

MWRA EMPLOYEES' RETIREMENT BOARD MEETING

AGENDA

Tuesday, November 16, 2021 10:00 a.m.

MWRA, 2 Griffin Way

Via Remote Participation

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 – Member Services Coordinator position
- 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 28, 2021 Minutes
- b) October 28, 2021 Executive Session Minutes

Item 4 Approval of Warrants – VOTE

- a) Warrant 11-2021
- b) Warrant 11-2021A – Payroll

Item 5 Approval of Monthly Transfers 11-2021 – VOTE

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

- a) Raymond Marquis DOR 10/26/2021
- b) Brian Daffinee DOR 10/29/2021
- c) Nitin Choksi DOR 10/30/2021
- d) Lise Marx DOR 10/30/2021
- e) John Sculley DOR 10/30/2021

Item 7 Approval of one month creditable service for Charles Clancy pursuant to s. 4(1)(c) – VOTE

Item 8 10:30 a.m. Coho Partners Performance Review

Item 9 NEPC

- a) Flash Report as of 10/31/2021
- b) Rebalance Recommendation
- c) Real Estate Strategic Review and Pacing Plan
- d) Investment Report September 30, 2021
- e) Private Equity Performance Report June 30, 2021
- f) Real Estate Performance Report June 30, 2021

Item 10 Legal
Stanton Update

.....**FOR YOUR INFORMATION and REVIEW**

- Item 99-1 PERAC MEMO #29/2021 – Expansion of Post-Retirement Work in the Public Sector
- Item 99-2 PERAC MEMO #30/2021 – Investment Fraud Alert
- Item 99-3 PERAC MEMO #28/2021 – 2021 Pension Fraud Prevention Campaign
- Item 99-4 PERAC Pension News
- Item 99-5 StepStone Group Announces Leadership Transition

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, December 16, 2021, 10:00 a.m., Chelsea

**MASSACHUSETTS WATER RESOURCES
AUTHORITY EMPLOYEES' RETIREMENT
BOARD MEETING
OCTOBER 28, 2021**

A meeting of the MWRA Employees' Retirement Board was conducted remotely on Thursday, October 28, 2021. Remote access was provided to the public via Zoom. Participating in the remote meeting were Board members Thomas Durkin, Kevin McKenna, Frank Zecha and James Fleming, and staff member Carolyn Russo. Board Member Andrew Pappastergion was absent due to a scheduling conflict. Representatives from NEPC, Sebastian Grzejka and Kiley Fisher, as well as members of the public attended. Chairman Fleming requested that Vice-Chairman Durkin act as chair for the meeting. Mr. Durkin called the meeting to order at 10:02 a.m.

- 1) Call the meeting to order-roll call of members: Mr. Fleming, Mr. McKenna, Mr. Zecha, and Mr. Durkin present via remote access.
- 2) Standing Committee Reports
 - i. By-Laws Committee: No report
 - ii. Human Resources Committee:

Mr. Zecha updated the Board on the status of the Member Services Coordinator's position. The Executive Director and Retirement Coordinator screened sixteen candidates and selected three for interviews who met the degree requirement and reported having some pertinent experience. One of the three withdrew due to distance/commute considerations. The final two were interviewed by Staff, who presented a detailed report to the HR Committee. Staff found both to be amply qualified to assume the duties required. The HR Committee would like to interview both candidates and present the findings to the Board at the next meeting. The Board acknowledged this as an appropriate course of action.

After requesting to be recognized by the Chairman, the Executive Director reported that the term of the Fifth Member of the Board is up in January, and requested that she be permitted to post the Fifth Member's position to PERAC's website. The Board acknowledged this as an appropriate course of action.

- iii. Special Committee, Stipend: No report
- iv. Job Review Committee: No report
- 3) a) Approval of the Minutes of the September 30, 2021 meeting – VOTE

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

VOTED

to approve the September 30, 2021 Minutes as submitted by the Executive Director. 4-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes, and Mr. Durkin voting yes

- b) Approval of the Executive Session Minutes of the September 30, 2021 meeting – VOTE

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

VOTED

to approve the September 30, 2021 Executive Session Minutes as submitted by the Executive Director. 4-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes, and Mr. Durkin voting yes

- 4) Approval of Warrants – VOTE
 a) Warrant 10-2021
 b) Warrant 10-2021A – Payroll

Mr. Durkin asked if the payment on Warrant 10-2021 was made under s. 12(2)(d), and the Executive Director responded that it was not. The payment was made under 11(2)(c) since the member had not designated a 12(2)(d) beneficiary.

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

VOTED

to approve Warrant 10-2021. 4-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes, and Mr. Durkin voting yes

Mr. McKenna asked the Executive Director where the payroll warrant is, because he did not see it in the package. Mr. Durkin responded that the payroll is included on Warrant #10-2021A.

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

VOTED

to approve Warrant 10-2021A. 4-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes, and Mr. Durkin voting yes

- 5) Approval of Monthly Transfers 10-2021 – VOTE

Within the context of the Board's approving the monthly transfers, Mr. Zecha raised the issue of PERAC Memo #30-2021 dated October 27, 2021 in regard to the significant cyber theft committed against another MA public retirement system, and requested that the Executive Director outline for the Board any steps taken in response. The Executive Director reported as follows:

1. That on October 27, 2021 she had sent via email to each of the Board's investment managers a letter approved by the Chair reiterating that no wires to any destination other than the custody account of record are authorized, along with an updated Authorized Signer list, and a copy of PERAC Memo #30;
2. That on October 26, 2021, after hearing about the incident, she spoke to MWRAERS' representative at the Custodian Bank to discuss the matter and safeguards already in place in the System's Internal Control Plan;
3. That on October 26, 2021 she contacted NEPC via email and phone to inform them of the incident;
4. That on October 27, 2021 she sent PERAC's memo to MWRA's IT department, and receipt was acknowledged by its Director;
5. That on October 27, 2021 she emailed and spoke to the System's private auditors at CLA, for any additional recommendations. CLA concurred with the above initial steps, said they would circulate the PERAC memo, and follow up with any additional recommendations.

(Editorial note: The Executive Director of the System immediately involved the Managers, the Custodian, and the Consultant, because all are notified of each transaction affecting the Retirement System's investments, and each serves as a check on the others, i.e. all investment account balances should be consistent among the System, the Consultant, the Managers, and the Custodian bank for each reporting period, and are independently verified by the System's Auditors.)

Mr. McKenna noted that the Board's fiduciary insurance policy does not cover cyber theft, and commented about the steep increase in premiums expected in the upcoming year. Mr. McKenna asked how the theft from the other System was executed. The Executive Director stated that it is her understanding that an investment manager received an email originating from the hacked email account of a former employee of the affected System. It appears the email requested the liquidation of an investment account and directed the proceeds to be deposited into a non-Retirement System bank account, and the investment manager executed the transfer. Mr. McKenna reiterated that that type of event would not be covered under the current policy. Mr. Zecha confirmed that to be the case through Paul Shanley, the broker for the MACRS policy. Mr. Fleming stated that under certain circumstances this may be covered, and Mr. Durkin stated that he believes a separate policy would be required. Mr. McKenna noted that the Executive Director had intercepted a phishing attempt recently and alerted IT, but 100% prevention isn't possible. Mr. Zecha stated that he appreciates the Executive Director's efforts.

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

VOTED

to approve the monthly transfers as presented and as recommended by NEPC. 4-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes, and Mr. Durkin voting yes

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

- | | | |
|----|-------------------|----------------|
| a) | John Benoit | DOR 9/21/2021 |
| b) | Mary Bezek | DOR 10/2/2021 |
| c) | Gerard O’Loughlin | DOR 10/2/2021 |
| d) | Sharon Ward | DOR 10/2/2021 |
| e) | Frederick Brandon | DOR 10/9/2021 |
| f) | Robert Younis | DOR 10/4/2021 |
| g) | Kathleen Garcia | DOR 10/16/2021 |

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

VOTED

to acknowledge the s. 5 retirements as detailed above. 4-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes, and Mr. Durkin voting yes

Mr. Fleming asked if we are mostly through with the vaccine mandate-related retirements, and the Executive Director responded that she believes that for the most part we are, but that she knows of a few more coming in the days ahead, and a few more are waiting out both expected suspensions before filing papers.

7) Approval of one month of creditable service for Robert Johnson pursuant to s. 4(1)(c) – VOTE

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

VOTED

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

8) Manager Due Diligence Presentations

The following managers underwent an annual investment manager review pursuant to 840 CMR 16.07. The managers presented performance and investment reports detailing the manager’s activities which the Board reviewed.

Axiom
Morgan Stanley
Cerberus
StepStone
Park Square

Mr. Grzejka stated that today the Board will have the last five manager due diligence reviews for the year. NEPC has been working on the pacing plan for next year. The Emerging Markets presentations are timely given the recent events in China and Asia.

Ms. Lindsay Chamberlain and Mr. Don Elefson joined the call from Axiom at 10:24 a.m. Mr. Grzejka cautioned the participants that there are members of the public and/or media on the call, and to avoid discussion of any materials which may be considered proprietary. Mr. Durkin invited the presenters to begin. Mr. Fleming reminded Mr. Durkin that the presenters should be kept to 15 minutes in order to get through all of the reviews.

Ms. Chamberlain reported that Axiom currently has 19.4bn AUM, over \$8bn of which is in the Emerging Markets Equity Strategy. They have not recently lost any accounts, remain 100% employee-owned, and have made no changes to philosophy or process. 50% of Axiom's clients have been with the firm for over five years. The firm has added a human resource manager and a research associate.

Mr. Elefson stated that they are dynamic growth investors. The fund felt the impact in Q2 of the shift in China's regulatory approach to big consumer companies. Axiom does not see this as a short term event, and is therefore currently underweight in the consumer discretionary and communication sectors. He expects profitability for companies such as Alibaba and Tencent to be affected. Healthcare in China is stable, and rising, and as a result the Government has taken a "hands off" approach. Axiom has therefore increased the fund's weighting in this area. In communications, adding memory across all types of devices is expected to be a high growth area, so the fund has maintained its IT exposure. Although still underweight, they have added to financials, seeing opportunity in the non-bank lending and digital sectors. China is trying to reduce imports in the Industrials space, leading to higher growth potential for Chinese companies. China is currently 34% of the benchmark and therefore cannot be ignored. The fund consists of 86 holdings. Mr. McKenna asked about the average time securities are held by the fund, noted that as a new manager Axiom is not off to a good start, and asked if the fund is down 10% since MWRAERS made the purchase, which Mr. Grzejka confirmed. Mr. Elefson stated that the fund is managed more around position size, rather than frequently executing a complete sell-off of a security, but would estimate an average of two years. He stated that the recent events do not represent a typical environment. Ms. Chamberlain noted that the fund looks at a mid-term horizon of 2-3 years, with some positions held as long as ten years. Mr. McKenna commented that the Board bought in at the wrong time. Ms. Chamberlain responded that just before the purchase the fund was on a run-up, but has met headwinds in Q2. Mr. Elefson also noted a sharp growth to value rotation, which would indicate that the fund may perform poorly in the short-term, but that for Q3 the outlook is positive because they continue to find opportunities and are sticking to their proven

philosophy. Mr. McKenna stated that he just wanted to be sure they are still holding 86 names and maintaining their strategy, and Mr. Elefson confirmed that they are. He expects that earnings per share will grow at around 20% with a two-year return expectation of 18-20%. Mr. Durkin asked what kind of events might be of concern. Mr. Elefson responded that a spike in interest rates led by inflation, or significant military or political movements would be major concerns. Axiom signed off the call at 10:44 a.m.

Mr. Fleming commented that the next presenter, Morgan Stanley has performed very well for the System since 1995. Mr. McKenna asked about the timing of the Real Estate RFP, and Mr. Grzejka answered that the RFP is for value-add rather than core and may be released in December.

Megan Golder joined the call at 10:46 a.m. Mr. Grzejka cautioned Ms. Golder that there are members of the public and/or media on the call, and to avoid discussion of any materials which may be considered proprietary. Ms. Golder began that the Prime Property Fund holds \$37.1b in gross real assets. The fund targets a return of 15-25%. The fund owns 474 assets which are 94% leased over all, and continues to pay a 4% dividend. Morgan Stanley raised \$3.3bn so far in 2021, with 60% of that coming from existing clients. Redemption activity has normalized. The fund has outperformed its bench for all periods except Q2, but has been conservative in valuations, and does not see this as a trend. Mr. Grzejka asked if the holdings and lower leverage affected the returns. Ms. Golder confirmed that in the market acceleration environment higher leverage has led to higher returns, and that she expects Prime will be increasing leverage at the fund and the asset level in the near term. Cole Ferguson Cogdill has returned to Morgan Stanley, and John Rice has been appointed to the Board of Directors, to replace a member who passed away. Mr. Rice has significant experience as a CEO of Management Leadership for Tomorrow (MLT), a non-profit that works to place diverse candidates into Board-level positions. Prime has reduced exposure to Retail and Office by 5%, with office space in West Cambridge in the process of converting to Life Sciences space with near doubling of rent potential over office space. The fund is slightly overweight in industrials. The foot traffic for the fund's retail space is back to 90% of pre-pandemic levels. Self-storage has performed well. Mr. Fleming asked if there is a page with MWRAERS' cash flows and Ms. Golder referred the Board to page 76 of the presentation. Mr. Grzejka asked about the outlook for office space, and how the shift away from markets such as New York to Florida affects opportunities. Ms. Golder responded that the tenants of the fund's two properties in New York and DC have been slow to return to work, and the fund has focused its acquisitions on other markets such as Austin. They are in the process of selling a property in San Francisco as a result as well. The Board thanked Ms. Golder and Morgan Stanley for its long-term performance on behalf of the System. Ms. Golder signed off the call at 11:02 a.m.

Mr. Grzejka stated that where Morgan Stanley is a core manager, the next presenter, Cerberus, is an opportunistic manager, and consequently seeks higher returns. StepStone falls somewhere in the middle. The fund in which the System is invested, Cerberus Real Estate Partners III, is close to the end of its life cycle.

Keith Chernoff joined the call on behalf of Cerberus at 11:04 a.m. Mr. Grzejka cautioned Mr. Chernoff that there are members of the public and/or media on the call, and to avoid discussion of any materials which may be considered proprietary. Mr. Chernoff stated that he expects that the fund's remaining investments will be wound down by July of 2023, with \$656m in NEV remaining at the end of Q2. The fund has a net since-inception IRR of 10.8% through June 30, 2021. The September numbers should be released soon. The fund's performance is in the top 5th percentile. 34 investments have been fully realized. The Albertson's, Crossroads and Brea properties are among the top five holdings which represent 84% of the remaining market value. Mr. Grzejka asked about the wind-down plan. Mr. Chernoff responded that Albertson's had an IPO last year, and that Brea and Crossroads have been partially realized. The remaining European assets will be liquidated over time. Mr. Fleming asked where he might find the System's performance and was directed to slide #17. Mr. Chernoff stated that he expects that the MWRAERS Q2 closing account value of \$570,000 will appreciate to roughly \$800,000 at the end of Q3. Mr. Chernoff signed off the call at 11:13 a.m.

Mr. Durkin called a five-minute recess.

The Board returned at 11:20 a.m. Mr. Marc Rivitz representing StepStone joined the call at 11:21 a.m. Mr. Grzejka cautioned Mr. Rivitz that there are members of the public and/or media on the call, and to avoid discussion of any materials which may be considered proprietary. Real Estate Global Fund II is in the process of winding down, with the underlying funds in liquidation. The fund has an April 2022 expiration date, but Mr. Rivitz expects some managers may take a bit longer. The fund had a gross IRR of 8.2% through Q2. Blackstone Asia, Limetree, Lubert-Adler, JER Europe and Stirling have been among the fund's top performers. Mr. McKenna asked if Mr. Rivitz expects Hemisfero (Brazil) to bounce back, and Mr. Rivitz responded that he does not. The investment was hurt by hotel and retail exposure, and StepStone is considering a possible secondary sale in the near term. The fund's investments are diversified by area and strategy. Overall, the fund's exposure to hotels is limited, currently representing 1.5% of the portfolio. The fund is roughly 1/3 residential, 1/3 retail, and 25% "other," which includes self-storage, senior living, and parking assets. Mr. Rivitz signed off the call at 11:32 a.m.

