was established and members of the public were removed. Mr. Grzejka left the in-person meeting.

On a motion made by Mr. McKenna and seconded by Mr. Durkin:

VOTED:

to return to Open Session. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes and Mr. Fleming voting yes.

The Board returned to open session at 10:32 a.m. Mr. Grzejka re-joined the in-person meeting, and the breakout room was closed.

The Retirement Coordinator reminded the Board that they need to acknowledge the vote taken in Executive Session. Mr. Fleming announced that in Executive Session the matter of cybersecurity actions relating to retiree data was tabled on a 4-0 vote, and that the Board would be requesting the attendance of Mr. David Stokes at the November meeting.

Given that the Board was ahead of schedule, Item #13 was taken out of order.

- 13) NEPC
- a) Flash Report as of 9/30/22
 - b) Small Cap Value Equity Search RFP – VOTE
 - c) S&P 500 Index Strategy Search Review

Mr. Grzejka reported that September was a volatile month. Global rate hikes spooked investors, and the Fed doubled down rather than easing rate policy. Quality has outperformed, and investments highly correlated to rates lost. Polen has lagged the benchmark. The role of long-term growth will be decided later on, but Mr. Grzejka still believes the positioning is correct, but that the market environment is just very rough. We will revisit positioning in the first half of 2023. The Euro is at parity with the dollar and the pound is at historic lows. EM returns have been negative, but the portfolio has provided some protection vs. the benchmark. Rising rates have hurt fixed income performance. Investments being made now are at higher rates, so returns may look better in the future. The Hedge Fund portfolio is doing what it supposed to do. Mr. Grzejka stressed the importance of the pairings, and noted UBS has been a top performer. Most of

the Private Equity and Real Estate managers have not yet reported Q3, with the exception of PRIT and Morgan Stanley. TA has been positive, while Morgan Stanley has legacy assets, predominantly in Office, that have been a drag on performance. Private Equity markdowns have been relatively small, although there is usually a reporting delay of one to two quarters. Tech venture has been hit harder, while buyouts have held up better. Mr. Grzejka expects volatility in the private markets, although he expects it will be more muted than the volatility in the public markets. Overall, the markets have been tough, and there has been no panacea.

Mr. Zecha stated that if interest rates have gone up causing Octagon to go down, why should the System ride the down. Mr. Grzejka stated that he expects the opposite. Octagon should do well in a rising-rates environment, so we may want to take some money off the table. Octagon invests largely in bank loans. Mr. Zecha asked if higher rates will result in fewer loans being given out, and Mr. Grzejka responded that they will, but that those remaining will be higher quality at higher rates, so they're still attractive. Mr. Zecha stated that he spoke to various investment vendors at MACRS, and asked about Private Credit and Opportunistic Fixed Income. Mr. McKenna stated the same, and that he has done some "background work," following one particular product over the past sixteen months which has been positive, up 6%. PRIM has \$300m invested with them. Mr. Grzejka cautioned the Board not to go for the "hot dot" and questioned whether, had the Board looked at the same manager three years ago, they would have wanted to invest with them. This needs to be examined as a discipline, from a long-term strategy perspective. The question is whether the current asset allocation model is appropriate for the System's long-term goals. Mr. McKenna noted that a year ago Loomis Sayles was a top performer, and that taking a look not at timing, but at pairings, might be beneficial. Mr. Grzejka agreed, stating Loomis has some high-yield and therefore some equity exposure. He offered to present to the Board at the December meeting a Fixed Income Review similar to that which was done in regard to the Equity portfolio, to see if the quality/credit pairings (Lord Abbett & Garcia/Loomis Sayles and Octagon) are still appropriate. Mr. McKenna stated that the fees on the index are much lower, and the product is not as concentrated. He does not expect that the S&P will come back quickly. Mr. Grzejka responded it may happen more quickly than Mr. McKenna might think. Mr. McKenna commented that Garcia should be doing well in this environment but is lagging the benchmark. Mr. Grzejka stressed that we need to be making a larger strategy review, not a line item review. This is a long-term strategy, and the Board should not implement change just for the sake of it. Mr. Zecha agreed with Mr. Grzejka and asked if the Board could meet the first week of December to have an investment-specific meeting, to incorporate October activity, any impact of mid-term elections, shifts or tilts, noting the Board "...does not need to knock it out of the park, but does need to be proactive." Mr. McKenna asked about the PE allocation forecast for 2023, and whether Private Credit will be considered. Mr. Grzejka stated that the Board had at their last meeting allocated the \$10m PE allocation to PRIT VY 2023. The newer PE

funds in the portfolio are still calling capital so we need to wait to bring on new managers. We have 2 RFP's scheduled already, so we need to prioritize. Mr. Grzejka expects private debt opportunities, but the pace has slowed, benefitting patient investors who wait for the right opportunity. Mr. Zecha asked the members their availability in order to schedule a stand-alone investment meeting to be held the first week of December.

Mr. Grzejka asked about the Board's expectations in regard to materials, and offered to bring the Small Cap Value responses and recommendations. Mr. Zecha stated the Board needs to have an asset allocation meeting and discuss rebalancing to encompass election impact and October returns, and suggested the November meeting. Mr. Grzejka responded that the Board should not try to time the market in that way. Mr. McKenna stated that the Board already has Actuary John Boorack and Lisa VanDermark scheduled to make a presentation about funding strategies and that he would not want to miss the opportunity to discuss the investments at the meeting. Mr. Grzejka stated that unlike PRIT, NEPC does not have a full-time investment staff, and reminded the Board that the asset allocation is a long-term setup. NEPC performed a review of the Equity portfolio's long-term performance and came out on the good side of the analysis. The Board should not try to be day traders; this is a long-term process with a strategic focus. The Board must maintain the discipline it set in the Asset Allocation. Mr. McKenna stated that the Board is under pressure too, and needs to respond, but appreciates all of NEPC's work. Mr. Zecha stated that relative to other MA Retirement Systems, NEPC's Systems have had poor performance.

The Board scheduled the stand-alone investment meeting for December 1 at 10:00 a.m. to discuss the strategic investment plan and to select finalists for the Large Cap Value search.

In regard to the proposed Large Cap Value RFP, Mr. Grzejka noted that both Small Cap managers are at the seven-year mark. Boston Partners has had a recent portfolio manager change, and although there is longevity among the investment team, Boston Partners was put on a watch list by NEPC. The allocation is expected to be \$20-22m depending on the portfolio positioning at the time of funding.

On a motion made by Mr. Durkin and seconded by Mr. Zecha:

VOTED:

to approve the posting of the Small Cap Value RFP as submitted by NEPC. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes and Mr. Fleming voting yes.

There were five responses to the S&P 500 RFP: DWS, RhumbLine, Xponance, Amalgamated Bank, and Northern Trust. The product offered by DWS is not a pure S&P 500 index, it has an ESG component, eliminating certain securities and reducing it to just over 300 names, with higher fees. NEPC's recommendation is

that the Board select RhumbLine, given their track record and advantageous fee structure, and Mr. Fleming concurred. Mr. Durkin asked whether a selection without interviews is acceptable, and Mr. Grzejka responded that Attorney Gibson had commented at the meeting last month that if the Board reviewed the analysis, an interview is really not necessary for a passive/S&P product.

On a motion made by Mr. McKenna and seconded by Mr. Durkin:

VOTED:

to select RhumbLine as the manager for the S&P 500 mandate. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes and Mr. Fleming voting yes.

12) Legal – Sean Scott Section 7 Application

On a motion made by Mr. McKenna and seconded by Mr. Durkin:

VOTED:

to convene in Executive Session under purposes 1 and 7, to comply with Exemption (c) of the Public Records Law. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes and Mr. Fleming voting yes.

The Board convened in Executive Session at 11:15 a.m. A breakout room was established and members of the public were removed. Mr. Grzejka left the in-person meeting.

On a motion made by Mr. McKenna and seconded by Mr. Durkin:

VOTED:

to return to Open Session. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes and Mr. Fleming voting yes.

The Board returned to Open Session at 11:40 a.m. Mr. Grzejka re-joined the in-person meeting, and the breakout room was closed.

The Chair announced that in Executive Session the Board voted to grant accidental disability retirement benefits to Sean Scott, and to forward the application to PERAC for final review. Board Counsel will draft a formal findings of fact to accompany the submission to PERAC.

Attorney Gibson stated that the 5% COLA proposal is still in committee. The Legislature may come back into session in order to address the budget surplus. PERAC has added to its legislative package a bill to make sick and vacation pay regular compensation and to include them in the definition of “wages.” The fear is that after the Court’s “Vernava II” decision excluding sick, vacation and longevity as regular compensation while employees are receiving worker’s compensation, that the Courts could eventually decide that no sick or vacation may be considered regular compensation. Attorney Gibson noted that Chairman

Fleming has been the only constant in the 28 years he has served as Board Counsel. Attorney Gibson complimented the Board for always trying to do the right thing on behalf of the System's members, as opposed to some Boards which take adversarial stances. Mr. McKenna thanked staff and Board Counsel for the resolution on the shift differential matter, and extended the thanks of the Union.

Mr. Durkin stated that he has in the past applied for the PPSA (Public Pension Standards Award) from the Public Pension Coordinating Council, and asked the Chair's permission to do so and to submit the fee invoice to the Executive Director for payment. The Chair stated that Mr. Durkin may do so.

On a motion by Mr. Durkin and seconded by Mr. Zecha:

VOTED

to adjourn the October 27, 2022 meeting of the MWRA Employees' Retirement Board. 4-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes and Mr. Fleming voting yes. The meeting was adjourned at 11:47 a.m.

The following communications were distributed to the Board for their review:

PERAC MEMO #26/2022 – Appropriation Data Due October 31, 2022

PERAC MEMO #27/2022 – Free State-sponsored Cybersecurity Training

2023 Retirement Board Meeting Dates

The Board reserves the right to consider items on the agenda out of order. The listing of items is those reasonably anticipated by the Chair to be discussed received at least forty-eight (48) hours prior to the meeting. Not all items listed may in fact be discussed and other items not listed may also be brought up for discussion to the extent permitted by law. Items identified for discussion in Executive Session may be conducted in Open Session, in addition to, or in lieu of discussion in Executive Session.

Date of next scheduled Retirement Board meeting is Thursday, November 17, 2022, 10:00 a.m., Chelsea

James M. Fleming, Elected Member

Thomas Durkin, Appointed Member

Kevin McKenna, Elected Member

Andrew Pappastergion, Ex-Officio Member

Frank Zecha, Fifth Member

MONTHLY PERFORMANCE REPORT

**MWRA EMPLOYEES' RETIREMENT
SYSTEM**

OCTOBER 31, 2022



PROPRIETARY & CONFIDENTIAL

GOALS & OBJECTIVES

Investment Return Objective

“Its primary goal is to provide promised benefits to participants and beneficiaries of the MWRA Employees’ Retirement system. Plan assets should be equal to or greater than the present value of the projected benefit obligations (“fully funded”). When Plan assets are less than the present value of projected benefit obligations, a schedule will be established and a plan will be in place to meet a fully funded status. When achieving return objectives required to fully fund the system, the Board is intent on controlling risk. Consistency of returns and risk of loss are primary considerations. The Board has also determined that the annual performance of plan assets should not vary substantially from returns achieved by other public pension funds with similar goals and objectives.”

Return Expectations

The investment growth should be maintained in such a manner that the minimum nominal rate of return does not cause a negative real rate of return over a full market cycle:

- **Time Horizon:** Return assumptions will be based on a ten-year time horizon with a detailed review and analysis to be made at least annually to monitor allocations and assumptions. Should a manager deviate from proscribed mandate or expected risk and return profile by a consequential degree, that manager may be reevaluated at any time.
- **Liquidity Needs:** Presently contributions exceed plan withdrawals to provide benefits, payouts, and/or plan expenses. Portfolio liquidity will be managed based on the cash flow needs of the System.
- **Regulatory Considerations:** Assets of this Fund shall be invested in a manner consistent with the fiduciary standards established under Code of Massachusetts Regulations 840 (“840 CMR”). The Board shall also use as precedent the Employee Retirement Income Security Act (ERISA).

EXECUTIVE SUMMARY

	Market Value (\$)	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
Composite	625,210,200	2.5	-13.8	-12.6	4.6	4.9	6.6
<i>Allocation Index</i>		2.5	-12.4	-11.2	5.2	5.3	6.9
<i>Policy Index</i>		3.1	-12.9	-11.2	5.8	5.9	7.0

20 Years As of October 31, 2022				
	Return	Standard Deviation	Sharpe Ratio	Sortino Ratio
Composite	7.3	8.4	0.7	1.1
<i>Allocation Index</i>	6.6	7.9	0.7	1.0
<i>Policy Index</i>	7.1	8.5	0.7	1.0

Performance

- The Composite had a preliminary return of 2.5% (net) for the month, matching the Allocation Index (2.5%) and trailing the Policy Index (3.1%).
- Equities sharply rebounded in October despite tighter monetary conditions in the face of persisting inflationary pressures. U.S. equities outperformed with the S&P 500 Index posting gains of 8.1%; the MSCI ACWI ex U.S. Index was up 3%. Value stocks maintained their lead over growth equities with the Russell 1000 Value and Growth indexes up 10.3% and 5.8%, respectively. The portfolio's Domestic Equity composite was up 8.1% (net) and the Non-US Equity composite returned 2.2% (net).
- Within fixed income, higher inflation pressured developed market government yields higher. In the U.S., one- and 10-year Treasury yields increased 85 basis points and 28 basis points, respectively. High-yield assets outperformed as tighter credit spreads offset higher rates. The Fixed Income composite was fell -0.8% (net) for the month while the Bloomberg Agg and the Bloomberg US HY returned -1.3% and 2.6% respectively.
- This brings the total plan return for the trailing one-year period to -12.6% (net), while both Allocation Index and Policy Index returned -11.2%.

Returns for 20 years Risk/Return and Statistics Summary are gross of fees.

Since inception return is 8.4% gross of fees. Prior to 1999, performance history does not capture separate net and gross returns.



TOTAL FUND PERFORMANCE DETAIL (NET)

	Allocation			Performance (%)							
	Market Value (\$)	% of Portfolio	Policy(%)	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Composite	625,210,200	100.0	100.0	2.5	-13.8	-12.6	4.6	4.9	6.6	6.6	Jan-86
Allocation Index				2.5	-12.4	-11.2	5.2	5.3	6.9		
Policy Index				3.1	-12.9	-11.2	5.8	5.9	7.0		
Total Balanced	4,668,008	0.7	0.0	0.0	-14.0	-11.7	5.5	3.8	4.2	4.2	Dec-10
PRIT Core Fund	4,668,008	0.7		0.0	-15.0	-12.7	5.6	5.9	7.7	6.6	Apr-99
60% S&P 500 / 40% Bloomberg Aggregate				4.3	-16.6	-14.7	4.8	6.3	8.1	5.9	
Total Domestic Equity	190,864,135	30.5	31.0	8.1	-18.8	-17.3	8.6	9.6	11.8	7.2	May-99
Russell 3000 Index				8.2	-18.4	-16.5	9.8	9.9	12.5	6.9	
Large Cap	146,815,033	23.5	24.0	7.5	-19.6	-17.5	8.8	10.5	12.2	12.0	Dec-10
Rhumblin Advisors S&P 500 Index Fund	60,329,537	9.6	10.0	8.1	-17.7	-14.6	10.2	10.4	12.7	8.6	Apr-97
S&P 500 Index				8.1	-17.7	-14.6	10.2	10.4	12.8	8.6	
Coho Relative Value Equity	48,111,455	7.7	7.0	9.6	-5.5	-1.0	10.1	10.4		10.7	Mar-16
Russell 1000 Value Index				10.3	-9.3	-7.0	7.3	7.2	10.3	10.1	
Polen Focused Growth	38,374,041	6.1	7.0	4.3	-35.2	-35.9	4.7	10.3		11.9	Feb-16
Russell 1000 Growth Index				5.8	-26.6	-24.6	11.7	12.6	14.7	15.0	
Small Cap	44,049,102	7.0	7.0	10.2	-16.0	-16.6	7.8	7.3	10.8	10.9	Dec-10
Boston Partners Small Cap Value	22,681,867	3.6	3.5	11.8	-9.7	-9.5	7.3	5.3	9.0	10.1	Feb-97
Russell 2000 Value Index				12.6	-11.2	-10.7	8.1	5.3	9.4	8.7	
Loomis Sayles Small Cap Growth	21,367,235	3.4	3.5	8.5	-22.1	-23.4	7.6	8.6	12.2	6.6	Jan-97
Russell 2000 Growth Index				9.5	-22.6	-26.0	5.1	5.2	10.1	6.6	
Total Non-US Equity	92,004,805	14.7	19.0	2.2	-29.8	-31.7	-4.6	-2.4	2.7	3.2	Mar-99
International Equity	60,485,751	9.7	12.0	4.8	-28.0	-30.0	-2.9	-0.8	3.7	2.5	Sep-05
SEG Baxter Street	26,216,666	4.2	5.0	6.1	-27.5	-29.6	-3.4	0.7		4.4	May-16
MSCI AC World ex USA (Net)				3.0	-24.3	-24.7	-1.7	-0.6	3.3	3.2	
Schroder International Alpha Trust Class 1	23,095,694	3.7	4.0	5.5	-26.8	-27.2	2.0	2.0	5.4	4.9	Mar-12
MSCI AC World ex USA (Net)				3.0	-24.3	-24.7	-1.7	-0.6	3.3	2.9	
Baillie Gifford International Growth Fund Class K	11,173,391	1.8	3.0	0.7	-41.6	-45.9				-19.3	Oct-20
MSCI AC World ex USA (Net)				3.0	-24.3	-24.7	-1.7	-0.6	3.3	-2.2	
Emerging Markets Equity	31,519,054	5.0	7.0	-2.5	-33.1	-34.3				-24.4	Mar-21
Axiom Emerging Markets Trust Class 2	14,853,298	2.4	7.0	-1.9	-36.0	-37.5				-26.6	Mar-21
MSCI Emerging Markets (Net)				-3.1	-29.4	-31.0	-4.4	-3.1	0.8	-21.8	
ABS Emerging Markets MA Fund	16,665,756	2.7		-3.0	-30.2					-28.8	Dec-21
MSCI Emerging Markets (Net)				-3.1	-29.4	-31.0	-4.4	-3.1	0.8	-28.1	

Since inception return is 8.3% gross of fees. Prior to 1999, performance history does not capture separate net and gross returns.

In November 2019, Loomis sayles and Schroders transitioned from a mutual fund to a CIT structure. Performance prior to the transition to the CIT investment vehicle is linked to mutual fund performance history.

Preliminary performance is subject to change once finalized.



TOTAL FUND PERFORMANCE DETAIL (NET)

	Allocation			Performance (%)							
	Market Value (\$)	% of Portfolio	Policy(%)	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fixed Income	129,632,293	20.7	20.0	-0.8	-13.6	-13.5	-1.4	0.7	2.3	5.5	Mar-99
Garcia Hamilton Fixed Income Aggregate	33,368,382	5.3	6.0	-1.7	-14.2	-14.3	-3.4			-0.4	Apr-18
Blmbg. U.S. Aggregate Index				-1.3	-15.7	-15.7	-3.8	-0.5	0.7	-0.3	
Lord Abbett Core Fixed Income	34,208,569	5.5	4.0	-1.3	-15.8	-15.7	-3.3			-0.2	Apr-18
Blmbg. U.S. Aggregate Index				-1.3	-15.7	-15.7	-3.8	-0.5	0.7	-0.3	
Loomis Sayles Multisector Full Discretion Trust	48,260,770	7.7	8.0	-0.4	-15.1	-15.2	-0.9	1.1	3.0	6.7	Mar-99
Blmbg. U.S. Aggregate Index				-1.3	-15.7	-15.7	-3.8	-0.5	0.7	3.7	
Blmbg. U.S. Corp: High Yield Index				2.6	-12.5	-11.8	0.3	2.0	4.1	6.0	
Octagon Senior Secured Credit Cayman Fund Ltd. - Class L Acc, Series 1	13,740,971	2.2	2.0	1.0	-3.7	-3.3	2.1			1.9	Aug-19
Credit Suisse Leveraged Loan				0.8	-2.5	-2.0	2.6	3.0	3.7	2.3	
Invesco Mortgage Recovery Loans Feeder Fund	53,601	0.0		0.0	-0.3	-0.3	-1.9	3.7	5.4	10.1	Apr-10
Blmbg. U.S. Aggregate Index				-1.3	-15.7	-15.7	-3.8	-0.5	0.7	1.9	
Total Hedge Fund	41,780,874	6.7	6.0	0.3	-3.5	-4.0	4.6	3.6	3.9	3.3	Oct-06
PRIM Portfolio Completion Strategies	14,812,213	2.4		0.0	-3.5	-2.8	2.8	2.9	4.3	3.6	Oct-06
Corbin Pinehurst Partners	12,494,827	2.0		0.8	-11.5	-14.2	4.4			4.2	Nov-18
HFRI Fund of Funds Composite Index				1.5	-5.4	-6.5	4.5	3.2	3.7	4.3	
UBS Neutral Alpha Strategies	13,743,144	2.2		0.1	4.1	5.2	7.4			6.4	Nov-18
HFRI Fund of Funds Composite Index				1.5	-5.4	-6.5	4.5	3.2	3.7	4.3	
Entrust Peru Wind Down	730,690	0.1		-0.1	-1.9	-0.9	-2.2			-3.2	Dec-17
HFRI Fund of Funds Composite Index				1.5	-5.4	-6.5	4.5	3.2	3.7	3.2	
Other	7,151,027	1.1	0.0	0.3	0.8	0.8	0.7	1.3	0.8	0.7	Dec-10
Cash Account	7,151,027	1.1		0.3	0.8	0.8	0.7	1.3	0.8	1.7	Feb-00
90 Day U.S. Treasury Bill				0.2	0.8	0.8	0.6	1.2	0.7	1.6	

Since inception return is 8.3% gross of fees. Prior to 1999, performance history does not capture separate net and gross returns.

In November 2019, Loomis sayles and Schroders transitioned from a mutual fund to a CIT structure. Performance prior to the transition to the CIT investment vehicle is linked to mutual fund performance history.

Preliminary performance is subject to change once finalized.



TOTAL FUND PERFORMANCE DETAIL (NET)

	Allocation			Performance (%)							
	Market Value (\$)	% of Portfolio	Policy(%)	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Real Estate	72,998,182	11.7	12.0	0.0	11.2	20.8	12.9	11.1	11.4	8.5	Apr-99
NCREIF Property Index				0.0	9.4	16.1	9.9	8.6	9.5	9.0	
Morgan Stanley Prime Property (\$2.8m commitment in '95)	26,975,346	4.3		0.0	10.2	20.8	11.2	9.6	11.2	9.0	Sep-95
TA Realty Core Property Fund, LP (\$15m commitment in '19)	28,645,200	4.6		0.0	15.3	24.9	17.0			15.6	Jun-19
Invesco Mortgage Recovery II (\$3M commitment in '15)	942,943	0.2		0.0	-3.8	-3.8	-20.2	-6.2		-1.6	Oct-15
Landmark VI (\$2m commitment in '11)	45,198	0.0		0.0	-12.6	3.7	-8.2	-7.7	1.1	2.7	Jul-11
Landmark VIII (\$4m commitment in '17)	1,827,480	0.3		0.0	14.9	24.8	18.2	19.4		19.4	Nov-17
StepStone Real Estate Fund II (\$2m commitment in '11)	462,324	0.1		0.0	-0.6	-1.6	-3.3	-0.8	4.7	2.2	May-12
Cerberus Institutional Real Estate Partners III (\$1.5m commitment in '12)	483,850	0.1		0.0	-19.6	-8.6	16.1	13.2		13.5	May-13
TA Realty Fund X LP (\$3.5m commitment in '12)	3,478	0.0		0.0	5.7	4.6	0.3	6.4		8.0	May-13
TerraCap Partners III, LP (\$2.6m commitment in '15)	1,365,970	0.2		0.0	5.6	5.0	4.0	5.8		9.1	Jul-15
TerraCap Partners IV, LP (\$4m commitment in '17)	3,532,850	0.6		0.0	2.1	13.6	11.2	10.3		10.3	Nov-17
TerraCap Partners V, LP (\$8m commitment in '22)	8,713,543	1.4		0.0						3.6	Jun-22
Total Private Equity and Debt	86,110,876	13.8	12.0	0.0	3.8	6.0	18.7	15.8	15.1	10.5	Apr-99
CIA US All PE				0.0	-2.7	2.9	19.6	16.9	15.1	13.2	
NASDAQ W/O Income				3.9	-29.8	-29.1	9.8	10.3	13.9	6.5	
PRIM Vintage Year 2008 (\$3m commitment in '08)	817,522	0.1		0.0	1.7	8.0	15.0	15.2	18.6	10.0	Jun-08
PRIM Vintage Year 2009 (\$1m commitment in '09)	99,181	0.0		0.0	-12.5	0.1	37.9	32.4	26.3	14.4	Nov-09
PRIM Vintage Year 2010 (\$1m commitment in '10)	496,036	0.1		0.0	-37.8	-23.5	24.2	20.6	19.9	11.7	Jun-10
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	874,500	0.1		0.0	-1.6	1.8	32.7	26.7	22.7	10.4	May-11
PRIM Vintage Year 2012 (\$1m commitment in '12)	458,262	0.1		0.0	-30.4	-30.4	12.2	13.0	14.1	-10.0	Jun-12
PRIM Vintage Year 2014 (\$2m commitment in '14)	2,245,060	0.4		0.0	1.2	8.9	26.8	26.0		9.0	Jun-14
PRIM Vintage Year 2017 (\$2m commitment in '17)	2,507,219	0.4		0.0	2.1	8.9	25.1	18.3		16.3	May-17
PRIM Vintage Year 2020 (\$5m commitment in '20)	3,360,709	0.5		0.0	5.4	12.5				18.0	Mar-20
PRIM Vintage Year 2021 (\$5m commitment in '21)	2,593,046	0.4		0.0	-1.6	2.2				1.0	Dec-20
PRIM Vintage Year 2022 (\$7.5m commitment in '22)	769,172	0.1		0.0						-5.2	Apr-22
Alcentra European DLF (\$5m commitment in '14)	195,385	0.0		0.0	8.2	11.0	23.3	14.0		12.1	Jan-15
Ascent Fund IV-B (\$1m commitment in '16)	40,331	0.0		0.0	-14.7	-14.7	-24.5	-20.2		-15.3	Jul-16
Ascent Fund V (\$2m commitment in '08)	1,363,534	0.2		0.0	-7.8	-12.4	0.4	-0.8	3.1	4.5	Oct-08
Ascent VI (\$3m commitment in '15)	3,482,574	0.6		0.0	3.5	13.0	2.8	4.2		2.5	Dec-15
CVI Credit Value Fund IV A LP (\$6m commitment in '17)	5,402,590	0.9		0.0	4.4	6.4	6.7			6.3	Dec-17
Invesco Fund VI (\$5m commitment in '13)	1,068,293	0.2		0.0	-21.3	-5.6	31.8	23.6		19.1	Jul-13

Importantly, all returns in this report, including those of the private markets managers, are based on a time weighted return calculation and not based on IRRs, which can result in return differences.



TOTAL FUND PERFORMANCE DETAIL (NET)

	Allocation			Performance (%)							
	Market Value (\$)	% of Portfolio	Policy(%)	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Kayne Energy Fund VII (\$5m commitment in '15)	3,388,589	0.5		0.0	60.7	85.4	-14.2	-10.4		-2.0	Jan-16
Foundry 2007 (\$3m commitment in '07)	484,267	0.1		0.0	-3.5	4.5	18.0	5.6	12.7	20.1	Dec-07
Foundry 2010 (\$3m commitment in '10)	6,051,790	1.0		0.0	0.6	7.4	32.6	26.1	16.6	14.6	Feb-11
Foundry 2010 Annex (\$0.4m commitment in '15)	1,114,610	0.2		0.0	0.0	-0.2	83.6	65.1		43.3	Sep-15
Pinebridge PEP V (\$6m commitment in '07)	492,734	0.1		0.0	-0.1	-0.1	10.3	4.9	9.4	8.6	Dec-10
Pinebridge (AIG) PEP V Asia (\$6m commitment in '07)	35,776	0.0		0.0	4.1	-7.8	-12.5			-12.7	Oct-18
Pinebridge (AIG) PEP V Co-Investment (\$6m commitment in '07)	96,394	0.0		0.0	8.0	14.0	21.1			8.1	Oct-18
Pinebridge (AIG) PEP V Europe (\$6m commitment in '07)	18,235	0.0		0.0	-12.3	-19.1	204.6			135.5	Oct-18
Pinebridge (AIG) PEP V Large Market US Buyout (\$6m commitment in '07)	85,418	0.0		0.0	-5.3	-6.5	17.4			10.0	Oct-18
Pinebridge (AIG) PEP V Preferred Participation Fund (\$6m commitment in '07)	93,372	0.0		0.0	-5.5	-8.5	5.2			1.0	Oct-18
Pinebridge (AIG) PEP V Secondary (\$6m commitment in '07)	24,803	0.0		0.0	-5.3	-25.5	-11.2	-10.8		-9.3	Jan-17
Pinebridge (AIG) PEP V Small-Mid Market US Buyout (\$6m commitment in '07)	90,345	0.0		0.0	-5.9	-2.5	19.1			16.5	Oct-18
Pinebridge (AIG) PEP V US Venture (\$6m commitment in '07)	48,391	0.0		0.0	-0.1	3.9	3.3			-2.3	Oct-18
Landmark XV (\$3m commitment in '13)	773,750	0.1		0.0	0.4	1.5	11.8	12.3		13.2	Nov-13
JFL Equity Investors IV, L.P. (\$6m commitment in '16)	1,634,445	0.3		0.0	4.1	17.5	37.6	43.3		37.3	Jan-17
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)	4,671,521	0.7		0.0	0.0	4.7	23.9	21.7		19.9	Feb-17
Park Square Credit Opportunities III (\$3m commitment in '17)	2,767,479	0.4		0.0	1.5	4.6	7.0			6.4	Feb-18
Ironsides Constitution Opportunities (\$3m commitment in '18)	2,206,982	0.4		0.0	-0.1	3.3	10.4			10.9	Oct-18
HarbourVest Dover Street X (\$9m commitment in '20)	7,026,359	1.1		0.0	6.1	18.6				70.1	Jun-20
Hamilton Lane Secondary Fund V LP (\$9m commitment in '20)	7,250,273	1.2		0.0	1.5	11.5				36.4	Jul-20
Constitution Ironsides Co-Investment Fund VI (\$12m commitment in '21)	13,788,863	2.2		0.0	4.9	4.9				4.9	Nov-21
HarbourVest Co-Investment Fund VI (\$8m commitment in '21)	1,165,382	0.2		0.0							Jan-22
JFL Equity Investors V, L.P. (\$9m commitment in '20)	7,520,418	1.2		0.0	9.0	17.8				0.3	Sep-20

Importantly, all returns in this report, including those of the private markets managers, are based on a time weighted return calculation and not based on IRRs, which can result in return differences.