Mr. McKenna asked whether a lot of managers are asking for fund extensions, and if so, whether the LP's must agree. Mr. Grzejka responded in the affirmative, and stated that depending on the manager's LP agreement, a percentage,

usually a majority must consent to an extension. If the company is public there may be prohibitions to selling a position all at once to avoid adverse effect on the price, but there are options to monetize investments other than selling. Mr. Durkin noted that the other funds have a life cycle, but that Morgan Stanley keeps on going. Mr. Grzejka noted that Morgan Stanley Prime is a core property fund, while others are opportunistic or value-add. He added that in some markets funds may not have all three, and that regulatory processes and/or corruption in certain markets may prove problematic. Mr. McKenna said he recalled having seen properties in Paris in the past that he has not seen recently in due diligence reports. Mr. Grzejka could not recall which portfolio that might have been but his guess was that it was either Landmark or Invesco Mortgage Recovery II. Mr. Durkin asked Mr. Fleming's view of Real Estate's future. Mr. Fleming stated that value-add managers may prove profitable. People have money in their pockets and are looking to move to luxury apartments and into bigger spaces because of the continuation of at least part-time work from home. Retail is of concern but Storage and Industrial sectors have been strong. Big Box is all but gone, as evidenced by North Shore Mall's lack of foot traffic. Mr. McKenna asked if Office Space is being retrofitted into condos. Mr. Fleming responded affirmatively, and Mr. Grzejka concurred, particularly in the value-add space. He noted that Data Centers and "Last Mile" sites have done very well, and that Amazon is adding dedicated data centers to their larger sites.

At 11:54 a.m. Camille Delori and Jacob Ucar joined the call on behalf of Park Square Capital. Mr. Grzejka cautioned Ms. Delori and Mr. Ucar that there are members of the public and/or media on the call, and to avoid discussion of any materials which may be considered proprietary. The firm now has \$10bn AUM in Credit Strategies. Of the Board's \$3m commitment, about \$2.5m has been drawn, and \$300,000 distributed. The Credit Opportunities Fund has a net IRR of 8.6%, and holds fifty high-quality names in diverse sectors and geographies. It is an "all-weather" strategy intended to produce positive results in any environment, and capitalizes on market dislocation by buying quality loans at a discount. The fund was built on four "pillars": anchor loans, opportunistic secondary positions, direct loans to mid-market companies, and higher yield debt. Park Square can lend to larger companies that are safer and can better withstand a crisis. Credit Opportunities, with an inception date of 2007, has sustained the 2008 crisis, the European Union crisis, and the pandemic. Park Square has a team of 105 including 38 investment professionals focused on corporate credit exclusively. Mr. McKenna asked how Park Square handles defaults. Mr. Ucar stated they take a defensive posture through purchasing high quality in jurisdictions where creditors can enforce their rights (i.e. Western Europe and US), and broad in-house expertise in corporate restructuring. Park Square's team has exhibited "thought leadership" and as a result has been asked to lead restructuring efforts even in deals where they held only 10% of the debt. The team has a strong tool kit and a rigorous process, is experienced at negotiating advantageous terms, and can sell loans on the secondary market because they are quality companies. Mr. Fleming asked about the System's

cash flows and the Board was directed by Mr. Grzejka to p.10. Mr. Ucar expects the last capital call to be during Q4, and also expects the net IRR to increase due to expected Q4 realizations. Park Square signed off the call at 12:11 p.m. The Board determined each manager continues to operate in a manner represented when retained and outlined in the agreement between the Board and the manager.

9) NEPC

- a) Flash Report as of 9/30/2021
- b) JFL Equity Investors IV, L.P. Secondary Transaction Consent & Rollover Election

Mr. Grzejka noted that September has been considered historically to be a down month, and this year has been no exception. Returns have been affected by market-related events such as inflation, which has affected used car, fuel, and leisure activity prices, as well as large-scale transportation issues and delays at major ports and throughout the country. The Fed may need to act next year to raise rates. The Evergrande crisis in China also contributed, with increased leverage, defaults and a regulatory shift by China affecting EM returns. Diversification has helped, and the asset allocation has better balanced risk for the System. Mr. Grzejka expects PE returns to rise once the Q3 numbers are in. The rebalance transfers which occurred in early October will be shown on the next flash report. Mr. McKenna noted that we don't have our PE numbers but that PRIT is ahead of us. Mr. Grzejka stressed that when NEPC releases the quarterly returns, he wants them to be as accurate as possible. Some managers are chronically late in reporting and he prefers not to present an "apples to oranges" picture of the System's returns by showing different quarters for different managers, but will update the flash as soon as reporting becomes available. He expects the PE returns will add significantly to the composite. Mr. Zecha noted that the meeting for November is early, and that lagging PRIT by such a substantial amount is a tough pill to swallow. Mr. Grzejka noted that MWRAERS ended 2020 ahead of PRIT. Mr. Zecha noted that when we beat PRIT by 50bps no one comments, but when we trail them by 6%, it is a big problem. Mr. Zecha suggested that the Board meet twice per month next year with one meeting focused solely on investments. Mr. Zecha reported that Coho and Garcia Hamilton are ranked well below the median for their respective peer groups, and their performance is of concern. Mr. Grzejka responded that Garcia Hamilton was just funded, and concurred that we need to be sure the pairings within the assets classes are correct. He questioned whether a year is sufficient time to assess performance, particularly in such an atypical environment. Mr. Zecha asked whether the two should be put on watch. Mr. Grzejka stated that the Board did so with Coho at the September meeting, but that as a relative value manager Coho is intended to act as a balance to Polen's growth strategy, performing better in challenging environments, and that Coho outperformed its index YTD 2020. Mr. Zecha asked about Coho's rankings relative to their peer

group. Mr. Grzejka stated that he understands the Board's frustration and hopes in November to present the quarterly information as promised, once all of the returns are in. Mr. Zecha stated that if the PE returns were removed, we would be on par with PRIT, and asked what is considered a cycle. Mr. Grzejka stated that 5-7 years is the usual (RFP) cycle, and the large cap managers' terms are coming up, so if the Board determines that Coho's style is no longer advantageous to the System the pairings can be changed when the new RFP is issued. Mr. Grzejka stated that he will research the source of any underperformance of Coho relative to their peer group, e.g. are the others holding low quality/risky assets which have grown but which Coho wouldn't purchase due to their discipline. The Real Estate RFP is the top priority because they are at the end of the maximum contract length permitted under s. 23B, but we can certainly bring Coho in. Mr. McKenna remarked that NEPC has done well on behalf of the System, but the asset allocation meeting is the most important meeting of the year, and suspects that we cannot catch up to PRIT's numbers by year-end. He noted that Fixed Income represents almost 25% of the System's portfolio, but came in at 2.3% on the one-year. Mr. Grzejka noted that he Fixed Income portfolio is diversified, and that Loomis Sayles is a yield-seeking strategy with higher returns in an environment which has clearly favored equities. It is a matter of whether the Board wants to stand by their long-term asset allocation, or whether they want to change it and reduce the allocation to Fixed Income and increase the allocation to Equities as a result of recent performance. Mr. McKenna noted that we have to hit or exceed the 6.9% return assumption "bogey," and that we need to do better. Mr. Grzejka responded that on a YTD basis the System is still ahead of that target, and that the Board needs to focus on the System's long term goals as an over 90% funded system with a relatively short funding horizon in managing the asset allocation. If the Board decides that the System is seeking to increase risk over the long term, then a down-side focused manager like Coho may no longer make sense. He hopes to have the universe data in time for the November meeting. Mr. Zecha asked if February is the right time of year to have the asset allocation discussion. Mr. Grzejka stated that while most of NEPC's clients do prefer to have the asset allocation discussions and make the adjustments to targets early in the year, they could be done any time as long as they are at least annual. Mr. McKenna stated that on a positive note, since Mr. Toney was brought in, UBS has turned their performance around. Mr. Grzejka noted that UBS' neutral strategy protected them from the market selloff.

In regard to the Lehman agenda item, the Northstar holding in the IV portfolio was being monetized, and purchased in part by V. The System was offered two options: to cash out of the Northstar investment or roll over the shares. The timing was tight, so the Chair had to make a decision in between meetings. The System can expect a roughly \$3m distribution from the investment. The System's commitment was \$6m in 2016, \$5.7m has been called, and the fund has already distributed \$5.7m before the Northstar transaction is executed. Mr. Fleming noted that he has never seen this done before, and it almost had the

appearance of trying to make an investment outside of the usual process, so he made the election to take the cash. Mr. Grzejka stated that Mr. Fleming made a good point, and said there are advantages to cashing out. Cash was also the default option if an investor failed to respond prior to the deadline.

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

VOTED

to recognize and approve the decision of the Chair to elect the cash option for the monetization of the Northstar investment in Lehman IV. 4-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes, and Mr. Durkin voting yes

In regard to the ABS investment, Mr. Grzejka reported that Attorney Gibson is working on the Side Letter. Mr. McKenna asked whether the Board should respond to PERAC's unusual wording and commentary in their ABS acknowledgment. Board Counsel reminded the Board that all of the issues raised by PERAC had been previously addressed by the Board and NEPC multiple times, that the additional documentation requested by PERAC had been provided, and that there is nothing more for the Board to add. He noted that Boston Retirement Board has received a similar letter. He recommended no response, or if it is the Board's preference to issue one that it be perfunctory in nature, stating that the Board has performed its fiduciary duty throughout the ABS selection process and that we look forward to PERAC's cooperation in assistance in our upcoming RFP processes. A motion was made by Mr. Zecha to accept the acknowledgment communication from PERAC in regard to ABS and move on. The motion was seconded by Mr. McKenna. Mr. Fleming stated that letting the issue go may not be the best course and may affect other selection processes moving forward. Mr. Fleming asked if Mr. Zecha would accept an amendment to his motion to respond to the communication, and Mr. Zecha assented. Mr. McKenna asked whether PERAC would in turn respond back to the Board, keeping this back and forth going unnecessarily. Mr. Durkin stated that he would prefer that we let the record reflect that the Board executed the ABS selection process with proper due diligence, but not to continue to "stir the pot."

On a motion by Mr. Zecha, seconded by Mr. McKenna and amended by Mr. Fleming:

VOTED

to respond to PERAC's ABS acknowledgment communication. 1-3 on a roll call with Mr. Fleming voting yes, Mr. McKenna voting no, Mr. Zecha voting no, and Mr. Durkin voting no. The motion fails, no response to PERAC's letter regarding ABS will be issued by the Board.

- 10) Update: Retirement Office Access
Report of all access to the office was provided to the Board. The Executive Director reported seeing nothing out of the ordinary on the report.

- 11) Legal Update
Francis Kearns Section 7 Review of Accidental Disability Application and medical panel reports

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

VOTED

to go into Executive Session under purpose 7 to discuss the accidental disability application of Francis Kearns. 4-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes, and Mr. Durkin voting yes

A breakout room was established and the Board convened in Executive Session at 12:57p.m.

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

VOTED

to reconvene in open session. 4-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes, and Mr. Durkin voting yes
The breakout room was closed and Board reconvened in open session at 1:13 p.m.

Mr. Fleming announced for the record that in Executive Session convened under purpose 7, in consideration of the undisputed facts presented in Mr. Kearns' application and accompanying medical documentation, and based on the affirmative certification of the medical panel, the Board voted 4-0 to approve the accidental disability retirement application filed by Mr. Francis Kearns.

Attorney Gibson raised the issue of the cyber theft from another retirement system delineated in PERAC memo #30/2021. Attorney Gibson anticipates that PERAC will be issuing an additional directive that will likely recommend that the Boards review their approval procedures, number of required signoffs, vendor notification procedures for staff changes, etc. Because Board Counsel was not present when the Board discussed the matter earlier in the meeting, Mr. Zecha asked that the Executive Director outline again the steps taken since PERAC's memo on the matter was released yesterday. The Executive Director stated that because of the means used by the bad actors to execute the theft, she sent notifications via email putting each of the Board's Investment Managers on notice that no transfers to any account other than the established custody account of record are authorized, along with an updated Authorized Signer List. The Executive Director spoke to the representatives for the Custodian bank, emailed and called NEPC to inform them, sent formal notification to the MWRA's IT department, and emailed and spoke to the System's private auditors, CliftonLarsonAllen. The Auditors felt that the steps taken were prudent and timely, and stated that it cannot be stressed enough to the managers that under no circumstances are they authorized to circumvent the Custodian. They also

stated that they would be circulating the Executive Director's email along with PERAC's memo, to see if there are any recommendations for additional steps to be taken. Board Counsel commended the Executive Director's immediate and proactive measures.

PERAC has issued a memo informing the Boards that the hours a retiree may work for a public employer have been increased from 960 per year to 1200, but the earnings limitations still stand. This may have unintended consequences in regard to OBRA requirements and eligibility for other benefits. PERAC is awaiting an opinion from Ice Miller as to whether a retiree from one system who later returns to public employment in another system may be considered a rehired annuitant and therefore exempt from OBRA contributions. Mr. Zecha noted that the GIC won't allow employees to enroll unless they are contributing to a retirement system. Attorney Gibson noted that many MA towns are not in GIC, and the coverage rules are inconsistent. Mr. Fleming asked about the effective date of the increase. Attorney Gibson stated that the increase was effective 7/1/21. The timeline for 2021 is 1/1-6/1/2021 no limit on hours, 6/16-6/30/21-960 hours, 7/1-12/31/2021-1200 hours. Mr. McKenna remarked that someone didn't do the math right, and the new law may trigger Obamacare requirements. Counsel concurred that there may be additional liability for municipalities, but noted that those are concerns of the Employer, not of the Retirement Board.

Counsel reported that in Memo#28, PERAC reviews rules in regard to Elected Officials' rights to join a system, but that if they did not join a system within 90 days when first eligible, that they may not later purchase the prior service. Board Counsel has asked for clarification, based on the Salem case, as to whether the prohibition stands if the service and later membership are with the same community rather than under different systems, as in the cases they cited. Mr. McKenna asked if a former City Councilor who later becomes Mayor would trigger the anti-spiking provisions. Attorney Gibson stated that he believes this would be considered a bona fide change in position. Attorney McDonough noted that there are two different anti-spiking provisions. S. 14 of C. 176 has no exceptions, and states that if the salary for any year in the five-year period preceding retirement exceeds that of the prior year by more than 100%, then the average to be used in computing retirement benefits will be a five-year average rather than a three-year average. S. 18 provides that if the average of year within the last five years exceeds the average of the prior two years' salary by more than ten percent, then the salary to be used for that year in the calculation is capped at 110% of the average of the previous two years. S. 18 does provide for exceptions, including for a bona fide change in position. Mr. McKenna asked if this could be considered discriminatory for hiring purposes, and Attorney Gibson stated that he would need to look into it, but it would probably not be.

Attorney McDonough stated that the bill to provide Veterans another opportunity to purchase military service credit, H11, will likely be enacted on or around Veterans' Day.

The three-year Covid-19 bill remains in committee. A bonus may be the form of recognition with a better chance of passage. Covid-19 presumption bills are also in process, some for all public employees, and some just for first responders. Mr. Zecha asked whether the Covid-19 bills include Retirement Board Staff. Attorney Gibson asked to which bill Mr. Zecha is referring, but responded affirmatively for the 3-year bill because from the beginning of the pandemic Retirement Board staff were deemed "essential" because the definition included those who administer public benefits. He does not yet have the language relative to the bonus. Attorney Gibson is representing a claimant who may be the first Covid-19 accidental death approved in the state. The spouse of an employee of the City of Cambridge who died from Covid-19 was awarded accidental death benefits by the Cambridge Retirement Board, and is awaiting final approval from PERAC.

Mr. McKenna asked if the Authority has changed their hiring requirements to include vaccination, and whether the Board has to as well. Mr. Durkin responded that the Authority has, and that he appreciates that the Executive Director and Retirement Coordinator had voluntarily reported their status as fully vaccinated to the Authority. The Executive Director stated that it is her understanding that vaccination status information is protected under HIPPA, and inquired of Board Counsel as to whether it is legal to even ask candidates for vaccine status during the hiring process. Attorney Gibson stated that at Middlesex he asked staff to voluntarily disclose vaccine status, and those who were not or chose not to disclose must wear a mask and maintain distance in the office. Kathy Hesse did a presentation on these matters at MACRS. Attorney Gibson will do further research. Mr. Zecha clarified that the MWRA's policy is that if you're not vaccinated, you will be fired. Several employees have already been suspended and placed on unpaid leave. Mr. Fleming asked that the matter of a vaccine mandate for Board Staff be placed on the November agenda.

Attorney McDonough stated that there has been no decision in the request by Attorney Hass for judgment against Ramon Stanton. He has also filed a motion in Superior Court for damages, which the Board may contest. Counsel also noted that at some point after claiming there was no contract, Attorney Hass produced a fee agreement. Cynthia Stanton had asked for sanctions, lost and appealed. Attorney Hass then cross-appealed, for a second bite at the apple and an attempt to draw the Board back in after it had been previously dismissed. Attorney Gibson acknowledged that the case has been time consuming but that defense is necessary to protect the Board from being forced to pay applicants' attorney fees in disability cases. Attorney McDonough stated that it is his hope that eventually the System will recover attorney's fees in this case.

Mr. Durkin stated that he had recently attended an IG webinar regarding fiduciary duty, and stated that Board members are discouraged from participating in the day-to-day operations of staff as a separation of duties. He asked whether his performing the reconciliation of the Bank of America cash account would violate

that principal. Attorney Gibson stated that it would not, and that the person in his position should be doing the reconciliation. Mr. Zecha added that the requirement that the Treasurer is required by statute to perform the cash reconciliation for municipal Systems as a check on Staff, and asked if there is similar language in the enabling legislation. Board Counsel stated that he would check.

Mr. Durkin asked the Board if they would approve the \$100 filing fee for his application for the Public Pension Standards Award, and Mr. Fleming instructed Mr. Durkin to file for the award.

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

VOTED

to adjourn the October 28, 2021 meeting of the MWRA Employees' Retirement Board. 4-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Zecha voting yes, and Mr. Durkin voting yes

The meeting was adjourned at 1:53 p.m.

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

PERAC MEMO #26/2021 – Mandatory Retirement Board Member Training – 4th Quarter 2021

PERAC MEMO #27/2021 – Appropriation Data Due October 31, 2021

PERAC MEMO #28/2021 – Buying Back Elected Official Service Time

PERAC MEMO #29/2021 - Expansion of Post-Retirement Work in the Public Sector

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.

The next regularly scheduled meeting of the MWRA Employees' Retirement Board will be held Tuesday November 16, 2021 at Massachusetts Water Resources Authority, 2 Griffin Way, Chelsea, at 10:00 a.m., if permissible, otherwise, will be held by publicly advertised conference call.

James M. Fleming, Elected Member

Kevin Mr. McKenna, Elected Member

Thomas J. Durkin, Appointed Member

Frank Zecha, Fifth Member



portfolio review prepared for

MWRA Employees' Retirement System

November 16, 2021

Coho Relative Value Equity

QUARTER ENDED SEPTEMBER 30, 2021

300 Berwyn Park • 801 Cassatt Road • Suite 100
Berwyn • PA 19312 • 484.318.7575
www.cohopartners.com

Organizational update



- **\$9.6 billion in total firm assets**
 - \$6.5 billion in discretionary assets
 - Separate accounts: \$5,141.2 million
 - Mutual funds: \$972.5 million
 - UCITS: \$347.3 million
 - \$3.1 billion in model-based (UMA) assets

- **Commitment to independence and employee ownership**
 - 34 employees, 21 partners
 - We recently welcomed Shirley Chen as an ESG Investment Analyst as we prepare for Mengchen Ma’s departure toward the end of this year
 - Mengchen’s employment authorization is expiring, and we were unable to secure a long-term visa for her to stay in the United States
 - We also welcomed our first student co-op from Drexel University, Trung Nguyen, who is working with the Investment Team

- **Coho business response to COVID-19 crisis**
 - We plan to reopen our office in 2022. Until then, we continue working within a remote work environment with no disruption to portfolio management, business operations, or client interactions

- **Growing interest in our ESG investment approach**
 - We recently published our annual Impact Report for 2021

Your Coho team



Investments

- Shirley Chen**
ESG Investment Analyst
- Andrew Hanna, CFA®**
Investment Analyst
- Nimrit Kang, CFA®**
Partner, Portfolio Manager &
Director of Research
- James Klinger**
Partner, Trading
- Ward Kruse, CFA®**
Portfolio Manager &
Investment Analyst
- Chris Leonard, CFA®**
Partner, Portfolio Manager &
Investment Analyst
- Mengchen Ma**
ESG Investment Analyst
- Ruairi O'Neill, CFA®**
Partner, Portfolio Manager &
Investment Analyst
- Peter Thompson**
Partner, Chief Investment Officer

Client Relations

- Joe Ciavarelli, CFA®**
Client & Consultant Relations
- Glenn Dever**
Partner, President
- Jena Dietrich**
Partner, Marketing
- John Finnegan**
Partner, Client Relations
- Wayne LeSage, Jr., CFA®**
Partner, Client Relations
- Lisa Marlin**
Partner, Client Relations
- Tim McAvoy**
Partner, Client &
Consultant Relations
- Lisa Moneymaker**
Partner, Client Relations
- John Musser**
Partner, Client & Consultant
Relations

Operations & Compliance

- Brian Burke**
Investment Operations
- Terry Davis**
Partner, Office Coordination
- Lisa Gentry, IACCP®**
Partner, Chief Compliance Officer
- Brian Gibson, PRM**
Partner, Business Operations
- Jennifer Griffith**
Partner, Human Resources
- Pat Hetrick**
Office Management
- Rich Hildebrand, CPA, CIPM**
Performance Analysis
- Cindy Lewis, CPA**
Chief Financial Officer
- Joanne Powell**
Partner, Investment Operations
- Hans Specht**
Finance
- Matt Szoke**
Information Technology
- Wendy Wee, CIPM**
Performance Analysis

Private Client

- Roseann Dittmar**
Partner, Client Relations
- Eric Hildenbrand, CFA®**
Partner, Portfolio Manager
- Steve Mills, JD, CFIP**
Portfolio Manager
- Rick Wayne, CFA®**
Partner, Portfolio Manager
& Director of Strategy

Portfolio review

AS OF SEPTEMBER 30, 2021

Portfolio summary as of 10.31.21



MWRA Employees' Retirement System

Inception date: 3.1.16

Initial investment	\$19,337,412
Contributions	\$20,800,000
Withdrawals	(\$7,750,000)
Gains/Losses	\$17,261,772
Investment income*	\$3,527,195
Market value as of 10.31.21	\$53,176,379

*Includes interest and dividends, net of fees

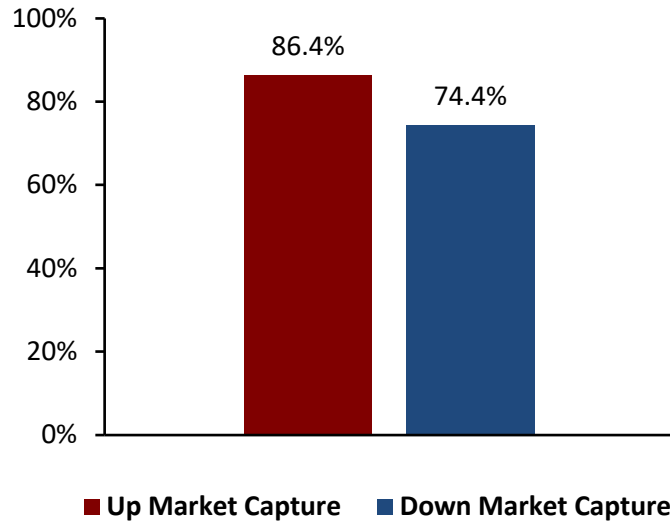
Where protection and participation meet[®]



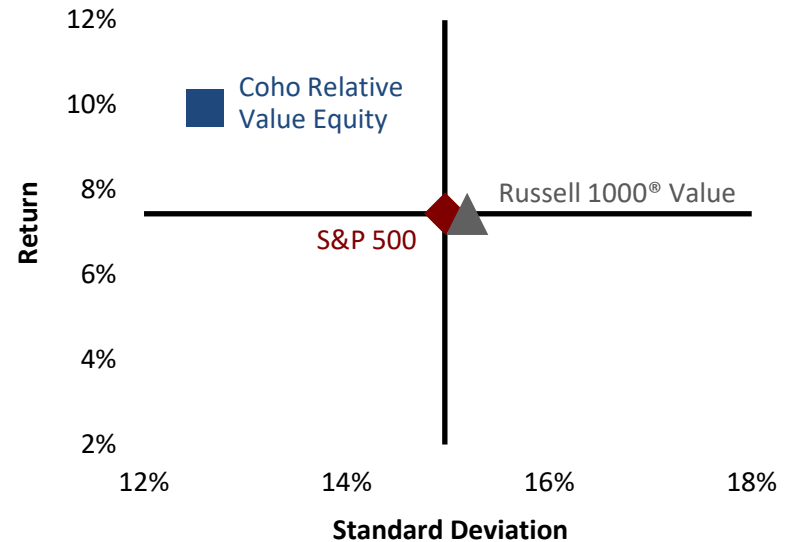
We firmly believe that the best way to create and sustain long-term wealth is to:

- Protect principal in down markets
- Generate competitive returns in all but the most cyclical or speculative up markets

Up/down market capture since inception



Risk/reward comparison since inception



The Upside/Downside Capture Ratio is calculated by dividing the return of the portfolio during the up (or down) market periods by the return of the market for the same period. Past performance is not indicative of future results. Data (monthly) since inception (10.1.00) through 9.30.21; Source: eVestment. Information presented is derived using currently available data from independent research resources that are believed to be accurate. Market Proxy: S&P 500 Index. Please see Appendix for important disclosure information regarding the use of the Russell 1000[®] Value Index.

Performance as of 10.31.21 – Gross of Fees



Annualized



	YTD	1 Year	3 Years	5 Years	Since Inception*	2020	2019	2018	2017
MWRA Employees' Retirement System	13.8	30.5	14.5	14.3	13.4	11.2	24.6	-0.9	18.8
Russell 1000 Value	22.0	43.8	13.9	12.4	13.1	2.8	26.5	-8.3	13.7

* inception 3/1/16

As of 10.31.21; Source: Advent/Axys. Information presented is derived using currently available data from independent research resources that are believed to be accurate. . Returns presented for periods less than one year are cumulative, returns for periods one year and greater are annualized. Past performance is not indicative of future results. Returns are gross of fees. In January 2020, the Russell 1000® Value Index retroactively replaced the S&P 500 Value Index as the strategy's secondary benchmark for all periods. The S&P 500 Index has been the strategy's primary benchmark since its inception and that remains unchanged. Please see Appendix for important disclosure information regarding the use of the Russell 1000® Value Index.

The proof is in the pattern



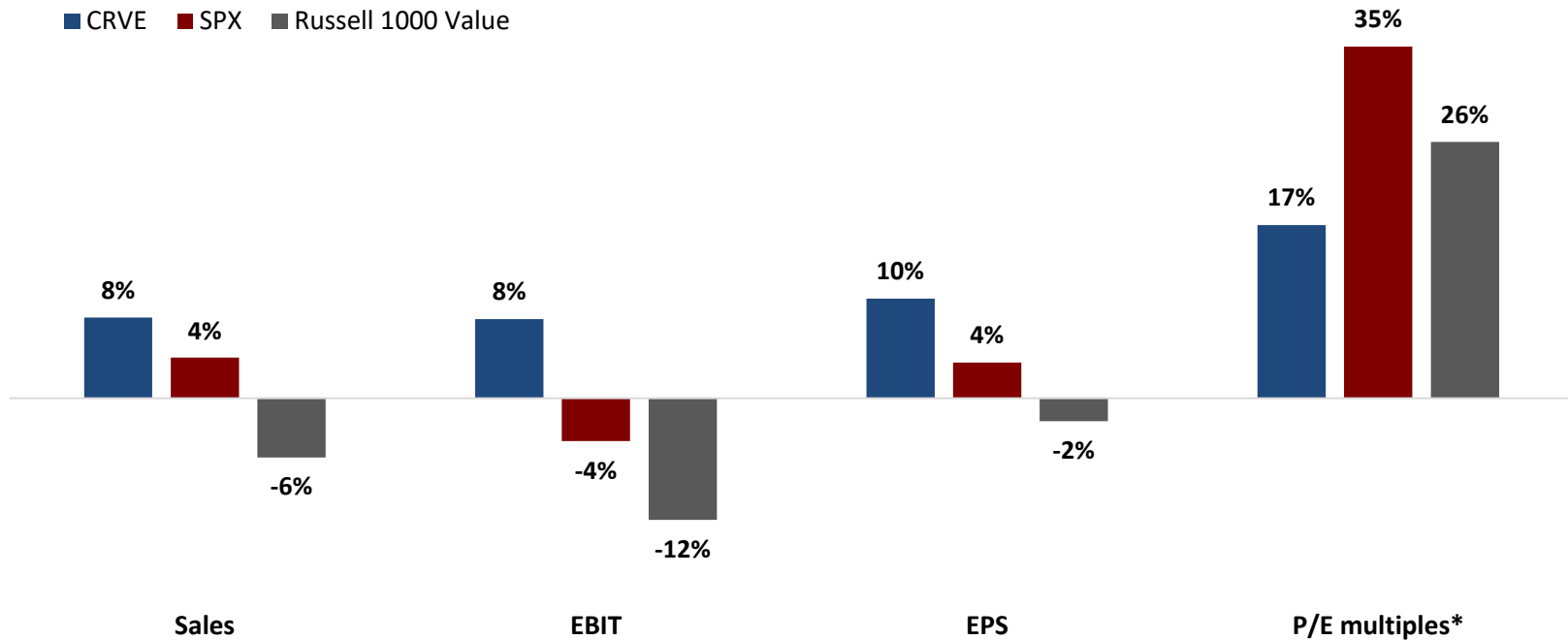
Market Cycle	Time Period	Duration	Coho Relative Value Equity	S&P 500	Russell 1000® Value	Capture Ratio vs. S&P 500*	Capture Ratio vs. Russell 1000® Value*
Early Bull	4Q02 - 4Q03	5 qtrs	34%	40%	42%	85%	80%
	2Q09 - 3Q09	2 qtrs	24%	34%	38%	70%	63%
	2Q20 - 3Q21	6 qtrs	48%	71%	63%	67%	76%
Late Bull	3Q16 - 3Q18	9 qtrs	32%	45%	30%	71%	105%
	1Q19 - 4Q19	4 qtrs	24%	31%	27%	77%	92%
Mature Bull	1Q04 - 3Q07	15 qtrs	49%	47%	62%	105%	80%
	4Q09 - 1Q10	2 qtrs	12%	12%	11%	98%	102%
	3Q10 - 2Q11	4 qtrs	32%	31%	29%	105%	111%
	4Q11 - 2Q16	19 qtrs	109%	106%	104%	104%	105%
Correction	2Q10 - 2Q10	1 qtr	-8%	-11%	-11%	71%	73%
	3Q11 - 3Q11	1 qtr	-11%	-14%	-16%	76%	65%
	4Q18 - 4Q18	1 qtr	-10%	-14%	-12%	74%	85%
Bear	4Q00 - 3Q02	8 qtrs	-8%	-42%	-24%	20%	35%
	4Q07 - 1Q09	6 qtrs	-29%	-46%	-50%	62%	57%
	1Q20 - 1Q20	1 qtr	-18%	-20%	-27%	93%	68%

*Coho performance divided by S&P 500 and/or Russell 1000® Value performance for each relevant time period. Coho Relative Value Equity composite, gross of fees, as of 9.30.21. Past performance is not indicative of future results. Calculations for capture ratios are based off actual returns which extend to several decimal places. Differences may occur due to rounding. Sources: Advent/Axys and Coho Partners. Information presented is derived using currently available data from independent research resources that are believed to be accurate. Please see Appendix for important disclosure information regarding the use of the Russell 1000® Value Index.