FEE SCHEDULE

Account Name	Fee Schedule	Market Value (\$)	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
PRIT Core Fund	0.5 % of Assets	4,668,008	0.7	22,873	0.5
Rhumblin Advisors S&P 500 Index Fund	0.1 % of Assets	60,329,537	9.6	30,165	0.1
Coho Relative Value Equity	0.5 % of First \$75 M 0.4 % of Next \$75 M 0.4 % Thereafter	48,111,455	7.7	240,557	0.5
Polen Focused Growth	0.7 % of Assets	38,374,041	6.1	249,431	0.6
Boston Partners Small Cap Value	1.0 % of Assets	22,681,867	3.6	226,819	1.0
Loomis Sayles Small Cap Growth	0.5 % of Assets Minimum Fee: \$45,000	21,367,235	3.4	96,153	0.5
SEG Baxter Street	1.0 % of Assets	26,216,666	4.2	262,167	1.0
Schroder International Alpha Trust Class 1	0.6 % of Assets	23,095,694	3.7	127,026	0.6
Baillie Gifford International Growth Fund Class K	0.6 % of Assets	11,173,391	1.8	67,040	0.6
Axiom Emerging Markets Trust Class 2	0.7 % of Assets	14,853,298	2.4	108,429	0.7
ABS Emerging Markets MA Fund	0.8 % of Assets	16,665,756	2.7	124,993	0.8
Garcia Hamilton Fixed Income Aggregate		33,368,382	5.3	41,710	0.1
Lord Abbett Core Fixed Income	0.2 % of Assets	34,208,569	5.5	64,996	0.2
Loomis Sayles Multisector Full Discretion Trust	0.5 % of First \$20 M 0.4 % of Next \$20 M 0.3 % Thereafter	48,260,770	7.7	204,782	0.4
Octagon Senior Secured Credit Cayman Fund Ltd. - Class L Acc, Series 1	0.4 % of Assets	13,740,971	2.2	54,964	0.4
Invesco Mortgage Recovery Loans Feeder Fund		53,601	0.0		
PRIM Portfolio Completion Strategies		14,812,213	2.4		
Corbin Pinehurst Partners	0.9 % of Assets	12,494,827	2.0	106,206	0.9
UBS Neutral Alpha Strategies	0.9 % of Assets	13,743,144	2.2	123,688	0.9
Entrust Peru Wind Down	0.5 % of Assets	730,690	0.1	3,653	0.5
Cash Account		7,151,027	1.1		
Morgan Stanley Prime Property (\$2.8m commitment in '95)		26,975,346	4.3		
TA Realty Core Property Fund, LP (\$15m commitment in '19)		28,645,200	4.6		
Invesco Mortgage Recovery II (\$3M commitment in '15)		942,943	0.2		
Landmark VI (\$2m commitment in '11)		45,198	0.0		
Landmark VIII (\$4m commitment in '17)		1,827,480	0.3		
StepStone Real Estate Fund II (\$2m commitment in '11)		462,324	0.1		
Cerberus Institutional Real Estate Partners III (\$1.5m commitment in '12)		483,850	0.1		
TA Realty Fund X LP (\$3.5m commitment in '12)		3,478	0.0		

FEE SCHEDULE

Account Name	Fee Schedule	Market Value (\$)	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
TerraCap Partners III, LP (\$2.6m commitment in '15)		1,365,970	0.2		
TerraCap Partners IV, LP (\$4m commitment in '17)		3,532,850	0.6		
TerraCap Partners V, LP (\$8m commitment in '22)		8,713,543	1.4		
PRIM Vintage Year 2008 (\$3m commitment in '08)		817,522	0.1		
PRIM Vintage Year 2009 (\$1m commitment in '09)		99,181	0.0		
PRIM Vintage Year 2010 (\$1m commitment in '10)		496,036	0.1		
PRIM Vintage Year 2011 (\$1.5m commitment in '11)		874,500	0.1		
PRIM Vintage Year 2012 (\$1m commitment in '12)		458,262	0.1		
PRIM Vintage Year 2014 (\$2m commitment in '14)		2,245,060	0.4		
PRIM Vintage Year 2017 (\$2m commitment in '17)		2,507,219	0.4		
PRIM Vintage Year 2020 (\$5m commitment in '20)		3,360,709	0.5		
PRIM Vintage Year 2021 (\$5m commitment in '21)		2,593,046	0.4		
PRIM Vintage Year 2022 (\$7.5m commitment in '22)		769,172	0.1		
Alcentra European DLF (\$5m commitment in '14)		195,385	0.0		
Ascent Fund IV-B (\$1m commitment in '16)		40,331	0.0		
Ascent Fund V (\$2m commitment in '08)		1,363,534	0.2		
Ascent VI (\$3m commitment in '15)		3,482,574	0.6		
CVI Credit Value Fund IV A LP (\$6m commitment in '17)		5,402,590	0.9		
Invesco Fund VI (\$5m commitment in '13)		1,068,293	0.2		
Kayne Energy Fund VII (\$5m commitment in '15)		3,388,589	0.5		
Foundry 2007 (\$3m commitment in '07)		484,267	0.1		
Foundry 2010 (\$3m commitment in '10)		6,051,790	1.0		
Foundry 2010 Annex (\$0.4m commitment in '15)		1,114,610	0.2		
Pinebridge (AIG) PEP V Asia (\$6m commitment in '07)		35,776	0.0		
Pinebridge (AIG) PEP V Co-Investment (\$6m commitment in '07)		96,394	0.0		
Pinebridge (AIG) PEP V Europe (\$6m commitment in '07)		18,235	0.0		
Pinebridge (AIG) PEP V Large Market US Buyout (\$6m commitment in '07)		85,418	0.0		
Pinebridge (AIG) PEP V Preferred Participation Fund (\$6m commitment in '07)		93,372	0.0		
Pinebridge (AIG) PEP V Secondary (\$6m commitment in '07)		24,803	0.0		
Pinebridge (AIG) PEP V Small-Mid Market US Buyout (\$6m commitment in '07)		90,345	0.0		
Pinebridge (AIG) PEP V US Venture (\$6m commitment in '07)		48,391	0.0		
Landmark XV (\$3m commitment in '13)		773,750	0.1		
JFL Equity Investors IV, L.P. (\$6m commitment in '16)		1,634,445	0.3		
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)		4,671,521	0.7		

FEE SCHEDULE

Account Name	Fee Schedule	Market Value (\$)	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Park Square Credit Opportunities III (\$3m commitment in '17)		2,767,479	0.4		
Ironsides Constitution Opportunities (\$3m commitment in '18)		2,206,982	0.4		
HarbourVest Dover Street X (\$9m commitment in '20)		7,026,359	1.1		
Hamilton Lane Secondary Fund V LP (\$9m commitment in '20)		7,250,273	1.2		
Constitution Ironsides Co-Investment Fund VI (\$12m commitment in '21)		13,788,863	2.2		
JFL Equity Investors V, L.P. (\$9m commitment in '20)		7,520,418	1.2		
HarbourVest Co-Investment Fund VI (\$8m commitment in '21)		1,165,382	0.2		
Investment Manager Fee		625,210,200	100.0	2,155,654	0.3

The estimated fee for private markets, inclusive of carried interest, is ~\$3,541,145 annually, which brings the total expense ratio for privates to ~53 bps. This brings the total estimated expense ratio for MWRA to ~83 bps.



NOTES

- 1 - Results for periods longer than one year are annualized.
- 2 - Total Balances, Large Cap, Small Cap, and Other Composite performance starts 12/1/2010.
- 3 - Preliminary Total Composite net of fee since inception return is 6.6% for the current month.
- 4 - Preliminary Total Composite gross of fee since inception return is 8.2% for the current month.
- 5 - Targets, Allocation Index, and Policy Index have been updated to reflect new allocation of 02/01/2022.
- 6 - Policy Index changed from Nasdaq to Cambridge All PE to reflect as of 5/1/2012.
- 7 - Policy Index Consists of: 24% S&P 500, 7% Russell 2000, 12% MSCI ACWI IMI, 7% MSCI Emerging Markets, 12% Bloomberg US Aggregate TR, 8% Bloomberg US Universal TR, 6% HFRI Fund of Funds Composite Index, 12% NCREIF Property Index, 12% CIA US All PE.
- 8 - Allocation index consists of: Weighted index of underlying managers to their respective benchmark.

DISCLAIMERS & DISCLOSURES

Past performance is no guarantee of future results.

Returns for pooled funds, e.g. mutual funds and collective investment trusts, are collected from third parties; they are not generally calculated by NEPC. Returns for separate accounts, with some exceptions, are calculated by NEPC. Returns are reported net of manager fees unless otherwise noted.

A “since inception” return, if reported, begins with the first full month after funding, although actual inception dates (e.g. the middle of a month) and the timing of cash flows are taken into account in Composite return calculations.

NEPC’s preferred data source is the plan’s custodian bank or record-keeper. If data cannot be obtained from one of the preferred data sources, data provided by investment managers may be used. Information on market indices and security characteristics is received from additional providers. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within. In addition, some index returns displayed in this report or used in calculation of a policy index, allocation index or other custom benchmark may be preliminary and subject to change.

All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.

The opinions presented herein represent the good faith views of NEPC as of the date of this presentation and are subject to change at any time. Neither fund performance nor universe rankings contained in this report should be considered a recommendation by NEPC.

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Source of private fund performance benchmark data: Cambridge Associates, via Refinitiv

Asset Allocation Rebalance Summary

November 11, 2022

	Market Value	Weight in Fund	Target Weight	Recommendation	New Market Value	New Weight
Composite	\$636,071,664	100.0%	100.0%	\$0	\$636,071,664	100.0%
Total Balanced	\$4,668,008	0.7%	0.0%	\$0	\$4,668,008	0.7%
PRIT Core Fund	\$4,668,008	0.7%	0.0%	\$0	\$4,668,008	0.7%
Total Domestic Equity	\$195,273,188	30.7%	31.0%	\$3,000,000	\$198,273,188	31.2%
Rhumblin Advisors S&P 500 Index Fund	\$62,254,049	9.8%	10.0%	\$0	\$62,254,049	9.8%
Coho Relative Value	\$48,780,204	7.7%	7.0%	\$3,000,000	\$51,780,204	8.1%
Polen Focused Growth	\$39,210,595	6.2%	7.0%	\$0	\$39,210,595	6.2%
Robeco Boston Partners Small Cap Value	\$23,171,795	3.6%	3.5%	\$0	\$23,171,795	3.6%
Loomis Sayles Small Cap Growth	\$21,856,545	3.4%	3.5%	\$0	\$21,856,545	3.4%
Total International Equity	\$96,169,968	15.1%	19.0%	\$0	\$96,169,968	15.1%
SEG - Baxter Street Fund	\$26,216,666	4.1%	5.0%	\$0	\$26,216,666	4.1%
Schroders International Alpha	\$25,361,381	4.0%	4.0%	\$0	\$25,361,381	4.0%
Baillie Gifford	\$13,072,867	2.1%	3.0%	\$0	\$13,072,867	2.1%
Axiom Emerging Markets	\$14,853,298	2.3%	3.5%	\$0	\$14,853,298	2.3%
ABS Emerging Markets Strategic Portfolio	\$16,665,756	2.6%	3.5%	\$0	\$16,665,756	2.6%
Total Equity	\$291,443,156	45.8%	50.0%	\$3,000,000	\$294,443,156	46.3%
Total Fixed Income	\$131,610,542	20.7%	20.0%	-\$6,000,000	\$125,610,542	19.7%
Garcia Hamilton	\$34,125,844	5.4%	6.0%	\$0	\$34,125,844	5.4%
Lord Abbett	\$34,773,010	5.5%	6.0%	-\$1,000,000	\$33,773,010	5.3%
Loomis Sayles Multi Sector Bonds	\$48,917,116	7.7%	7.0%	-\$3,000,000	\$45,917,116	7.2%
Octagon Senior Secured Loans	\$13,740,971	2.2%	1.0%	-\$2,000,000	\$11,740,971	1.8%
Invesco Mortgage Recovery	\$53,601	0.0%	0.0%	\$0	\$53,601	0.0%
Total Hedge Fund	\$41,780,874	6.6%	6.0%	-\$2,000,000	\$39,780,874	6.3%
PRIM Absolute Return Fund	\$14,812,213	2.3%		-\$2,000,000	\$12,812,213	2.0%
Corbin Pinehurst Partners	\$12,494,827	2.0%		\$0	\$12,494,827	2.0%
UBS Neutral Alpha Strategies	\$13,743,144	2.2%		\$0	\$13,743,144	2.2%
Entrust Peru Winddown	\$730,690	0.1%		\$0	\$730,690	0.1%
Total Real Estate	\$72,998,182	11.5%	12.0%	\$0	\$72,998,182	11.5%
TA Realty Core	\$28,645,200	4.5%		\$0	\$28,645,200	4.5%
Morgan Stanley PPF	\$26,975,346	4.2%		\$0	\$26,975,346	4.2%
Total Private Equity	\$86,110,876	13.5%	12.0%	\$0	\$86,110,876	13.5%
Cash	\$7,460,026	1.2%	0.0%	\$5,000,000	\$12,460,026	2.0%
Peoples United Cash	\$7,460,026	1.2%	0.0%	\$5,000,000	\$12,460,026	2.0%





Q3 2022 INVESTMENT REPORT

MWRA EMPLOYEES' RETIREMENT SYSTEM

NOVEMBER 17, 2022

Sebastian Grzejka, CAIA, Principal
Kiley Fischer, Sr. Consulting Analyst



GOALS & OBJECTIVES

Investment Return Objective

“Its primary goal is to provide promised benefits to participants and beneficiaries of the MWRA Employees’ Retirement system. Plan assets should be equal to or greater than the present value of the projected benefit obligations (“fully funded”). When Plan assets are less than the present value of projected benefit obligations, a schedule will be established, and a plan will be in place to meet a fully funded status. When achieving return objectives required to fully fund the system, the Board is intent on controlling risk. Consistency of returns and risk of loss are primary considerations. The Board has also determined that the annual performance of plan assets should not vary substantially from returns achieved by other public pension funds with similar goals and objectives.”

Return Expectations

The investment growth should be maintained in such a manner that the minimum nominal rate of return does not cause a negative real rate of return over a full market cycle:

Time Horizon: Return assumptions will be based on a ten-year time horizon with a detailed review and analysis to be made at least annually to monitor allocations and assumptions. Should a manager deviate from proscribed mandate or expected risk and return profile by a consequential degree, that manager may be reevaluated at any time

Liquidity Needs: Presently contributions exceed plan withdrawals to provide benefits, payouts, and/or plan expenses. Portfolio liquidity will be managed based on the cash flow needs of the System.

Regulatory Considerations: Assets of this Fund shall be invested in a manner consistent with the fiduciary standards established under Code of Massachusetts Regulations 840 (“840 CMR”). The Board shall also use as precedent the Employee Retirement Income Security Act (ERISA).



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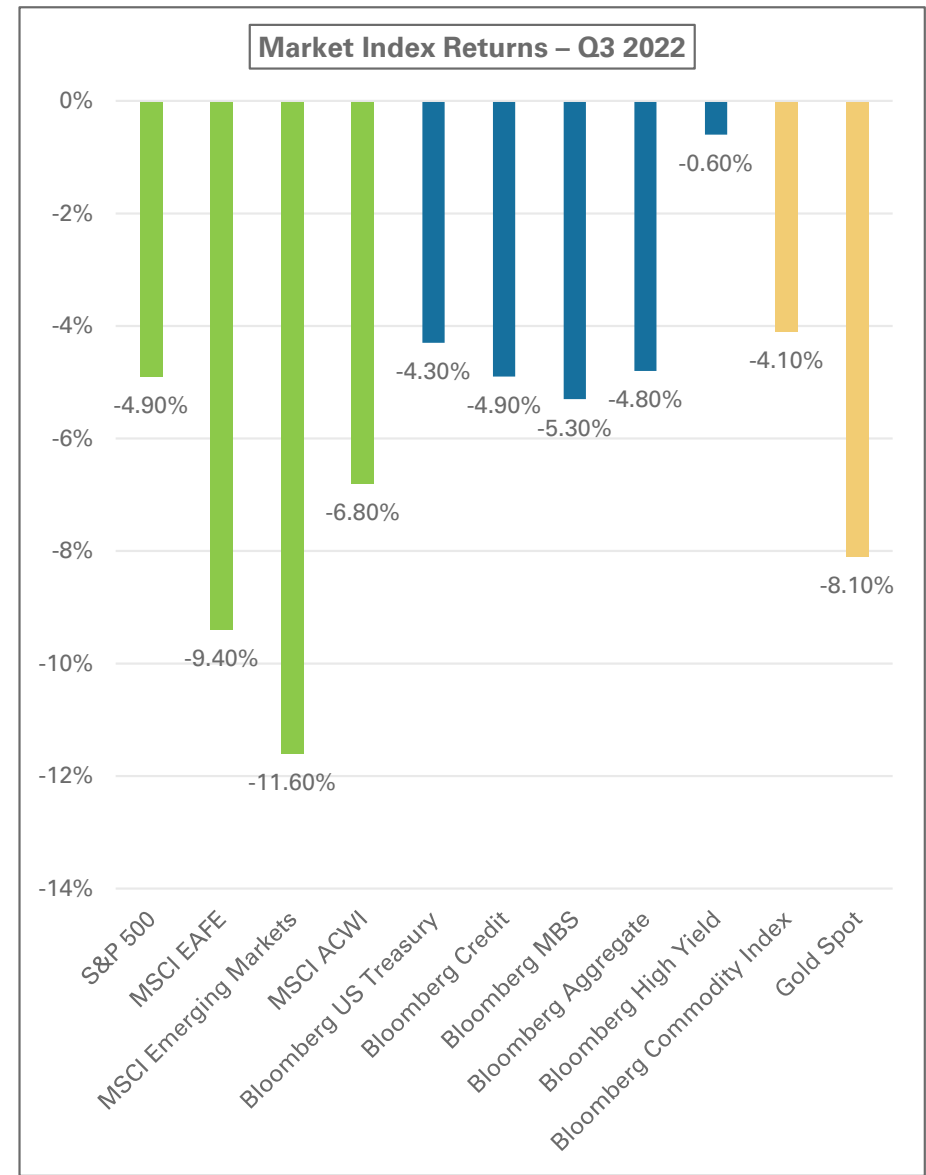


MARKET REVIEW



QUARTER IN REVIEW – Q3 2022

- **Equities continued their downward slide through September as central banks around the globe reiterated their commitment to tighter monetary policies amid persisting inflationary pressures despite softening economic growth**
 - Within fixed income, the yield curve flattened with 10- and 30-year Treasury yields rising 67 and 52 basis points, respectively in September
- **Major indices continued to decline with the S&P 500 Index down -4.9%**
 - Non-US stocks fared worse with the MSCI EAFE Index declining 9.4% and MSCI Emerging Markets Index declining 11.6%
- **The Federal Reserve boosted the Fed Funds rate by another 75 basis points in September, its third consecutive rate hike this year**
 - Bloomberg Aggregate Bond Index declined 4.8%
- **In real assets, commodities experienced a volatile third quarter amid concerns around weakening global demand and supply constraints**
 - The Bloomberg Commodity Index was down 4.1%



KEY THEMES FOR INVESTORS

Stagflation dynamics pose a challenge to portfolio diversification and represent a headwind for equity valuations and profit margins

The path of U.S. corporate earnings do not reflect material weakness for 2023 despite the tightening monetary policy environment

Europe's economy is exposed to an energy shock as its infrastructure undergoes an emergency transplant to pivot from Russian energy

China's zero-COVID policy has global supply chain implications and continues to dampen consumer spending and industrial activity

U.S. Dollar strength reveals risks in the global financial system and will continue to pressure weaker markets, companies and nations

THE S&P 500 INDEX REMAINS IN A BEAR MARKET

LENGTH AND DEPTH OF S&P 500 BEAR MARKETS

Start	End	Length of Bear Market (Months)	Length of Recovery* (Months)	S&P 500 Decline
01/03/2022	?	9*	?	-24%*
02/19/2020	03/23/2020	1	5	-34%
10/09/2007	03/09/2009	17	59	-55%
03/24/2000	10/09/2002	31	80	-47%
08/25/1987	12/04/1987	3	20	-34%
11/28/1980	08/12/1982	21	3	-27%
01/11/1973	10/03/1974	21	69	-48%

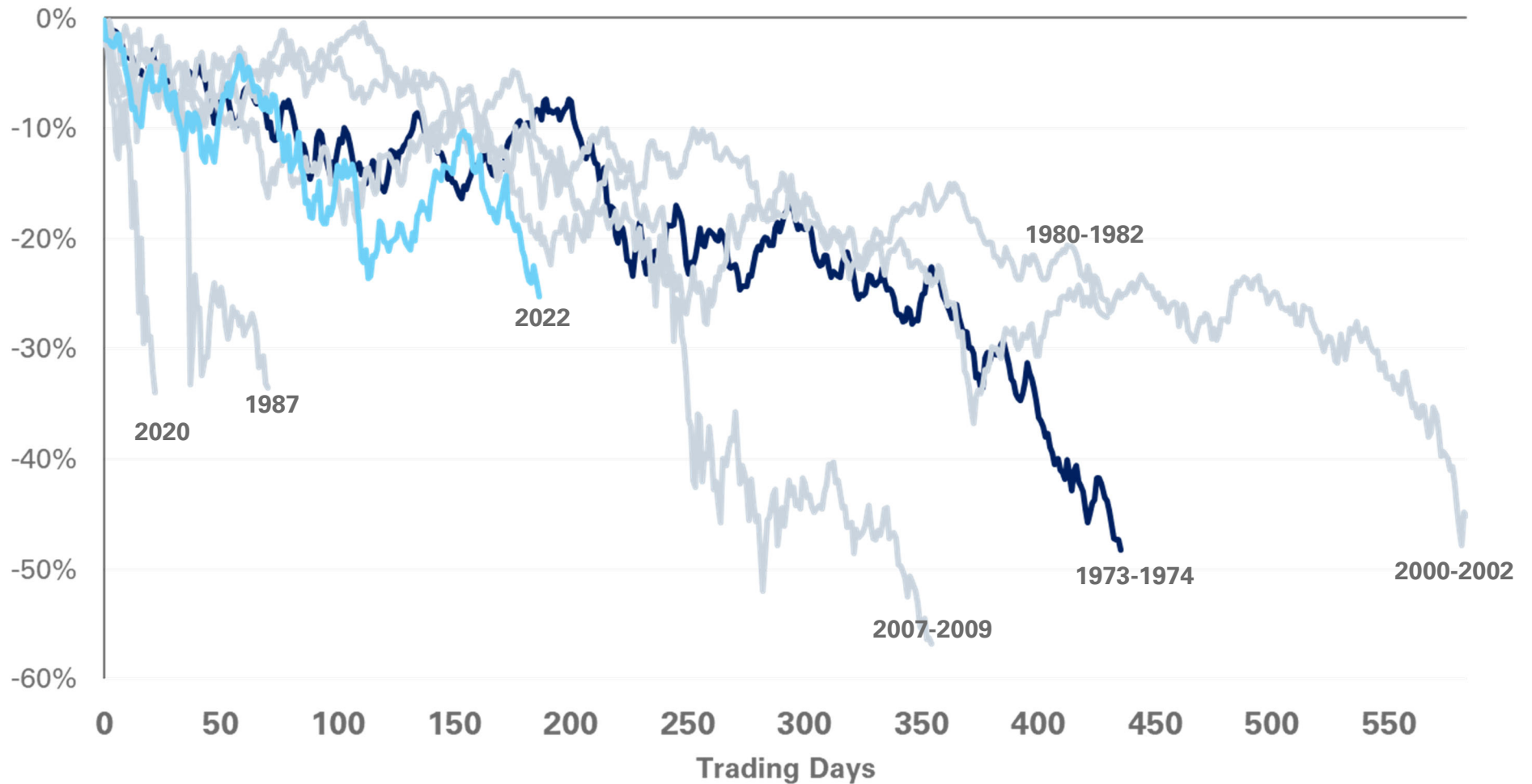
Notes: 2022 bear market is ongoing; represents historical bear markets since 1970. *Length of Recovery represents time to recoup losses from the start of the bear market.

Sources: S&P, FactSet, NEPC



THE BEAR MARKET IS TRENDING WITH THE PAST

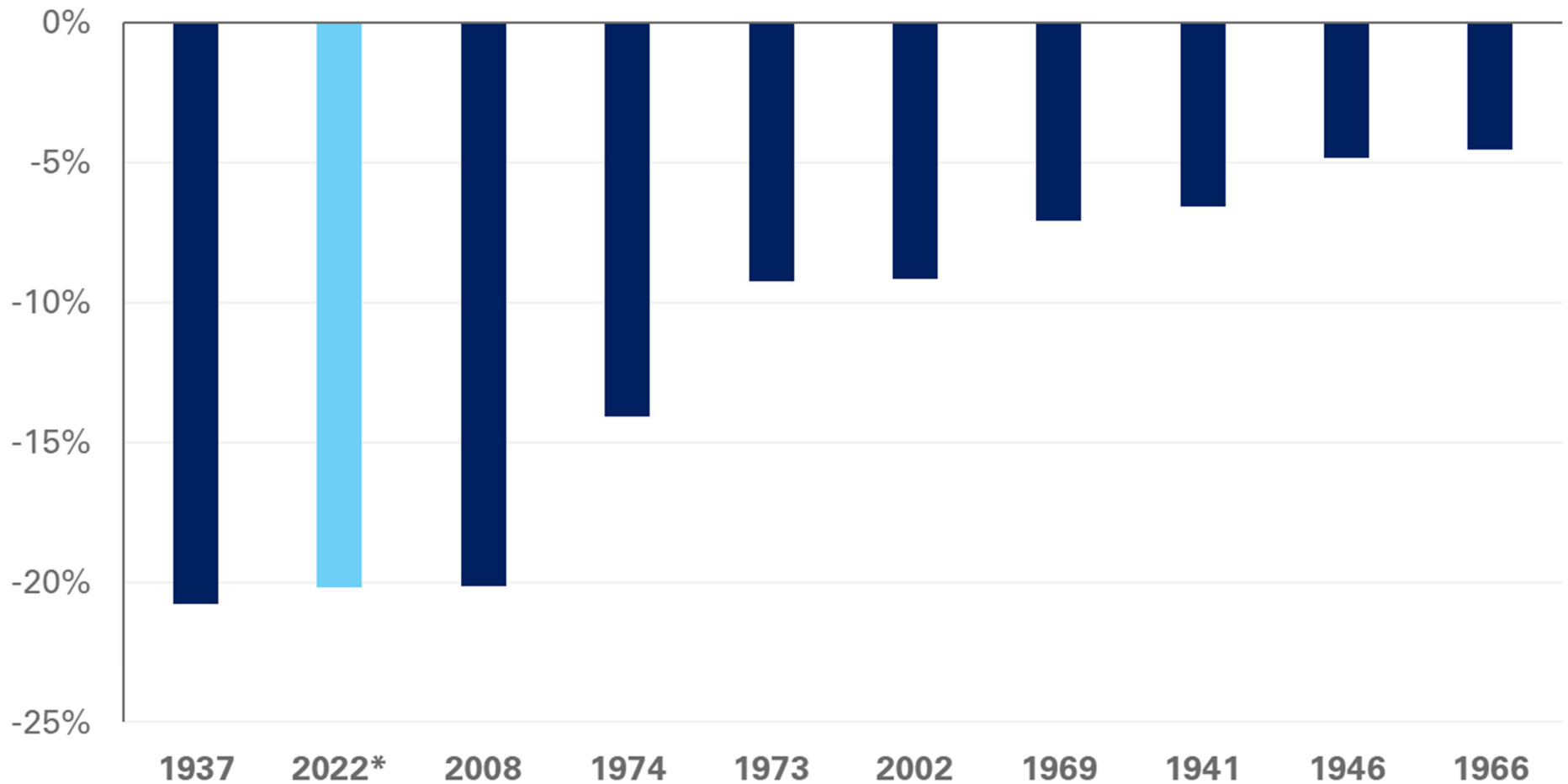
HISTORICAL S&P 500 BEAR MARKET PATHS RELATIVE TO TODAY



Sources: S&P, FactSet, NEPC

60/40 PORTFOLIO ON TRACK FOR WORST YEAR

WORST ANNUAL RETURNS: 60/40 PORTFOLIO



60/40 Portfolio represents 60% S&P 500 and 40% U.S. Aggregate Bonds (post 1975) and 40% Treasury (prior to 1974)

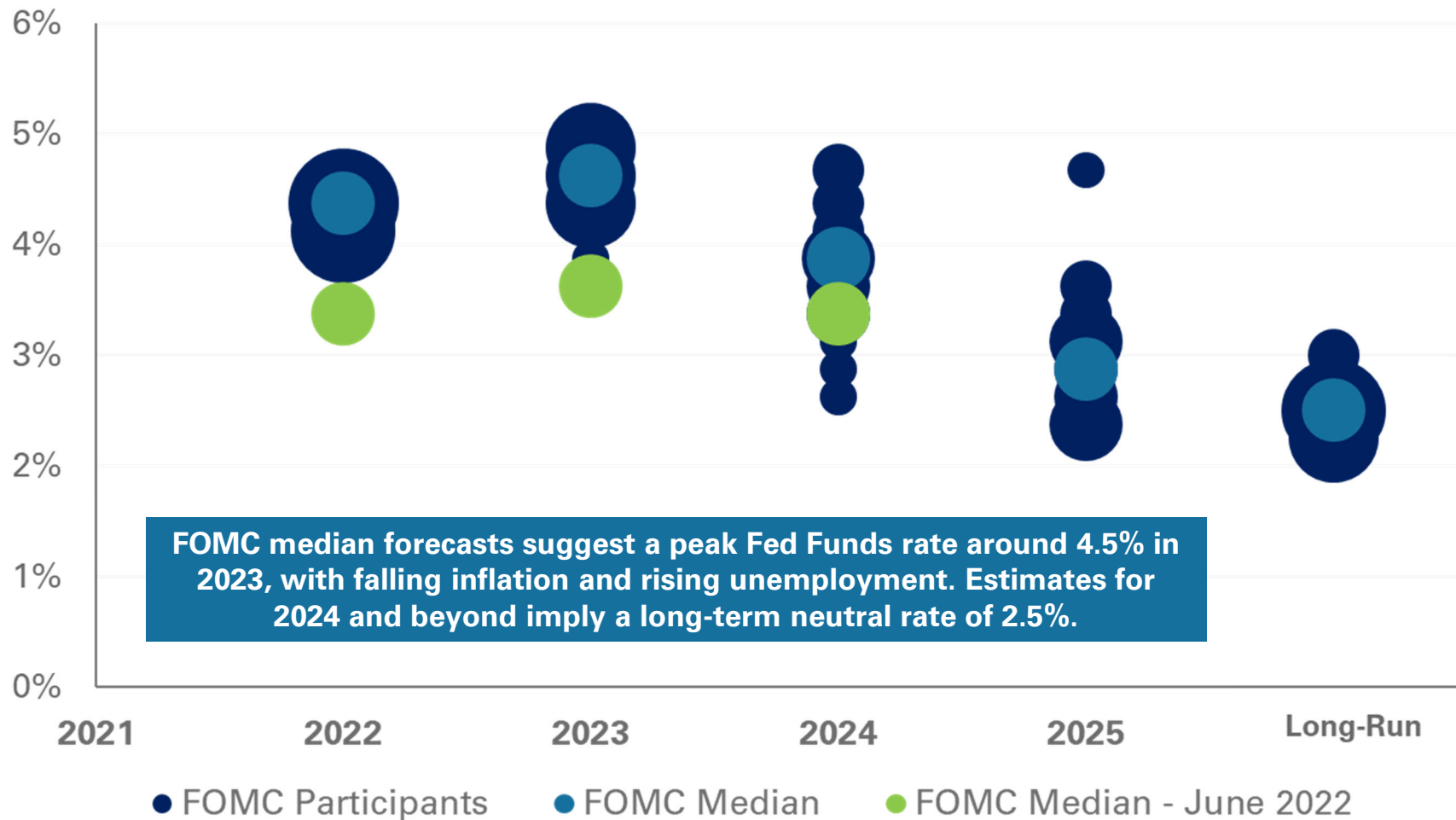
Data calculated from 12/31/1936; 2022 represents returns through the first nine months of the year