Fundamentals vs. valuation



24M (Q1 2019 - Q1 2021) Sales, EBIT, EPS, and P/E Multiples Growth

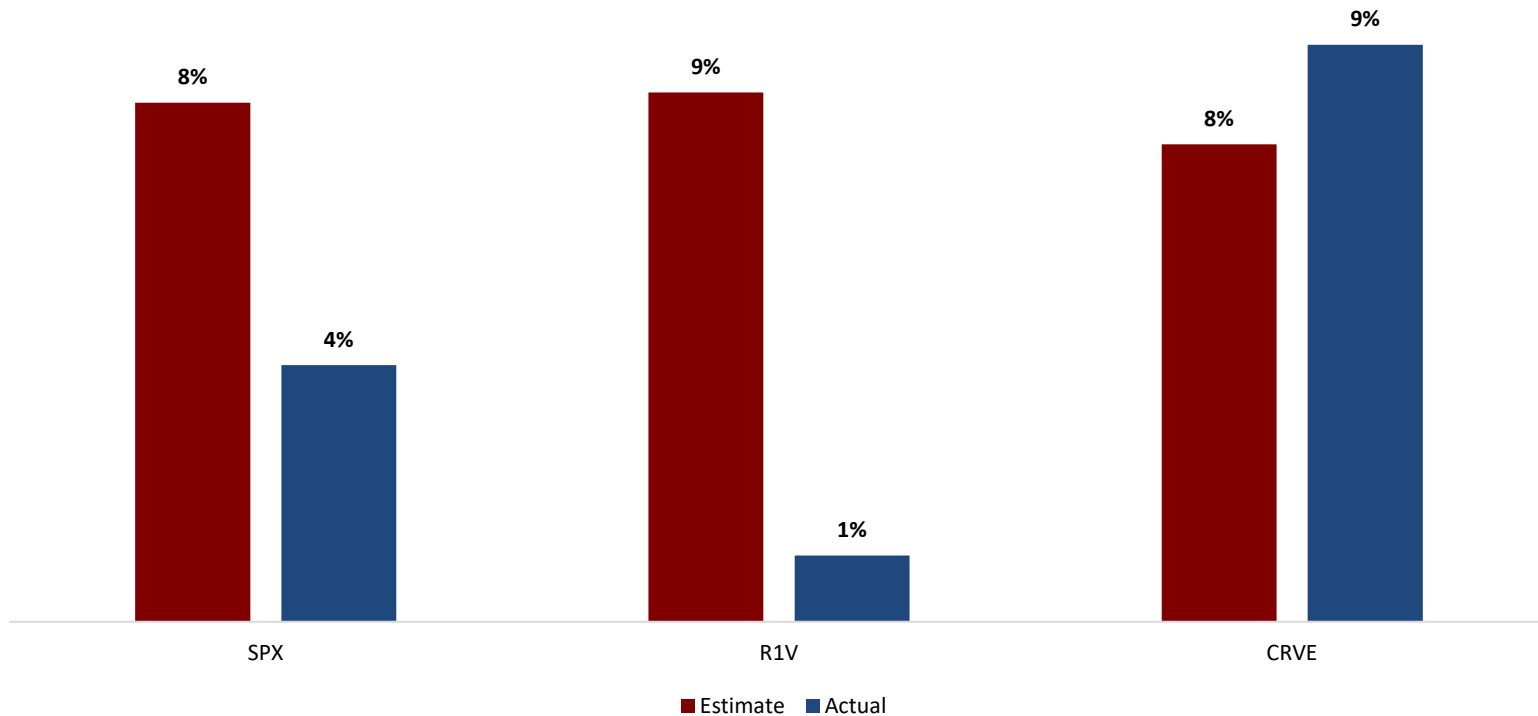


* Excludes P/E multiple changes in Occidental Petroleum. Sources: Bloomberg and FactSet

CRVE growth rates more predictable vs. market



Earnings Growth Rates
Estimate vs. Actual (Average over 5 years)

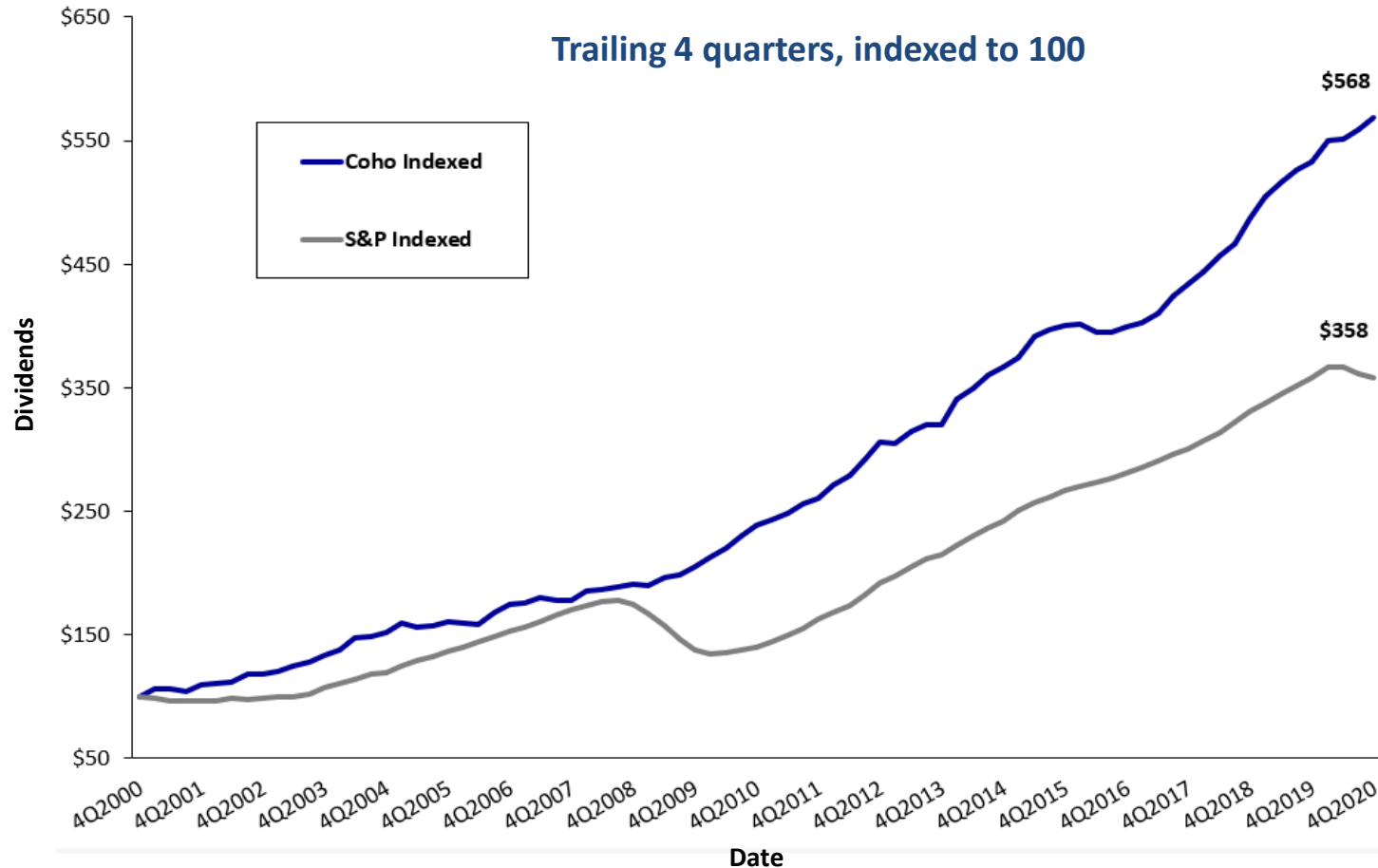


Data excludes changes in Occidental Petroleum. Source: Bloomberg

Past performance is not indicative of future results. Please see Appendix for important disclosure information regarding the use of the Russell 1000® indices.



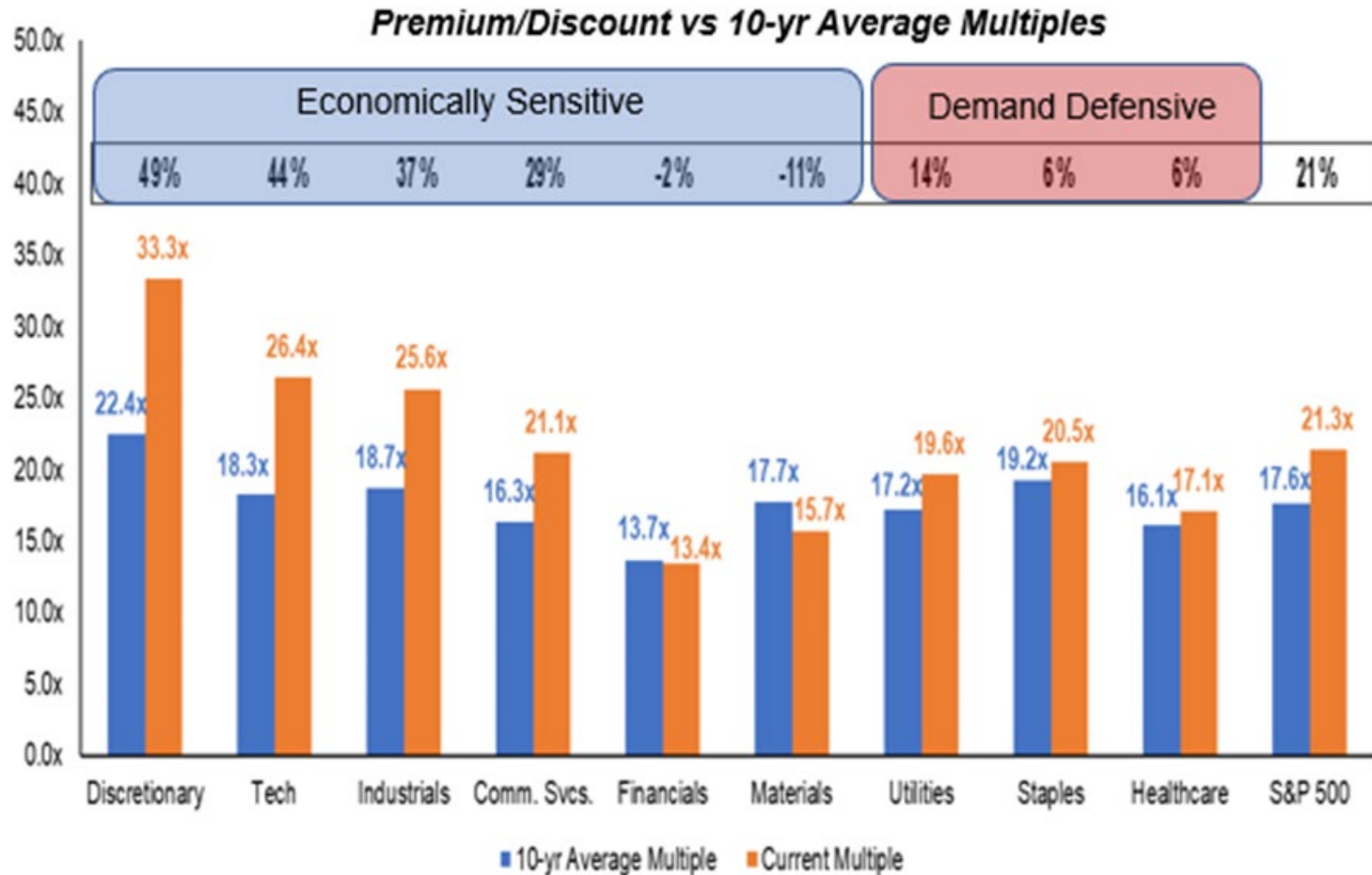
The power of consistent dividend growth



As of 12.31.20; Source: Advent/Axys. Information presented is derived using currently available data from independent research resources that are believed to be accurate. The chart above illustrates the income growth from stock dividends in the Coho Relative Value Equity model portfolio compared to the S&P 500 Index. Dividend reinvestment was excluded from the Coho model portfolio to ensure an accurate comparison relative to the S&P 500 Index which also does not reflect the reinvestment of dividends over time. Index values for both the blue (Coho) and the gray (S&P 500) lines are calculated on a quarterly basis and reflect the trailing twelve months of dividends received. The inception date chosen for the analysis is the same inception date that corresponds with the Coho Relative Value Equity Composite (10.1.00).



Current P/Es vs. 10-year Averages by Sector

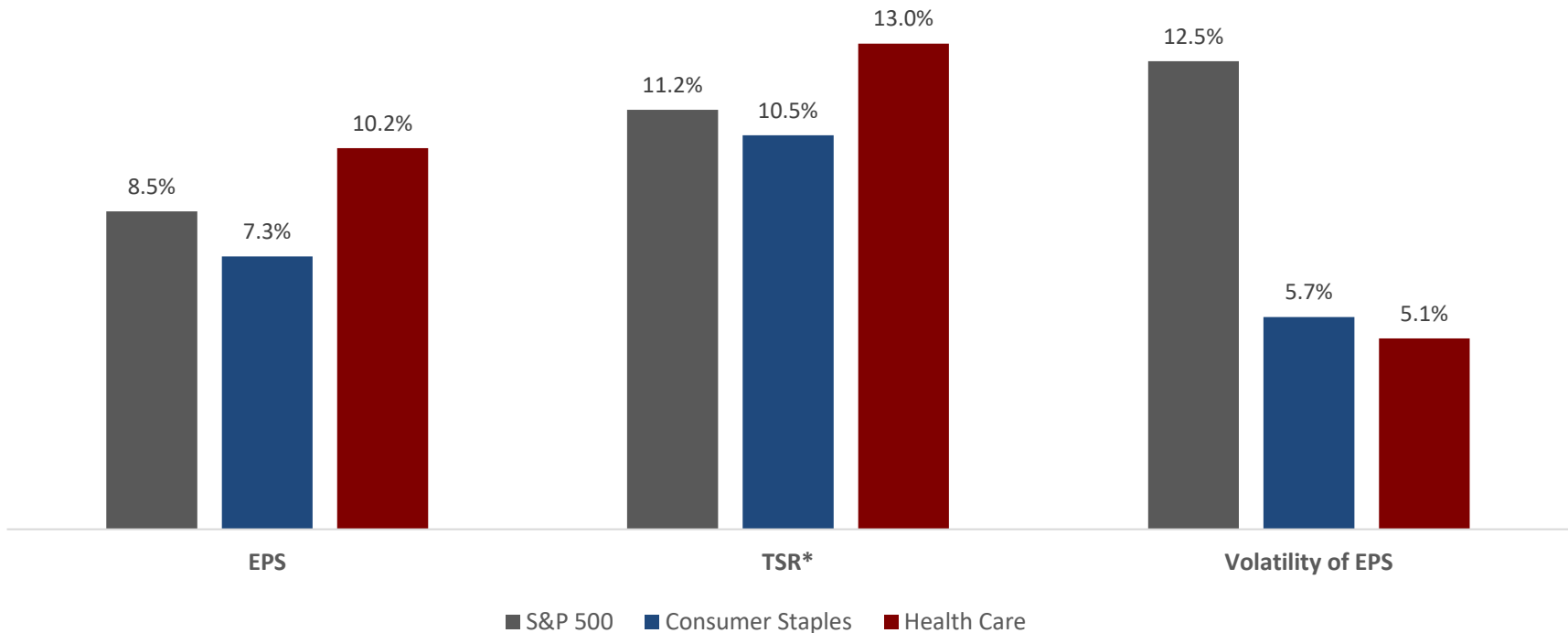


As of September 30, 2021. Source: Bloomberg
 Past performance is not indicative of future results.

Consumer Staples and Health Care exhibit favorable earnings with lower volatility over time



**Rolling 5-Year Average
1996-2021**



*TSR = Total Shareholder Return
 Source: Bloomberg
 Past performance is not indicative of future results.

YTD 2021 portfolio transactions



PURCHASES

SALES

<u>Purchases</u>			<u>Sales</u>				
	<u>From:</u>	<u>To:</u>		<u>From:</u>	<u>To:</u>		
1Q21	Global Payments Inc.	3.80%	4.30%	1Q21	The Kroger Co.	4.30%	3.25%
	US Bancorp	4.10%	4.60%		The Kroger Co.	3.50%	3.00%
	W. W. Grainger, Inc.	3.10%	3.75%		Sysco Corporation	3.70%	3.00%
	Thermo Fisher Scientific Inc.	0.00%	2.50%		US Bancorp	5.10%	4.50%
	Dollar General	2.60%	3.40%		Aflac Inc.	2.75%	2.00%
2Q21	None			2Q21	Organon & Co.	0.10%	0.00%
3Q21	Perrigo Company PLC	0.00%	2.00%	3Q21	Amgen Inc.	3.65%	3.00%
	United Parcel Service	0.00%	2.00%		Coca Cola Co.	3.60%	3.00%
	United Parcel Service	1.85%	3.00%		Merck & Co., Inc.	2.65%	2.00%
	Global Payments Inc.	3.60%	4.60%		Aflac Inc.	1.97%	0.00%
	Sysco Corporation	2.60%	3.60%		Automatic Data Processing, Inc.	3.15%	2.15%
					The Kroger Co.	3.10%	2.50%
					Marsh & McLennan Co.	4.40%	3.40%

Portfolio holdings



DEMAND DEFENSIVE				ECONOMICALLY SENSITIVE			
Security	Price	Pct. Assets	Yield	Security	Price	Pct. Assets	Yield
CONSUMER STAPLES				CONSUMER DISCRETIONARY			
Altria Group, Inc.	\$ 45.52	2.3	7.9	Dollar General Corp.	\$ 212.14	3.9	0.8
Coca-Cola Co.	\$ 52.47	2.9	3.2	Lowe's Companies Inc.	\$ 202.86	5.2	1.6
ConAgra Brands, Inc.	\$ 33.87	2.8	3.7	Ross Stores, Inc.	\$ 108.85	<u>4.2</u>	<u>1.0</u>
Philip Morris International Inc.	\$ 94.79	2.9	5.3			13.3	1.2
Sysco Corp.	\$ 78.50	3.8	2.4	ENERGY			
The J. M. Smucker Company	\$ 120.03	2.1	3.3	Chevron Corporation	\$ 101.45	<u>2.6</u>	<u>5.3</u>
The Kroger Co.	\$ 40.43	2.3	2.1			2.6	5.3
Unilever PLC	\$ 54.22	<u>2.4</u>	<u>3.7</u>	FINANCIAL SERVICES			
		21.5	3.9	Marsh & McLennan Company	\$ 151.43	3.4	1.4
HEALTH CARE				State Street Corporation	\$ 84.72	3.8	2.7
AmerisourceBergen Corp.	\$ 119.45	3.8	1.5	U.S. Bancorp	\$ 59.44	<u>4.8</u>	<u>3.1</u>
Amgen Inc.	\$ 212.65	2.7	3.3			12.1	2.5
CVS Health Corporation	\$ 84.86	4.4	2.4	INFORMATION TECHNOLOGY			
Johnson & Johnson	\$ 161.50	4.0	2.6	Automatic Data Processing, Inc.	\$ 199.92	2.1	1.9
Medtronic PLC	\$ 125.35	3.4	2.0	Global Payments Inc.	\$ 157.58	4.3	0.6
Merck & Co., Inc.	\$ 75.11	2.0	3.5	Microchip Technology Inc.	\$ 153.49	<u>3.1</u>	<u>1.1</u>
Perrigo Company PLC	\$ 47.33	2.1	2.0			9.5	1.1
Thermo Fisher Scientific Inc.	\$ 571.33	2.9	0.2	INDUSTRIALS			
UnitedHealth Group Inc.	\$ 390.74	<u>4.6</u>	<u>1.5</u>	Stanley Black and Decker, Inc.	\$ 175.31	1.9	1.8
		29.8	2.0	United Parcel Service, Inc.	\$ 182.10	2.8	2.2
				W. W. Grainger, Inc.	\$ 393.06	<u>3.6</u>	<u>1.6</u>
						8.4	1.9
				CASH AND EQUIVALENTS			
						2.8	
TOTAL PORTFOLIO						100.0	2.3

As of 9.30.21; Source: Advent/Axys. It should not be assumed that recommendations made in the future will be profitable or will equal the performance of the securities in this list. Information presented is derived using currently available data from independent research resources that are believed to be accurate. Individual holdings may not add up to 100% due to rounding.

Average portfolio weights



	Coho Relative Value Equity	S&P 500	Russell 1000 [®] Value
Cyclicality			
Demand Defensive	53%	22%	30%
Economically Sensitive	47%	78%	70%
Quality			
A- and Above	58%	41%	35%
B+ and Below	42%	59%	65%
Volatility			
Lowest 2 Beta Quintiles	60%	40%	51%
Highest 3 Beta Quintiles	40%	60%	49%

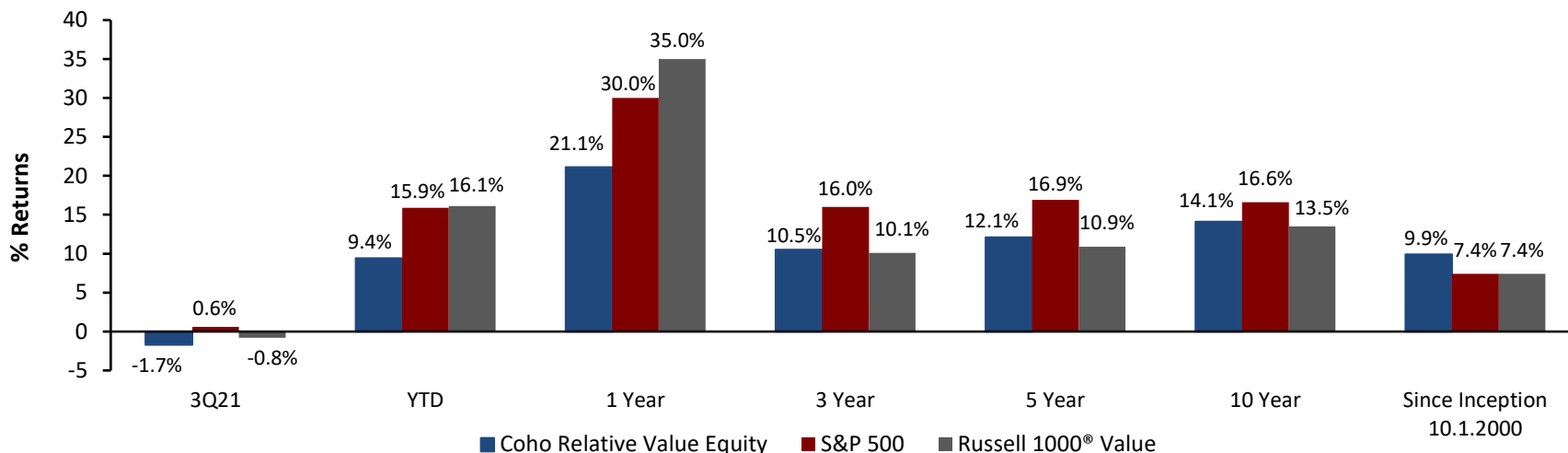
Data is for the quarter ending 9.30.21; Sources: Advent/Axys, FactSet, and S&P Global Market Intelligence, Copyright © 2020. Information presented is derived using currently available data from independent research resources that are believed to be accurate. Reference to a quality ranking or any observation concerning an investment that is part of the quality rankings is not a recommendation to buy, sell or hold such investment or security. Quality rankings are statements of opinions and are not statements of fact. Demand Defensive includes Consumer Staples, Health Care, and Utilities. Economically Sensitive includes Communication Services, Consumer Discretionary, Energy, Financial Services, Industrials, Information Technology, Materials, and Real Estate sectors. The average cash weighting for the period of 6.30.21 through 9.30.21 is 2.5% and is included in the 'Demand Defensive' Cyclicality category, 'A- and Above' Quality category and 'Lowest 2 Beta Quintiles' in the Volatility category. Equity securities that are 'Not Rated' by Standard & Poor's are included in the 'B+ and Below' Quality category.

Appendix

Performance



Annualized



Calendar year

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001
Coho Relative Value Equity	10.35	24.31	-3.26	19.44	10.18	0.31	15.00	31.89	13.51	10.82	16.03	18.36	-16.97	5.29	17.16	0.50	15.37	23.94	-13.19	1.89
S&P 500	18.40	31.49	-4.38	21.83	11.96	1.38	13.69	32.39	16.00	2.11	15.06	26.46	-37.03	5.48	15.80	4.88	10.92	28.68	-22.10	-11.90
Russell 1000 [®] Value	2.80	26.54	-8.27	13.66	17.34	-3.83	13.45	32.53	17.51	0.39	15.51	19.69	-36.85	-0.17	22.25	7.05	16.49	30.03	-15.52	-5.59

As of 9.30.21; Source: Advent/Axys. Information presented is derived using currently available data from independent research resources that are believed to be accurate.

In January 2020, the Russell 1000[®] Value Index retroactively replaced the S&P 500 Value Index as the strategy's secondary benchmark for all periods. The S&P 500 Index has been the strategy's primary benchmark since its inception and that remains unchanged. Please see Appendix for important disclosure information regarding the use of the Russell 1000[®] Value Index.

Note: Performance presented is intended for one-on-one presentations only. Performance for the Coho Relative Value Equity composite is gross of fees and does not reflect the payment of advisory fees and other expenses. A client's returns will be reduced by the advisory fees and other expenses it may incur in the management of the client account. Returns presented for periods less than one year are cumulative, returns for periods one year and greater are annualized. Past performance is not indicative of future results. Please see Appendix for Important Disclosure information, including Coho's fee structure.

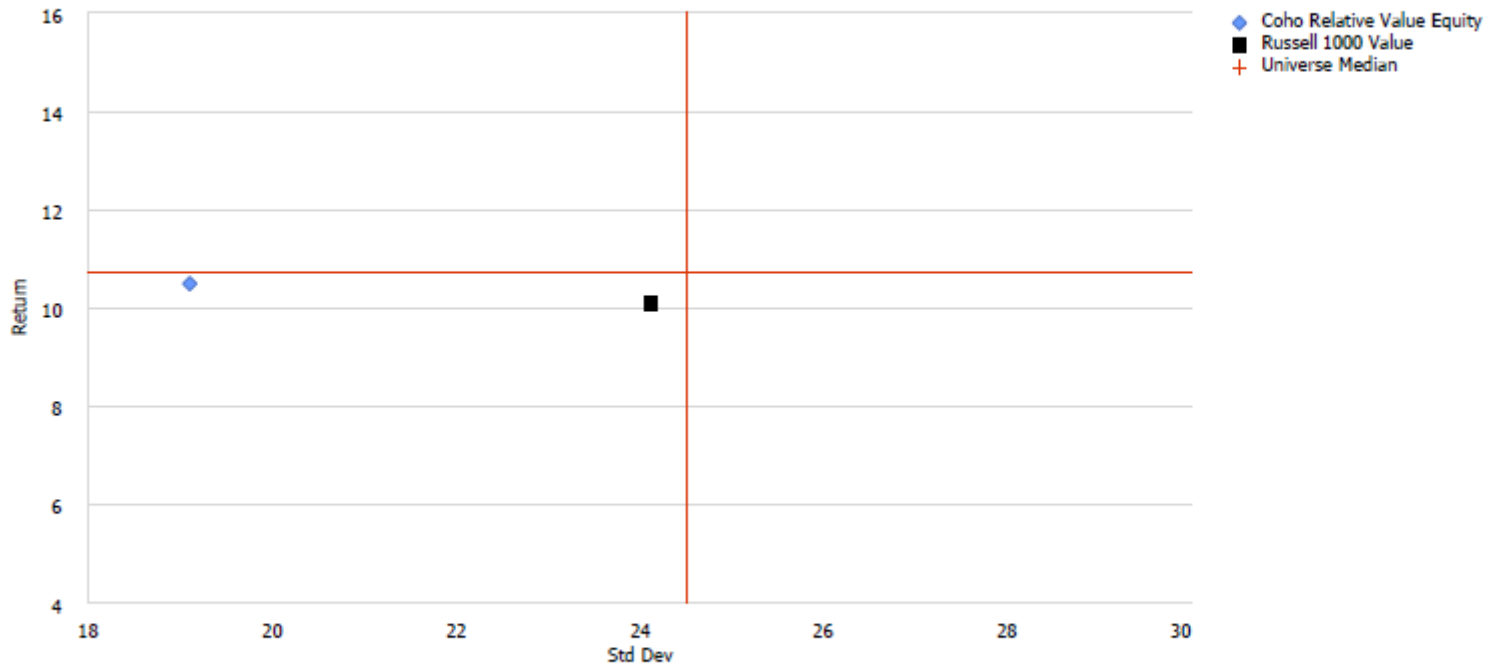
Risk and return comparison: 3-years



Coho Partners, Ltd.: Coho Relative Value Equity



Risk vs. Reward - 3 Year



Risk & Regression - 3 Year

Firm Name	Product Name	Returns 3 Years	Standard Deviation 3 Years	Sharpe Ratio 3 Years
Coho Partners, Ltd.	Coho Relative Value Equity	10.49	19.12	0.49
Russell Index	Russell 1000 Value	10.07	24.12	0.37

Sources: Data as of 9.30.21 from eVestment

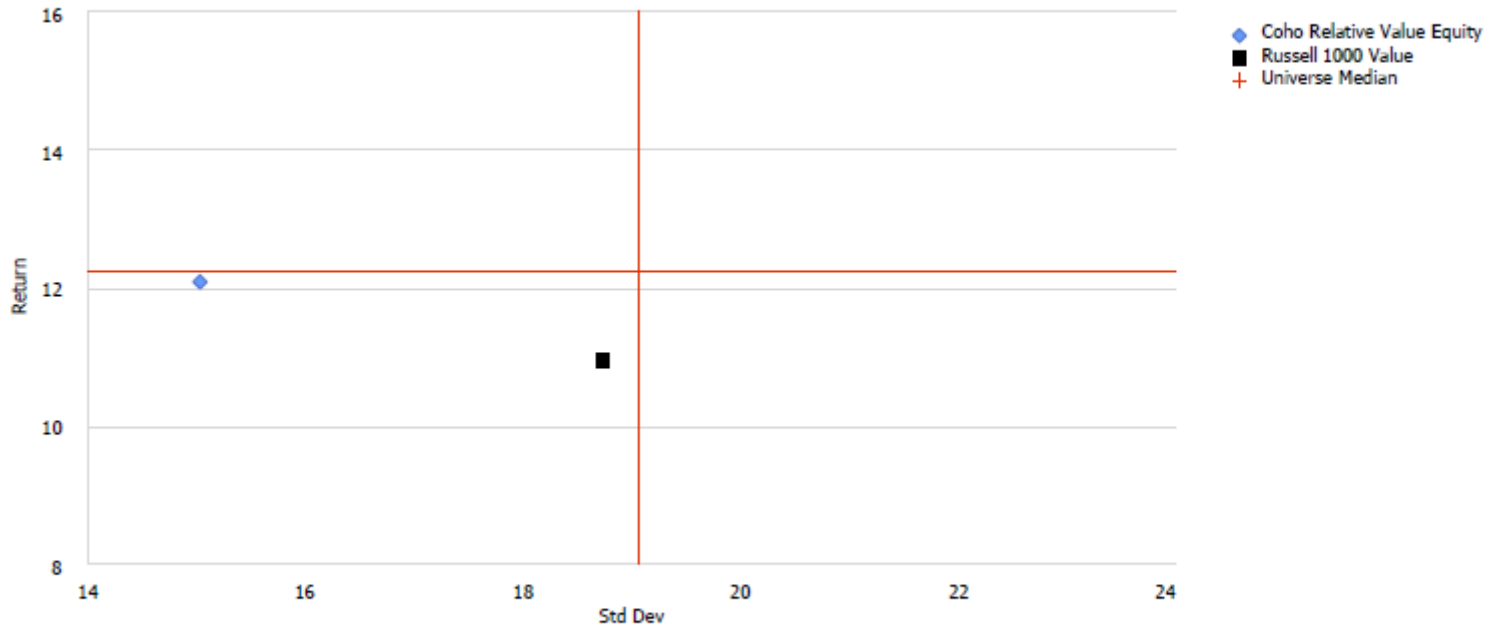
Risk and return comparison: 5-years



Coho Partners, Ltd.: Coho Relative Value Equity



Risk vs. Reward - 5 Year



Risk & Regression - 5 Year

Firm Name	Product Name	Returns 5 Years	Standard Deviation 5 Years	Sharpe Ratio 5 Years
Coho Partners, Ltd.	Coho Relative Value Equity	12.09	15.04	0.73
Russell Index	Russell 1000 Value	10.94	18.73	0.52

Sources: Data as of 9.30.21 from eVestment

Attribution detail – 3Q 2021



	Avg Port Wt	Port Return	Port Contrib	Avg Bmrk Wt	Bmrk Return	Bmrk Contrib	Alloc Effect	Select Effect	Total Effect
Total Portfolio	100.00	-1.55	-1.55	100.00	-0.78	-0.78	-0.13	-0.64	-0.77
Financial Services	12.29	5.72	0.70	20.96	2.46	0.49	-0.29	0.38	0.09
Real Estate	0.00	0.00	0.00	4.70	2.26	0.10	-0.13	0.00	-0.13
Utilities	0.00	0.00	0.00	4.97	1.34	0.06	-0.09	0.00	-0.09
Health Care	29.55	0.45	0.10	17.60	0.31	0.05	0.12	0.05	0.16
Cash & Equivalents	2.51	0.01	0.00	0.00	0.00	0.00	0.03	0.00	0.03
Consumer Staples	21.36	-1.89	-0.43	7.19	-1.33	-0.10	-0.07	-0.12	-0.19
Energy	2.50	-1.80	-0.05	4.71	-1.38	-0.08	0.01	-0.01	-0.00
Information Technology	9.66	-5.05	-0.48	10.23	-2.33	-0.23	0.00	-0.25	-0.25
Consumer Discretionary	13.50	-2.87	-0.37	5.64	-3.14	-0.17	-0.17	0.01	-0.16
Communication Services	0.00	0.00	0.00	8.42	-3.23	-0.28	0.21	0.00	0.21
Industrials	8.62	-10.88	-1.02	11.83	-3.83	-0.44	0.10	-0.69	-0.60
Materials	0.00	0.00	0.00	3.75	-4.98	-0.19	0.16	0.00	0.16

 Demand Defensive	 Outperform
 Economically Sensitive	 Underperform

Source: FactSet (Holdings Based, Daily). Coho Relative Value Equity vs. Russell 1000® Value 6.30.21 – 9.30.21
Base Currency: U S Dollar. Past performance is not indicative of future results.