Sources: S&P, Bloomberg, FactSet



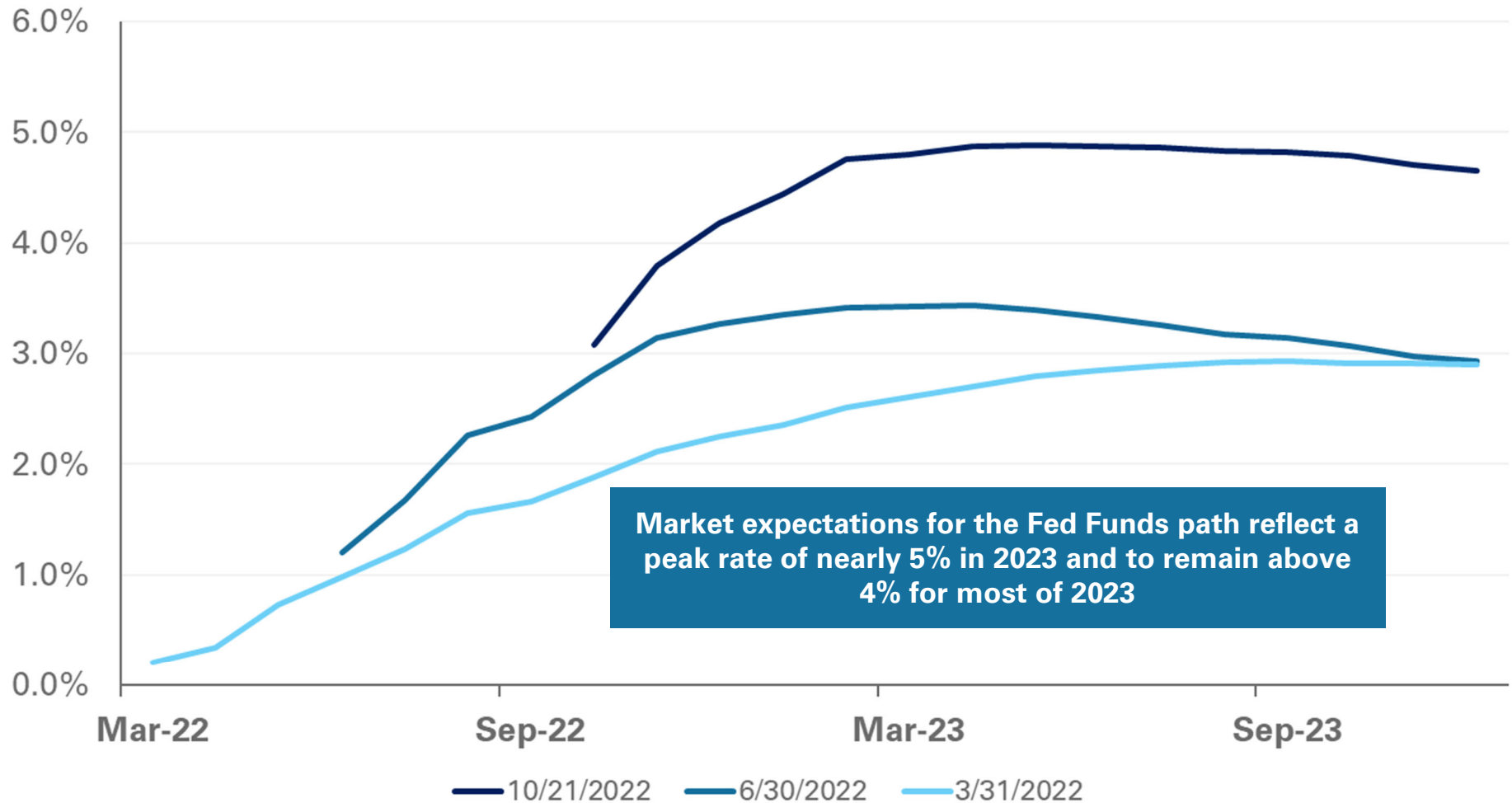
FOMC PROJECTS LOWER RATES IN 2024

FOMC DOT PLOT PROJECTIONS



FED FUNDS EXPECTATIONS CONTINUE TO RISE

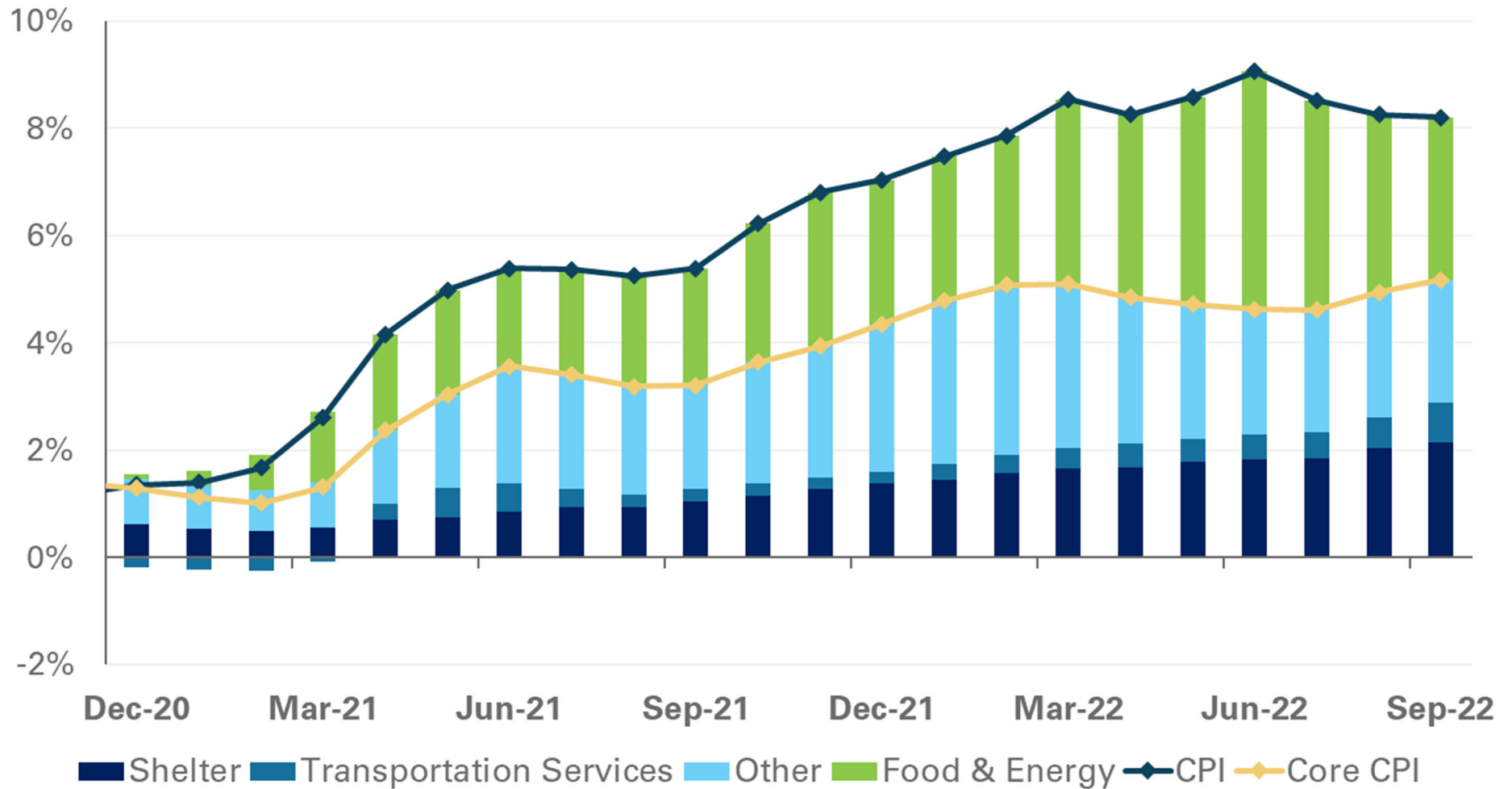
FEDERAL FUNDS FUTURES



Source: FactSet

CORE INFLATION CONTINUES TO REMAIN HIGH

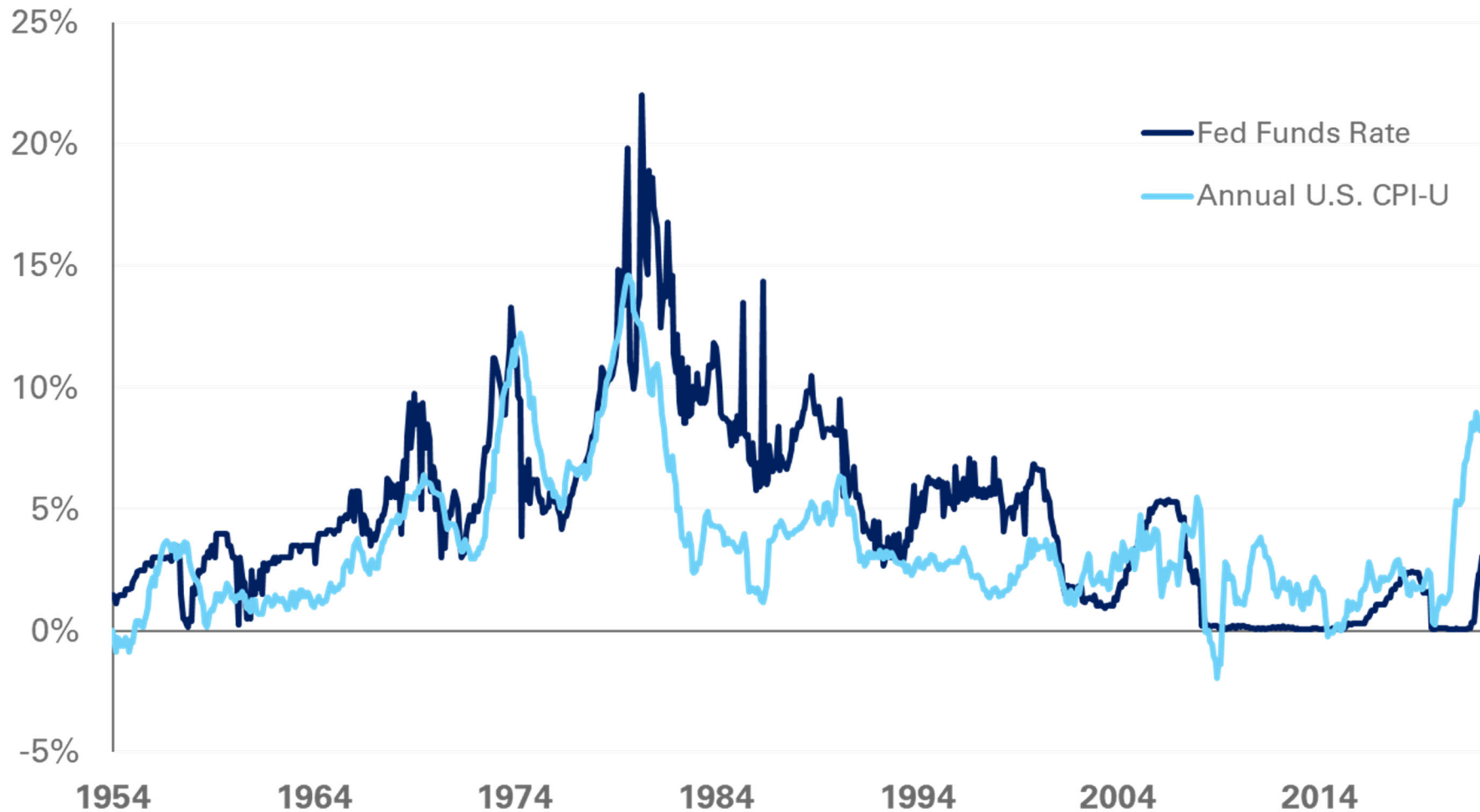
ANNUAL U.S. CPI-U CHANGES



Sources: Department of Labor, FactSet

INFLATION AND FED FUNDS NEED TO CONVERGE

HISTORICAL RELATIONSHIP BETWEEN FED FUNDS AND INFLATION



PORTFOLIO POSITIONING VIEWS

Maintain an **underweight equity posture** due to concerns related to the path of corporate earnings and stagflation growth dynamics

Our **conviction remains high** regarding the addition of value exposure to U.S. large-cap equity and the use of active global equity strategies

Despite the challenging environment, **we encourage maintaining adequate portfolio duration** with safe-haven fixed income exposure

Look to **build exposure to short-term investment grade credit** as higher yields boost our outlook relative to risk assets

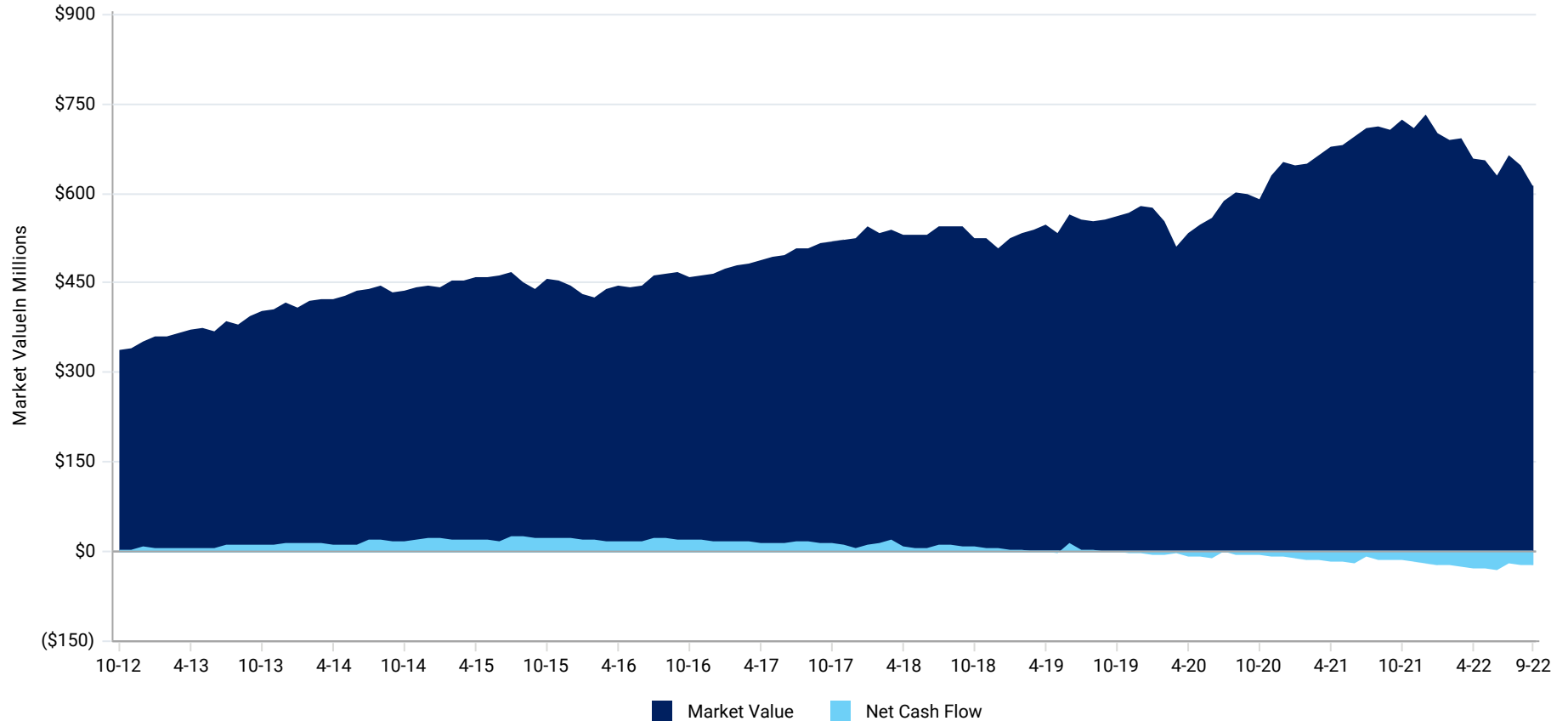


THIRD QUARTER PLAN PERFORMANCE



TOTAL FUND ASSET GROWTH SUMMARY

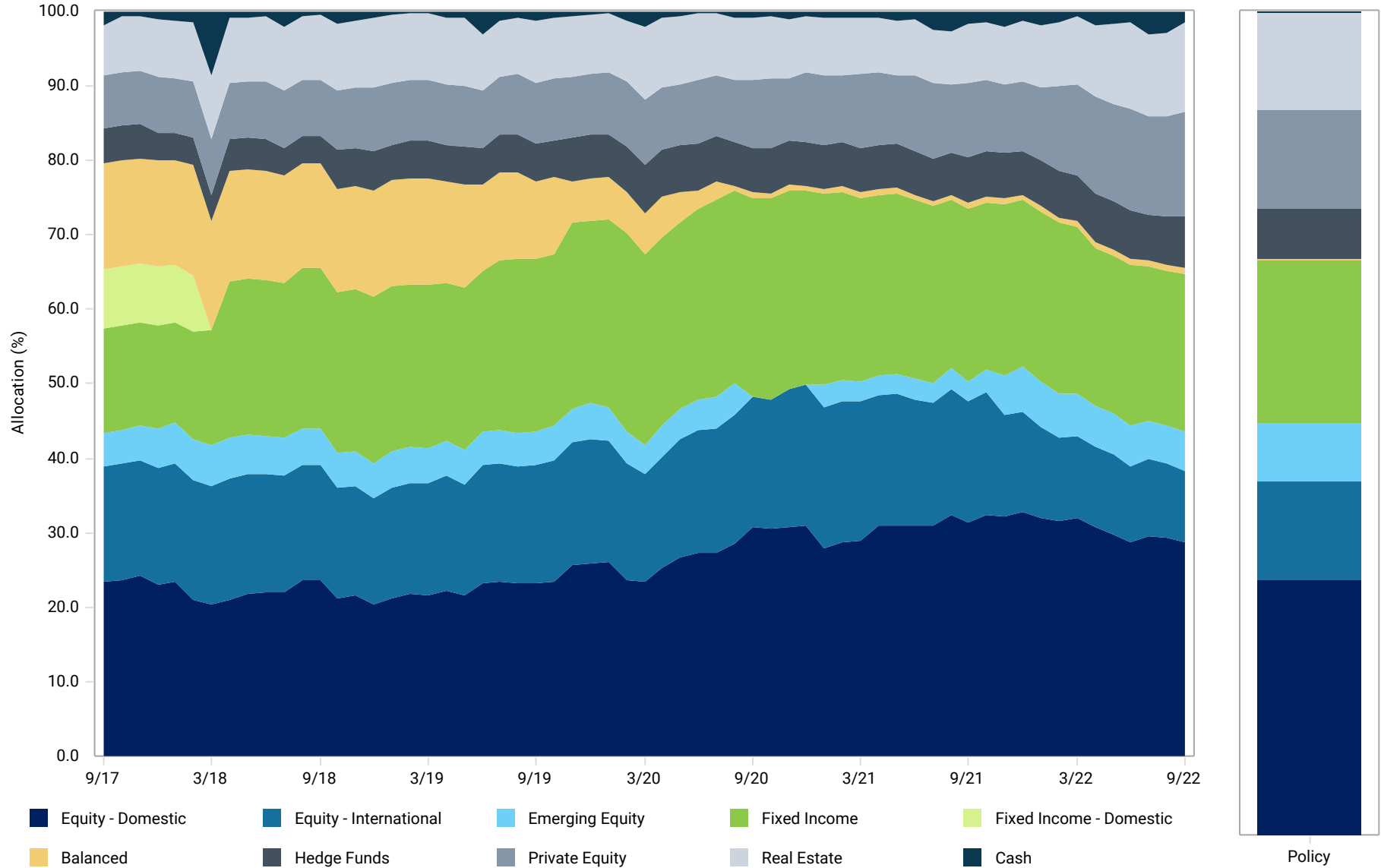
10 Years Ending September 30, 2022



	Last Three Months	Year To Date	1 Year	3 Years	5 Years	7 Years	10 Years
Beginning Market Value	630,252,883	731,202,570	706,552,081	555,832,284	515,414,914	439,942,604	335,246,724
Net Cash Flow	6,509,980	-4,512,313	-8,992,361	-25,152,218	-38,726,606	-45,381,002	-23,779,584
Net Investment Change	-24,470,065	-114,397,458	-85,266,922	81,612,732	135,604,490	217,731,197	300,825,658
Ending Market Value	612,292,798	612,292,798	612,292,798	612,292,798	612,292,798	612,292,798	612,292,798
Net Change	-17,960,085	-118,909,772	-94,259,283	56,460,514	96,877,884	172,350,194	277,046,074

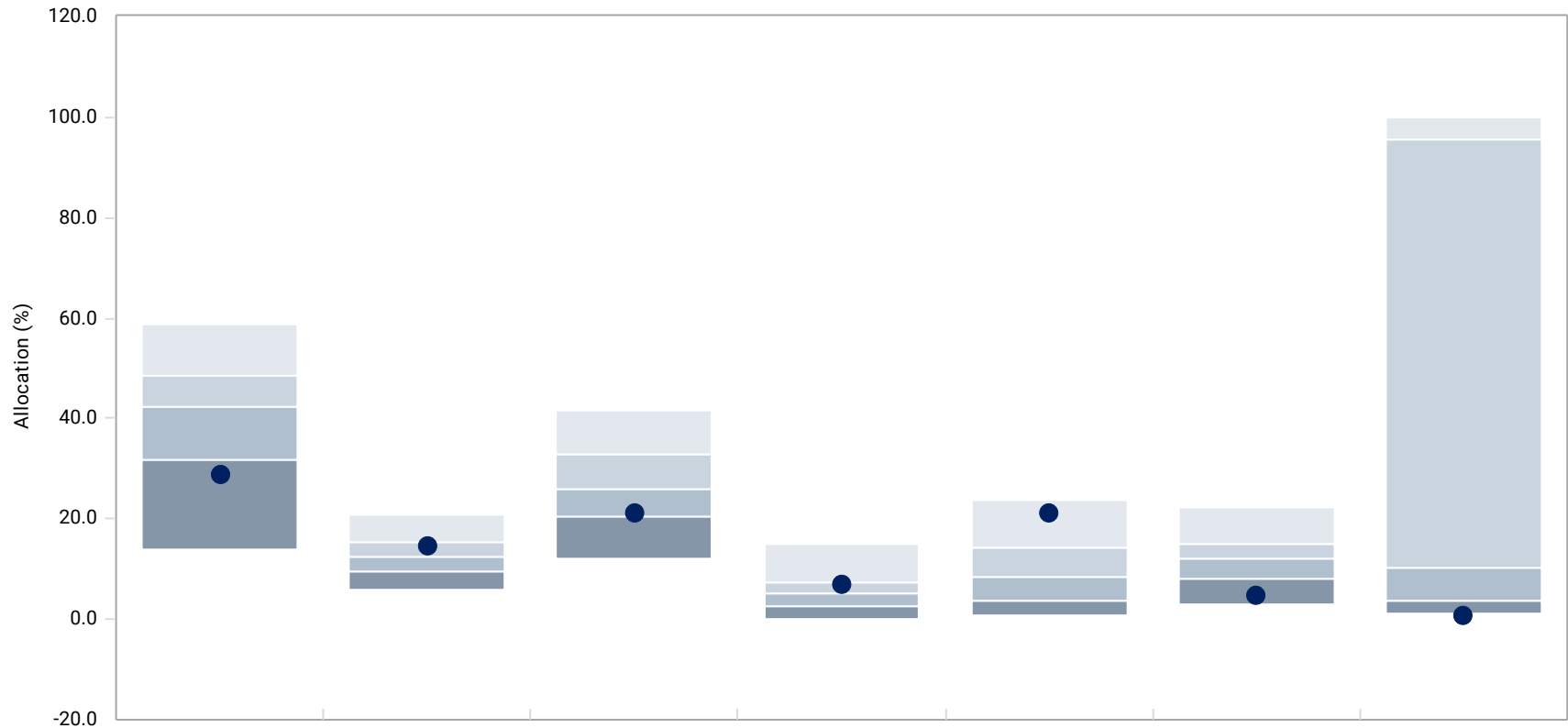
TOTAL FUND ASSET ALLOCATION HISTORY

Historical Asset Allocation



TOTAL FUND ALLOCATIONS VS. PEER UNIVERSE

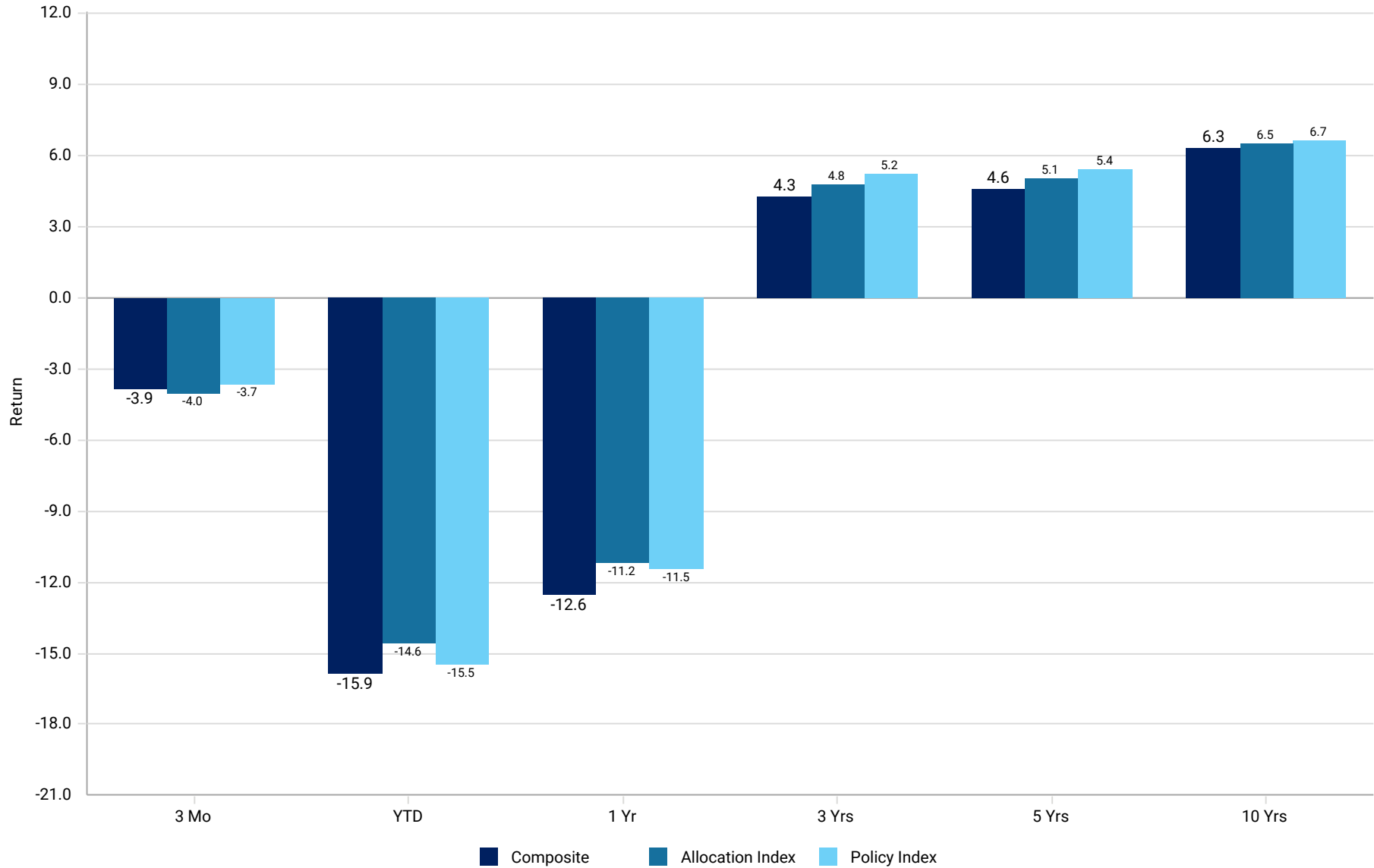
Total Fund Allocation vs. All Public DB Plans



	US Equity	Global ex-US Equity	Total Fixed Income	Hedge Funds	Private Equity	Real Estate - Private	Balanced
● Composite	28.8 (80)	14.7 (29)	21.3 (72)	6.8 (29)	21.3 (11)	4.8 (92)	0.8 (98)
5th Percentile	58.8	20.9	41.7	15.1	23.8	22.5	100.0
1st Quartile	48.5	15.5	32.7	7.4	14.3	15.0	95.7
Median	42.3	12.6	25.9	5.3	8.6	11.9	10.2
3rd Quartile	31.8	9.6	20.5	2.5	3.6	8.2	3.7
95th Percentile	13.9	5.9	12.1	0.1	0.7	2.9	1.1
Population	547	522	537	106	169	319	42

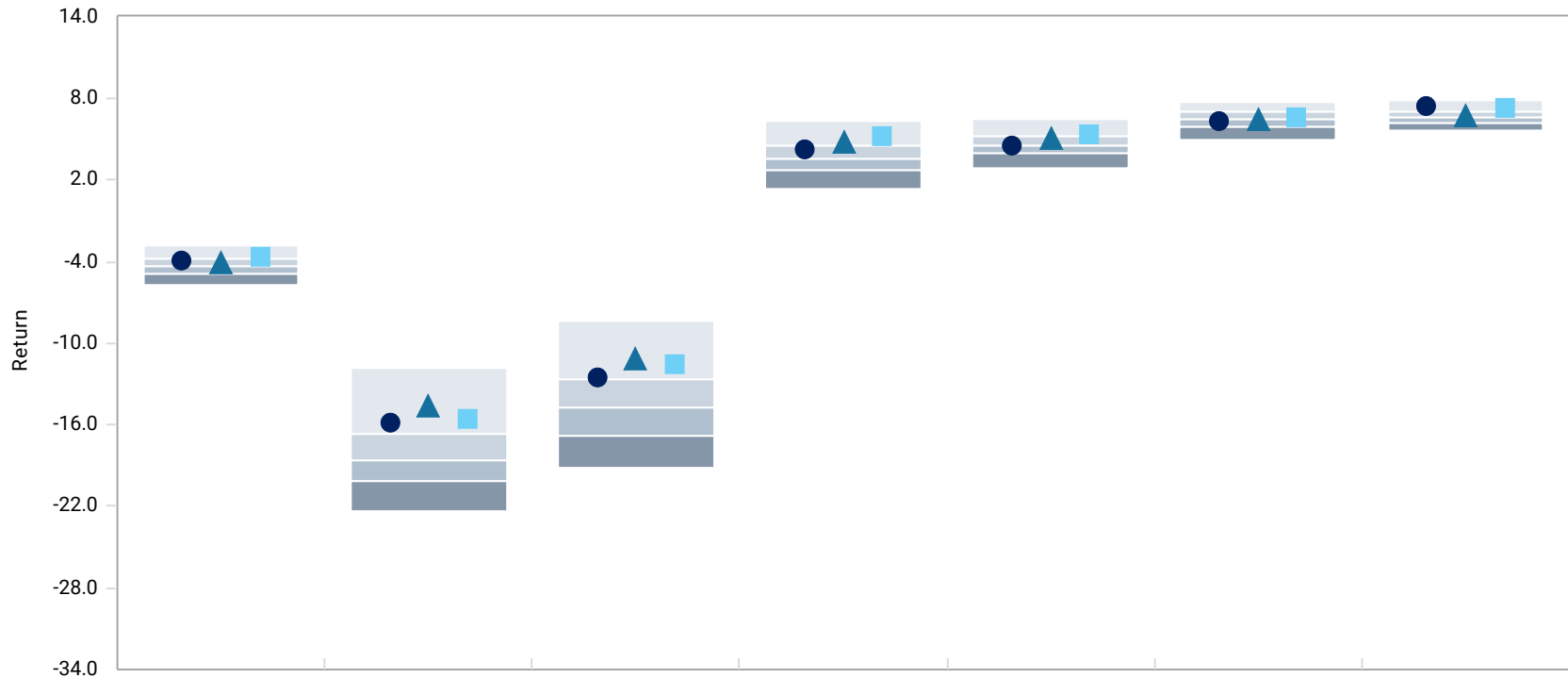
TOTAL FUND RETURN SUMMARY

Return Summary (net of fees)



TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

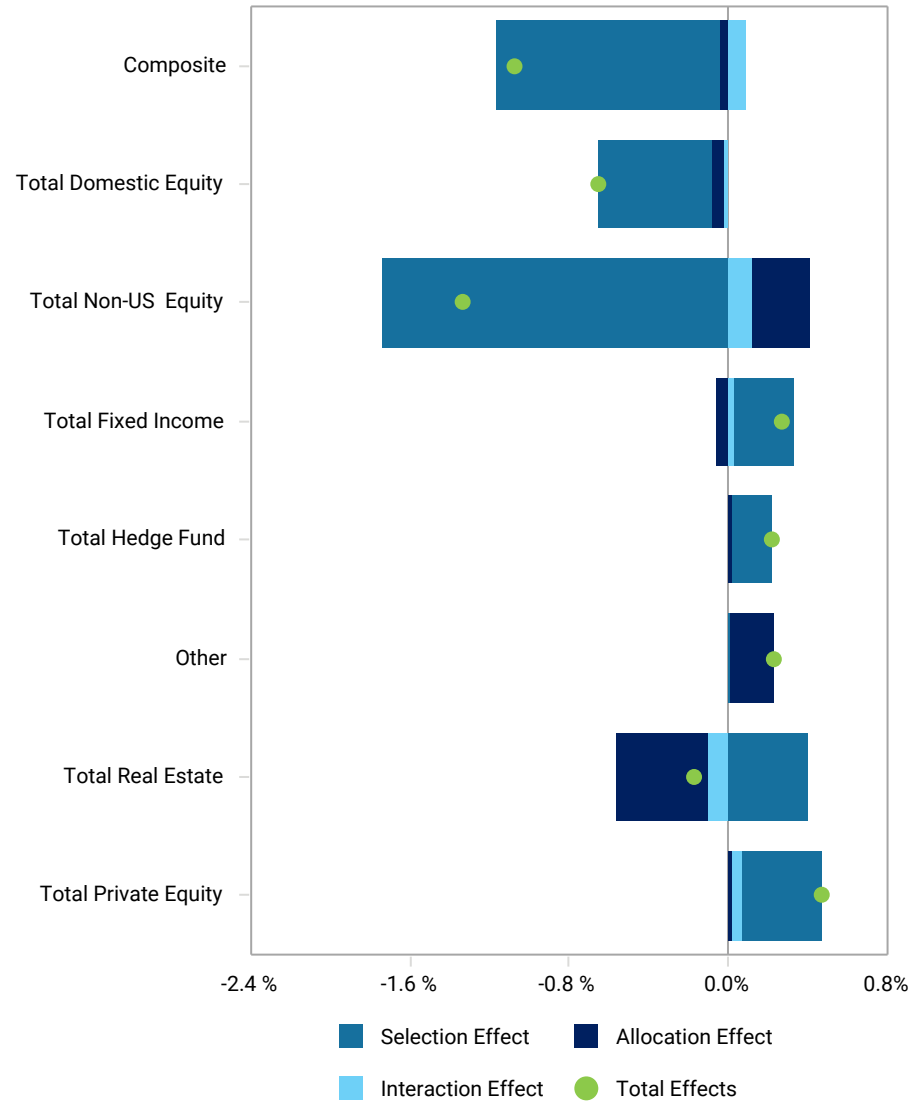
Composite vs. All Public DB Plans



	3 Mo	YTD	1 Year	3 Years	5 Years	10 Years	20 Years
● Composite	-3.9 (27)	-15.9 (20)	-12.6 (25)	4.3 (31)	4.6 (49)	6.3 (59)	7.4 (13)
▲ Allocation Index	-4.0 (33)	-14.6 (14)	-11.2 (16)	4.8 (19)	5.1 (29)	6.5 (45)	6.8 (43)
■ Policy Index	-3.7 (20)	-15.5 (17)	-11.5 (17)	5.2 (14)	5.4 (20)	6.7 (38)	7.3 (18)
5th Percentile	-2.8	-11.8	-8.4	6.4	6.5	7.7	7.8
1st Quartile	-3.8	-16.6	-12.6	4.5	5.2	7.0	7.1
Median	-4.3	-18.6	-14.8	3.6	4.6	6.4	6.7
3rd Quartile	-4.9	-20.1	-16.7	2.7	4.0	5.9	6.2
95th Percentile	-5.7	-22.4	-19.2	1.4	2.9	5.0	5.6
Population	612	606	601	585	569	478	232

TOTAL FUND ATTRIBUTION

Attribution Effects
1 Year Ending September 30, 2022



Attribution Summary
1 Year Ending September 30, 2022

	Wtd. Actual Return (%)	Wtd. Index Return (%)	Excess Return (%)	Selection Effect (%)	Allocation Effect (%)	Interaction Effects (%)	Total Effects (%)
Total Domestic Equity	-18.9	-17.3	-1.6	-0.6	-0.1	0.0	-0.7
Total Non-US Equity	-31.4	-23.7	-7.7	-1.6	0.3	0.1	-1.3
Total Fixed Income	-12.6	-14.1	1.5	0.3	-0.1	0.0	0.3
Total Hedge Fund	-2.9	-6.4	3.5	0.2	0.0	0.0	0.2
Other	0.5	0.6	-0.1	0.0	0.2	0.0	0.2
Total Real Estate	20.8	16.1	4.8	0.3	-0.5	-0.1	-0.2
Total Private Equity	6.2	2.9	3.3	0.5	0.0	0.1	0.5
Composite	-12.6	-11.5	-1.1	-0.9	0.0	0.1	-1.1

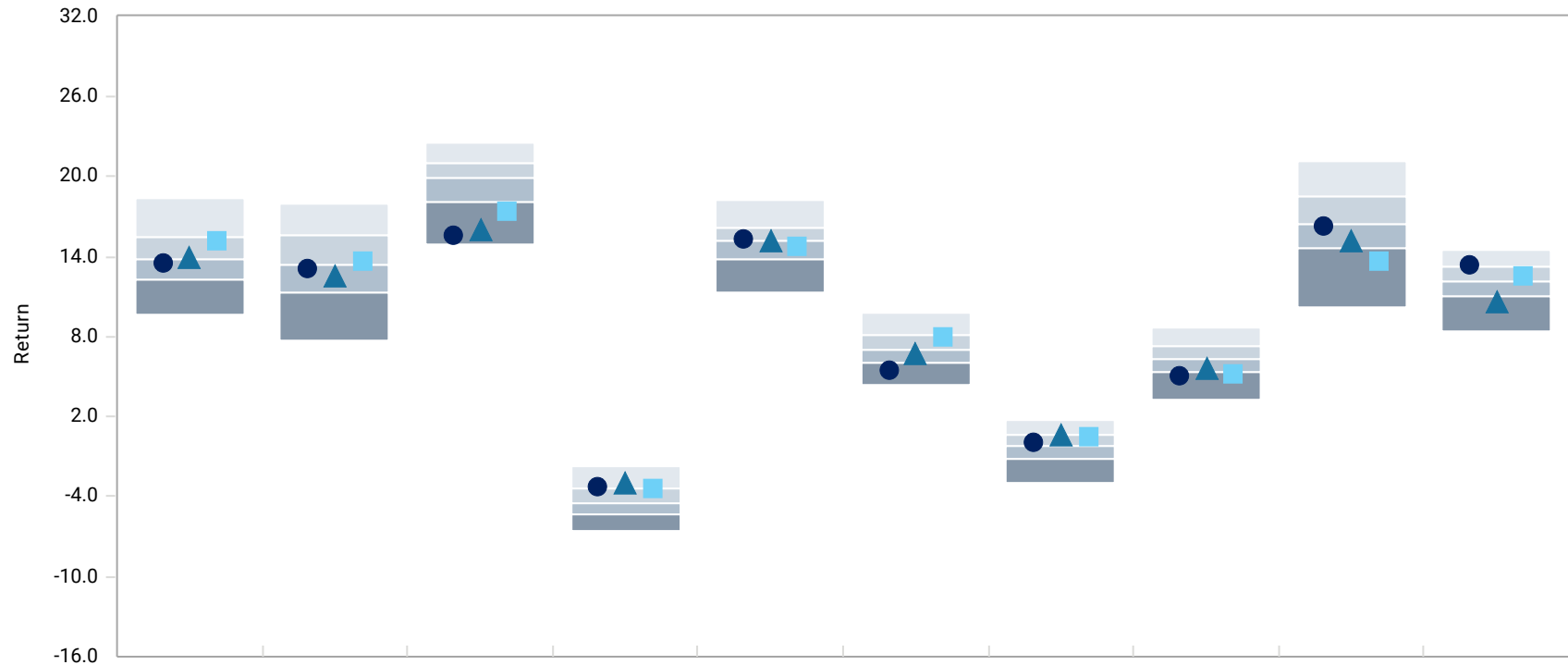
Note: Policy weights reflect the beginning of the period target weights.

Note: Plan attribution is a static, return based calculation and the results reflect the composites shown. As a result, the total returns shown may vary from the calculated returns shown on the performance summary.

*Total Actual and Index returns are weighted average calculations.

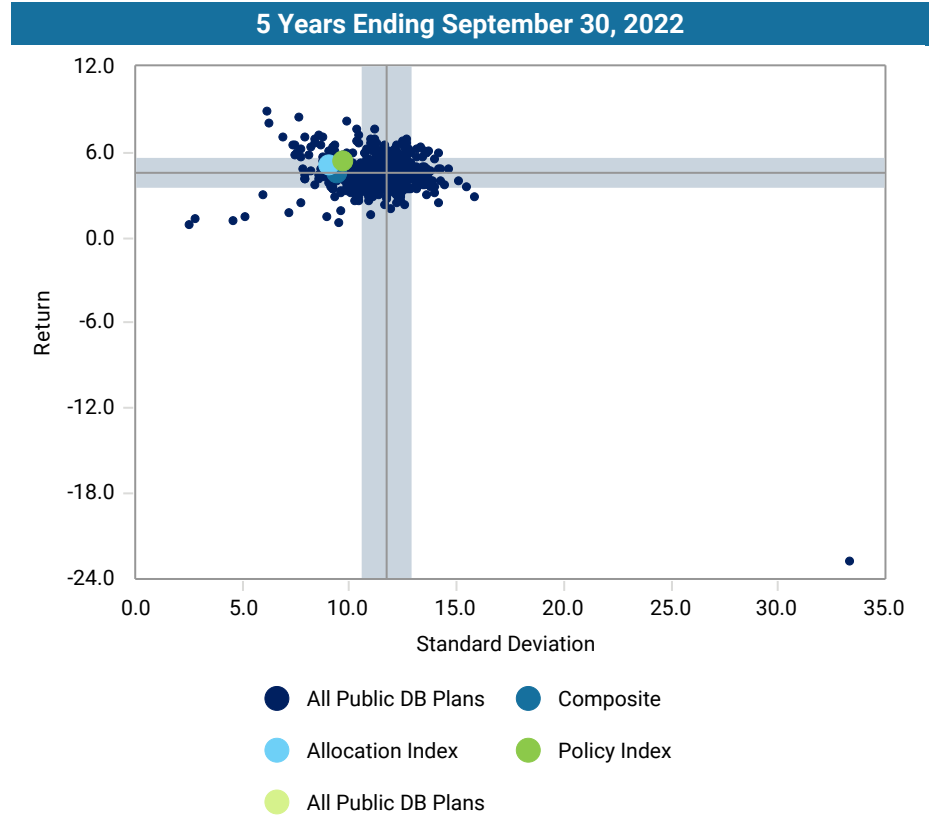
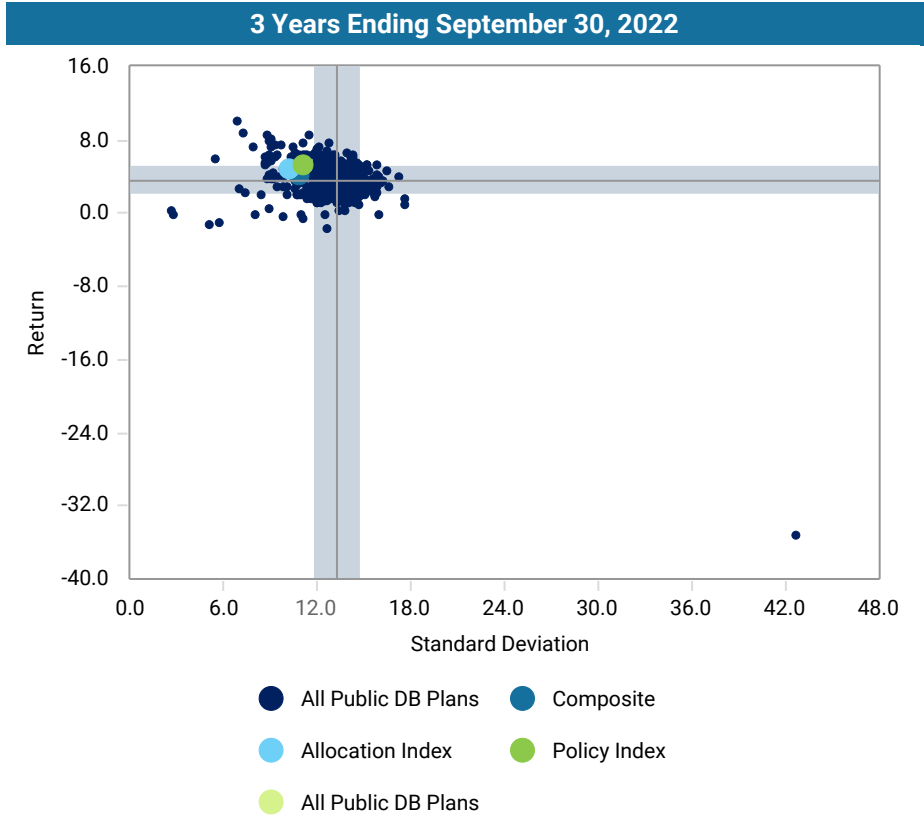
TOTAL FUND RETURN SUMMARY VS. PEER UNIVERSE

Composite vs. All Public DB Plans



	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
● Composite	13.5 (54)	13.1 (54)	15.6 (93)	-3.2 (22)	15.3 (49)	5.5 (87)	0.1 (41)	5.0 (82)	16.3 (52)	13.4 (25)
▲ Allocation Index	14.0 (46)	12.6 (59)	16.1 (91)	-3.0 (18)	15.1 (51)	6.8 (55)	0.6 (25)	5.6 (68)	15.2 (72)	10.6 (83)
■ Policy Index	15.3 (28)	13.7 (47)	17.4 (83)	-3.3 (24)	14.8 (57)	8.0 (27)	0.6 (28)	5.2 (80)	13.6 (84)	12.6 (43)
5th Percentile	18.4	18.0	22.6	-1.7	18.3	9.8	1.8	8.7	21.1	14.6
1st Quartile	15.5	15.6	21.0	-3.4	16.2	8.1	0.6	7.2	18.5	13.3
Median	13.8	13.3	19.9	-4.5	15.2	7.0	-0.3	6.3	16.5	12.2
3rd Quartile	12.4	11.3	18.2	-5.3	13.8	6.1	-1.2	5.4	14.7	11.1
95th Percentile	9.6	7.8	14.9	-6.5	11.4	4.4	-2.9	3.3	10.2	8.4
Population	916	975	724	717	701	696	643	618	604	594

TOTAL FUND RISK/RETURN - 3 YEARS & 5 YEARS



3 Years Ending September 30, 2022

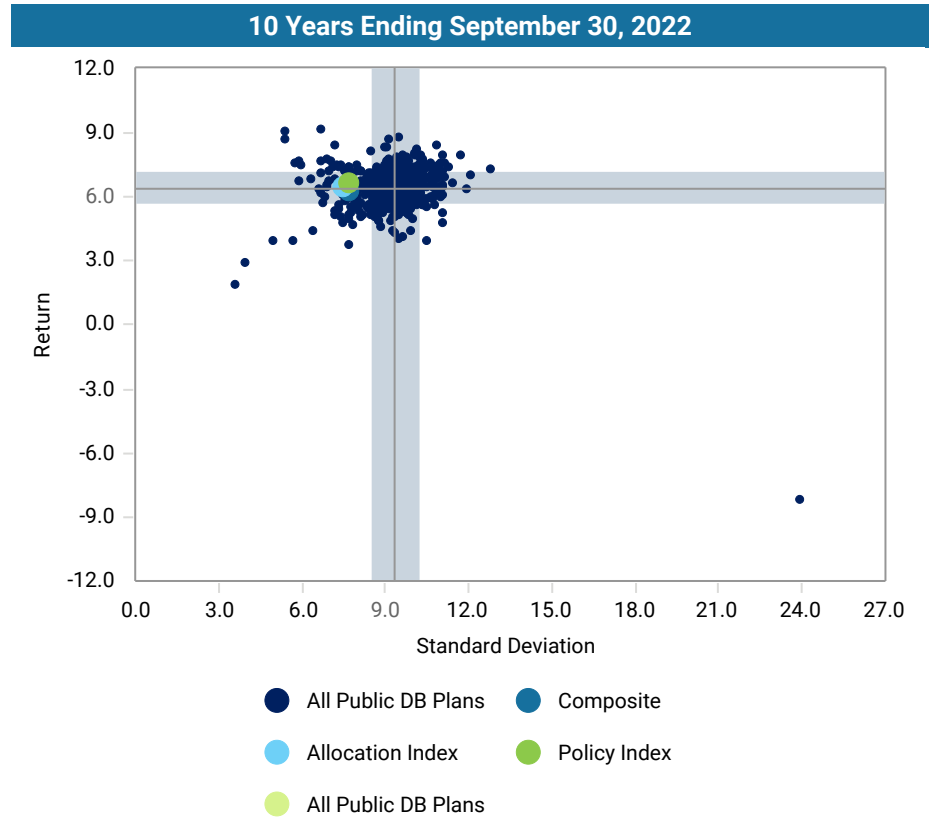
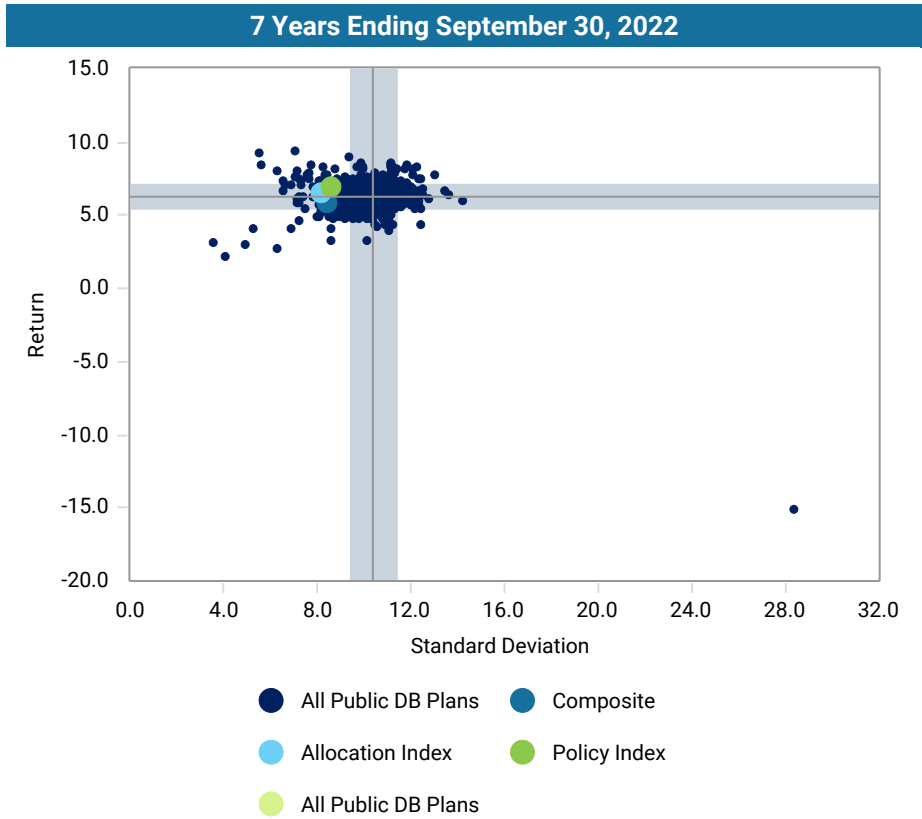
	Return	Standard Deviation	Sharpe Ratio
Composite	4.3 (31)	10.9 (11)	0.4 (21)
Allocation Index	4.8 (19)	10.2 (7)	0.4 (11)
Policy Index	5.2 (14)	11.1 (12)	0.5 (10)
Population	585	585	585

5 Years Ending September 30, 2022

	Return	Standard Deviation	Sharpe Ratio
Composite	4.6 (49)	9.4 (10)	0.4 (27)
Allocation Index	5.1 (29)	9.0 (7)	0.5 (12)
Policy Index	5.4 (20)	9.6 (12)	0.5 (11)
Population	569	569	569



TOTAL FUND RISK/RETURN - 7 YEARS & 10 YEARS



7 Years Ending September 30, 2022

	Return	Standard Deviation	Sharpe Ratio
Composite	5.8 (72)	8.4 (9)	0.6 (29)
Allocation Index	6.6 (33)	8.2 (7)	0.7 (9)
Policy Index	6.9 (22)	8.6 (10)	0.7 (9)
Population	539	539	539

10 Years Ending September 30, 2022

	Return	Standard Deviation	Sharpe Ratio
Composite	6.3 (59)	7.7 (9)	0.7 (16)
Allocation Index	6.5 (45)	7.5 (8)	0.8 (9)
Policy Index	6.7 (38)	7.7 (9)	0.8 (9)
Population	478	478	478



TOTAL FUND PERFORMANCE DETAIL (NET)

	Allocation			Performance (%)							
	Market Value (\$)	% of Portfolio	Policy(%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Composite	612,292,798	100.0	100.0	-3.9 (27)	-15.9 (20)	-12.6 (25)	4.3 (31)	4.6 (49)	6.3 (59)	6.6 (86)	Jan-86
Allocation Index				-4.0 (33)	-14.6 (14)	-11.2 (16)	4.8 (19)	5.1 (29)	6.5 (45)		
Policy Index				-3.7 (20)	-15.5 (17)	-11.5 (17)	5.2 (14)	5.4 (20)	6.7 (38)		
All Public DB Plans Median				-4.3	-18.6	-14.8	3.6	4.6	6.4	7.7	
Total Balanced	4,668,008	0.8	0.0	-4.7	-14.0	-9.4	5.8	4.0	4.2	4.3	Dec-10
PRIT Core Fund	4,668,008	0.8		-4.7	-15.0	-10.4	6.1	6.2	7.7	6.6	Apr-99
60% S&P 500 / 40% Bloomberg Aggregate				-4.8	-20.1	-14.8	3.9	5.7	7.5	5.7	
Total Domestic Equity	176,421,220	28.8	31.0	-4.4 (47)	-24.9 (58)	-18.9 (59)	6.6 (43)	8.4 (31)	10.7 (39)	6.9 (71)	May-99
Russell 3000 Index				-4.5 (49)	-24.6 (56)	-17.6 (52)	7.7 (31)	8.6 (28)	11.4 (26)	6.5 (78)	
eV All US Equity Median				-4.5	-23.8	-17.3	6.1	6.7	10.0	7.9	
Large Cap	136,506,534	22.3	24.0	-4.8 (39)	-25.2 (73)	-18.6 (81)	7.1 (45)	9.4 (24)	11.1 (38)	11.4 (39)	Dec-10
eV US Large Cap Core Equity Median				-5.1	-23.1	-15.6	6.9	8.1	10.7	11.0	
Rhumblin Advisors S&P 500 Index Fund	55,816,408	9.1	10.0	-4.9 (43)	-23.9 (59)	-15.5 (49)	8.1 (25)	9.2 (27)	11.6 (20)	8.3 (56)	Apr-97
S&P 500 Index				-4.9 (43)	-23.9 (59)	-15.5 (49)	8.2 (25)	9.2 (26)	11.7 (18)	8.3 (61)	
eV US Large Cap Core Equity Median				-5.1	-23.1	-15.6	6.9	8.1	10.7	8.4	
Coho Relative Value Equity	43,914,832	7.2	7.0	-3.8 (13)	-13.7 (20)	-5.0 (13)	7.6 (24)	8.4 (11)		9.3 (52)	Mar-16
Russell 1000 Value Index				-5.6 (52)	-17.8 (62)	-11.4 (62)	4.4 (78)	5.3 (67)	9.2 (61)	8.7 (65)	
eV US Large Cap Value Equity Median				-5.6	-16.8	-10.0	5.8	6.2	9.5	9.4	
Polen Focused Growth	36,775,294	6.0	7.0	-5.8 (81)	-37.8 (88)	-34.8 (87)	4.3 (84)	10.1 (42)		11.3 (63)	Feb-16
Russell 1000 Growth Index				-3.6 (32)	-30.7 (40)	-22.6 (36)	10.7 (12)	12.2 (12)	13.7 (9)	14.2 (8)	
eV US Large Cap Growth Equity Median				-4.3	-32.3	-26.0	7.2	9.7	11.9	11.8	
Small Cap	39,914,687	6.5	7.0	-3.0 (18)	-23.7 (83)	-20.3 (84)	5.1 (52)	5.7 (17)	9.6 (22)	10.1 (12)	Dec-10
eV US Small Cap Value Equity Median				-4.8	-20.4	-14.9	5.1	3.4	8.6	8.6	
Boston Partners Small Cap Value	20,234,684	3.3	3.5	-6.3 (79)	-19.3 (41)	-16.3 (65)	3.9 (70)	3.2 (57)	7.9 (64)	9.7 (36)	Feb-97
Russell 2000 Value Index				-4.6 (49)	-21.1 (58)	-17.7 (74)	4.7 (58)	2.9 (63)	7.9 (63)	8.2 (91)	
eV US Small Cap Value Equity Median				-4.8	-20.4	-14.9	5.1	3.4	8.6	9.3	
Loomis Sayles Small Cap Growth	19,680,003	3.2	3.5	0.6 (26)	-28.2 (23)	-24.3 (17)	5.6 (52)	7.5 (51)	10.9 (46)	6.2 (99)	Jan-97
Russell 2000 Growth Index				0.2 (30)	-29.3 (34)	-29.3 (45)	2.9 (84)	3.6 (86)	8.8 (88)	6.2 (99)	
eV US Small Cap Growth Equity Median				-1.3	-31.5	-30.1	5.6	7.6	10.5	9.0	

Since inception return is 8.3% gross of fees. Prior to 1999, performance history does not capture separate net and gross returns.

In November 2019, Loomis Sayles and Schroders transitioned from a mutual fund to a CIT structure. Performance prior to the transition to the CIT investment vehicle is linked to mutual fund performance history.

TOTAL FUND PERFORMANCE DETAIL (NET)

	Allocation			Performance (%)							
	Market Value (\$)	% of Portfolio	Policy(%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Non-US Equity	89,984,286	14.7	19.0	-10.9 (79)	-31.3 (65)	-31.4 (70)	-4.1 (90)	-2.5 (86)	2.6 (89)	3.1 (99)	Mar-99
<i>eV All ACWI ex-US Equity Median</i>				-9.6	-28.8	-26.9	-0.8	-0.5	4.2	5.3	
International Equity	57,681,499	9.4	12.0	-10.7 (73)	-31.3 (74)	-31.2 (79)	-3.3 (80)	-1.4 (59)	3.3 (77)	2.3 (95)	Sep-05
<i>eV All EAFE Equity Median</i>				-9.9	-27.9	-26.0	-1.4	-1.0	3.9	3.6	
SEG Baxter Street	24,700,081	4.0	5.0	-11.2 (84)	-31.7 (66)	-32.4 (74)	-4.6 (92)	-0.3 (44)		3.5 (46)	May-16
<i>MSCI AC World ex USA (Net)</i>				-9.9 (58)	-26.5 (32)	-25.2 (34)	-1.5 (64)	-0.8 (60)	3.0 (83)	2.7 (65)	
<i>eV All ACWI ex-US Equity Median</i>				-9.6	-28.8	-26.9	-0.8	-0.5	4.2	3.2	
Schroder International Alpha Trust Class 1	21,887,837	3.6	4.0	-10.3 (67)	-30.6 (62)	-28.3 (57)	1.7 (20)	1.3 (20)	4.9 (30)	4.4 (37)	Mar-12
<i>MSCI AC World ex USA (Net)</i>				-9.9 (58)	-26.5 (32)	-25.2 (34)	-1.5 (64)	-0.8 (60)	3.0 (83)	2.6 (84)	
<i>eV All ACWI ex-US Equity Median</i>				-9.6	-28.8	-26.9	-0.8	-0.5	4.2	3.9	
Baillie Gifford International Growth Fund Class K	11,093,581	1.8	3.0	-10.6 (74)	-42.0 (94)	-44.6 (97)				-20.3 (99)	Oct-20
<i>MSCI AC World ex USA (Net)</i>				-9.9 (58)	-26.5 (32)	-25.2 (34)	-1.5 (64)	-0.8 (60)	3.0 (83)	-3.7 (37)	
<i>eV All ACWI ex-US Equity Median</i>				-9.6	-28.8	-26.9	-0.8	-0.5	4.2	-5.0	
Emerging Markets Equity	32,302,788	5.3	7.0	-11.2 (66)	-31.4 (80)	-32.0 (75)				-24.4 (72)	Mar-21
<i>eV Emg Mkts Equity Median</i>				-10.0	-27.3	-28.1	-1.3	-1.5	1.5	-20.5	
Axiom Emerging Markets Trust Class 2	15,128,678	2.5	7.0	-14.0 (97)	-34.8 (92)	-35.7 (90)				-27.0 (90)	Mar-21
<i>MSCI Emerging Markets (Net)</i>				-11.6 (72)	-27.2 (47)	-28.1 (51)	-2.1 (61)	-1.8 (57)	1.0 (67)	-21.3 (53)	
<i>eV Emg Mkts Equity Median</i>				-10.0	-27.3	-28.1	-1.3	-1.5	1.5	-20.5	
ABS Emerging Markets MA Fund	17,174,110	2.8		-8.5 (35)	-28.1 (58)					-26.5 (60)	Dec-21
<i>MSCI Emerging Markets (Net)</i>				-11.6 (72)	-27.2 (47)	-28.1 (51)	-2.1 (61)	-1.8 (57)	1.0 (67)	-25.8 (53)	
<i>eV Emg Mkts Equity Median</i>				-10.0	-27.3	-28.1	-1.3	-1.5	1.5	-25.6	

TOTAL FUND PERFORMANCE DETAIL (NET)

	Allocation			Performance (%)							
	Market Value (\$)	% of Portfolio	Policy(%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fixed Income	130,752,265	21.4	20.0	-3.8 (10)	-12.8 (11)	-12.6 (10)	-1.0 (2)	0.9 (3)	2.4 (1)	5.6 (1)	Mar-99
<i>eV US Core Fixed Inc Median</i>				-4.6	-14.6	-14.6	-3.0	0.0	1.1	4.0	
Garcia Hamilton Fixed Income Aggregate	33,930,240	5.5	6.0	-5.3 (97)	-12.8 (11)	-12.8 (10)	-2.8 (38)			-0.1 (76)	Apr-18
<i>Blmbg. U.S. Aggregate Index</i>				-4.8 (73)	-14.6 (51)	-14.6 (50)	-3.3 (76)	-0.3 (77)	0.9 (78)	-0.1 (77)	
<i>eV US Core Fixed Inc Median</i>				-4.6	-14.6	-14.6	-3.0	0.0	1.1	0.2	
Lord Abbett Core Fixed Income	34,666,162	5.7	4.0	-4.7 (73)	-14.7 (55)	-14.6 (51)	-2.9 (39)			0.1 (52)	Apr-18
<i>Blmbg. U.S. Aggregate Index</i>				-4.8 (73)	-14.6 (51)	-14.6 (50)	-3.3 (76)	-0.3 (77)	0.9 (78)	-0.1 (77)	
<i>eV US Core Fixed Inc Median</i>				-4.6	-14.6	-14.6	-3.0	0.0	1.1	0.2	
Loomis Sayles Multisector Full Discretion Trust	48,498,686	7.9	8.0	-3.3 (6)	-14.7 (58)	-14.9 (63)	-0.5 (1)	1.2 (1)	3.1 (1)	6.7 (1)	Mar-99
<i>Blmbg. U.S. Aggregate Index</i>				-4.8 (73)	-14.6 (51)	-14.6 (50)	-3.3 (76)	-0.3 (77)	0.9 (78)	3.8 (71)	
<i>Blmbg. U.S. Corp: High Yield Index</i>				-0.6 (1)	-14.7 (59)	-14.1 (27)	-0.5 (1)	1.6 (1)	3.9 (1)	5.9 (1)	
<i>eV US Core Fixed Inc Median</i>				-4.6	-14.6	-14.6	-3.0	0.0	1.1	4.0	
Octagon Senior Secured Credit Cayman Fund Ltd. - Class L Acc, Series 1	13,603,575	2.2	2.0	0.8 (1)	-4.7 (1)	-4.1 (1)	1.7 (1)			1.6 (1)	Aug-19
<i>Credit Suisse Leveraged Loan</i>				1.2 (1)	-3.3 (1)	-2.6 (1)	2.1 (1)	3.0 (1)	3.7 (1)	2.1 (1)	
<i>eV US Core Fixed Inc Median</i>				-4.6	-14.6	-14.6	-3.0	0.0	1.1	-2.2	
Invesco Mortgage Recovery Loans Feeder Fund	53,601	0.0		0.0 (1)	-0.3 (1)	-0.3 (1)	-1.9 (20)	3.7 (1)	5.4 (1)	10.2 (1)	Apr-10
<i>Blmbg. U.S. Aggregate Index</i>				-4.8 (80)	-14.6 (32)	-14.6 (34)	-3.3 (88)	-0.3 (89)	0.9 (97)	2.0 (97)	
<i>eV US Core Plus Fixed Inc Median</i>				-4.4	-15.2	-15.2	-2.7	0.1	1.5	2.8	
Total Hedge Fund	41,665,523	6.8	6.0	0.1	-3.8	-2.9	4.6	3.7	3.9	3.3	Oct-06
PRIM Portfolio Completion Strategies				-0.7	-3.5	-2.2	2.9	3.1	4.4	3.6	Oct-06
Corbin Pinehurst Partners	12,395,661	2.0		0.5	-12.2	-12.5	4.3			4.1	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				-0.2	-6.8	-6.4	4.2	3.1	3.5	4.0	
UBS Neutral Alpha Strategies	13,725,987	2.2		0.6	4.0	5.8	7.6			6.5	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				-0.2	-6.8	-6.4	4.2	3.1	3.5	4.0	
Entrust Peru Wind Down	731,662	0.1		-0.6	-1.8	-1.0	-2.2			-3.2	Dec-17
<i>HFRI Fund of Funds Composite Index</i>				-0.2	-6.8	-6.4	4.2	3.1	3.5	3.0	
Other	8,650,648	1.4	0.0	0.5	0.5	0.5	0.7	1.2	0.7	0.6	Dec-10
Cash Account	8,650,648	1.4		0.5 (64)	0.5 (67)	0.5 (67)	0.7 (14)	1.2 (27)	0.7 (43)	1.7 (19)	Feb-00
<i>90 Day U.S. Treasury Bill</i>				0.5 (64)	0.6 (55)	0.6 (53)	0.6 (26)	1.1 (35)	0.7 (54)	1.6 (56)	
<i>eV US Cash Management Median</i>				0.5	0.6	0.6	0.5	1.1	0.7	1.6	

Importantly, all returns in this report, including those of the private markets managers, are based on a time weighted return calculation and not based on IRRs, which can result in return differences.