Attribution detail – YTD 2021



	Avg Port Wt	Port Return	Port Contrib	Avg Bmrk Wt	Bmrk Return	Bmrk Contrib	Alloc Effect	Select Effect	Total Effect
Total Portfolio	100.00	9.48	9.48	100.00	16.14	16.14	-3.01	-3.65	-6.66
Energy	2.61	25.04	0.66	4.94	44.43	1.98	-0.57	-0.40	-0.97
Financial Services	13.65	27.74	3.61	20.82	29.64	5.72	-0.80	-0.36	-1.16
Real Estate	0.00	0.00	0.00	4.50	23.56	0.95	-0.26	0.00	-0.26
Consumer Discretionary	13.24	6.21	0.85	7.01	16.34	1.37	-0.06	-1.29	-1.35
Industrials	6.89	-1.09	-0.36	12.92	12.37	1.83	0.09	-1.02	-0.93
Health Care	28.54	11.60	3.15	14.51	11.50	1.45	-0.71	0.04	-0.67
Materials	0.00	0.00	0.00	4.45	10.57	0.60	0.17	0.00	0.17
Information Technology	10.13	-4.29	-0.27	9.73	9.82	1.00	-0.06	-1.39	-1.46
Communication Services	0.00	0.00	0.00	8.98	6.48	0.72	0.79	0.00	0.79
Consumer Staples	22.19	8.40	1.84	7.13	5.19	0.33	-1.75	0.78	-0.96
Utilities	0.00	0.00	0.00	5.01	3.84	0.18	0.64	0.00	0.64
Cash & Equivalents	2.75	0.03	0.00	0.00	0.00	0.00	-0.50	0.00	-0.50

 Demand Defensive	 Outperform
 Economically Sensitive	 Underperform

Source: FactSet (Holdings Based, Daily). Coho Relative Value Equity vs. Russell 1000® Value 12.31.20 – 9.30.21
Base Currency: U S Dollar. Past performance is not indicative of future results.

Attribution summary – YTD 2021



U.S. equity markets continue to push higher for the year, but volatility has started to interrupt the rally

- Cyclical, lower quality, and higher beta stocks have led the way in 2021 resulting in the Coho portfolio return of 9.4% trailing the Russell 1000® Value Index return of 16.1%
- Cyclical sectors Energy and Financial Services have posted the strongest returns with defensive sectors Consumer Staples and Utilities trailing the market
- Portfolio overweight to Consumer Staples and Health Care and underweight to Energy and Financial Services contributed to relative underperformance
- Stock selection versus sector allocation has accounted for slightly more of the relative underperformance
 - Top five contributors: USB, KR, LOW, MMC, CVS
 - Top five detractors: GPN, ROST, AMGN, UL, GWW

CRVE contributors and detractors – YTD 2021



Largest contributors by holding

Company Name	Avg Wt	Return	Total Effect
U.S. Bancorp	4.58	30.48	0.57
The Kroger Co.	2.70	29.24	0.48
Lowe's Companies, Inc.	4.88	27.73	0.45
Marsh & McLennan Company	3.79	30.94	0.41
CVS Health Corporation	4.11	26.67	0.27
AmerisourceBergen Corporation	3.75	23.62	0.23
Thermo Fisher Scientific Inc.	1.93	23.83	0.22
Chevron Corporation	2.61	25.04	0.14
Aflac Inc.	1.53	22.47	0.12
State Street Corporation	3.76	18.66	0.11

Largest detractors by holding

Company Name	Avg Wt	Return	Total Effect
Global Payments Inc.	4.26	-26.60	-1.73
Ross Stores, Inc.	4.70	-10.73	-1.24
Amgen Inc.	3.49	-5.45	-0.68
Unilever PLC	2.56	-7.76	-0.68
W.W. Grainger, Inc.	3.84	-2.65	-0.64
Coca-Cola Company	3.43	-2.06	-0.61
ConAgra Brands, Inc.	3.00	-4.26	-0.61
Merck & Co., Inc.	2.53	-1.24	-0.51
Cash & Equivalents	2.75	0.03	-0.49
Dollar General Corporation	3.66	1.45	-0.44

Source: FactSet. Calculations are based on daily holdings of the Coho Relative Value Equity portfolio. To obtain additional information on the calculation methodology or to obtain a list showing the contribution of each holding in the portfolio during the measurement period, please contact our Client Relations Team at clientrelations@cohopartners.com.

Past performance is not indicative of future results.

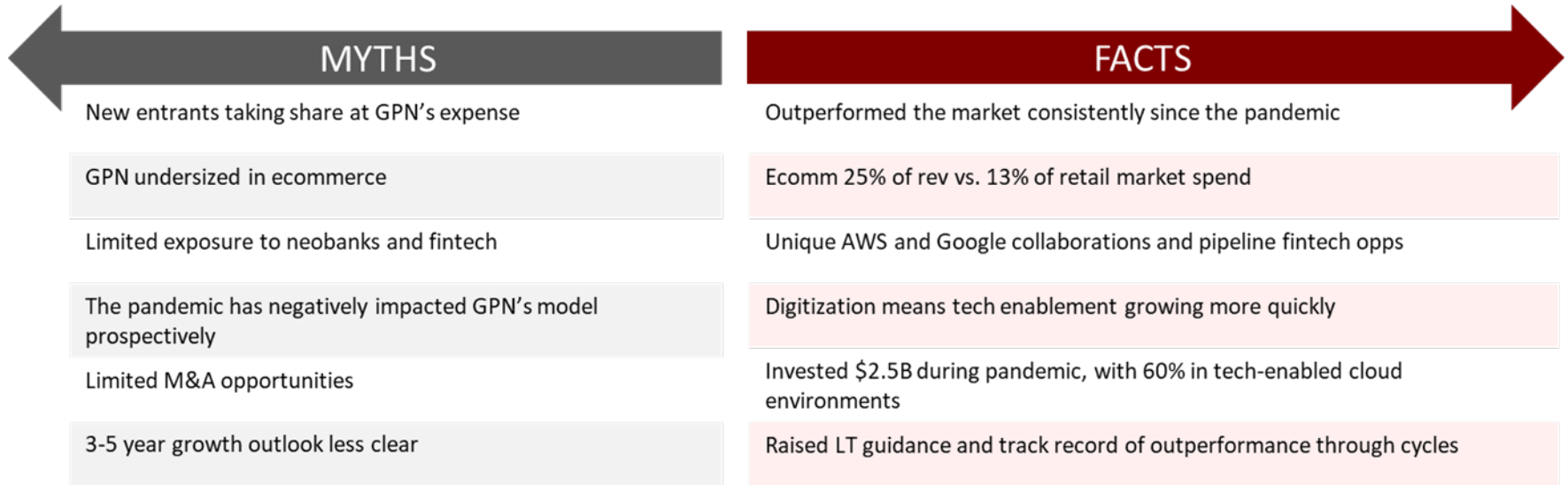
Coho Relative Value Equity vs. Russell 1000® Value 12.31.20 – 9.30.21 Base Currency: U S Dollar

Illustrating our process – Global Payments



Global Payments (GPN) provides financial technology services globally.

- Stock sold off on the Q2 earnings report as Square announced the acquisition of AfterPay and market concerns over ‘old’ versus ‘new’ fintech increased.
- Coho’s assessment of GPN’s prospects in the dynamic digital payments industry has only improved, with the team viewing the company as more of a disruptor than at risk of being disrupted.
- Added to the GPN position on the Q2 selloff.
- Subsequently, GPN management raised the long-term growth objective, now targeting 12% revenue growth and 18% to 20% EPS growth.



Past performance is not indicative of future results.

Initiated positions



Perrigo Company PLC (PRGO) is a global leader in self-care, deriving about two-thirds of its revenue from store brand, over-the-counter products in the United States

- The company has been transforming over the past two years into a more consistent and durable business centered on consumer self-care products, with the recently announced divestiture of the volatile generic prescription unit resulting in greater predictability to the revenue and profit stream.
- As a pure play consumer company, PRGO is well positioned to deliver on the long-term growth algorithm including 3% sales, 5% profit, and 7% EPS growth.
 - We see upside potential to this projection using the balance sheet, where management will have about \$2 billion in cash to deploy following the close of the prescription business sale by the end of September 2021.
- We have considerable confidence in this management team, which has a proven track record of delivering attractive shareholder value at prior consumer staple companies.



United Parcel Service (UPS) is a dominant player in the small global package industry, along with FedEx and Deutsche Post

- The industry has benefitted from solid topline growth due to the increasing penetration of eCommerce sales. However, domestic US margins have suffered as the company and the industry has invested in capacity and infrastructure to support a higher mix of B2C eCommerce sales.
- UPS is now focusing on improving margins and ROIC via the “better, not bigger” strategy.
 - Key elements of this strategy include higher revenue yield, increased labor productivity, and improved capital discipline.
- The strong balance sheet combined with higher free cash flows supports increased capital returns to shareholders over the coming years. Although UPS is exposed to economic cyclicality, the business model has demonstrated higher resilience vis-à-vis other industrial companies.

Eliminated position



Aflac Inc. (AFL) is an American insurance company and is the largest provider of supplemental insurance in the United States.

- Aflac was eliminated from the portfolio following a move in the stock price from \$35 to \$54 over the past several months.
- The sale of Aflac was valuations based in favor of a more attractive risk/reward opportunity. AFL's sales and profit growth have been negatively impacted more than most financials by COVID which has limited selling activity for new policies in its two key markets including the U.S. and Japan.
 - This issue will improve as the vaccine becomes more widely available, but it will still take time for the company to generate meaningful revenue growth as it invests in new products such as dental, vision and group life.
 - In the meantime, shareholders benefit from generous dividend growth and share repurchases.

Sector weights



	Sector	Coho Relative Value Equity	Range	S&P 500	Russell 1000® Value
Demand Defensive	Health Care	29.8%	10-40%	13.3%	17.3%
	Consumer Staples	21.5%	5-35%	5.8%	7.1%
	Utilities	0.0%	0-10%	2.5%	4.9%
Economically Sensitive	Consumer Discretionary	13.3%	5-20%	12.4%	5.6%
	Financial Services	12.1%	5-20%	11.4%	21.4%
	Information Technology	9.5%	0-25%	27.6%	10.2%
	Industrials	8.4%	0-25%	8.0%	11.6%
	Energy	2.6%	0-25%	2.7%	5.1%
	Communication Services	0.0%	0-20%	11.3%	8.3%
	Materials	0.0%	0-10%	2.5%	3.6%
	Real Estate	0.0%	0-10%	2.6%	4.7%
	Cash and Equivalents	2.8%	0-5%	0.0%	0.0%
	Total	100.0%		100.0%	100.0%

As of 9.30.21; Sources: Advent/Axys, FactSet, and Coho Partners. Information presented is derived using currently available data from independent research resources that are believed to be accurate. Sector weights may not add up to 100% due to rounding. Please see Appendix for important disclosure information regarding the use of the Russell 1000® Value Index.

Holdings-based characteristics



	Coho Relative Value Equity	S&P 500	Russell 1000® Value
Equity Holdings	30	505	848
3 Year Annualized Turnover	13.3%	N/A	N/A
Dividend Yield	2.3%	1.4%	2.0%
Dividend Growth (last 5 yrs)	15.0%	5.4%	3.4%
EPS Growth (last 5 yrs)	10.1%	6.2%	0.6%
EPS Growth (next 5 yrs)	12.1%	16.1%	11.6%
P/E (trailing 4 quarters)	17.7x	22.7x	17.3x
P/E (forward 4 quarters)	16.0x	21.1x	16.1x
Price/Book	3.5x	4.3x	2.4x
LT Debt/Capital	55.7%	44.1%	43.0%
Net Debt/EBITDA	1.8	2.8	2.8
5-Year Avg ROE	22.3%	22.9%	14.8%
Weighted Avg Market Cap	\$116.4 B	\$563.6 B	\$156.0 B
Median Market Cap	\$84.4 B	\$30.6 B	\$13.2 B
Beta (last 10 yrs)	0.89	1.00	1.00
Active Share	N/A	91.4%	88.4%

As of 9.30.21; Sources: Advent/Axys, FactSet, and Coho Partners
Please see Appendix for important disclosure information regarding the use of the Russell 1000® Value Index.

Important disclosures



Use of the Russell 1000® Value Index

Source: London Stock Exchange Group plc and its group undertakings (collectively, the “LSE Group”). © LSE Group 2021.

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The Index is calculated by or on behalf of FTSE International Limited or its affiliate, agent or partner. The LSE Group does not accept any liability whatsoever to any person arising out of (a) the use of, reliance on or any error in the Index or (b) investment in or operation of the Coho Relative Value Equity strategy. The LSE Group makes no claim, prediction, warranty or representation either as to the results to be obtained from the Coho Relative Value Equity strategy or the suitability of the Index for the purpose to which it is being put by Coho Partner, Ltd.

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Important disclosures



Coho Relative Value Equity Composite

Coho Partners, Ltd. is an independent, investment manager based in Berwyn, PA that invests in equity securities traded on the major U.S. exchanges. The Firm may also invest in fixed income, mutual funds, ETFs and certain other investments to appropriately diversify certain client portfolios based upon their specific investment guidelines.

The Firm was founded in June 1999, is incorporated in Pennsylvania, and is an SEC-registered investment advisor that is not affiliated with any parent organization. Our clients include institutional employee benefit plans, endowments, foundations, corporations, eleemosynary organizations, high net worth clients, individuals, trusts, estates, and wrap accounts. The Firm provides portfolio allocation and transaction instructions for certain clients (“UMA” or “Model”). These assets are not part of the Firm’s total assets when calculating total firm assets for GIPS; however, these assets may be reported separately in our GIPS reports.

Coho Partners, Ltd. claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Coho Partners, Ltd. has been independently verified for the periods 10/1/2000 through 12/31/2020.

A firm that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the firm’s policies and procedures related to composite and pooled fund maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on a firm-wide basis. The Coho Relative Value Equity composite has had a performance examination for the periods 10/1/2000 through 12/31/20. The verification and performance examination reports are available upon request.

GIPS® is a registered trademark of CFA Institute. CFA Institute does not endorse or promote this organization, nor does it warrant the accuracy or quality of the content contained herein. Additional information regarding the firm’s policies and procedures for valuing investments, calculating performance, and preparing GIPS reports is also available upon request.

The Coho Relative Value Equity composite is comprised of all discretionary, fee-paying, non-wrap, segregated institutional and non-institutional portfolios, pooled funds and sub-advised funds that are equal to or greater than \$1 million under management, that have been fully invested and whose inclusion should be the first full month following account inception in which it meets the above requirements. Effective January 1, 2020, the composite was re-defined to include pooled funds and sub-advised funds. The firm determined that operational differences, once perceived to be significant, no longer exist and these funds’ investment mandates meet the definition of this composite. Portfolios will be removed from the composite if they experience a reduction in the size of the portfolio below \$750,000 for two consecutive months end. Portfolios may be excluded from the composite due to investment restrictions, frequent cash requirements that take the portfolio off the model, legacy positions, or other situations that may prevent the portfolio from being managed in accordance with the composite strategy. The strategy for all portfolios included in the Coho Relative Value Equity composite is to invest only in selective equity securities while maintaining a diligent focus on preserving capital and maximizing client returns. The Coho Relative Value Equity composite is generally a large cap equity strategy which may also hold mid-cap securities, and which holds approximately 25 – 30 high quality companies exhibiting stable, predictable growth in revenues, earnings and dividends, and selling at reasonable valuations.

The primary index for the composite is the S&P 500. The secondary index is the Russell 1000® Value. The S&P 500 Index is an unmanaged market capitalization weighted index of 500 common stocks chosen for market size, liquidity, and industry group representation. The Russell 1000® Value Index is an unmanaged index of those Russell 1000 companies that exhibit value characteristics such as lower price-to-book ratios and lower forecasted growth values. One cannot directly invest in an index.

A change to the Significant Cash Flow (SCF) policy occurred January 1, 2019, so that the SCF policy is triggered by a client request to raise and hold cash in advance of future withdrawal. The amount of cash requested by the client will be transferred to a temporary account which is excluded from the composite. Prior to this, when a client directed us to raise money for a withdrawal but held the cash in the portfolio over the month-end, the portfolio exited the composite by the end of the prior month. Additionally, effective January 1, 2021, when any cash contributions are made that exceed 50% of the client’s total assets, measured as of the beginning of the month, the amount of cash contributed will be transferred to a temporary account which is excluded from the composite.

The composite returns reflect the reinvestment of dividends, capital gains, and other earnings when appropriate. “Gross of fees” performance returns are presented net of actual trading expenses. No other fees are deducted. “Net of fees” performance returns are calculated net of actual trading expenses and actual management fees. No other fees are deducted. The composite may include portfolios that pay zero commissions. All returns are net withholding taxes. All returns are expressed in U.S. dollars. Standard investment fees are charged at the following rates: Institutional fee schedule – 0.60% on the first \$25 million; 0.50% on the next \$75 million; and 0.40% on assets exceeding \$100 million. Non-institutional fee schedule – 0.95% on first \$2 million; 0.75% on next \$3 million and 0.60% on all assets over \$5 million. The current management fee for the pooled fund, COHOX is 0.70% and the expense ratio is 0.79%. The Firm may, at its discretion, agree to negotiate fees.