Rhumblin Tips closed as of 9/22



TOTAL FUND PERFORMANCE DETAIL (NET)

	Allocation			Performance (%)							
	Market Value (\$)	% of Portfolio	Policy(%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Real Estate	73,265,554	12.0	12.0	0.5	11.2	20.8	12.9	11.1	11.7	8.6	Apr-99
<i>NCREIF Property Index</i>											
Morgan Stanley Prime Property (\$2.8m commitment in '95)	26,975,346	4.4		0.6	9.4	16.1	9.9	8.6	9.5	9.0	Sep-95
TA Realty Core Property Fund, LP (\$15m commitment in '19)	28,645,200	4.7		1.4	15.3	24.9	17.0			16.1	Jun-19
Invesco Mortgage Recovery II (\$3M commitment in '15)	942,943	0.2		0.0	-3.8	-3.8	-20.2	-6.2		-1.7	Oct-15
Landmark VI (\$2m commitment in '11)	45,198	0.0		0.0	-12.6	3.7	-8.2	-7.7	1.1	2.7	Jul-11
Landmark VIII (\$4m commitment in '17)	1,827,480	0.3		0.0	14.9	24.8	18.2			19.8	Nov-17
StepStone Real Estate Fund II (\$2m commitment in '11)	462,324	0.1		0.0	-0.6	-1.6	-3.3	-0.8	4.7	2.2	May-12
Cerberus Institutional Real Estate Partners III (\$1.5m commitment in '12)	483,850	0.1		-6.2	-19.6	-8.6	16.1	13.2		13.6	May-13
TA Realty Fund X LP (\$3.5m commitment in '12)	3,478	0.0		0.0	5.7	4.6	0.3	6.4		8.0	May-13
TerraCap Partners III, LP (\$2.6m commitment in '15)	1,583,492	0.3		0.0	5.6	5.0	4.0	5.8		9.2	Jul-15
TerraCap Partners IV, LP (\$4m commitment in '17)	3,532,850	0.6		0.0	2.1	13.6	11.2			10.5	Nov-17
TerraCap Partners V, LP (\$8m commitment in '22)	8,763,392	1.4		0.0						3.6	Jun-22
Total Private Equity and Debt	86,885,293	14.2	12.0	-0.7	3.8	6.2	18.7	15.8	15.1	10.5	Apr-99
<i>CIA US All PE</i>											
				0.0	-2.7	2.9	19.6	16.9	15.1	13.3	
<i>NASDAQ W/O Income</i>											
				-4.1	-32.4	-26.8	9.8	10.2	13.0	6.4	
PRIM Vintage Year 2008 (\$3m commitment in '08)	817,522	0.1		-4.4	1.7	8.9	15.1	15.2	18.6	10.1	Jun-08
PRIM Vintage Year 2009 (\$1m commitment in '09)	99,181	0.0		-18.1	-12.5	0.1	37.8	32.4	26.3	14.5	Nov-09
PRIM Vintage Year 2010 (\$1m commitment in '10)	496,036	0.1		-10.8	-37.8	-23.4	24.2	20.5	19.8	11.8	Jun-10
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	874,500	0.1		-4.3	-1.6	6.5	32.7	26.7	22.6	10.5	May-11
PRIM Vintage Year 2012 (\$1m commitment in '12)	458,262	0.1		-19.3	-30.4	-30.4	12.6	12.8	14.2	-10.1	Jun-12
PRIM Vintage Year 2014 (\$2m commitment in '14)	2,245,060	0.4		-1.9	1.2	14.4	26.8	26.0		9.1	Jun-14
PRIM Vintage Year 2017 (\$2m commitment in '17)	2,507,219	0.4		-4.4	2.1	8.8	25.1	18.3		16.6	May-17
PRIM Vintage Year 2020 (\$5m commitment in '20)	3,360,709	0.5		-4.7	5.4	12.6				18.6	Mar-20
PRIM Vintage Year 2021 (\$5m commitment in '21)	2,593,046	0.4		-5.0	-1.6	2.1				1.1	Dec-20
PRIM Vintage Year 2022 (\$7.5m commitment in '22)	769,172	0.1		-2.5						-5.2	Apr-22
Alcentra European DLF (\$5m commitment in '14)	195,385	0.0		0.0	8.2	11.0	23.3	14.0		12.2	Jan-15
Ascent Fund IV-B (\$1m commitment in '16)	45,225	0.0		0.0	-14.7	-14.7	-24.5	-20.2		-15.4	Jul-16
Ascent Fund V (\$2m commitment in '08)	1,539,356	0.3		0.0	-7.8	-12.4	0.4	-0.8	3.1	4.5	Oct-08
Ascent VI (\$3m commitment in '15)	3,482,574	0.6		0.0	3.5	13.0	2.8	4.2		2.6	Dec-15
CVI Credit Value Fund IV A LP (\$6m commitment in '17)	5,854,944	1.0		1.7	4.4	6.4	6.7			6.4	Dec-17
Invesco Fund VI (\$5m commitment in '13)	1,405,531	0.2		0.0	-21.3	-5.6	31.8	23.6		19.3	Jul-13

Importantly, all returns in this report, including those of the private real estate managers and private markets managers, are based on a time weighted return calculation and not based on IRRs, which can result in return differences.



TOTAL FUND PERFORMANCE DETAIL (NET)

	Allocation			Performance (%)							
	Market Value (\$)	% of Portfolio	Policy(%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Kayne Energy Fund VII (\$5m commitment in '15)	3,388,589	0.6		0.0	60.7	85.4	-14.2	-10.4		-2.0	Jan-16
Foundry 2007 (\$3m commitment in '07)	484,267	0.1		0.0	-3.5	4.5	18.0	5.6	12.7	20.2	Dec-07
Foundry 2010 (\$3m commitment in '10)	6,051,790	1.0		0.0	0.6	7.4	32.6	26.1	16.6	14.8	Feb-11
Foundry 2010 Annex (\$0.4m commitment in '15)	1,114,610	0.2		0.0	0.0	-0.2	83.6	65.1		43.9	Sep-15
Pinebridge PEP V (\$6m commitment in '07)	492,734	0.1		0.0	-0.1	-0.1	10.3	4.9	9.4	8.6	Dec-10
Pinebridge (AIG) PEP V Asia (\$6m commitment in '07)	35,776	0.0		0.0	4.1	-7.8	-12.5			-13.0	Oct-18
Pinebridge (AIG) PEP V Co-Investment (\$6m commitment in '07)	96,394	0.0		0.0	8.0	14.0	21.1			8.3	Oct-18
Pinebridge (AIG) PEP V Europe (\$6m commitment in '07)	18,235	0.0		0.0	-12.3	-19.1	204.6			139.7	Oct-18
Pinebridge (AIG) PEP V Large Market US Buyout (\$6m commitment in '07)	85,418	0.0		0.0	-5.3	-6.5	17.4			10.2	Oct-18
Pinebridge (AIG) PEP V Preferred Participation Fund (\$6m commitment in '07)	93,372	0.0		0.0	-5.5	-8.5	5.2			1.0	Oct-18
Pinebridge (AIG) PEP V Secondary (\$6m commitment in '07)	24,803	0.0		0.0	-5.3	-25.5	-11.2	-10.8		-9.5	Jan-17
Pinebridge (AIG) PEP V Small-Mid Market US Buyout (\$6m commitment in '07)	90,345	0.0		0.0	-5.9	-2.5	19.1			16.9	Oct-18
Pinebridge (AIG) PEP V US Venture (\$6m commitment in '07)	48,391	0.0		0.0	-0.1	3.9	3.3			-2.3	Oct-18
Landmark XV (\$3m commitment in '13)	773,750	0.1		0.0	0.4	1.5	11.8	12.3		13.3	Nov-13
JFL Equity Investors IV, L.P. (\$6m commitment in '16)	1,634,445	0.3		0.0	4.1	17.5	37.6	43.3		38.0	Jan-17
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)	4,671,521	0.8		0.0	0.0	4.7	23.9	21.7		20.2	Feb-17
Park Square Credit Opportunities III (\$3m commitment in '17)	2,767,479	0.5		0.0	1.5	4.6	7.0			6.5	Feb-18
Ironsides Constitution Opportunities (\$3m commitment in '18)	2,236,091	0.4		0.0	-0.1	3.3	10.4			11.1	Oct-18
HarbourVest Dover Street X (\$9m commitment in '20)	6,801,359	1.1		0.0	6.1	18.6				73.4	Jun-20
Hamilton Lane Secondary Fund V LP (\$9m commitment in '20)	7,250,273	1.2		0.0	1.5	11.5				37.9	Jul-20
Constitution Ironsides Co-Investment Fund VI (\$12m commitment in '21)	13,788,863	2.3		0.0	4.9					4.9	Nov-21
HarbourVest Co-Investment Fund VI (\$8m commitment in '21)	1,165,382	0.2		0.0							Jan-22
JFL Equity Investors V, L.P. (\$9m commitment in '20)	7,520,418	1.2		0.0	9.0	17.8				0.3	Sep-20

Importantly, all returns in this report, including those of the private markets managers, are based on a time weighted return calculation and not based on IRRs, which can result in return differences.



NOTES

- 1 - Results for periods longer than one year are annualized.
- 2 - Total Balances, Large Cap, Small Cap, and Other Composite performance starts 12/1/2010.
- 3 - Preliminary Total Composite net of fee since inception return is 6.6% for the current month.
- 4 - Preliminary Total Composite gross of fee since inception return is 8.4% for the current month.
- 5 - Targets, Allocation Index, and Policy Index have been updated to reflect new allocation of 02/01/2022.
- 6 - Policy Index changed from Nasdaq to Cambridge All PE to reflect as of 5/1/2012.
- 7 - Policy Index Consists of: 24% S&P 500, 7% Russell 2000, 12% MSCI ACWI IMI, 7% MSCI Emerging Markets, 12% Bloomberg US Aggregate TR, 8% Bloomberg US Universal TR, 6% HFRI Fund of Funds Composite Index, 12% NCREIF Property Index, 12% CIA US All PE.
- 8 - Allocation index consists of: Weighted index of underlying managers to their respective benchmark.

DISCLAIMER

Information Disclaimer

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodian bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- Some index returns displayed in this report or used in calculation of a policy, allocation or custom benchmark may be preliminary and subject to change.
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- This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

Reporting Methodology

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.



QUARTERLY PERFORMANCE REPORT

MWRA Employees' Retirement System

June 30, 2022

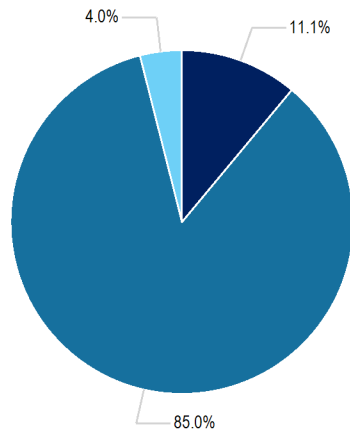


BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

MWRA Employees' Retirement System

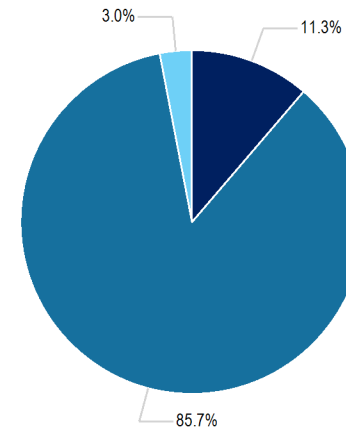
EXECUTIVE SUMMARY

Valuation by Asset Class



Private Debt Private Equity Real Assets

Fund Exposure by Asset Class



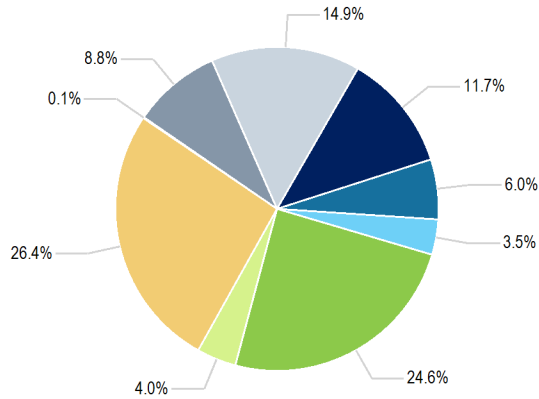
Private Debt Private Equity Real Assets

Asset Class	Investments \$				Trailing Period Performance (IRR)							Multiples	
	Commitment	Cumulative Contributions	Unfunded Commitment	Valuation	(QTR)	(YTD)	(1 YR)	(3 YRS)	(5 YRS)	(10 YRS)	SI IRR	DPI	TVPI
Total Private Debt	\$14,000,000	\$8,139,293	\$5,860,707	\$9,479,811	1.58%	2.43%	8.25%	7.63%	7.08%		7.66%	0.26	1.42
Total Private Equity	\$125,888,434	\$82,243,718	\$43,644,716	\$72,901,965	0.08%	4.30%	25.25%	27.55%	22.10%	18.24%	14.21%	0.96	1.84
Total Real Assets	\$5,000,000	\$4,271,330	\$728,670	\$3,388,589	10.50%	72.30%	92.49%	-7.45%	-3.60%		1.62%	0.27	1.07
Total	\$144,888,434	\$94,654,341	\$50,234,093	\$85,770,366	0.62%	5.80%	24.84%	22.07%	18.34%	16.67%	13.69%	0.87	1.77

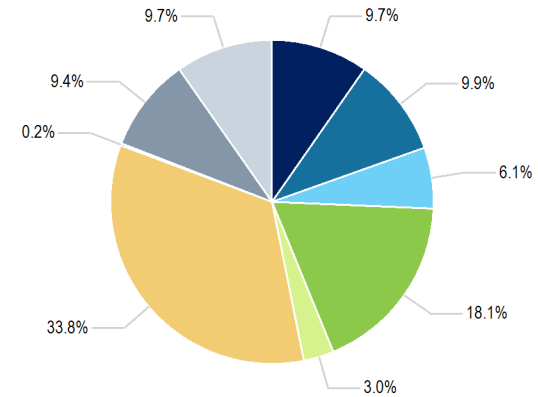


MWRA Employees' Retirement System ANALYSIS BY STRATEGY

Private Markets Valuation by Strategy



Private Markets Fund Exposure by Strategy



Buyout Co-Investments Direct Lending Distressed Energy Fund of Funds Growth Equity Secondarys Venture Capital

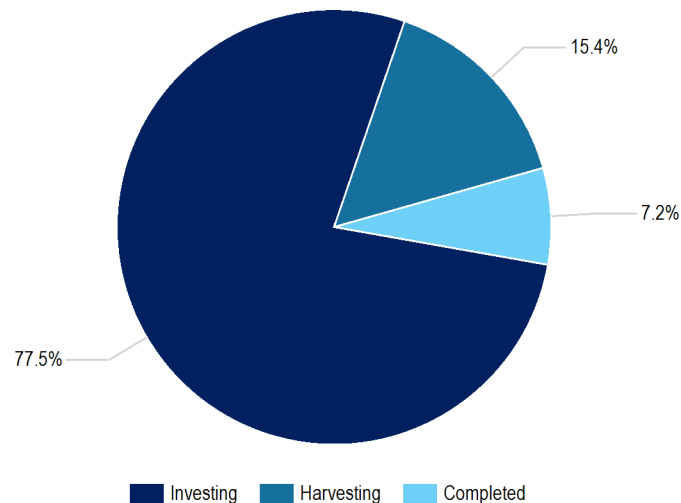
Buyout Co-Investments Direct Lending Distressed Energy Fund of Funds Growth Equity Secondarys Venture Capital

Investment Strategy	Commitments			Contributions & Distributions			Valuations				Performance		
	Commitment	Unfunded Commitment	Call Ratio	Cumulative Contributions	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	Fund Exposure	DPI	TVPI	IRR
Total Buyout	\$18,365,422	\$3,128,856	0.83	\$15,236,566	\$122,604	\$16,378,646	\$10,056,611	\$26,435,257	\$11,076,087	\$13,185,466	1.07	1.72	14.78%
Total Co-Investments	\$12,900,000	\$8,301,485	0.36	\$4,598,515	\$46,833	\$3,375,610	\$5,133,297	\$8,508,907	\$3,863,559	\$13,434,782	0.73	1.83	12.19%
Total Direct Lending	\$8,000,000	\$5,260,707	0.34	\$2,739,293	\$26,581	\$1,690,611	\$3,022,016	\$4,712,628	\$1,946,753	\$8,282,723	0.61	1.70	7.57%
Total Distressed	\$21,000,000	\$3,591,074	0.83	\$17,408,926	\$315,657	\$655,659	\$21,091,388	\$21,747,047	\$4,022,464	\$24,682,462	0.04	1.23	13.07%
Total Energy	\$5,000,000	\$728,670	0.85	\$4,271,330	-\$40,917	\$1,125,691	\$3,388,589	\$4,514,280	\$283,867	\$4,117,259	0.27	1.07	1.62%
Total Fund of Funds	\$46,000,000	\$23,410,793	0.49	\$22,589,207	\$217,107	\$27,520,319	\$22,616,211	\$50,136,530	\$27,330,215	\$46,027,003	1.21	2.20	17.16%
Total Growth Equity	\$900,000	\$185,690	0.79	\$714,310	-\$9,254	\$1,267,194	\$90,345	\$1,357,539	\$652,483	\$276,035	1.80	1.93	9.69%
Total Secondarys	\$12,600,000	\$5,180,539	0.59	\$7,419,461	\$14,362	\$4,243,780	\$7,574,656	\$11,818,436	\$4,384,613	\$12,755,195	0.57	1.59	18.38%
Total Venture Capital	\$20,123,012	\$446,279	0.98	\$19,676,733	\$64,437	\$26,981,364	\$12,797,253	\$39,778,617	\$20,037,447	\$13,243,532	1.37	2.02	12.49%
Total	\$144,888,434	\$50,234,093	0.65	\$94,654,341	\$757,410	\$83,238,874	\$85,770,366	\$169,009,240	\$73,597,489	\$136,004,459	0.87	1.77	13.69%

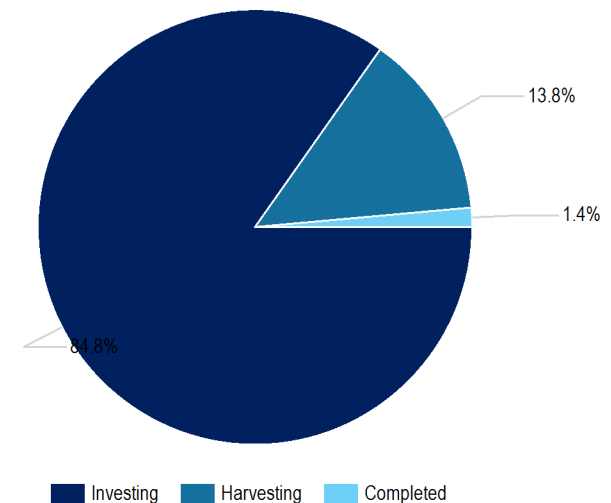


MWRA Employees' Retirement System ANALYSIS BY LIFECYCLE

Commitment by Lifecycle



Unfunded Commitment by Lifecycle



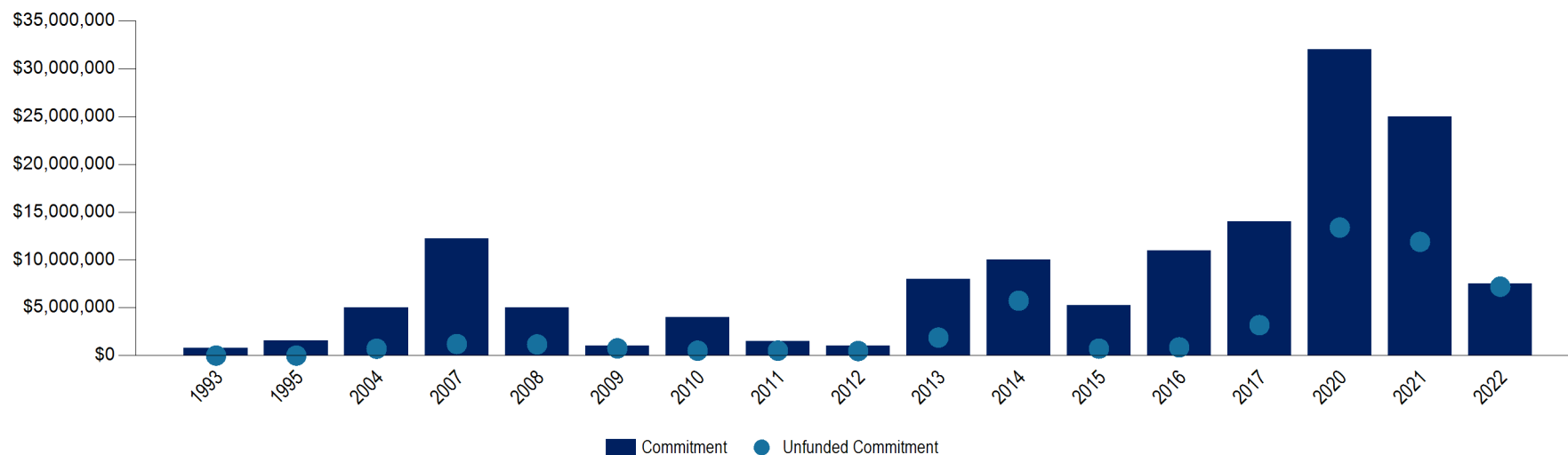
Investments	Commitments			Contributions & Distributions			Valuations			Performance		
	Commitment	Unfunded Commitment	Call Ratio	Cumulative Contributions	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Total Investing	\$112,268,205	\$42,590,792	0.62	\$69,677,413	\$349,165	\$42,668,820	\$75,782,357	\$118,451,177	\$48,424,599	0.61	1.69	19.64%
Total Harvesting	\$22,245,422	\$6,926,068	0.69	\$15,319,354	\$124,552	\$30,217,253	\$9,988,009	\$40,205,262	\$24,761,356	1.96	2.60	16.70%
Total Completed	\$10,374,807	\$717,234	0.93	\$9,657,573	\$283,694	\$10,352,801	\$0	\$10,352,801	\$411,534	1.04	1.04	1.12%
Total	\$144,888,434	\$50,234,093	0.65	\$94,654,341	\$757,410	\$83,238,874	\$85,770,366	\$169,009,240	\$73,597,489	0.87	1.77	13.69%



MWRA Employees' Retirement System

ANALYSIS BY VINTAGE YEAR

Commitments By Vintage Year



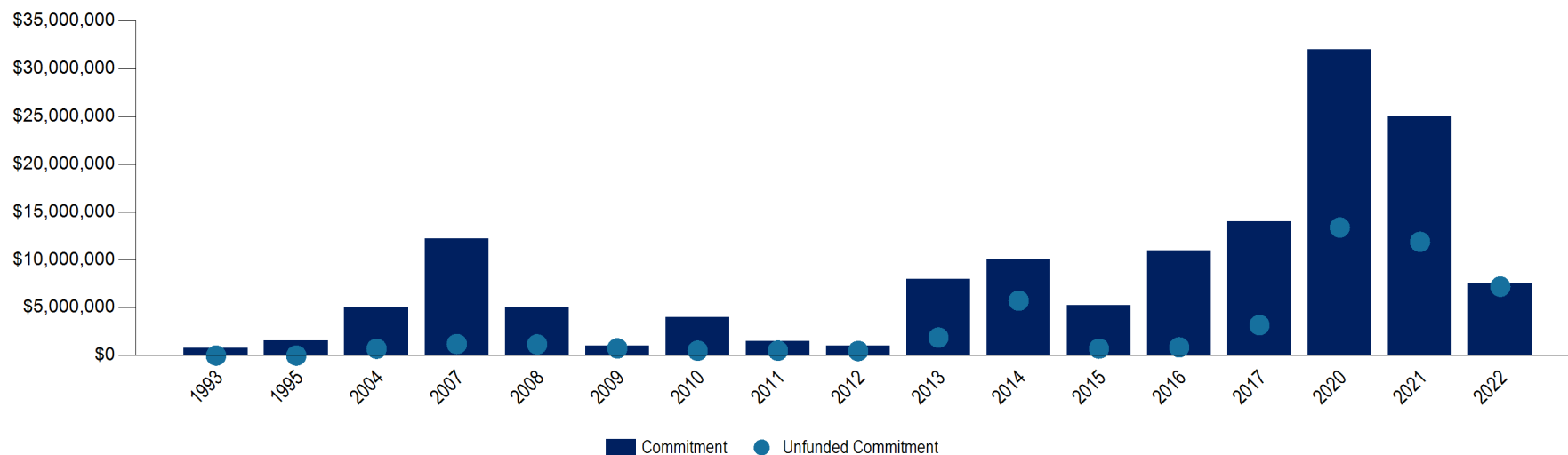
Vintage Year	Commitments			Contributions & Distributions			Valuations			Performance		
	Commitment	Unfunded Commitment	Call Ratio	Cumulative Contributions	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Total 1993	\$800,000	\$0	1.00	\$800,000	\$0	\$1,199,402	\$0	\$1,199,402	\$399,402	1.50	1.50	8.87%
Total 1995	\$1,574,807	\$0	1.00	\$1,574,807	\$0	\$3,116,593	\$0	\$3,116,593	\$1,541,786	1.98	1.98	13.46%
Total 2004	\$5,000,000	\$717,234	0.86	\$4,282,766	\$232,198	\$5,184,010	\$0	\$5,184,010	\$669,046	1.15	1.15	2.13%
Total 2007	\$12,245,422	\$1,203,023	0.90	\$11,042,399	\$158,583	\$22,652,382	\$1,008,041	\$23,660,422	\$12,459,440	2.02	2.11	14.40%
Total 2008	\$5,000,000	\$1,166,681	0.77	\$3,833,319	\$2,212	\$5,545,500	\$2,402,364	\$7,947,864	\$4,112,333	1.45	2.07	12.15%
Total 2009	\$1,000,000	\$756,256	0.24	\$243,744	\$109	\$657,336	\$126,370	\$783,706	\$539,853	2.70	3.21	21.23%
Total 2010	\$4,000,000	\$511,776	0.87	\$3,488,224	\$180	\$4,398,638	\$6,647,411	\$11,046,049	\$7,557,645	1.26	3.17	15.75%
Total 2011	\$1,500,000	\$517,511	0.65	\$982,489	\$159	\$2,094,031	\$999,991	\$3,094,022	\$2,111,374	2.13	3.15	21.18%
Total 2012	\$1,000,000	\$479,170	0.52	\$520,830	\$44	\$830,593	\$588,923	\$1,419,516	\$898,642	1.59	2.73	19.27%
Total 2013	\$8,000,000	\$1,877,803	0.77	\$6,122,197	-\$9,117	\$14,721,193	\$2,598,968	\$17,320,161	\$11,207,081	2.41	2.83	20.02%
Total 2014	\$10,000,000	\$5,740,344	0.43	\$4,259,656	\$26,581	\$2,736,482	\$6,072,455	\$8,808,936	\$4,522,699	0.64	2.06	10.59%
Total 2015	\$5,268,205	\$728,670	0.86	\$4,539,535	-\$40,917	\$1,532,943	\$4,503,199	\$6,036,142	\$1,537,524	0.34	1.34	7.30%