The composite’s creation and inception date is October 1, 2000. Terminated portfolios are included in the historical performance of the composite through the last full month that each portfolio was under management. A complete list and description of the firm’s Composites is available upon request. A list of the Firm’s broad distribution pooled funds is available upon request.

Important disclosures



Coho Relative Value Equity Composite

Year	Annual Performance Results (%)					Gross 3 Year Annualized Standard Deviation (%)			Composite		Firm
	Composite		S&P 500	Russell 1000® Value	Composite Dispersion	Composite	S&P 500	Russell 1000® Value	Number of Portfolios	Assets (\$M)	Assets (\$M)
	Gross Return TWR	Net Return TWR									
2020	10.35	9.83	18.40	2.80	0.46	16.26	18.53	19.62	260	4,211.3	6,102.9
2019	24.31	23.75	31.49	26.54	0.34	11.38	11.93	11.85	216	2,189.4	5,194.9
2018	-3.26	-3.69	-4.38	-8.27	0.33	10.89	10.80	10.82	204	1,679.6	4,253.5
2017	19.44	18.88	21.83	13.66	0.45	9.43	9.92	10.20	197	1,674.1	4,512.0
2016	10.18	9.70	11.96	17.34	0.40	9.69	10.59	10.77	171	1,709.4	3,245.4
2015	0.31	-0.13	1.38	-3.83	0.44	9.77	10.47	10.68	130	1,163.1	2,497.0
2014	15.00	14.51	13.69	13.45	0.34	8.23	8.97	9.20	122	1,091.1	1,973.5
2013	31.89	31.34	32.39	32.53	0.54	9.90	11.94	12.70	83	574.7	1,386.8
2012	13.51	13.04	16.00	17.51	0.53	12.72	15.09	15.51	48	294.5	942.9
2011	10.82	10.39	2.11	0.39	0.32	15.43	18.71	20.69	37	288.4	688.3
2010	16.03	15.47	15.06	15.51	0.58	NA	NA	NA	14	75.7	445.2
2009	18.36	17.82	26.46	19.69	1.09	NA	NA	NA	12	50.2	337.8
2008	-16.97	-17.34	-37.03	-36.85	0.93	NA	NA	NA	11	28.1	248.2
2007	5.29	4.80	5.48	-0.17	1.06	NA	NA	NA	11	36.3	282.3
2006	17.16	16.58	15.80	22.25	0.89	NA	NA	NA	12	47.7	257.2
2005	0.50	0.10	4.88	7.05	1.25	NA	NA	NA	11	33.2	179.4
2004	15.37	14.91	10.92	16.49	1.12	NA	NA	NA	11	36.2	119.4
2003	23.94	23.61	28.68	30.03	1.99	NA	NA	NA	12	44.3	89.6
2002	-13.19	-13.39	-22.10	-15.52	0.64	NA	NA	NA	9	30.4	72.2
2001	1.89	1.44	-11.90	-5.59	1.66	NA	NA	NA	7	33.3	75.0
4Q00	11.66	11.52	-7.83	3.60	NA	NA	NA	NA	≤5	10.4	22.0

Version effective date: 1.1.2021. Source: Advent/Axys.

In January 2020, the Russell 1000® Value Index retroactively replaced the S&P 500 Value Index as the strategy's secondary benchmark for all periods. The S&P 500 Index has been the strategy's primary benchmark since its inception and that remains unchanged.

Internal dispersion is calculated using the asset-weighted standard deviation of annual gross returns of those portfolios that were included in the composite for the entire year. The internal dispersion is not presented for those periods marked "N/A" because the composite did not have at least six portfolios for the entire annual period. The three-year annualized standard deviation measures the variability of the composite gross returns and the benchmark returns over the preceding 36-month period. The three-year annualized returns are calculated net of actual trading expenses and actual management fees. The three-year standard deviation of the composite and benchmarks is not presented for those periods marked "N/A" because 36 monthly returns are not available. Past performance is no guarantee of future results.

For more information about the Coho Relative Value Equity composite, please contact a member of our Client & Consultant Relations Team at distribution@cohopartners.com.



MONTHLY PERFORMANCE REPORT

**MWRA EMPLOYEES' RETIREMENT
SYSTEM**

OCTOBER 31, 2021



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

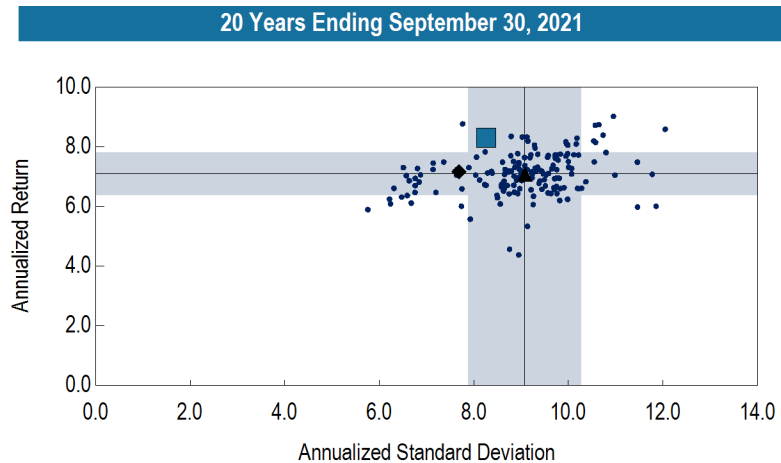
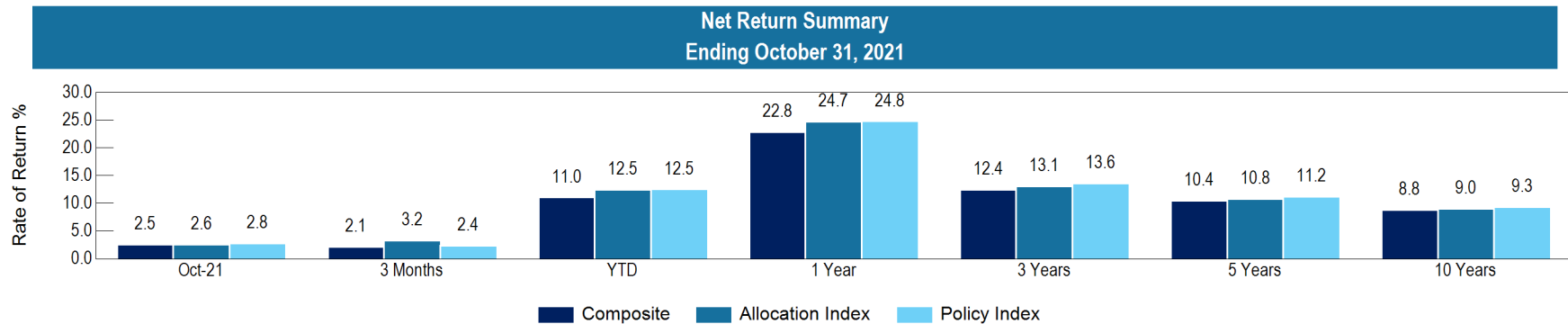
The investment growth should be maintained in such a manner that the minimum nominal rate of return does not cause a negative real rate of return over a full market cycle:

- **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).



MWRA Employees' Retirement System

EXECUTIVE SUMMARY



Performance

- The Composite returned 2.5% (net) for the month, in-line with the Allocation Index and slightly behind the Policy Index (2.8%).
- Global equities rebounded significantly in October, driven by strong earnings and a relatively positive economic backdrop. In the U.S., the S&P 500 Index rose 7.0%. International markets were also positive with both the MSCI EAFE and the Emerging Market indexes returning 2.5% and 1%, respectively. The portfolio's Domestic Equity composite returned 6.2% (net) while Non-US Equities rose 2.6% (net).
- In fixed income, global yields were relatively flat, as investors continued to weigh higher inflation prints. The Fixed Income composite rose 0.1% (net) in while the BC Agg was flat and the BC US HY declined 20 bps.
- This brings the total Plan return for the trailing one-year period to 22.8% (net), while the Allocation and Policy Index returned 24.7%(net) and 24.8% (net), respectively.

Statistics Summary			
	Anlzd Ret	Anlzd Std Dev	Rank
Composite	8.0%	8.3%	9
Allocation Index	6.9%	7.7%	70
Policy Index	7.2%	8.4%	50
InvMetrics Public DB Gross Median	7.2%	9.2%	--

20 years Risk/Return is as of 09/30/2021. Chart reflects universe data on quarter end months only.

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

Since inception return is 8.8% gross of fees. Prior to 1999, performance history does not capture separate net and gross returns.



MWRA Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Composite	715,750,228	100.0	100.0	2.5	11.0	22.8	12.4	10.4	8.8	7.2	Jan-86
Allocation Index				2.6	12.5	24.7	13.1	10.8	9.0	--	Jan-86
Policy Index				2.8	12.5	24.8	13.6	11.2	9.3	--	Jan-86
Total Balanced	5,208,263	0.7	0.0	0.0	13.8	26.0	11.5	8.2	6.1	5.6	Dec-10
PRIT Core Fund	5,208,263	0.7		0.0	13.8	26.0	13.3	11.4	9.7	7.4	Apr-99
60% S&P 500 / 40% Bloomberg Aggregate				4.2	13.3	24.0	15.4	12.7	11.0	6.9	Apr-99
Total Domestic Equity	234,911,720	32.8	31.0	6.0	21.0	41.3	20.6	18.9	15.4	8.5	May-99
Russell 3000				6.8	22.8	43.9	21.6	18.9	16.1	8.1	May-99
Large Cap	182,519,236	25.5	24.0	6.2	21.4	38.8	21.7	19.6	15.9	15.2	Dec-10
Rhumblin Advisors S&P 500 Index Fund	73,419,617	10.3	10.0	7.0	24.0	42.8	21.4	18.8	16.1	9.7	Apr-97
S&P 500				7.0	24.0	42.9	21.5	18.9	16.2	9.6	Apr-97
Coho Relative Value Equity	53,226,891	7.4	7.0	5.1	13.3	29.8	13.9	13.8	--	12.9	Mar-16
Russell 1000 Value				5.1	22.0	43.8	13.9	12.4	12.8	13.5	Mar-16
Polen Focused Growth	55,872,729	7.8	7.0	6.1	25.0	40.5	30.0	26.3	--	23.2	Feb-16
Russell 1000 Growth				8.7	24.2	43.2	29.4	25.5	19.4	23.8	Feb-16
Small Cap	52,392,484	7.3	7.0	5.3	19.5	49.9	17.5	17.3	14.3	13.8	Dec-10
Boston Partners Small Cap Value	25,825,105	3.6	3.5	3.4	25.9	61.0	14.2	12.2	11.9	11.0	Feb-97
Russell 2000 Value				3.8	27.6	64.3	13.4	12.6	12.1	9.6	Feb-97
Loomis Sayles Small Cap Growth	26,567,380	3.7	3.5	7.2	12.4	38.3	20.2	21.8	16.3	8.0	Jan-97
Russell 2000 Growth				4.7	7.6	38.5	18.6	17.9	14.6	8.2	Jan-97
Total Non-US Equity	140,547,272	19.6	19.0	2.6	5.2	25.4	12.4	10.1	6.5	5.1	Mar-99
International Equity	118,414,063	16.5	12.0	3.0	6.8	27.4	13.9	11.4	7.6	5.0	Sep-05
SEG Baxter Street	43,418,515	6.1	5.0	1.8	6.0	23.3	14.9	12.7	--	12.1	May-16
MSCI ACWI ex USA				2.4	8.4	29.7	12.0	9.8	6.7	9.2	May-16
Schroder International Alpha Trust Class 1	54,346,332	7.6	4.0	3.9	12.0	35.9	17.9	13.8	--	8.9	Mar-12
MSCI ACWI ex USA				2.4	8.4	29.7	12.0	9.8	6.7	6.3	Mar-12
Baillie Gifford International Growth Fund Class K	20,649,216	2.9	3.0	3.0	-2.2	17.5	--	--	--	16.7	Oct-20
MSCI ACWI ex USA				2.4	8.4	29.7	12.0	9.8	6.7	24.6	Oct-20

Since inception return is 8.8% 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 fun performance history.

Polen Focused Growth, Boston Partners Small Cap Value, and SEG Baxter Street is preliminary as of 10/31/2021, and are subject to change once finalized.



MWRA Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Emerging Markets Equity	22,133,209	3.1	7.0	1.0	--	--	--	--	--	-4.6	Mar-21
<i>MSCI Emerging Markets</i>				1.0	-0.3	17.0	12.3	9.4	4.9	-4.0	Mar-21
Axiom Emerging Markets Trust Class 2	22,133,209	3.1	7.0	1.0	--	--	--	--	--	-4.6	Mar-21
<i>MSCI Emerging Markets</i>				1.0	-0.3	17.0	12.3	9.4	4.9	-4.0	Mar-21
Total Fixed Income	163,428,792	22.8	24.0	0.1	0.2	2.7	6.6	4.5	4.8	6.5	Mar-99
Garcia Hamilton Fixed Income Aggregate	38,871,925	5.4	6.0	0.0	-2.4	-1.4	4.6	--	--	3.8	Apr-18
<i>Bloomberg US Aggregate TR</i>				0.0	-1.6	-0.5	5.6	3.1	3.0	4.4	Apr-18
Lord Abbett Core Fixed Income	38,354,908	5.4	4.0	0.0	-0.8	0.7	5.9	--	--	4.7	Apr-18
<i>Bloomberg US Aggregate TR</i>				0.0	-1.6	-0.5	5.6	3.1	3.0	4.4	Apr-18
Rhumbline TIPS	15,152,311	2.1	4.0	1.1	4.6	7.2	8.4	4.7	--	4.7	Jun-16
<i>Bloomberg US TIPS TR</i>				1.1	4.7	7.1	8.4	4.7	3.0	4.8	Jun-16
Loomis Sayles Multisector Full Discretion Trust	56,835,158	7.9	8.0	-0.1	0.2	4.5	7.9	6.1	5.8	7.8	Mar-99
<i>Bloomberg US Aggregate TR</i>				0.0	-1.6	-0.5	5.6	3.1	3.0	4.7	Mar-99
<i>Bloomberg US High Yield TR</i>				-0.2	4.4	10.5	7.4	6.4	6.8	6.9	Mar-99
Octagon Senior Secured Credit Cayman Fund Ltd. - Class L Acc, Series 1	14,159,137	2.0	2.0	0.2	3.7	7.5	--	--	--	4.3	Aug-19
<i>Credit Suisse Leveraged Loan</i>				0.2	4.9	8.5	4.2	4.5	4.8	4.2	Aug-19
Invesco Mortgage Recovery Loans Feeder Fund	55,353	0.0		0.0	0.9	-0.3	0.5	0.4	6.4	11.1	Apr-10
<i>Bloomberg US Aggregate TR</i>				0.0	-1.6	-0.5	5.6	3.1	3.0	3.6	Apr-10
Total Hedge Fund	43,455,160	6.1	6.0	1.0	8.2	14.9	7.0	5.7	4.8	3.8	Oct-06
PRIM Portfolio Completion Strategies	15,140,401	2.1		0.0	8.0	13.8	4.8	5.0	5.1	4.0	Oct-06
Corbin Pinehurst Partners	14,488,123	2.0		2.3	12.3	22.9	11.0	--	--	11.0	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				1.4	7.2	15.6	8.1	6.2	4.5	8.1	Nov-18
UBS Neutral Alpha Strategies	13,087,627	1.8		0.9	4.8	9.0	6.8	--	--	6.8	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				1.4	7.2	15.6	8.1	6.2	4.5	8.1	Nov-18
Entrust Peru Wind Down	739,009	0.1		-0.1	-2.0	1.7	-3.7	--	--	-3.7	Dec-17
<i>HFRI Fund of Funds Composite Index</i>				1.4	7.2	15.6	8.1	6.2	4.5	5.8	Dec-17
Other	8,316,294	1.2	0.0	0.0	0.0	0.0	1.2	1.3	0.7	0.6	Dec-10
Cash Account	8,316,294	1.2		0.0	0.0	0.0	1.2	1.3	0.7	1.8	Feb-00
<i>91 Day T-Bills</i>				0.0	0.0	0.0	1.0	1.1	0.6	1.5	Feb-00

Importantly, all returns in this report, including those of the private real estate managers, are based on a time weighted return calculation and not based on IRRs, which can result in return differences. Loomis Sayles Multisector Full Discretion Trust, Corbin Pinehurst Partners, UBS Neutral Alpha Strategies, and Entrust Peru Wind Down are preliminary as of 10/31/2021 and are subject to change once finalized.