MWRA Employees' Retirement System

ANALYSIS BY VINTAGE YEAR

Commitments By Vintage Year



Investments	Commitments			Contributions & Distributions			Valuations			Performance		
Vintage Year	Commitment	Unfunded Commitment	Call Ratio	Cumulative Contributions	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Total 2016	\$11,000,000	\$856,683	0.92	\$10,143,317	\$83,313	\$15,958,339	\$7,283,471	\$23,241,810	\$13,015,180	1.56	2.27	28.83%
Total 2017	\$14,000,000	\$3,183,743	0.77	\$10,816,257	\$10,089	\$1,029,639	\$14,221,870	\$15,251,508	\$4,425,163	0.10	1.41	11.56%
Total 2020	\$32,000,000	\$13,396,678	0.58	\$18,603,322	-\$11,619	\$1,581,793	\$23,845,548	\$25,427,342	\$6,835,638	0.09	1.37	32.51%
Total 2021	\$25,000,000	\$11,894,087	0.52	\$13,105,913	\$305,594	\$0	\$15,100,411	\$15,100,411	\$1,688,904	0.00	1.13	31.84%
Total 2022	\$7,500,000	\$7,204,434	0.04	\$295,566	\$0	\$0	\$371,343	\$371,343	\$75,777	0.00	1.26	38.38%
Total	\$144,888,434	\$50,234,093	0.65	\$94,654,341	\$757,410	\$83,238,874	\$85,770,366	\$169,009,240	\$73,597,489	0.87	1.77	13.69%



APPENDIX

MWRA Employees' Retirement System

June 30, 2022



MWRA Employees' Retirement System

RETURN SUMMARY

Investments			Trailing Period Returns (IRR) %							Public Market Equivalent (PME)		
Investment Name	Vintage Year	Commitment	(Qtr)	(YTD)	(1 Yr)	(3 Yrs)	(5 Yrs)	(10 Yrs)	SI IRR	IRR PME	KS PME	Benchmark
AIG PEP V Asia, L.P.	2007	\$549,557	0.00%	4.11%	-15.20%	-14.05%	-13.08%	2.10%	1.33%	6.28%	0.78	MSCI ACWI
AIG PEP V Co-Investment, L.P.	2007	\$900,000	0.00%	7.98%	31.92%	21.42%	1.57%	4.37%	1.06%	7.77%	0.65	MSCI ACWI
AIG PEP V Europe, L.P.	2007	\$1,592,304	-6.04%	-12.35%	-19.89%	7.68%	16.33%	11.87%	2.32%	6.01%	0.80	MSCI ACWI
AIG PEP V Large Market U.S. Buyout, L.P.	2007	\$720,000	0.00%	-5.31%	-8.06%	17.71%	17.29%	15.78%	7.65%	1.03%	1.27	MSCI ACWI
AIG PEP V Preferred Participation Fund, L.P.	2007	\$503,561	0.00%	-5.53%	-6.05%	7.20%	0.68%	17.67%	11.20%	8.76%	1.16	MSCI ACWI
AIG PEP V Secondary, L.P.	2007	\$600,000	0.00%	-5.29%	-23.83%	-13.43%	-8.16%	2.24%	6.54%	9.10%	0.89	MSCI ACWI
AIG PEP V Small-Mid Market U.S. Buyout, L.P.	2007	\$900,000	0.00%	-5.90%	0.38%	15.73%	17.85%	13.73%	9.69%		1.41	MSCI ACWI
AIG PEP V US Venture, L.P.	2007	\$480,000	0.00%	-0.06%	4.13%	-3.19%	1.59%	18.22%	13.07%		1.59	MSCI ACWI
Alcentra European Direct Lending Fund I, L.P.	2014	\$5,000,000	3.38%	8.07%	50.37%	6.78%	4.86%		7.49%	7.07%	1.01	MSCI ACWI
Ascent Venture Partners II, L.P.	1995	\$774,807							26.71%			
Ascent Venture Partners IV(B), L.P.	2016	\$1,000,000	-0.29%	-14.68%	-57.87%	-44.72%	-22.88%		-3.64%	6.23%	0.74	MSCI ACWI
Ascent Venture Partners IV, L.P.	2004	\$2,000,000							-27.17%	7.76%	0.13	MSCI ACWI
Ascent Venture Partners V, L.P.	2008	\$2,000,000	-7.04%	-7.81%	-5.97%	2.28%	0.04%	8.13%	6.99%	8.71%	0.90	MSCI ACWI
Ascent Venture Partners VI, L.P.	2014	\$3,000,000	4.64%	3.46%	13.74%	3.01%	4.87%		4.73%	6.96%	0.91	MSCI ACWI
Boston Capital Venture Fund III, L.P.	1993	\$800,000							8.87%			
Castile Ventures III, L.P.	2007	\$3,000,000							-36.97%	6.52%	0.27	MSCI ACWI
CVI Credit Value Fund A IV, L.P.	2017	\$6,000,000	1.94%	2.65%	7.64%	7.74%			7.81%	8.33%	0.99	MSCI ACWI
Dover Street X, L.P.	2020	\$9,000,000	-1.95%	5.84%	36.43%				60.10%	-1.36%	1.68	MSCI ACWI
Foundry Venture Capital 2007, L.P.	2007	\$3,000,000	-2.47%	-3.49%	3.01%	19.20%	17.31%	38.25%	42.79%	8.92%	3.67	MSCI ACWI
Foundry Venture Capital 2010 Annex, L.P.	2015	\$268,205	-0.02%	-0.03%	210.81%	77.08%	67.50%		38.01%	11.37%	3.58	MSCI ACWI
Foundry Venture Capital 2010, L.P.	2010	\$3,000,000	1.46%	0.55%	69.58%	30.41%	26.94%	15.90%	15.25%	9.05%	1.60	MSCI ACWI
Hamilton Lane Secondary Fund V, L.P.	2020	\$9,000,000	-0.23%	1.52%	23.58%				40.39%	-4.27%	1.58	MSCI ACWI
HarbourVest Partners Co-Investment Fund VI L.P.	2021	\$8,000,000	-17.09%						-8.65%	-8.34%	1.00	MSCI ACWI
Invesco Fund IV, L.P.	2004	\$3,000,000							10.33%		1.36	MSCI ACWI
Invesco Partnership Fund VI, L.P.	2013	\$5,000,000	-15.44%	-21.29%	15.95%	40.22%	27.13%		21.22%	13.59%	1.74	MSCI ACWI
Ironsides Co-Investment Fund VI, LP	2021	\$12,000,000	1.70%						15.20%	-16.25%	1.36	MSCI ACWI
Ironsides Opportunities Fund, L.P.	2017	\$3,000,000	2.19%	5.89%	13.16%	14.30%			14.08%	8.59%	1.10	MSCI ACWI
JFL Equity Investors IV, L.P.	2016	\$6,000,000	8.13%	8.22%	18.39%	48.44%	45.79%		38.52%	19.95%	1.82	MSCI ACWI
JFL Equity Investors V, L.P.	2020	\$9,000,000	2.51%	8.71%	17.13%				7.35%	-7.23%	1.16	MSCI ACWI
Kayne Anderson Energy Fund VII, L.P.	2015	\$5,000,000	10.50%	72.30%	92.49%	-7.45%	-3.60%		1.62%	8.91%	0.80	MSCI ACWI



MWRA Employees' Retirement System

RETURN SUMMARY

Investments			Trailing Period Returns (IRR) %							Public Market Equivalent (PME)		
Investment Name	Vintage Year	Commitment	(Qtr)	(YTD)	(1 Yr)	(3 Yrs)	(5 Yrs)	(10 Yrs)	SI IRR	IRR PME	KS PME	Benchmark
Landmark Equity Partners XV, L.P.	2013	\$3,000,000	3.33%	0.34%	10.11%	15.71%	14.08%		13.39%	8.20%	1.14	MSCI ACWI
Mass PRIM AIVY 2008	2008	\$3,000,000	0.49%	6.43%	29.32%	4.45%	14.23%	19.54%	17.54%	10.42%	1.50	MSCI ACWI
Mass PRIM AIVY 2009	2009	\$1,000,000	-3.00%	7.18%	42.58%	27.56%	31.55%	24.47%	21.23%	11.45%	1.85	MSCI ACWI
Mass PRIM AIVY 2010	2010	\$1,000,000	-13.94%	-30.07%	10.57%	18.64%	20.48%	21.36%	18.82%	10.01%	1.76	MSCI ACWI
Mass PRIM AIVY 2011	2011	\$1,500,000	-4.06%	2.98%	44.30%	22.94%	22.76%	21.90%	21.18%	10.50%	1.88	MSCI ACWI
Mass PRIM AIVY 2012	2012	\$1,000,000	-10.59%	-13.16%	-1.90%	17.77%	19.51%	19.70%	19.27%	9.00%	1.74	MSCI ACWI
Mass PRIM AIVY 2014	2014	\$2,000,000	-4.27%	3.20%	33.04%	34.82%	28.33%		25.91%	9.63%	2.10	MSCI ACWI
Mass PRIM AIVY 2017	2017	\$2,000,000	-0.46%	6.72%	32.06%	54.21%	29.81%		29.73%	5.50%	1.76	MSCI ACWI
Mass PRIM AIVY 2020	2020	\$5,000,000	0.63%	10.41%	24.70%				27.73%	-14.49%	1.42	MSCI ACWI
Mass PRIM AIVY 2021	2021	\$5,000,000	1.45%	3.81%	9.97%				9.20%	-24.63%	1.26	MSCI ACWI
Mass PRIM AIVY 2022	2022	\$7,500,000	34.81%						38.38%	-17.34%	1.43	MSCI ACWI
Park Square Capital Credit Opportunities III (USD), L.P.	2017	\$3,000,000	0.61%	1.52%	6.20%	7.69%			7.80%	8.07%	0.99	MSCI ACWI
Private Advisors Small Co Coinvestment Fund, L.P.	2016	\$4,000,000	-1.08%	0.15%	10.42%	25.62%	24.68%		23.84%	8.81%	1.54	MSCI ACWI
Ticonderoga Concord Partners III, L.P.	1995	\$800,000							-8.06%			
Total		\$144,888,434	0.62%	5.80%	24.84%	22.07%	18.34%	16.67%	13.69%			



MWRA Employees' Retirement System

ANALYSIS BY FUND

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
AIG PEP V Asia, L.P.	2007	\$549,557	\$116,665	\$432,892	\$11,622	\$446,362	\$35,776	\$482,138	\$37,624	1.00	1.08	1.33%
AIG PEP V Co-Investment, L.P.	2007	\$900,000	\$22,644	\$877,356	\$32,765	\$885,186	\$96,394	\$981,580	\$71,459	0.97	1.08	1.06%
AIG PEP V Europe, L.P.	2007	\$1,592,304	\$506,970	\$1,085,334	\$25,194	\$1,292,083	\$18,235	\$1,310,318	\$199,790	1.16	1.18	2.32%
AIG PEP V Large Market U.S. Buyout, L.P.	2007	\$720,000	\$125,336	\$594,664	-\$11,616	\$935,635	\$85,418	\$1,021,053	\$438,005	1.60	1.75	7.65%
AIG PEP V Preferred Participation Fund, L.P.	2007	\$503,561	-\$42,778	\$546,339	\$28,158	\$1,036,752	\$93,372	\$1,130,124	\$555,627	1.80	1.97	11.20%
AIG PEP V Secondary, L.P.	2007	\$600,000	\$181,881	\$418,119	\$17,277	\$572,819	\$24,803	\$597,622	\$162,226	1.32	1.37	6.54%
AIG PEP V Small-Mid Market U.S. Buyout, L.P.	2007	\$900,000	\$185,690	\$714,310	-\$9,254	\$1,267,194	\$90,345	\$1,357,539	\$652,483	1.80	1.93	9.69%
AIG PEP V US Venture, L.P.	2007	\$480,000	\$61,615	\$418,385	\$12,941	\$857,246	\$48,391	\$905,637	\$474,311	1.99	2.10	13.07%
Alcentra European Direct Lending Fund I, L.P.	2014	\$5,000,000	\$4,759,386	\$240,614	\$26,581	\$1,404,489	\$195,385	\$1,599,874	\$1,332,679	5.26	5.99	7.49%
Ascent Venture Partners II, L.P.	1995	\$774,807	\$0	\$774,807	\$0	\$2,571,916	\$0	\$2,571,916	\$1,797,109	3.32	3.32	26.71%
Ascent Venture Partners IV(B), L.P.	2016	\$1,000,000	\$32,164	\$967,836	\$0	\$800,101	\$45,225	\$845,326	-\$122,509	0.83	0.87	-3.64%
Ascent Venture Partners IV, L.P.	2004	\$2,000,000	\$0	\$2,000,000	\$0	\$339,208	\$0	\$339,208	-\$1,660,792	0.17	0.17	-27.17%
Ascent Venture Partners V, L.P.	2008	\$2,000,000	\$60,000	\$1,940,000	\$0	\$1,646,891	\$1,539,356	\$3,186,247	\$1,246,247	0.85	1.64	6.99%
Ascent Venture Partners VI, L.P.	2014	\$3,000,000	\$180,000	\$2,820,000	\$0	\$0	\$3,482,574	\$3,482,574	\$662,574	0.00	1.23	4.73%
Boston Capital Venture Fund III, L.P.	1993	\$800,000	\$0	\$800,000	\$0	\$1,199,402	\$0	\$1,199,402	\$399,402	1.50	1.50	8.87%
Castile Ventures III, L.P.	2007	\$3,000,000	\$0	\$3,000,000	\$51,496	\$852,796	\$0	\$852,796	-\$2,198,700	0.28	0.28	-36.97%
CVI Credit Value Fund A IV, L.P.	2017	\$6,000,000	\$600,000	\$5,400,000	-\$1,229	\$401,375	\$6,457,795	\$6,859,170	\$1,460,400	0.07	1.27	7.81%
Dover Street X, L.P.	2020	\$9,000,000	\$4,162,500	\$4,837,500	\$6,202	\$1,560,239	\$6,356,416	\$7,916,655	\$3,072,953	0.32	1.63	60.10%
Foundry Venture Capital 2007, L.P.	2007	\$3,000,000	\$45,000	\$2,955,000	\$0	\$14,506,308	\$515,307	\$15,021,615	\$12,066,615	4.91	5.08	42.79%
Foundry Venture Capital 2010 Annex, L.P.	2015	\$268,205	\$0	\$268,205	\$0	\$407,252	\$1,114,610	\$1,521,862	\$1,253,657	1.52	5.67	38.01%
Foundry Venture Capital 2010, L.P.	2010	\$3,000,000	\$67,500	\$2,932,500	\$0	\$3,255,566	\$6,051,790	\$9,307,356	\$6,374,856	1.11	3.17	15.25%
Hamilton Lane Secondary Fund V, L.P.	2020	\$9,000,000	\$4,588,487	\$4,411,513	-\$17,882	\$0	\$6,973,864	\$6,973,864	\$2,580,233	0.00	1.59	40.39%
HarbourVest Partners Co-Investment Fund VI L.P.	2021	\$8,000,000	\$7,600,000	\$400,000	\$0	\$0	\$365,382	\$365,382	-\$34,618	0.00	0.91	-8.65%
Invesco Fund IV, L.P.	2004	\$3,000,000	\$717,234	\$2,282,766	\$232,198	\$4,844,802	\$0	\$4,844,802	\$2,329,837	1.93	1.93	10.33%
Invesco Partnership Fund VI, L.P.	2013	\$5,000,000	\$1,041,645	\$3,958,355	\$0	\$12,610,471	\$1,405,531	\$14,016,002	\$10,057,647	3.19	3.54	21.22%
Ironsides Co-Investment Fund VI, LP	2021	\$12,000,000	\$1,534,582	\$10,465,418	\$305,594	\$0	\$12,367,093	\$12,367,093	\$1,596,081	0.00	1.15	15.20%
Ironsides Opportunities Fund, L.P.	2017	\$3,000,000	\$1,456,492	\$1,543,508	\$11,292	\$254,283	\$2,266,500	\$2,520,783	\$965,984	0.16	1.62	14.08%
JFL Equity Investors IV, L.P.	2016	\$6,000,000	\$145,678	\$5,854,322	\$69,246	\$12,667,814	\$2,566,725	\$15,234,539	\$9,310,971	2.14	2.57	38.52%
JFL Equity Investors V, L.P.	2020	\$9,000,000	\$2,276,985	\$6,723,015	\$0	\$0	\$7,257,085	\$7,257,085	\$534,070	0.00	1.08	7.35%
Kayne Anderson Energy Fund VII, L.P.	2015	\$5,000,000	\$728,670	\$4,271,330	-\$40,917	\$1,125,691	\$3,388,589	\$4,514,280	\$283,867	0.27	1.07	1.62%



MWRA Employees' Retirement System

ANALYSIS BY FUND

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Landmark Equity Partners XV, L.P.	2013	\$3,000,000	\$836,158	\$2,163,842	-\$9,117	\$2,110,722	\$1,193,437	\$3,304,159	\$1,149,434	0.98	1.53	13.39%
Mass PRIM AIVY 2008	2008	\$3,000,000	\$1,106,681	\$1,893,319	\$2,212	\$3,898,609	\$863,009	\$4,761,618	\$2,866,086	2.06	2.51	17.54%
Mass PRIM AIVY 2009	2009	\$1,000,000	\$756,256	\$243,744	\$109	\$657,336	\$126,370	\$783,706	\$539,853	2.70	3.21	21.23%
Mass PRIM AIVY 2010	2010	\$1,000,000	\$444,276	\$555,724	\$180	\$1,143,072	\$595,621	\$1,738,693	\$1,182,789	2.06	3.13	18.82%
Mass PRIM AIVY 2011	2011	\$1,500,000	\$517,511	\$982,489	\$159	\$2,094,031	\$999,991	\$3,094,022	\$2,111,374	2.13	3.15	21.18%
Mass PRIM AIVY 2012	2012	\$1,000,000	\$479,170	\$520,830	\$44	\$830,593	\$588,923	\$1,419,516	\$898,642	1.59	2.73	19.27%
Mass PRIM AIVY 2014	2014	\$2,000,000	\$800,958	\$1,199,042	\$0	\$1,331,993	\$2,394,496	\$3,726,489	\$2,527,447	1.11	3.11	25.91%
Mass PRIM AIVY 2017	2017	\$2,000,000	\$625,930	\$1,374,070	\$26	\$87,857	\$2,670,944	\$2,758,801	\$1,384,705	0.06	2.01	29.73%
Mass PRIM AIVY 2020	2020	\$5,000,000	\$2,368,706	\$2,631,294	\$61	\$21,554	\$3,258,183	\$3,279,738	\$648,383	0.01	1.25	27.73%
Mass PRIM AIVY 2021	2021	\$5,000,000	\$2,759,505	\$2,240,495	\$0	\$0	\$2,367,936	\$2,367,936	\$127,442	0.00	1.06	9.20%
Mass PRIM AIVY 2022	2022	\$7,500,000	\$7,204,434	\$295,566	\$0	\$0	\$371,343	\$371,343	\$75,777	0.00	1.26	38.38%
Park Square Capital Credit Opportunities III (USD), L.P.	2017	\$3,000,000	\$501,321	\$2,498,679	\$0	\$286,123	\$2,826,631	\$3,112,754	\$614,075	0.11	1.25	7.80%
Private Advisors Small Co Coinvestment Fund, L.P.	2016	\$4,000,000	\$678,841	\$3,321,159	\$14,068	\$2,490,424	\$4,671,521	\$7,161,945	\$3,826,718	0.75	2.15	23.84%
Ticonderoga Concord Partners III, L.P.	1995	\$800,000	\$0	\$800,000	\$0	\$544,677	\$0	\$544,677	-\$255,323	0.68	0.68	-8.06%
Total		\$144,888,434	\$50,234,093	\$94,654,341	\$75,410	\$83,238,874	\$85,770,366	\$169,009,240	\$73,597,489	0.87	1.77	13.69%



MWRA Employees' Retirement System

ANALYSIS BY LIFECYCLE

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Investing												
Ascent Venture Partners IV(B), L.P.	2016	\$1,000,000	\$32,164	\$967,836	\$0	\$800,101	\$45,225	\$845,326	-\$122,509	0.83	0.87	-3.64%
Ascent Venture Partners VI, L.P.	2014	\$3,000,000	\$180,000	\$2,820,000	\$0	\$0	\$3,482,574	\$3,482,574	\$662,574	0.00	1.23	4.73%
CVI Credit Value Fund A IV, L.P.	2017	\$6,000,000	\$600,000	\$5,400,000	-\$1,229	\$401,375	\$6,457,795	\$6,859,170	\$1,460,400	0.07	1.27	7.81%
Dover Street X, L.P.	2020	\$9,000,000	\$4,162,500	\$4,837,500	\$6,202	\$1,560,239	\$6,356,416	\$7,916,655	\$3,072,953	0.32	1.63	60.10%
Foundry Venture Capital 2010 Annex, L.P.	2015	\$268,205	\$0	\$268,205	\$0	\$407,252	\$1,114,610	\$1,521,862	\$1,253,657	1.52	5.67	38.01%
Hamilton Lane Secondary Fund V, L.P.	2020	\$9,000,000	\$4,588,487	\$4,411,513	-\$17,882	\$0	\$6,973,864	\$6,973,864	\$2,580,233	0.00	1.59	40.39%
HarbourVest Partners Co-Investment Fund VI L.P.	2021	\$8,000,000	\$7,600,000	\$400,000	\$0	\$0	\$365,382	\$365,382	-\$34,618	0.00	0.91	-8.65%
Invesco Partnership Fund VI, L.P.	2013	\$5,000,000	\$1,041,645	\$3,958,355	\$0	\$12,610,471	\$1,405,531	\$14,016,002	\$10,057,647	3.19	3.54	21.22%
Ironsides Co-Investment Fund VI, LP	2021	\$12,000,000	\$1,534,582	\$10,465,418	\$305,594	\$0	\$12,367,093	\$12,367,093	\$1,596,081	0.00	1.15	15.20%
Ironsides Opportunities Fund, L.P.	2017	\$3,000,000	\$1,456,492	\$1,543,508	\$11,292	\$254,283	\$2,266,500	\$2,520,783	\$965,984	0.16	1.62	14.08%
JFL Equity Investors IV, L.P.	2016	\$6,000,000	\$145,678	\$5,854,322	\$69,246	\$12,667,814	\$2,566,725	\$15,234,539	\$9,310,971	2.14	2.57	38.52%
JFL Equity Investors V, L.P.	2020	\$9,000,000	\$2,276,985	\$6,723,015	\$0	\$0	\$7,257,085	\$7,257,085	\$534,070	0.00	1.08	7.35%
Kayne Anderson Energy Fund VII, L.P.	2015	\$5,000,000	\$728,670	\$4,271,330	-\$40,917	\$1,125,691	\$3,388,589	\$4,514,280	\$283,867	0.27	1.07	1.62%
Mass PRIM AIVY 2008	2008	\$3,000,000	\$1,106,681	\$1,893,319	\$2,212	\$3,898,609	\$863,009	\$4,761,618	\$2,866,086	2.06	2.51	17.54%
Mass PRIM AIVY 2009	2009	\$1,000,000	\$756,256	\$243,744	\$109	\$657,336	\$126,370	\$783,706	\$539,853	2.70	3.21	21.23%
Mass PRIM AIVY 2010	2010	\$1,000,000	\$444,276	\$555,724	\$180	\$1,143,072	\$595,621	\$1,738,693	\$1,182,789	2.06	3.13	18.82%
Mass PRIM AIVY 2011	2011	\$1,500,000	\$517,511	\$982,489	\$159	\$2,094,031	\$999,991	\$3,094,022	\$2,111,374	2.13	3.15	21.18%
Mass PRIM AIVY 2012	2012	\$1,000,000	\$479,170	\$520,830	\$44	\$830,593	\$588,923	\$1,419,516	\$898,642	1.59	2.73	19.27%
Mass PRIM AIVY 2014	2014	\$2,000,000	\$800,958	\$1,199,042	\$0	\$1,331,993	\$2,394,496	\$3,726,489	\$2,527,447	1.11	3.11	25.91%
Mass PRIM AIVY 2017	2017	\$2,000,000	\$625,930	\$1,374,070	\$26	\$87,857	\$2,670,944	\$2,758,801	\$1,384,705	0.06	2.01	29.73%
Mass PRIM AIVY 2020	2020	\$5,000,000	\$2,368,706	\$2,631,294	\$61	\$21,554	\$3,258,183	\$3,279,738	\$648,383	0.01	1.25	27.73%
Mass PRIM AIVY 2021	2021	\$5,000,000	\$2,759,505	\$2,240,495	\$0	\$0	\$2,367,936	\$2,367,936	\$127,442	0.00	1.06	9.20%
Mass PRIM AIVY 2022	2022	\$7,500,000	\$7,204,434	\$295,566	\$0	\$0	\$371,343	\$371,343	\$75,777	0.00	1.26	38.38%
Park Square Capital Credit Opportunities III (USD), L.P.	2017	\$3,000,000	\$501,321	\$2,498,679	\$0	\$286,123	\$2,826,631	\$3,112,754	\$614,075	0.11	1.25	7.80%
Private Advisors Small Co Coinvestment Fund, L.P.	2016	\$4,000,000	\$678,841	\$3,321,159	\$14,068	\$2,490,424	\$4,671,521	\$7,161,945	\$3,826,718	0.75	2.15	23.84%
Total Investing		\$112,268,205	\$42,590,792	\$69,677,413	\$349,165	\$42,668,820	\$75,782,357	\$118,451,177	\$48,424,599	0.61	1.69	19.64%
Harvesting												
AIG PEP V Asia, L.P.	2007	\$549,557	\$116,665	\$432,892	\$11,622	\$446,362	\$35,776	\$482,138	\$37,624	1.00	1.08	1.33%
AIG PEP V Co-Investment, L.P.	2007	\$900,000	\$22,644	\$877,356	\$32,765	\$885,186	\$96,394	\$981,580	\$71,459	0.97	1.08	1.06%
AIG PEP V Europe, L.P.	2007	\$1,592,304	\$506,970	\$1,085,334	\$25,194	\$1,292,083	\$18,235	\$1,310,318	\$199,790	1.16	1.18	2.32%
AIG PEP V Large Market U.S. Buyout, L.P.	2007	\$720,000	\$125,336	\$594,664	-\$11,616	\$935,635	\$85,418	\$1,021,053	\$438,005	1.60	1.75	7.65%



MWRA Employees' Retirement System

ANALYSIS BY LIFECYCLE

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
AIG PEP V Preferred Participation Fund, L.P.	2007	\$503,561	-\$42,778	\$546,339	\$28,158	\$1,036,752	\$93,372	\$1,130,124	\$555,627	1.80	1.97	11.20%
AIG PEP V Secondary, L.P.	2007	\$600,000	\$181,881	\$418,119	\$17,277	\$572,819	\$24,803	\$597,622	\$162,226	1.32	1.37	6.54%
AIG PEP V Small-Mid Market U.S. Buyout, L.P.	2007	\$900,000	\$185,690	\$714,310	-\$9,254	\$1,267,194	\$90,345	\$1,357,539	\$652,483	1.80	1.93	9.69%
AIG PEP V US Venture, L.P.	2007	\$480,000	\$61,615	\$418,385	\$12,941	\$857,246	\$48,391	\$905,637	\$474,311	1.99	2.10	13.07%
Alcentra European Direct Lending Fund I, L.P.	2014	\$5,000,000	\$4,759,386	\$240,614	\$26,581	\$1,404,489	\$195,385	\$1,599,874	\$1,332,679	5.26	5.99	7.49%
Ascent Venture Partners V, L.P.	2008	\$2,000,000	\$60,000	\$1,940,000	\$0	\$1,646,891	\$1,539,356	\$3,186,247	\$1,246,247	0.85	1.64	6.99%
Foundry Venture Capital 2007, L.P.	2007	\$3,000,000	\$45,000	\$2,955,000	\$0	\$14,506,308	\$515,307	\$15,021,615	\$12,066,615	4.91	5.08	42.79%
Foundry Venture Capital 2010, L.P.	2010	\$3,000,000	\$67,500	\$2,932,500	\$0	\$3,255,566	\$6,051,790	\$9,307,356	\$6,374,856	1.11	3.17	15.25%
Landmark Equity Partners XV, L.P.	2013	\$3,000,000	\$836,158	\$2,163,842	-\$9,117	\$2,110,722	\$1,193,437	\$3,304,159	\$1,149,434	0.98	1.53	13.39%
Total Harvesting		\$22,245,422	\$6,926,068	\$15,319,354	\$124,552	\$30,217,253	\$9,988,009	\$40,205,262	\$24,761,356	1.96	2.60	16.70%
Completed												
Ascent Venture Partners II, L.P.	1995	\$774,807	\$0	\$774,807	\$0	\$2,571,916	\$0	\$2,571,916	\$1,797,109	3.32	3.32	26.71%
Ascent Venture Partners IV, L.P.	2004	\$2,000,000	\$0	\$2,000,000	\$0	\$339,208	\$0	\$339,208	-\$1,660,792	0.17	0.17	-27.17%
Boston Capital Venture Fund III, L.P.	1993	\$800,000	\$0	\$800,000	\$0	\$1,199,402	\$0	\$1,199,402	\$399,402	1.50	1.50	8.87%
Castile Ventures III, L.P.	2007	\$3,000,000	\$0	\$3,000,000	\$51,496	\$852,796	\$0	\$852,796	-\$2,198,700	0.28	0.28	-36.97%
Invesco Fund IV, L.P.	2004	\$3,000,000	\$717,234	\$2,282,766	\$232,198	\$4,844,802	\$0	\$4,844,802	\$2,329,837	1.93	1.93	10.33%
Ticonderoga Concord Partners III, L.P.	1995	\$800,000	\$0	\$800,000	\$0	\$544,677	\$0	\$544,677	-\$255,323	0.68	0.68	-8.06%
Total Completed		\$10,374,807	\$717,234	\$9,657,573	\$283,694	\$10,352,801	\$0	\$10,352,801	\$411,534	1.04	1.04	1.12%
Total		\$144,888,434	\$50,234,093	\$94,654,341	\$757,410	\$83,238,874	\$85,770,366	\$169,009,240	\$73,597,489	0.87	1.77	13.69%



MWRA Employees' Retirement System

ANALYSIS BY VINTAGE YEAR

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
1993												
Boston Capital Venture Fund III, L.P.	1993	\$800,000	\$0	\$800,000	\$0	\$1,199,402	\$0	\$1,199,402	\$399,402	1.50	1.50	8.87%
Total 1993		\$800,000	\$0	\$800,000	\$0	\$1,199,402	\$0	\$1,199,402	\$399,402	1.50	1.50	8.87%
1995												
Ascent Venture Partners II, L.P.	1995	\$774,807	\$0	\$774,807	\$0	\$2,571,916	\$0	\$2,571,916	\$1,797,109	3.32	3.32	26.71%
Ticonderoga Concord Partners III, L.P.	1995	\$800,000	\$0	\$800,000	\$0	\$544,677	\$0	\$544,677	-\$255,323	0.68	0.68	-8.06%
Total 1995		\$1,574,807	\$0	\$1,574,807	\$0	\$3,116,593	\$0	\$3,116,593	\$1,541,786	1.98	1.98	13.46%
2004												
Ascent Venture Partners IV, L.P.	2004	\$2,000,000	\$0	\$2,000,000	\$0	\$339,208	\$0	\$339,208	-\$1,660,792	0.17	0.17	-27.17%
Invesco Fund IV, L.P.	2004	\$3,000,000	\$717,234	\$2,282,766	\$232,198	\$4,844,802	\$0	\$4,844,802	\$2,329,837	1.93	1.93	10.33%
Total 2004		\$5,000,000	\$717,234	\$4,282,766	\$232,198	\$5,184,010	\$0	\$5,184,010	\$669,046	1.15	1.15	2.13%
2007												
AIG PEP V Asia, L.P.	2007	\$549,557	\$116,665	\$432,892	\$11,622	\$446,362	\$35,776	\$482,138	\$37,624	1.00	1.08	1.33%
AIG PEP V Co-Investment, L.P.	2007	\$900,000	\$22,644	\$877,356	\$32,765	\$885,186	\$96,394	\$981,580	\$71,459	0.97	1.08	1.06%
AIG PEP V Europe, L.P.	2007	\$1,592,304	\$506,970	\$1,085,334	\$25,194	\$1,292,083	\$18,235	\$1,310,318	\$199,790	1.16	1.18	2.32%
AIG PEP V Large Market U.S. Buyout, L.P.	2007	\$720,000	\$125,336	\$594,664	-\$11,616	\$935,635	\$85,418	\$1,021,053	\$438,005	1.60	1.75	7.65%
AIG PEP V Preferred Participation Fund, L.P.	2007	\$503,561	-\$42,778	\$546,339	\$28,158	\$1,036,752	\$93,372	\$1,130,124	\$555,627	1.80	1.97	11.20%
AIG PEP V Secondary, L.P.	2007	\$600,000	\$181,881	\$418,119	\$17,277	\$572,819	\$24,803	\$597,622	\$162,226	1.32	1.37	6.54%
AIG PEP V Small-Mid Market U.S. Buyout, L.P.	2007	\$900,000	\$185,690	\$714,310	-\$9,254	\$1,267,194	\$90,345	\$1,357,539	\$652,483	1.80	1.93	9.69%
AIG PEP V US Venture, L.P.	2007	\$480,000	\$61,615	\$418,385	\$12,941	\$857,246	\$48,391	\$905,637	\$474,311	1.99	2.10	13.07%
Castile Ventures III, L.P.	2007	\$3,000,000	\$0	\$3,000,000	\$51,496	\$852,796	\$0	\$852,796	-\$2,198,700	0.28	0.28	-36.97%
Foundry Venture Capital 2007, L.P.	2007	\$3,000,000	\$45,000	\$2,955,000	\$0	\$14,506,308	\$515,307	\$15,021,615	\$12,066,615	4.91	5.08	42.79%
Total 2007		\$12,245,422	\$1,203,023	\$11,042,399	\$158,583	\$22,652,382	\$1,008,041	\$23,660,422	\$12,459,440	2.02	2.11	14.40%
2008												
Ascent Venture Partners V, L.P.	2008	\$2,000,000	\$60,000	\$1,940,000	\$0	\$1,646,891	\$1,539,356	\$3,186,247	\$1,246,247	0.85	1.64	6.99%
Mass PRIM AIVY 2008	2008	\$3,000,000	\$1,106,681	\$1,893,319	\$2,212	\$3,898,609	\$863,009	\$4,761,618	\$2,866,086	2.06	2.51	17.54%
Total 2008		\$5,000,000	\$1,166,681	\$3,833,319	\$2,212	\$5,545,500	\$2,402,364	\$7,947,864	\$4,112,333	1.45	2.07	12.15%
2009												
Mass PRIM AIVY 2009	2009	\$1,000,000	\$756,256	\$243,744	\$109	\$657,336	\$126,370	\$783,706	\$539,853	2.70	3.21	21.23%
Total 2009		\$1,000,000	\$756,256	\$243,744	\$109	\$657,336	\$126,370	\$783,706	\$539,853	2.70	3.21	21.23%



MWRA Employees' Retirement System

ANALYSIS BY VINTAGE YEAR

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
2010												
Foundry Venture Capital 2010, L.P.	2010	\$3,000,000	\$67,500	\$2,932,500	\$0	\$3,255,566	\$6,051,790	\$9,307,356	\$6,374,856	1.11	3.17	15.25%
Mass PRIM AIVY 2010	2010	\$1,000,000	\$444,276	\$555,724	\$180	\$1,143,072	\$595,621	\$1,738,693	\$1,182,789	2.06	3.13	18.82%
Total 2010		\$4,000,000	\$511,776	\$3,488,224	\$180	\$4,398,638	\$6,647,411	\$11,046,049	\$7,557,645	1.26	3.17	15.75%
2011												
Mass PRIM AIVY 2011	2011	\$1,500,000	\$517,511	\$982,489	\$159	\$2,094,031	\$999,991	\$3,094,022	\$2,111,374	2.13	3.15	21.18%
Total 2011		\$1,500,000	\$517,511	\$982,489	\$159	\$2,094,031	\$999,991	\$3,094,022	\$2,111,374	2.13	3.15	21.18%
2012												
Mass PRIM AIVY 2012	2012	\$1,000,000	\$479,170	\$520,830	\$44	\$830,593	\$588,923	\$1,419,516	\$898,642	1.59	2.73	19.27%
Total 2012		\$1,000,000	\$479,170	\$520,830	\$44	\$830,593	\$588,923	\$1,419,516	\$898,642	1.59	2.73	19.27%
2013												
Invesco Partnership Fund VI, L.P.	2013	\$5,000,000	\$1,041,645	\$3,958,355	\$0	\$12,610,471	\$1,405,531	\$14,016,002	\$10,057,647	3.19	3.54	21.22%
Landmark Equity Partners XV, L.P.	2013	\$3,000,000	\$836,158	\$2,163,842	-\$9,117	\$2,110,722	\$1,193,437	\$3,304,159	\$1,149,434	0.98	1.53	13.39%
Total 2013		\$8,000,000	\$1,877,803	\$6,122,197	-\$9,117	\$14,721,193	\$2,598,968	\$17,320,161	\$11,207,081	2.41	2.83	20.02%
2014												
Alcentra European Direct Lending Fund I, L.P.	2014	\$5,000,000	\$4,759,386	\$240,614	\$26,581	\$1,404,489	\$195,385	\$1,599,874	\$1,332,679	5.26	5.99	7.49%
Ascent Venture Partners VI, L.P.	2014	\$3,000,000	\$180,000	\$2,820,000	\$0	\$0	\$3,482,574	\$3,482,574	\$662,574	0.00	1.23	4.73%
Mass PRIM AIVY 2014	2014	\$2,000,000	\$800,958	\$1,199,042	\$0	\$1,331,993	\$2,394,496	\$3,726,489	\$2,527,447	1.11	3.11	25.91%
Total 2014		\$10,000,000	\$5,740,344	\$4,259,656	\$26,581	\$2,736,482	\$6,072,455	\$8,808,936	\$4,522,699	0.64	2.06	10.59%
2015												
Foundry Venture Capital 2010 Annex, L.P.	2015	\$268,205	\$0	\$268,205	\$0	\$407,252	\$1,114,610	\$1,521,862	\$1,253,657	1.52	5.67	38.01%
Kayne Anderson Energy Fund VII, L.P.	2015	\$5,000,000	\$728,670	\$4,271,330	-\$40,917	\$1,125,691	\$3,388,589	\$4,514,280	\$283,867	0.27	1.07	1.62%
Total 2015		\$5,268,205	\$728,670	\$4,539,535	-\$40,917	\$1,532,943	\$4,503,199	\$6,036,142	\$1,537,524	0.34	1.34	7.30%
2016												
Ascent Venture Partners IV(B), L.P.	2016	\$1,000,000	\$32,164	\$967,836	\$0	\$800,101	\$45,225	\$845,326	-\$122,509	0.83	0.87	-3.64%
JFL Equity Investors IV, L.P.	2016	\$6,000,000	\$145,678	\$5,854,322	\$69,246	\$12,667,814	\$2,566,725	\$15,234,539	\$9,310,971	2.14	2.57	38.52%
Private Advisors Small Co Coinvestment Fund, L.P.	2016	\$4,000,000	\$678,841	\$3,321,159	\$14,068	\$2,490,424	\$4,671,521	\$7,161,945	\$3,826,718	0.75	2.15	23.84%
Total 2016		\$11,000,000	\$856,683	\$10,143,317	\$83,313	\$15,958,339	\$7,283,471	\$23,241,810	\$13,015,180	1.56	2.27	28.83%



MWRA Employees' Retirement System

ANALYSIS BY VINTAGE YEAR

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
2017												
CVI Credit Value Fund A IV, L.P.	2017	\$6,000,000	\$600,000	\$5,400,000	-\$1,229	\$401,375	\$6,457,795	\$6,859,170	\$1,460,400	0.07	1.27	7.81%
Ironsides Opportunities Fund, L.P.	2017	\$3,000,000	\$1,456,492	\$1,543,508	\$11,292	\$254,283	\$2,266,500	\$2,520,783	\$965,984	0.16	1.62	14.08%
Mass PRIM AIVY 2017	2017	\$2,000,000	\$625,930	\$1,374,070	\$26	\$87,857	\$2,670,944	\$2,758,801	\$1,384,705	0.06	2.01	29.73%
Park Square Capital Credit Opportunities III (USD), L.P.	2017	\$3,000,000	\$501,321	\$2,498,679	\$0	\$286,123	\$2,826,631	\$3,112,754	\$614,075	0.11	1.25	7.80%
Total 2017		\$14,000,000	\$3,183,743	\$10,816,257	\$10,089	\$1,029,639	\$14,221,870	\$15,251,508	\$4,425,163	0.10	1.41	11.56%
2020												
Dover Street X, L.P.	2020	\$9,000,000	\$4,162,500	\$4,837,500	\$6,202	\$1,560,239	\$6,356,416	\$7,916,655	\$3,072,953	0.32	1.63	60.10%
Hamilton Lane Secondary Fund V, L.P.	2020	\$9,000,000	\$4,588,487	\$4,411,513	-\$17,882	\$0	\$6,973,864	\$6,973,864	\$2,580,233	0.00	1.59	40.39%
JFL Equity Investors V, L.P.	2020	\$9,000,000	\$2,276,985	\$6,723,015	\$0	\$0	\$7,257,085	\$7,257,085	\$534,070	0.00	1.08	7.35%
Mass PRIM AIVY 2020	2020	\$5,000,000	\$2,368,706	\$2,631,294	\$61	\$21,554	\$3,258,183	\$3,279,738	\$648,383	0.01	1.25	27.73%
Total 2020		\$32,000,000	\$13,396,678	\$18,603,322	-\$11,619	\$1,581,793	\$23,845,548	\$25,427,342	\$6,835,638	0.09	1.37	32.51%
2021												
HarbourVest Partners Co-Investment Fund VI L.P.	2021	\$8,000,000	\$7,600,000	\$400,000	\$0	\$0	\$365,382	\$365,382	-\$34,618	0.00	0.91	-8.65%
Ironsides Co-Investment Fund VI, LP	2021	\$12,000,000	\$1,534,582	\$10,465,418	\$305,594	\$0	\$12,367,093	\$12,367,093	\$1,596,081	0.00	1.15	15.20%
Mass PRIM AIVY 2021	2021	\$5,000,000	\$2,759,505	\$2,240,495	\$0	\$0	\$2,367,936	\$2,367,936	\$127,442	0.00	1.06	9.20%
Total 2021		\$25,000,000	\$11,894,087	\$13,105,913	\$305,594	\$0	\$15,100,411	\$15,100,411	\$1,688,904	0.00	1.13	31.84%
2022												
Mass PRIM AIVY 2022	2022	\$7,500,000	\$7,204,434	\$295,566	\$0	\$0	\$371,343	\$371,343	\$75,777	0.00	1.26	38.38%
Total 2022		\$7,500,000	\$7,204,434	\$295,566	\$0	\$0	\$371,343	\$371,343	\$75,777	0.00	1.26	38.38%
Total		\$144,888,434	\$50,234,093	\$94,654,341	\$757,410	\$83,238,874	\$85,770,366	\$169,009,240	\$73,597,489	0.87	1.77	13.69%



MWRA Employees' Retirement System

ANALYSIS BY INVESTMENT STRATEGY

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Buyout												
AIG PEP V Asia, L.P.	2007	\$549,557	\$116,665	\$432,892	\$11,622	\$446,362	\$35,776	\$482,138	\$37,624	1.00	1.08	1.33%
AIG PEP V Europe, L.P.	2007	\$1,592,304	\$506,970	\$1,085,334	\$25,194	\$1,292,083	\$18,235	\$1,310,318	\$199,790	1.16	1.18	2.32%
AIG PEP V Large Market U.S. Buyout, L.P.	2007	\$720,000	\$125,336	\$594,664	-\$11,616	\$935,635	\$85,418	\$1,021,053	\$438,005	1.60	1.75	7.65%
AIG PEP V Preferred Participation Fund, L.P.	2007	\$503,561	-\$42,778	\$546,339	\$28,158	\$1,036,752	\$93,372	\$1,130,124	\$555,627	1.80	1.97	11.20%
JFL Equity Investors IV, L.P.	2016	\$6,000,000	\$145,678	\$5,854,322	\$69,246	\$12,667,814	\$2,566,725	\$15,234,539	\$9,310,971	2.14	2.57	38.52%
JFL Equity Investors V, L.P.	2020	\$9,000,000	\$2,276,985	\$6,723,015	\$0	\$0	\$7,257,085	\$7,257,085	\$534,070	0.00	1.08	7.35%
Total Buyout		\$18,365,422	\$3,128,856	\$15,236,566	\$122,604	\$16,378,646	\$10,056,611	\$26,435,257	\$11,076,087	1.07	1.72	14.78%
Co-Investments												
AIG PEP V Co-Investment, L.P.	2007	\$900,000	\$22,644	\$877,356	\$32,765	\$885,186	\$96,394	\$981,580	\$71,459	0.97	1.08	1.06%
HarbourVest Partners Co-Investment Fund VI L.P.	2021	\$8,000,000	\$7,600,000	\$400,000	\$0	\$0	\$365,382	\$365,382	-\$34,618	0.00	0.91	-8.65%
Private Advisors Small Co Coinvestment Fund, L.P.	2016	\$4,000,000	\$678,841	\$3,321,159	\$14,068	\$2,490,424	\$4,671,521	\$7,161,945	\$3,826,718	0.75	2.15	23.84%
Total Co-Investments		\$12,900,000	\$8,301,485	\$4,598,515	\$46,833	\$3,375,610	\$5,133,297	\$8,508,907	\$3,863,559	0.73	1.83	12.19%
Direct Lending												
Alcentra European Direct Lending Fund I, L.P.	2014	\$5,000,000	\$4,759,386	\$240,614	\$26,581	\$1,404,489	\$195,385	\$1,599,874	\$1,332,679	5.26	5.99	7.49%
Park Square Capital Credit Opportunities III (USD), L.P.	2017	\$3,000,000	\$501,321	\$2,498,679	\$0	\$286,123	\$2,826,631	\$3,112,754	\$614,075	0.11	1.25	7.80%
Total Direct Lending		\$8,000,000	\$5,260,707	\$2,739,293	\$26,581	\$1,690,611	\$3,022,016	\$4,712,628	\$1,946,753	0.61	1.70	7.57%
Distressed												
CVI Credit Value Fund A IV, L.P.	2017	\$6,000,000	\$600,000	\$5,400,000	-\$1,229	\$401,375	\$6,457,795	\$6,859,170	\$1,460,400	0.07	1.27	7.81%
Ironsides Co-Investment Fund VI, LP	2021	\$12,000,000	\$1,534,582	\$10,465,418	\$305,594	\$0	\$12,367,093	\$12,367,093	\$1,596,081	0.00	1.15	15.20%
Ironsides Opportunities Fund, L.P.	2017	\$3,000,000	\$1,456,492	\$1,543,508	\$11,292	\$254,283	\$2,266,500	\$2,520,783	\$965,984	0.16	1.62	14.08%
Total Distressed		\$21,000,000	\$3,591,074	\$17,408,926	\$315,657	\$655,659	\$21,091,388	\$21,747,047	\$4,022,464	0.04	1.23	13.07%
Energy												
Kayne Anderson Energy Fund VII, L.P.	2015	\$5,000,000	\$728,670	\$4,271,330	-\$40,917	\$1,125,691	\$3,388,589	\$4,514,280	\$283,867	0.27	1.07	1.62%
Total Energy		\$5,000,000	\$728,670	\$4,271,330	-\$40,917	\$1,125,691	\$3,388,589	\$4,514,280	\$283,867	0.27	1.07	1.62%
Fund of Funds												
Hamilton Lane Secondary Fund V, L.P.	2020	\$9,000,000	\$4,588,487	\$4,411,513	-\$17,882	\$0	\$6,973,864	\$6,973,864	\$2,580,233	0.00	1.59	40.39%
Invesco Fund IV, L.P.	2004	\$3,000,000	\$717,234	\$2,282,766	\$232,198	\$4,844,802	\$0	\$4,844,802	\$2,329,837	1.93	1.93	10.33%
Invesco Partnership Fund VI, L.P.	2013	\$5,000,000	\$1,041,645	\$3,958,355	\$0	\$12,610,471	\$1,405,531	\$14,016,002	\$10,057,647	3.19	3.54	21.22%
Mass PRIM AIVY 2008	2008	\$3,000,000	\$1,106,681	\$1,893,319	\$2,212	\$3,898,609	\$863,009	\$4,761,618	\$2,866,086	2.06	2.51	17.54%
Mass PRIM AIVY 2009	2009	\$1,000,000	\$756,256	\$243,744	\$109	\$657,336	\$126,370	\$783,706	\$539,853	2.70	3.21	21.23%



MWRA Employees' Retirement System

ANALYSIS BY INVESTMENT STRATEGY

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Mass PRIM AIVY 2010	2010	\$1,000,000	\$444,276	\$555,724	\$180	\$1,143,072	\$595,621	\$1,738,693	\$1,182,789	2.06	3.13	18.82%
Mass PRIM AIVY 2011	2011	\$1,500,000	\$517,511	\$982,489	\$159	\$2,094,031	\$999,991	\$3,094,022	\$2,111,374	2.13	3.15	21.18%
Mass PRIM AIVY 2012	2012	\$1,000,000	\$479,170	\$520,830	\$44	\$830,593	\$588,923	\$1,419,516	\$898,642	1.59	2.73	19.27%
Mass PRIM AIVY 2014	2014	\$2,000,000	\$800,958	\$1,199,042	\$0	\$1,331,993	\$2,394,496	\$3,726,489	\$2,527,447	1.11	3.11	25.91%
Mass PRIM AIVY 2017	2017	\$2,000,000	\$625,930	\$1,374,070	\$26	\$87,857	\$2,670,944	\$2,758,801	\$1,384,705	0.06	2.01	29.73%
Mass PRIM AIVY 2020	2020	\$5,000,000	\$2,368,706	\$2,631,294	\$61	\$21,554	\$3,258,183	\$3,279,738	\$648,383	0.01	1.25	27.73%
Mass PRIM AIVY 2021	2021	\$5,000,000	\$2,759,505	\$2,240,495	\$0	\$0	\$2,367,936	\$2,367,936	\$127,442	0.00	1.06	9.20%
Mass PRIM AIVY 2022	2022	\$7,500,000	\$7,204,434	\$295,566	\$0	\$0	\$371,343	\$371,343	\$75,777	0.00	1.26	38.38%
Total Fund of Funds		\$46,000,000	\$23,410,793	\$22,589,207	\$217,107	\$27,520,319	\$22,616,211	\$50,136,530	\$27,330,215	1.21	2.20	17.16%
Growth Equity												
AIG PEP V Small-Mid Market U.S. Buyout, L.P.	2007	\$900,000	\$185,690	\$714,310	-\$9,254	\$1,267,194	\$90,345	\$1,357,539	\$652,483	1.80	1.93	9.69%
Total Growth Equity		\$900,000	\$185,690	\$714,310	-\$9,254	\$1,267,194	\$90,345	\$1,357,539	\$652,483	1.80	1.93	9.69%
Secondaries												
AIG PEP V Secondary, L.P.	2007	\$600,000	\$181,881	\$418,119	\$17,277	\$572,819	\$24,803	\$597,622	\$162,226	1.32	1.37	6.54%
Dover Street X, L.P.	2020	\$9,000,000	\$4,162,500	\$4,837,500	\$6,202	\$1,560,239	\$6,356,416	\$7,916,655	\$3,072,953	0.32	1.63	60.10%
Landmark Equity Partners XV, L.P.	2013	\$3,000,000	\$836,158	\$2,163,842	-\$9,117	\$2,110,722	\$1,193,437	\$3,304,159	\$1,149,434	0.98	1.53	13.39%
Total Secondaries		\$12,600,000	\$5,180,539	\$7,419,461	\$14,362	\$4,243,780	\$7,574,656	\$11,818,436	\$4,384,613	0.57	1.59	18.38%
Venture Capital												
AIG PEP V US Venture, L.P.	2007	\$480,000	\$61,615	\$418,385	\$12,941	\$857,246	\$48,391	\$905,637	\$474,311	1.99	2.10	13.07%
Ascent Venture Partners II, L.P.	1995	\$774,807	\$0	\$774,807	\$0	\$2,571,916	\$0	\$2,571,916	\$1,797,109	3.32	3.32	26.71%
Ascent Venture Partners IV(B), L.P.	2016	\$1,000,000	\$32,164	\$967,836	\$0	\$800,101	\$45,225	\$845,326	-\$122,509	0.83	0.87	-3.64%
Ascent Venture Partners IV, L.P.	2004	\$2,000,000	\$0	\$2,000,000	\$0	\$339,208	\$0	\$339,208	-\$1,660,792	0.17	0.17	-27.17%
Ascent Venture Partners V, L.P.	2008	\$2,000,000	\$60,000	\$1,940,000	\$0	\$1,646,891	\$1,539,356	\$3,186,247	\$1,246,247	0.85	1.64	6.99%
Ascent Venture Partners VI, L.P.	2014	\$3,000,000	\$180,000	\$2,820,000	\$0	\$0	\$3,482,574	\$3,482,574	\$662,574	0.00	1.23	4.73%
Boston Capital Venture Fund III, L.P.	1993	\$800,000	\$0	\$800,000	\$0	\$1,199,402	\$0	\$1,199,402	\$399,402	1.50	1.50	8.87%
Castile Ventures III, L.P.	2007	\$3,000,000	\$0	\$3,000,000	\$51,496	\$852,796	\$0	\$852,796	-\$2,198,700	0.28	0.28	-36.97%
Foundry Venture Capital 2007, L.P.	2007	\$3,000,000	\$45,000	\$2,955,000	\$0	\$14,506,308	\$515,307	\$15,021,615	\$12,066,615	4.91	5.08	42.79%
Foundry Venture Capital 2010 Annex, L.P.	2015	\$268,205	\$0	\$268,205	\$0	\$407,252	\$1,114,610	\$1,521,862	\$1,253,657	1.52	5.67	38.01%
Foundry Venture Capital 2010, L.P.	2010	\$3,000,000	\$67,500	\$2,932,500	\$0	\$3,255,566	\$6,051,790	\$9,307,356	\$6,374,856	1.11	3.17	15.25%
Ticonderoga Concord Partners III, L.P.	1995	\$800,000	\$0	\$800,000	\$0	\$544,677	\$0	\$544,677	-\$255,323	0.68	0.68	-8.06%
Total Venture Capital		\$20,123,012	\$446,279	\$19,676,733	\$64,437	\$26,981,364	\$12,797,253	\$39,778,617	\$20,037,447	1.37	2.02	12.49%
Total		\$144,888,434	\$50,234,093	\$94,654,341	\$757,410	\$83,238,874	\$85,770,366	\$169,009,240	\$73,597,489	0.87	1.77	13.69%



MWRA Employees' Retirement System

QUARTERLY TRANSACTION SUMMARY

Fund Name	Month Ended	Capital Call	Additional Fee	Temp Return of Capital	Distribution	Net Cash Flow
Alcentra European Direct Lending Fund I, L.P.	6/30/2022			-22,420		-22,420
Total: Alcentra European Direct Lending Fund I, L.P.				-22,420		-22,420
CVI Credit Value Fund A IV, L.P.	5/31/2022				-401,375	-401,375
Total: CVI Credit Value Fund A IV, L.P.					-401,375	-401,375
Dover Street X, L.P.	6/30/2022	157,500			-221,625	-64,125
Total: Dover Street X, L.P.		157,500			-221,625	-64,125
Foundry Venture Capital 2010, L.P.	6/30/2022				-77,600	-77,600
Total: Foundry Venture Capital 2010, L.P.					-77,600	-77,600
Hamilton Lane Secondary Fund V, L.P.	6/30/2022			-183,930		-183,930
Total: Hamilton Lane Secondary Fund V, L.P.				-183,930		-183,930
HarbourVest Partners Co-Investment Fund VI L.P.	4/30/2022	400,000				400,000
Total: HarbourVest Partners Co-Investment Fund VI L.P.		400,000				400,000
Ironsides Opportunities Fund, L.P.	4/30/2022	1,067			-133,873	-132,805
Total: Ironsides Opportunities Fund, L.P.		1,067			-133,873	-132,805
JFL Equity Investors IV, L.P.	6/30/2022	66,972				66,972
Total: JFL Equity Investors IV, L.P.		66,972				66,972
JFL Equity Investors V, L.P.	4/30/2022	1,723,925				1,723,925
Total: JFL Equity Investors V, L.P.		1,723,925				1,723,925
Kayne Anderson Energy Fund VII, L.P.	6/30/2022	6,187			-6,187	0



MWRA Employees' Retirement System

QUARTERLY TRANSACTION SUMMARY

Fund Name	Month Ended	Capital Call	Additional Fee	Temp Return of Capital	Distribution	Net Cash Flow
Total: Kayne Anderson Energy Fund VII, L.P.		6,187			-6,187	0
Landmark Equity Partners XV, L.P.	6/30/2022				-21,214	-21,214
Total: Landmark Equity Partners XV, L.P.					-21,214	-21,214
Mass PRIM AIVY 2008	4/30/2022				-2,546	-2,546
	5/31/2022				-2,899	-2,899
	6/30/2022				-6,207	-6,207
Total: Mass PRIM AIVY 2008					-11,653	-11,653
Mass PRIM AIVY 2009	4/30/2022	3				3
	5/31/2022				-11,425	-11,425
	6/30/2022	5				5
Total: Mass PRIM AIVY 2009		8			-11,425	-11,417
Mass PRIM AIVY 2010	4/30/2022				-916	-916
	5/31/2022				-3,013	-3,013
	6/30/2022				-2,318	-2,318
Total: Mass PRIM AIVY 2010					-6,247	-6,247
Mass PRIM AIVY 2011	4/30/2022				-3,062	-3,062
	5/31/2022				-11,932	-11,932
	6/30/2022				-4,032	-4,032
Total: Mass PRIM AIVY 2011					-19,026	-19,026
Mass PRIM AIVY 2012	4/30/2022				-2,504	-2,504
	5/31/2022				-31,617	-31,617
	6/30/2022	1,595				1,595
Total: Mass PRIM AIVY 2012		1,595			-34,121	-32,526



MWRA Employees' Retirement System

QUARTERLY TRANSACTION SUMMARY

Fund Name	Month Ended	Capital Call	Additional Fee	Temp Return of Capital	Distribution	Net Cash Flow
Mass PRIM AIVY 2014	4/30/2022				-13,101	-13,101
	5/31/2022				-9,619	-9,619
	6/30/2022				-26,569	-26,569
Total: Mass PRIM AIVY 2014					-49,289	-49,289
Mass PRIM AIVY 2017	4/30/2022	13,193				13,193
	5/31/2022	27,285				27,285
	6/30/2022				-18,719	-18,719
Total: Mass PRIM AIVY 2017		40,478			-18,719	21,759
Mass PRIM AIVY 2020	4/30/2022	16,822				16,822
	5/31/2022	128,991				128,991
	6/30/2022	15,238				15,238
Total: Mass PRIM AIVY 2020		161,051				161,051
Mass PRIM AIVY 2021	4/30/2022	47,454				47,454
	5/31/2022	92,384				92,384
	6/30/2022	85,257				85,257
Total: Mass PRIM AIVY 2021		225,095				225,095
Mass PRIM AIVY 2022	4/30/2022	90,323				90,323
	5/31/2022	79				79
	6/30/2022	91,352				91,352
Total: Mass PRIM AIVY 2022		181,754				181,754
Park Square Capital Credit Opportunities III (USD), L.P.	5/31/2022				-38,216	-38,216
Total: Park Square Capital Credit Opportunities III (USD), L.P.					-38,216	-38,216
Private Advisors Small Co Coinvestment Fund, L.P.	4/30/2022				-428,685	-428,685



MWRA Employees' Retirement System

QUARTERLY TRANSACTION SUMMARY

Fund Name	Month Ended	Capital Call	Additional Fee	Temp Return of Capital	Distribution	Net Cash Flow
	6/30/2022	17,937			-306,258	-288,321
Total: Private Advisors Small Co Coinvestment Fund, L.P.		17,937			-734,944	-717,006
Grand Total		2,983,570		-206,350	-1,785,512	991,708



GLOSSARY OF TERMS

- **Commitment Amount** – The amount an investor has committed to invest with the General Partner
- **Paid In Capital** – The amount an investor has contributed for investments and management fees
- **Capital to be Funded** – The remaining amount an investor contractually has left to fund its commitments
- **Additional Fees** – Fees that are outside the capital commitment, also includes interest paid/received due from subsequent closings of the fund
- **Cumulative Distributions** – The amount an investor has received from realized and partially realized investments
- **Valuation** – Sum of the fair market value of all investments plus cash
- **Call Ratio** – Calculated by dividing Amount Funded by Capital Committed
- **DPI Ratio** - Calculated by dividing Amount Distributed by Amount Funded
- **Market Exposure** – Calculated by adding Reported Value plus Unfunded Commitments
- **Total Value** – Calculated by adding Amount Distributed and Reported Value. Represents the total amount an investor should expect to receive from their investments
- **Net Benefit** – Calculated by subtracting Total Value by Capital to be Funded plus Additional Fees
- **Total Value to Paid In Capital Ratio** – Calculated by dividing Total Value by Amount Funded. Represents the multiple of the overall cash invested that an investor is expected to receive
- **IRR** - The calculation of the IRR (Internal Rate of Return) takes into consideration the timing of cash contributions and distributions to and from the partnerships, the length of time the investments have been held and the sum of the Reported Value
- **Index Comparison Method (ICM)** – represents the hypothetical IRR of a private investment program that is computed by assuming the fund flows were invested in and out of a publicly traded index. The resulting hypothetical market value of the program is then used with the program’s actual cash flows to compute a hypothetical IRR. This hypothetical IRR can be compared with the actual IRR to determine whether the private investment program outperformed the publicly traded index
- **Valuation ICM** – The valuation equivalent that ICM calculates for the public market is called valuation ICM
- **KS PME** – The Kaplan Schoar Public Markets Equivalent is a ratio of the future value of all distributions divided by the future value of all contributions using the index return as the discount rate. The ending valuation is treated as a distribution in this method
- **IRR ICM** – The IRR equivalent that ICM calculates for the public market is called IRR ICM



QUARTERLY PERFORMANCE REPORT

MWRA Employees' Retirement System

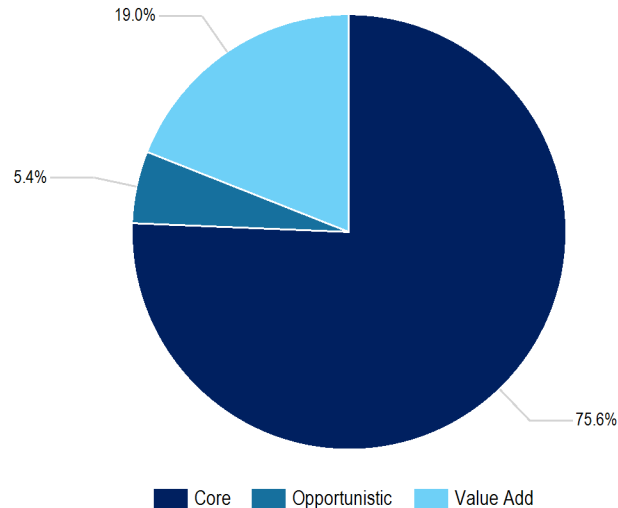
June 30, 2022



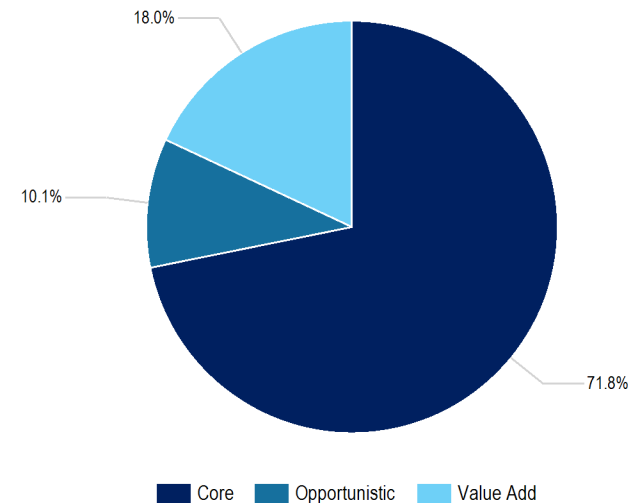
BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

MWRA Employees' Retirement System ANALYSIS BY STRATEGY

Private Markets Valuation by Strategy



Private Markets Fund Exposure by Strategy

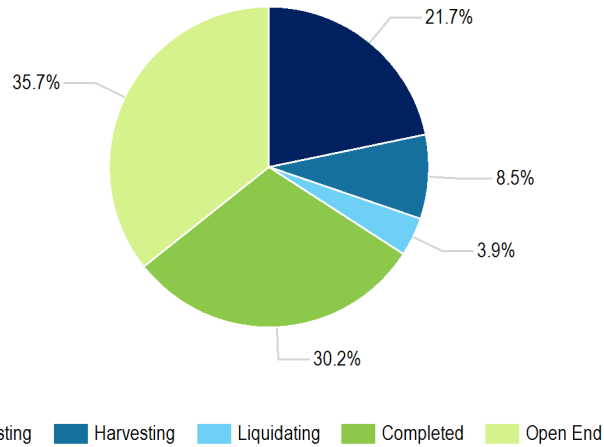


Investments	Commitments			Contributions & Distributions			Valuations				Performance		
	Investment Strategy	Commitment	Unfunded Commitment	Call Ratio	Cumulative Contributions	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	Fund Exposure	DPI	TVPI
Total Core	\$52,587,180	\$0	1.00	\$52,587,180	\$38,018	\$36,810,415	\$55,531,107	\$92,341,522	\$39,716,324	\$55,531,107	0.70	1.75	11.67%
Total Opportunistic	\$14,500,000	\$3,896,317	0.73	\$10,603,683	\$4,898	\$9,872,690	\$3,930,988	\$13,803,678	\$3,195,097	\$7,827,305	0.93	1.30	5.41%
Total Value Add	\$22,610,264	\$0	1.00	\$22,610,264	\$463,101	\$16,387,211	\$13,947,521	\$30,334,732	\$7,261,366	\$13,947,521	0.71	1.31	9.99%
Total	\$89,697,444	\$3,896,317	0.96	\$85,801,127	\$506,017	\$63,070,316	\$73,409,616	\$136,479,932	\$50,172,788	\$77,305,932	0.73	1.58	10.52%

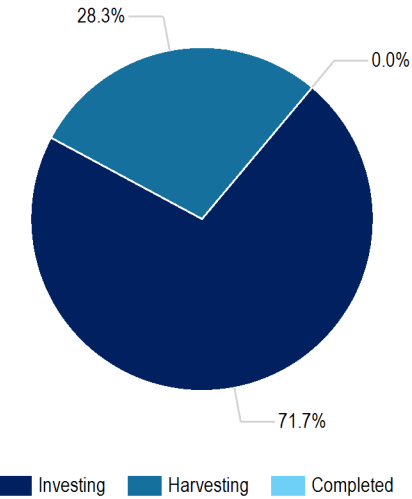


MWRA Employees' Retirement System ANALYSIS BY LIFECYCLE

Commitment by Lifecycle



Unfunded Commitment by Lifecycle



Lifecycle	Commitments			Contributions & Distributions			Valuations			Performance			
	Investments	Commitment	Unfunded Commitment	Call Ratio	Cumulative Contributions	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Total Investing		\$19,500,000	\$2,795,051	0.86	\$16,704,949	\$479,988	\$6,621,155	\$15,303,398	\$21,924,553	\$4,739,615	0.39	1.28	10.86%
Total Harvesting		\$7,610,264	\$1,101,266	0.86	\$6,508,998	-\$22,921	\$6,777,824	\$2,571,633	\$9,349,457	\$2,863,380	1.04	1.44	11.12%
Total Liquidating		\$3,500,000	\$0	1.00	\$3,500,000	\$10,932	\$5,604,128	\$3,478	\$5,607,606	\$2,096,674	1.60	1.60	12.51%
Total Completed		\$27,087,180	\$0	1.00	\$27,087,180	\$0	\$41,685,330	\$0	\$41,685,330	\$14,598,150	1.54	1.54	8.20%
Total Open End		\$32,000,000	\$0	1.00	\$32,000,000	\$38,018	\$2,381,879	\$55,531,107	\$57,912,986	\$25,874,968	0.07	1.81	14.56%
Total		\$89,697,444	\$3,896,317	0.96	\$85,801,127	\$506,017	\$63,070,316	\$73,409,616	\$136,479,932	\$50,172,788	0.73	1.58	10.52%



MWRA Employees' Retirement System

ANALYSIS BY VINTAGE YEAR

Commitments By Vintage Year



Vintage Year	Commitments			Contributions & Distributions			Valuations			Performance		
	Commitment	Unfunded Commitment	Call Ratio	Cumulative Contributions	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Total 2000	\$2,500,000	\$0	1.00	\$2,500,000	\$0	\$4,814,756	\$0	\$4,814,756	\$2,314,756	1.93	1.93	16.26%
Total 2003	\$3,687,180	\$0	1.00	\$3,687,180	\$0	\$7,058,204	\$0	\$7,058,204	\$3,371,024	1.91	1.91	9.08%
Total 2005	\$16,000,000	\$0	1.00	\$16,000,000	\$0	\$2,442,038	\$26,990,423	\$29,432,461	\$13,432,461	0.15	1.84	8.06%
Total 2010	\$20,900,000	\$935,470	0.96	\$19,964,530	-\$1,167	\$31,338,024	\$517,339	\$31,855,363	\$11,892,000	1.57	1.60	10.18%
Total 2012	\$5,000,000	\$365,369	0.93	\$4,634,631	\$10,932	\$7,357,245	\$519,557	\$7,876,802	\$3,231,239	1.58	1.70	12.71%
Total 2015	\$5,610,264	\$855,796	0.85	\$4,754,468	-\$27,350	\$4,141,807	\$2,526,435	\$6,668,242	\$1,941,124	0.88	1.41	8.56%
Total 2017	\$8,000,000	\$1,739,682	0.78	\$6,260,318	\$26,083	\$3,536,363	\$5,551,786	\$9,088,149	\$2,801,748	0.56	1.45	11.65%
Total 2019	\$20,000,000	\$0	1.00	\$20,000,000	\$38,018	\$2,381,879	\$28,540,684	\$30,922,563	\$10,884,546	0.12	1.54	17.41%
Total 2022	\$8,000,000	\$0	1.00	\$8,000,000	\$459,501	\$0	\$8,763,392	\$8,763,392	\$303,891	0.00	1.04	3.59%
Total	\$89,697,444	\$3,896,317	0.96	\$85,801,127	\$506,017	\$63,070,316	\$73,409,616	\$136,479,932	\$50,172,788	0.73	1.58	10.52%



APPENDIX

MWRA Employees' Retirement System

June 30, 2022



MWRA Employees' Retirement System

RETURN SUMMARY

Investments			Trailing Period Returns (IRR) %						
Investment Name	Vintage Year	Commitment	(Qtr)	(YTD)	(1 Yr)	(3 Yrs)	(5 Yrs)	(10 Yrs)	SI IRR
BlackRock Apartment Value Fund II, L.P.	2000	\$2,500,000							16.26%
BlackRock Apartment Value Fund III, Inc.	2005	\$2,000,000							-9.85%
Cerberus Institutional Real Estate Partners III, L.P.	2012	\$1,500,000	-21.56%	-12.66%	54.92%	19.44%	13.21%		13.14%
Corporate Property Associates 15 Incorporated	2003	\$3,687,180							9.08%
Intercontinental Real Estate Investment Fund IV, L.P.	2005	\$2,000,000							-6.40%
Invesco Mortgage Recovery Fund II, L.P.	2015	\$3,000,000	-2.65%	-3.80%	-1.54%	-15.58%	1.38%		5.79%
Landmark Real Estate Fund VI, L.P.	2010	\$2,000,000	5.31%	-51.82%	-43.19%	-23.61%	-11.36%	12.22%	19.37%
Landmark Real Estate Partners VIII, L.P.	2017	\$4,000,000	2.88%	14.40%	48.02%	18.79%			19.99%
Mass PRIM Real Estate 2010	2010	\$16,900,000							10.01%
Prime Property Fund, LLC	2005	\$12,000,000	3.04%	10.27%	27.89%	11.90%	10.85%	11.62%	13.62%
Real Estate Global Partnership Fund II, L.P.	2010	\$2,000,000	0.00%	1.14%	0.52%	-3.23%	0.66%	6.39%	5.88%
TA Associates Realty Fund X, L.P.	2012	\$3,500,000	3.76%	4.00%	1.84%	-0.86%	13.15%		12.51%
TA Realty Core Property Fund, L.P.	2019	\$20,000,000	5.07%	13.65%	36.67%	17.41%			17.41%
TerraCap Partners III, L.P.	2015	\$2,610,264	1.42%	5.63%	6.52%	5.06%	6.25%		9.95%
TerraCap Partners IV (Institutional), L.P.	2017	\$4,000,000	-0.70%	2.05%	14.66%	12.80%			9.59%
TerraCap Partners V, L.P.	2022	\$8,000,000							3.59%
Total		\$89,697,444	3.46%	10.58%	29.67%	13.37%	11.18%	11.88%	10.52%



MWRA Employees' Retirement System

ANALYSIS BY FUND

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
BlackRock Apartment Value Fund II, L.P.	2000	\$2,500,000	\$0	\$2,500,000	\$0	\$4,814,756	\$0	\$4,814,756	\$2,314,756	1.93	1.93	16.26%
BlackRock Apartment Value Fund III, Inc.	2005	\$2,000,000	\$0	\$2,000,000	\$0	\$1,236,567	\$0	\$1,236,567	-\$763,433	0.62	0.62	-9.85%
Cerberus Institutional Real Estate Partners III, L.P.	2012	\$1,500,000	\$365,369	\$1,134,631	\$0	\$1,753,117	\$516,079	\$2,269,196	\$1,134,565	1.55	2.00	13.14%
Corporate Property Associates 15 Incorporated	2003	\$3,687,180	\$0	\$3,687,180	\$0	\$7,058,204	\$0	\$7,058,204	\$3,371,024	1.91	1.91	9.08%
Intercontinental Real Estate Investment Fund IV, L.P.	2005	\$2,000,000	\$0	\$2,000,000	\$0	\$1,205,471	\$0	\$1,205,471	-\$794,529	0.60	0.60	-6.40%
Invesco Mortgage Recovery Fund II, L.P.	2015	\$3,000,000	\$855,796	\$2,144,204	\$0	\$1,635,229	\$942,943	\$2,578,172	\$433,968	0.76	1.20	5.79%
Landmark Real Estate Fund VI, L.P.	2010	\$2,000,000	\$245,470	\$1,754,530	\$4,429	\$2,636,017	\$45,198	\$2,681,215	\$922,256	1.50	1.52	19.37%
Landmark Real Estate Partners VIII, L.P.	2017	\$4,000,000	\$1,739,682	\$2,260,318	\$6,065	\$1,311,181	\$1,954,627	\$3,265,808	\$999,425	0.58	1.44	19.99%
Mass PRIM Real Estate 2010	2010	\$16,900,000	\$0	\$16,900,000	\$0	\$27,370,332	\$0	\$27,370,332	\$10,470,332	1.62	1.62	10.01%
Prime Property Fund, LLC	2005	\$12,000,000	\$0	\$12,000,000	\$0	\$0	\$26,990,423	\$26,990,423	\$14,990,423	0.00	2.25	13.62%
Real Estate Global Partnership Fund II, L.P.	2010	\$2,000,000	\$690,000	\$1,310,000	-\$5,596	\$1,331,675	\$472,141	\$1,803,816	\$499,412	1.02	1.38	5.88%
TA Associates Realty Fund X, L.P.	2012	\$3,500,000	\$0	\$3,500,000	\$10,932	\$5,604,128	\$3,478	\$5,607,606	\$2,096,674	1.60	1.60	12.51%
TA Realty Core Property Fund, L.P.	2019	\$20,000,000	\$0	\$20,000,000	\$38,018	\$2,381,879	\$28,540,684	\$30,922,563	\$10,884,546	0.12	1.54	17.41%
TerraCap Partners III, L.P.	2015	\$2,610,264	\$0	\$2,610,264	-\$27,350	\$2,506,578	\$1,583,492	\$4,090,070	\$1,507,156	0.97	1.58	9.95%
TerraCap Partners IV (Institutional), L.P.	2017	\$4,000,000	\$0	\$4,000,000	\$20,018	\$2,225,182	\$3,597,159	\$5,822,341	\$1,802,323	0.55	1.45	9.59%
TerraCap Partners V, L.P.	2022	\$8,000,000	\$0	\$8,000,000	\$459,501	\$0	\$8,763,392	\$8,763,392	\$303,891	0.00	1.04	3.59%
Total		\$89,697,444	\$3,896,317	\$85,801,127	\$506,017	\$63,070,316	\$73,409,616	\$136,479,932	\$50,172,788	0.73	1.58	10.52%



MWRA Employees' Retirement System

ANALYSIS BY LIFECYCLE

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Investing												
Cerberus Institutional Real Estate Partners III, L.P.	2012	\$1,500,000	\$365,369	\$1,134,631	\$0	\$1,753,117	\$516,079	\$2,269,196	\$1,134,565	1.55	2.00	13.14%
Landmark Real Estate Partners VIII, L.P.	2017	\$4,000,000	\$1,739,682	\$2,260,318	\$6,065	\$1,311,181	\$1,954,627	\$3,265,808	\$999,425	0.58	1.44	19.99%
Real Estate Global Partnership Fund II, L.P.	2010	\$2,000,000	\$690,000	\$1,310,000	-\$5,596	\$1,331,675	\$472,141	\$1,803,816	\$499,412	1.02	1.38	5.88%
TerraCap Partners IV (Institutional), L.P.	2017	\$4,000,000	\$0	\$4,000,000	\$20,018	\$2,225,182	\$3,597,159	\$5,822,341	\$1,802,323	0.55	1.45	9.59%
TerraCap Partners V, L.P.	2022	\$8,000,000	\$0	\$8,000,000	\$459,501	\$0	\$8,763,392	\$8,763,392	\$303,891	0.00	1.04	3.59%
Total Investing		\$19,500,000	\$2,795,051	\$16,704,949	\$479,988	\$6,621,155	\$15,303,398	\$21,924,553	\$4,739,615	0.39	1.28	10.86%
Harvesting												
Invesco Mortgage Recovery Fund II, L.P.	2015	\$3,000,000	\$855,796	\$2,144,204	\$0	\$1,635,229	\$942,943	\$2,578,172	\$433,968	0.76	1.20	5.79%
Landmark Real Estate Fund VI, L.P.	2010	\$2,000,000	\$245,470	\$1,754,530	\$4,429	\$2,636,017	\$45,198	\$2,681,215	\$922,256	1.50	1.52	19.37%
TerraCap Partners III, L.P.	2015	\$2,610,264	\$0	\$2,610,264	-\$27,350	\$2,506,578	\$1,583,492	\$4,090,070	\$1,507,156	0.97	1.58	9.95%
Total Harvesting		\$7,610,264	\$1,101,266	\$6,508,998	-\$22,921	\$6,777,824	\$2,571,633	\$9,349,457	\$2,863,380	1.04	1.44	11.12%
Liquidating												
TA Associates Realty Fund X, L.P.	2012	\$3,500,000	\$0	\$3,500,000	\$10,932	\$5,604,128	\$3,478	\$5,607,606	\$2,096,674	1.60	1.60	12.51%
Total Liquidating		\$3,500,000	\$0	\$3,500,000	\$10,932	\$5,604,128	\$3,478	\$5,607,606	\$2,096,674	1.60	1.60	12.51%
Completed												
BlackRock Apartment Value Fund II, L.P.	2000	\$2,500,000	\$0	\$2,500,000	\$0	\$4,814,756	\$0	\$4,814,756	\$2,314,756	1.93	1.93	16.26%
BlackRock Apartment Value Fund III, Inc.	2005	\$2,000,000	\$0	\$2,000,000	\$0	\$1,236,567	\$0	\$1,236,567	-\$763,433	0.62	0.62	-9.85%
Corporate Property Associates 15 Incorporated	2003	\$3,687,180	\$0	\$3,687,180	\$0	\$7,058,204	\$0	\$7,058,204	\$3,371,024	1.91	1.91	9.08%
Intercontinental Real Estate Investment Fund IV, L.P.	2005	\$2,000,000	\$0	\$2,000,000	\$0	\$1,205,471	\$0	\$1,205,471	-\$794,529	0.60	0.60	-6.40%
Mass PRIM Real Estate 2010	2010	\$16,900,000	\$0	\$16,900,000	\$0	\$27,370,332	\$0	\$27,370,332	\$10,470,332	1.62	1.62	10.01%
Total Completed		\$27,087,180	\$0	\$27,087,180	\$0	\$41,685,330	\$0	\$41,685,330	\$14,598,150	1.54	1.54	8.20%
Open End												
Prime Property Fund, LLC	2005	\$12,000,000	\$0	\$12,000,000	\$0	\$0	\$26,990,423	\$26,990,423	\$14,990,423	0.00	2.25	13.62%
TA Realty Core Property Fund, L.P.	2019	\$20,000,000	\$0	\$20,000,000	\$38,018	\$2,381,879	\$28,540,684	\$30,922,563	\$10,884,546	0.12	1.54	17.41%
Total Open End		\$32,000,000	\$0	\$32,000,000	\$38,018	\$2,381,879	\$55,531,107	\$57,912,986	\$25,874,968	0.07	1.81	14.56%
Total		\$89,697,444	\$3,896,317	\$85,801,127	\$506,017	\$63,070,316	\$73,409,616	\$136,479,932	\$50,172,788	0.73	1.58	10.52%



MWRA Employees' Retirement System

ANALYSIS BY VINTAGE YEAR

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
2000												
BlackRock Apartment Value Fund II, L.P.	2000	\$2,500,000	\$0	\$2,500,000	\$0	\$4,814,756	\$0	\$4,814,756	\$2,314,756	1.93	1.93	16.26%
Total 2000		\$2,500,000	\$0	\$2,500,000	\$0	\$4,814,756	\$0	\$4,814,756	\$2,314,756	1.93	1.93	16.26%
2003												
Corporate Property Associates 15 Incorporated	2003	\$3,687,180	\$0	\$3,687,180	\$0	\$7,058,204	\$0	\$7,058,204	\$3,371,024	1.91	1.91	9.08%
Total 2003		\$3,687,180	\$0	\$3,687,180	\$0	\$7,058,204	\$0	\$7,058,204	\$3,371,024	1.91	1.91	9.08%
2005												
BlackRock Apartment Value Fund III, Inc.	2005	\$2,000,000	\$0	\$2,000,000	\$0	\$1,236,567	\$0	\$1,236,567	-\$763,433	0.62	0.62	-9.85%
Intercontinental Real Estate Investment Fund IV, L.P.	2005	\$2,000,000	\$0	\$2,000,000	\$0	\$1,205,471	\$0	\$1,205,471	-\$794,529	0.60	0.60	-6.40%
Prime Property Fund, LLC	2005	\$12,000,000	\$0	\$12,000,000	\$0	\$0	\$26,990,423	\$26,990,423	\$14,990,423	0.00	2.25	13.62%
Total 2005		\$16,000,000	\$0	\$16,000,000	\$0	\$2,442,038	\$26,990,423	\$29,432,461	\$13,432,461	0.15	1.84	8.06%
2010												
Landmark Real Estate Fund VI, L.P.	2010	\$2,000,000	\$245,470	\$1,754,530	\$4,429	\$2,636,017	\$45,198	\$2,681,215	\$922,256	1.50	1.52	19.37%
Mass PRIM Real Estate 2010	2010	\$16,900,000	\$0	\$16,900,000	\$0	\$27,370,332	\$0	\$27,370,332	\$10,470,332	1.62	1.62	10.01%
Real Estate Global Partnership Fund II, L.P.	2010	\$2,000,000	\$690,000	\$1,310,000	-\$5,596	\$1,331,675	\$472,141	\$1,803,816	\$499,412	1.02	1.38	5.88%
Total 2010		\$20,900,000	\$935,470	\$19,964,530	-\$1,167	\$31,338,024	\$517,339	\$31,855,363	\$11,892,000	1.57	1.60	10.18%
2012												
Cerberus Institutional Real Estate Partners III, L.P.	2012	\$1,500,000	\$365,369	\$1,134,631	\$0	\$1,753,117	\$516,079	\$2,269,196	\$1,134,565	1.55	2.00	13.14%
TA Associates Realty Fund X, L.P.	2012	\$3,500,000	\$0	\$3,500,000	\$10,932	\$5,604,128	\$3,478	\$5,607,606	\$2,096,674	1.60	1.60	12.51%
Total 2012		\$5,000,000	\$365,369	\$4,634,631	\$10,932	\$7,357,245	\$519,557	\$7,876,802	\$3,231,239	1.58	1.70	12.71%
2015												
Invesco Mortgage Recovery Fund II, L.P.	2015	\$3,000,000	\$855,796	\$2,144,204	\$0	\$1,635,229	\$942,943	\$2,578,172	\$433,968	0.76	1.20	5.79%
TerraCap Partners III, L.P.	2015	\$2,610,264	\$0	\$2,610,264	-\$27,350	\$2,506,578	\$1,583,492	\$4,090,070	\$1,507,156	0.97	1.58	9.95%
Total 2015		\$5,610,264	\$855,796	\$4,754,468	-\$27,350	\$4,141,807	\$2,526,435	\$6,668,242	\$1,941,124	0.88	1.41	8.56%
2017												
Landmark Real Estate Partners VIII, L.P.	2017	\$4,000,000	\$1,739,682	\$2,260,318	\$6,065	\$1,311,181	\$1,954,627	\$3,265,808	\$999,425	0.58	1.44	19.99%
TerraCap Partners IV (Institutional), L.P.	2017	\$4,000,000	\$0	\$4,000,000	\$20,018	\$2,225,182	\$3,597,159	\$5,822,341	\$1,802,323	0.55	1.45	9.59%
Total 2017		\$8,000,000	\$1,739,682	\$6,260,318	\$26,083	\$3,536,363	\$5,551,786	\$9,088,149	\$2,801,748	0.56	1.45	11.65%



MWRA Employees' Retirement System

ANALYSIS BY VINTAGE YEAR

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
2019												
TA Realty Core Property Fund, L.P.	2019	\$20,000,000	\$0	\$20,000,000	\$38,018	\$2,381,879	\$28,540,684	\$30,922,563	\$10,884,546	0.12	1.54	17.41%
Total 2019		\$20,000,000	\$0	\$20,000,000	\$38,018	\$2,381,879	\$28,540,684	\$30,922,563	\$10,884,546	0.12	1.54	17.41%
2022												
TerraCap Partners V, L.P.	2022	\$8,000,000	\$0	\$8,000,000	\$459,501	\$0	\$8,763,392	\$8,763,392	\$303,891	0.00	1.04	3.59%
Total 2022		\$8,000,000	\$0	\$8,000,000	\$459,501	\$0	\$8,763,392	\$8,763,392	\$303,891	0.00	1.04	3.59%
Total		\$89,697,444	\$3,896,317	\$85,801,127	\$506,017	\$63,070,316	\$73,409,616	\$136,479,932	\$50,172,788	0.73	1.58	10.52%



MWRA Employees' Retirement System

ANALYSIS BY INVESTMENT STRATEGY

Investments		Commitments		Contributions & Distributions			Valuations			Performance		
Investment Name	Vintage Year	Commitment	Unfunded Commitment	Paid In Capital	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Core												
Corporate Property Associates 15 Incorporated	2003	\$3,687,180	\$0	\$3,687,180	\$0	\$7,058,204	\$0	\$7,058,204	\$3,371,024	1.91	1.91	9.08%
Mass PRIM Real Estate 2010	2010	\$16,900,000	\$0	\$16,900,000	\$0	\$27,370,332	\$0	\$27,370,332	\$10,470,332	1.62	1.62	10.01%
Prime Property Fund, LLC	2005	\$12,000,000	\$0	\$12,000,000	\$0	\$0	\$26,990,423	\$26,990,423	\$14,990,423	0.00	2.25	13.62%
TA Realty Core Property Fund, L.P.	2019	\$20,000,000	\$0	\$20,000,000	\$38,018	\$2,381,879	\$28,540,684	\$30,922,563	\$10,884,546	0.12	1.54	17.41%
Total Core		\$52,587,180	\$0	\$52,587,180	\$38,018	\$36,810,415	\$55,531,107	\$92,341,522	\$39,716,324	0.70	1.75	11.67%
Opportunistic												
Cerberus Institutional Real Estate Partners III, L.P.	2012	\$1,500,000	\$365,369	\$1,134,631	\$0	\$1,753,117	\$516,079	\$2,269,196	\$1,134,565	1.55	2.00	13.14%
Intercontinental Real Estate Investment Fund IV, L.P.	2005	\$2,000,000	\$0	\$2,000,000	\$0	\$1,205,471	\$0	\$1,205,471	-\$794,529	0.60	0.60	-6.40%
Invesco Mortgage Recovery Fund II, L.P.	2015	\$3,000,000	\$855,796	\$2,144,204	\$0	\$1,635,229	\$942,943	\$2,578,172	\$433,968	0.76	1.20	5.79%
Landmark Real Estate Fund VI, L.P.	2010	\$2,000,000	\$245,470	\$1,754,530	\$4,429	\$2,636,017	\$45,198	\$2,681,215	\$922,256	1.50	1.52	19.37%
Landmark Real Estate Partners VIII, L.P.	2017	\$4,000,000	\$1,739,682	\$2,260,318	\$6,065	\$1,311,181	\$1,954,627	\$3,265,808	\$999,425	0.58	1.44	19.99%
Real Estate Global Partnership Fund II, L.P.	2010	\$2,000,000	\$690,000	\$1,310,000	-\$5,596	\$1,331,675	\$472,141	\$1,803,816	\$499,412	1.02	1.38	5.88%
Total Opportunistic		\$14,500,000	\$3,896,317	\$10,603,683	\$4,898	\$9,872,690	\$3,930,988	\$13,803,678	\$3,195,097	0.93	1.30	5.41%
Value Add												
BlackRock Apartment Value Fund II, L.P.	2000	\$2,500,000	\$0	\$2,500,000	\$0	\$4,814,756	\$0	\$4,814,756	\$2,314,756	1.93	1.93	16.26%
BlackRock Apartment Value Fund III, Inc.	2005	\$2,000,000	\$0	\$2,000,000	\$0	\$1,236,567	\$0	\$1,236,567	-\$763,433	0.62	0.62	-9.85%
TA Associates Realty Fund X, L.P.	2012	\$3,500,000	\$0	\$3,500,000	\$10,932	\$5,604,128	\$3,478	\$5,607,606	\$2,096,674	1.60	1.60	12.51%
TerraCap Partners III, L.P.	2015	\$2,610,264	\$0	\$2,610,264	-\$27,350	\$2,506,578	\$1,583,492	\$4,090,070	\$1,507,156	0.97	1.58	9.95%
TerraCap Partners IV (Institutional), L.P.	2017	\$4,000,000	\$0	\$4,000,000	\$20,018	\$2,225,182	\$3,597,159	\$5,822,341	\$1,802,323	0.55	1.45	9.59%
TerraCap Partners V, L.P.	2022	\$8,000,000	\$0	\$8,000,000	\$459,501	\$0	\$8,763,392	\$8,763,392	\$303,891	0.00	1.04	3.59%
Total Value Add		\$22,610,264	\$0	\$22,610,264	\$463,101	\$16,387,211	\$13,947,521	\$30,334,732	\$7,261,366	0.71	1.31	9.99%
Total		\$89,697,444	\$3,896,317	\$85,801,127	\$506,017	\$63,070,316	\$73,409,616	\$136,479,932	\$50,172,788	0.73	1.58	10.52%



MWRA Employees' Retirement System

QUARTERLY TRANSACTION SUMMARY

Fund Name	Month Ended	Capital Call	Additional Fee	Temp Return of Capital	Distribution	Net Cash Flow
Cerberus Institutional Real Estate Partners III, L.P.	5/31/2022				-52,727	-52,727
Total: Cerberus Institutional Real Estate Partners III, L.P.					-52,727	-52,727
Landmark Real Estate Partners VIII, L.P.	4/30/2022				-119,664	-119,664
	5/31/2022	82,318				82,318
	6/30/2022	208,290			-115,994	92,296
Total: Landmark Real Estate Partners VIII, L.P.		290,608			-235,658	54,950
Real Estate Global Partnership Fund II, L.P.	6/30/2022				-90,000	-90,000
Total: Real Estate Global Partnership Fund II, L.P.					-90,000	-90,000
TA Realty Core Property Fund, L.P.	5/31/2022				-274,313	-274,313
Total: TA Realty Core Property Fund, L.P.					-274,313	-274,313
TerraCap Partners IV (Institutional), L.P.	6/30/2022				-142,300	-142,300
Total: TerraCap Partners IV (Institutional), L.P.					-142,300	-142,300
TerraCap Partners V, L.P.	5/31/2022	8,000,000	459,501			8,459,501
Total: TerraCap Partners V, L.P.		8,000,000	459,501			8,459,501
Grand Total		8,290,608	459,501		-794,998	7,955,111



GLOSSARY OF TERMS

- **Commitment Amount** – The amount an investor has committed to invest with the General Partner
- **Paid In Capital** – The amount an investor has contributed for investments and management fees
- **Capital to be Funded** – The remaining amount an investor contractually has left to fund its commitments
- **Additional Fees** – Fees that are outside the capital commitment, also includes interest paid/received due from subsequent closings of the fund
- **Cumulative Distributions** – The amount an investor has received from realized and partially realized investments
- **Valuation** – Sum of the fair market value of all investments plus cash
- **Call Ratio** – Calculated by dividing Amount Funded by Capital Committed
- **DPI Ratio** - Calculated by dividing Amount Distributed by Amount Funded
- **Market Exposure** – Calculated by adding Reported Value plus Unfunded Commitments
- **Total Value** – Calculated by adding Amount Distributed and Reported Value. Represents the total amount an investor should expect to receive from their investments
- **Net Benefit** – Calculated by subtracting Total Value by Capital to be Funded plus Additional Fees
- **Total Value to Paid In Capital Ratio** – Calculated by dividing Total Value by Amount Funded. Represents the multiple of the overall cash invested that an investor is expected to receive
- **IRR** - The calculation of the IRR (Internal Rate of Return) takes into consideration the timing of cash contributions and distributions to and from the partnerships, the length of time the investments have been held and the sum of the Reported Value
- **Index Comparison Method (ICM)** – represents the hypothetical IRR of a private investment program that is computed by assuming the fund flows were invested in and out of a publicly traded index. The resulting hypothetical market value of the program is then used with the program’s actual cash flows to compute a hypothetical IRR. This hypothetical IRR can be compared with the actual IRR to determine whether the private investment program outperformed the publicly traded index
- **Valuation ICM** – The valuation equivalent that ICM calculates for the public market is called valuation ICM
- **KS PME** – The Kaplan Schoar Public Markets Equivalent is a ratio of the future value of all distributions divided by the future value of all contributions using the index return as the discount rate. The ending valuation is treated as a distribution in this method
- **IRR ICM** – The IRR equivalent that ICM calculates for the public market is called IRR ICM