MWRA Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Real Estate	55,124,609	7.7	10.0	0.0	13.7	15.8	8.5	8.7	10.7	8.0	Apr-99
<i>NCREIF Property Index</i>				0.0	10.9	12.2	6.7	6.8	9.0	8.7	Apr-99
Morgan Stanley Prime Property (\$2.8m commitment in '95)	22,333,673	3.1		0.0	10.8	12.5	6.7	7.4	10.4	8.5	Sep-95
TA Realty Core Property Fund, LP (\$15m commitment in '19)	23,870,642	3.3		0.0	19.5	23.8	--	--	--	12.0	Jun-19
Invesco Mortgage Recovery II (\$3M commitment in '15)	956,909	0.1		0.0	7.2	-43.3	-14.2	-2.9	--	-1.8	Oct-15
Landmark VI (\$2m commitment in '11)	79,068	0.0		0.0	-3.5	-8.9	-13.7	-8.4	2.4	2.6	Jul-11
Landmark VIII (\$4m commitment in '17)	1,269,659	0.2		0.0	3.0	11.2	6.8	--	--	13.2	Nov-17
StepStone Real Estate Fund II (\$2m commitment in '11)	639,022	0.1		0.0	4.0	3.3	-3.1	0.7	--	2.5	May-12
Cerberus Institutional Real Estate Partners III (\$1.5m commitment in '12)	806,044	0.1		0.0	47.2	68.7	23.1	15.4	--	16.4	May-13
TA Realty Fund X LP (\$3.5m commitment in '12)	135,467	0.0		0.0	1.7	2.0	4.7	6.1	--	8.2	May-13
TerraCap Partners III, LP (\$2.6m commitment in '15)	1,577,007	0.2		0.0	1.0	3.3	5.3	9.8	--	9.5	Jul-15
TerraCap Partners IV, LP (\$4m commitment in '17)	3,419,289	0.5		0.0	5.3	8.9	8.8	--	--	9.3	Nov-17
Cerberus Institutional Real Estate Partners III AIV, S.C.A. SICAV-RAIF	37,830	0.0		0.0	--	--	--	--	--	-2.1	Mar-21
Total Private Equity	64,758,117	9.0	10.0	0.0	24.9	38.1	15.1	14.1	13.2	10.3	Apr-99
<i>CJA US All PE</i>				0.0	25.1	39.5	19.3	18.6	15.8	13.4	Apr-99
<i>NASDAQ W/O Income</i>				7.3	20.3	42.0	28.5	24.5	19.2	8.5	Apr-99
PRIM Vintage Year 2008 (\$3m commitment in '08)	1,063,426	0.1		0.0	28.3	46.3	16.1	20.5	19.4	10.1	Jun-08
PRIM Vintage Year 2009 (\$1m commitment in '09)	151,101	0.0		0.0	57.4	76.9	47.1	36.2	27.0	15.7	Nov-09
PRIM Vintage Year 2010 (\$1m commitment in '10)	811,105	0.1		0.0	87.0	104.5	34.8	32.1	23.3	15.4	Jun-10
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	1,116,667	0.2		0.0	92.3	112.4	34.9	30.5	19.2	10.8	May-11
PRIM Vintage Year 2012 (\$1m commitment in '12)	895,899	0.1		0.0	44.3	56.9	30.4	27.4	--	-7.5	Jun-12
PRIM Vintage Year 2014 (\$2m commitment in '14)	2,423,099	0.3		0.0	39.3	48.9	28.7	27.5	--	8.3	Jun-14
PRIM Vintage Year 2017 (\$2m commitment in '17)	2,269,715	0.3		0.0	48.0	65.2	26.2	--	--	18.0	May-17
PRIM Vintage Year 2020 (\$5m commitment in '20)	1,508,969	0.2		0.0	26.5	37.1	--	--	--	21.4	Mar-20
PRIM Vintage Year 2021 (\$5m commitment in '21)	723,004	0.1		0.0	-0.2	--	--	--	--	-0.2	Dec-20
Alcentra European DLF (\$5m commitment in '14)	139,763	0.0		0.0	7.2	9.2	-0.1	3.4	--	4.8	Jan-15
Ascent Fund IV (\$2m commitment in '04)	6,783	0.0		0.0	-8.5	-10.7	-41.9	-33.7	-32.2	-20.9	Jul-04
Ascent Fund IV-B (\$1m commitment in '16)	115,725	0.0		0.0	-14.0	-20.5	-26.3	-16.2	--	-15.3	Jul-16
Ascent Fund V (\$2m commitment in '08)	1,995,137	0.3		0.0	19.0	22.8	2.4	1.7	7.1	5.5	Oct-08
Ascent VI (\$3m commitment in '15)	3,061,939	0.4		0.0	2.8	3.3	-2.1	5.1	--	0.8	Dec-15
CVI Credit Value Fund IV A LP (\$6m commitment in '17)	5,684,654	0.8		0.0	12.2	18.5	6.4	--	--	6.3	Dec-17

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.



MWRA Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Invesco Fund VI (\$5m commitment in '13)	2,527,417	0.4		0.0	37.5	72.0	31.9	25.3	--	20.5	Jul-13
Kayne Energy Fund VII (\$5m commitment in '15)	1,839,625	0.3		0.0	48.2	23.1	-36.4	-17.7	--	-11.8	Jan-16
Foundry 2007 (\$3m commitment in '07)	500,263	0.1		0.0	55.9	141.9	-9.2	-2.4	8.6	21.4	Dec-07
Foundry 2010 (\$3m commitment in '10)	4,371,695	0.6		0.0	17.3	19.1	14.3	14.5	13.5	10.9	Jan-11
Foundry 2010 Annex (\$0.4m commitment in '15)	396,262	0.1		0.0	-0.1	16.9	43.2	38.7	--	27.1	Sep-15
Pinebridge PEP V (\$6m commitment in '07)	886,598	0.1		0.0	3.8	19.3	7.5	5.6	9.8	--	Mar-08
Landmark XV (\$3m commitment in '13)	1,342,227	0.2		0.0	4.9	39.3	9.9	13.4	--	13.7	Nov-13
JFL Equity Investors IV, L.P. (\$6m commitment in '16)	6,604,571	0.9		0.0	38.0	69.5	48.3	--	--	40.5	Jan-17
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)	4,871,120	0.7		0.0	20.8	32.1	27.2	--	--	22.1	Feb-17
Park Square Credit Opportunities III (\$3m commitment in '17)	2,617,632	0.4		0.0	4.0	6.4	8.4	--	--	6.5	Feb-18
Ironsides Constitution Opportunities (\$3m commitment in '18)	2,316,917	0.3		0.0	7.4	13.6	12.6	--	--	12.2	Oct-18
HarbourVest Dover Street X (\$9m commitment in '20)	4,184,308	0.6		0.0	30.1	42.5	--	--	--	97.1	Jun-20
Hamilton Lane Secondary Fund V LP (\$9m commitment in '20)	5,679,333	0.8		0.0	29.3	50.6	--	--	--	46.8	Jul-20
JFL Equity Investors V, L.P. (\$9m commitment in '20)	4,653,162	0.7		0.0	-3.9	-6.4	--	--	--	-11.9	Sep-20
<i>Private Equity Benchmark (1 Qtr. Lag)</i>				0.0	39.5	53.9	20.8	19.5	15.3	56.3	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.



MWRA Employees' Retirement System

ESTIMATED FEE SCHEDULE

Account	Fee Schedule	Market Value As of 10/31/2021	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
PRIT Core Fund	0.49% of Assets	\$5,208,263	0.7%	\$25,520	0.49%
Rhumblin Advisors S&P 500 Index Fund	0.05% of Assets	\$73,419,617	10.3%	\$36,710	0.05%
Coho Relative Value Equity	0.50% of First 75.0 Mil, 0.40% of Next 75.0 Mil, 0.35% Thereafter	\$53,226,891	7.4%	\$266,134	0.50%
Polen Focused Growth	0.65% of Assets	\$55,872,729	7.8%	\$363,173	0.65%
Boston Partners Small Cap Value	1.00% of Assets	\$25,825,105	3.6%	\$258,251	1.00%
Loomis Sayles Small Cap Growth	0.45% of Assets	\$26,567,380	3.7%	\$119,553	0.45%
SEG Baxter Street	1.00% of Assets	\$43,418,515	6.1%	\$434,185	1.00%
Schroder International Alpha Trust Class 1	0.55% of Assets	\$54,346,332	7.6%	\$298,905	0.55%
Baillie Gifford International Growth Fund Class K	0.60% of Assets	\$20,649,216	2.9%	\$123,895	0.60%
Axiom Emerging Markets Trust Class 2	0.73% of Assets	\$22,133,209	3.1%	\$161,572	0.73%
Garcia Hamilton Fixed Income Aggregate	0.25% of First 25.0 Mil, 0.20% Thereafter	\$38,871,925	5.4%	\$90,244	0.23%
Lord Abbett Core Fixed Income	0.19% of Assets	\$38,354,908	5.4%	\$72,874	0.19%
Rhumblin TIPS Pooled Index Fund	0.04% of Assets	\$15,152,311	2.1%	\$6,061	0.04%
Loomis Sayles Multisector Full Discretion Trust	0.50% of First 20.0 Mil, 0.40% of Next 20.0 Mil, 0.30% Thereafter	\$56,835,158	7.9%	\$230,505	0.41%
Octagon Senior Secured Credit Cayman Fund Ltd. - Class L Acc, Series 1	0.40% of Assets	\$14,159,137	2.0%	\$56,637	0.40%
Invesco Mortgage Recovery Loans Feeder Fund	No Fee	\$55,353	0.0%	--	--
PRIM Portfolio Completion Strategies	No Fee	\$15,140,401	2.1%	--	--
Corbin Pinehurst Partners	0.85% of Assets	\$14,488,123	2.0%	\$123,149	0.85%
UBS Neutral Alpha Strategies	0.90% of Assets	\$13,087,627	1.8%	\$117,789	0.90%
Entrust Peru Wind Down	0.50% of Assets	\$739,009	0.1%	\$3,695	0.50%
Cash Account	No Fee	\$8,316,294	1.2%	--	--
Morgan Stanley Prime Property (\$2.8m commitment in '95)	No Fee	\$22,333,673	3.1%	--	--
TA Realty Core Property Fund, LP (\$15m commitment in '19)	No Fee	\$23,870,642	3.3%	--	--
Invesco Mortgage Recovery II (\$3M commitment in '15)	No Fee	\$956,909	0.1%	--	--
Landmark VI (\$2m commitment in '11)	No Fee	\$79,068	0.0%	--	--



MWRA Employees' Retirement System

ESTIMATED FEE SCHEDULE

Account	Fee Schedule	Market Value As of 10/31/2021	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Landmark VIII (\$4m commitment in '17)	No Fee	\$1,269,659	0.2%	--	--
StepStone Real Estate Fund II (\$2m commitment in '11)	No Fee	\$639,022	0.1%	--	--
Cerberus Institutional Real Estate Partners III (\$1.5m commitment in '12)	No Fee	\$806,044	0.1%	--	--
TA Realty Fund X LP (\$3.5m commitment in '12)	No Fee	\$135,467	0.0%	--	--
TerraCap Partners III, LP (\$2.6m commitment in '15)	No Fee	\$1,577,007	0.2%	--	--
TerraCap Partners IV, LP (\$4m commitment in '17)	No Fee	\$3,419,289	0.5%	--	--
Cerberus Institutional Real Estate Partners III AIV, S.C.A. SICAV-RAIF	No Fee	\$37,830	0.0%	--	--
PRIM Vintage Year 2008 (\$3m commitment in '08)	No Fee	\$1,063,426	0.1%	--	--
PRIM Vintage Year 2009 (\$1m commitment in '09)	No Fee	\$151,101	0.0%	--	--
PRIM Vintage Year 2010 (\$1m commitment in '10)	No Fee	\$811,105	0.1%	--	--
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	No Fee	\$1,116,667	0.2%	--	--
PRIM Vintage Year 2012 (\$1m commitment in '12)	No Fee	\$895,899	0.1%	--	--
PRIM Vintage Year 2014 (\$2m commitment in '14)	No Fee	\$2,423,099	0.3%	--	--
PRIM Vintage Year 2017 (\$2m commitment in '17)	No Fee	\$2,269,715	0.3%	--	--
PRIM Vintage Year 2020 (\$5m commitment in '20)	No Fee	\$1,508,969	0.2%	--	--
PRIM Vintage Year 2021 (\$5m commitment in '21)	No Fee	\$723,004	0.1%	--	--
Alcentra European DLF (\$5m commitment in '14)	No Fee	\$139,763	0.0%	--	--
Ascent Fund IV (\$2m commitment in '04)	No Fee	\$6,783	0.0%	--	--
Ascent Fund IV-B (\$1m commitment in '16)	No Fee	\$115,725	0.0%	--	--
Ascent Fund V (\$2m commitment in '08)	No Fee	\$1,995,137	0.3%	--	--
Ascent VI (\$3m commitment in '15)	No Fee	\$3,061,939	0.4%	--	--
CVI Credit Value Fund IV A LP (\$6m commitment in '17)	No Fee	\$5,684,654	0.8%	--	--
Invesco Fund VI (\$5m commitment in '13)	No Fee	\$2,527,417	0.4%	--	--
Kayne Energy Fund VII (\$5m commitment in '15)	No Fee	\$1,839,625	0.3%	--	--
Foundry 2007 (\$3m commitment in '07)	No Fee	\$500,263	0.1%	--	--
Foundry 2010 (\$3m commitment in '10)	No Fee	\$4,371,695	0.6%	--	--
Foundry 2010 Annex (\$0.4m commitment in '15)	No Fee	\$396,262	0.1%	--	--
Pinebridge (AIG) PEP V Asia (\$6m commitment in '07)	No Fee	\$57,954	0.0%	--	--
Pinebridge (AIG) PEP V Co-Investment (\$6m commitment in '07)	No Fee	\$73,068	0.0%	--	--



MWRA Employees' Retirement System

ESTIMATED FEE SCHEDULE

Account	Fee Schedule	Market Value As of 10/31/2021	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Pinebridge (AIG) PEP V Europe (\$6m commitment in '07)	No Fee	\$22,763	0.0%	--	--
Pinebridge (AIG) PEP V Large Market US Buyout (\$6m commitment in '07)	No Fee	\$162,454	0.0%	--	--
Pinebridge (AIG) PEP V Preferred Participation Fund (\$6m commitment in '07)	No Fee	\$317,237	0.0%	--	--
Pinebridge (AIG) PEP V Secondary (\$6m commitment in '07)	No Fee	\$36,133	0.0%	--	--
Pinebridge (AIG) PEP V Small-Mid Market US Buyout (\$6m commitment in '07)	No Fee	\$113,328	0.0%	--	--
Pinebridge (AIG) PEP V US Venture (\$6m commitment in '07)	No Fee	\$103,661	0.0%	--	--
Landmark XV (\$3m commitment in '13)	No Fee	\$1,342,227	0.2%	--	--
JFL Equity Investors IV, L.P. (\$6m commitment in '16)	No Fee	\$6,604,571	0.9%	--	--
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)	No Fee	\$4,871,120	0.7%	--	--
Park Square Credit Opportunities III (\$3m commitment in '17)	No Fee	\$2,617,632	0.4%	--	--
Ironsides Constitution Opportunities (\$3m commitment in '18)	No Fee	\$2,316,917	0.3%	--	--
HarbourVest Dover Street X (\$9m commitment in '20)	No Fee	\$4,184,308	0.6%	--	--
Hamilton Lane Secondary Fund V LP (\$9m commitment in '20)	No Fee	\$5,679,333	0.8%	--	--
JFL Equity Investors V, L.P. (\$9m commitment in '20)	No Fee	\$4,653,162	0.7%	--	--
Investment Management Fee		\$715,750,228	100.0%	\$2,788,853	0.39%

Note:

Estimate fee for privates are ~\$1,556,212 annually, which brings the total expense ratio for privates to ~21 bps. This brings the total estimated expense ratio for MWRA to ~61 bps.



MWRA Employees' Retirement System

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 7.2% for the current month.
- 4 - Preliminary Total Composite gross of fee since inception return is 8.8% for the current month.
- 5 - Targets, Allocation Index, and Policy Index have been updated to reflect new allocation of 06/01/2020.
- 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, 10% Bloomberg US Aggregate TR, 4% Bloomberg US TIPS TR, 10% Bloomberg US Universal TR, 10% NCREIF Property Index, 10% CJA US All PE , 6% HFRI Fund of Funds Composite Index.
- 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.

This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

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



Asset Allocation Rebalance Summary

November 10, 2021

	Market Value	Weight in Fund	Target Weight	Recommendation	New Market Value	New Weight
Composite	\$721,720,397	100.0%	100.0%	\$0	\$721,720,397	100.0%
Total Balanced	\$5,208,263	0.7%	0.0%	\$0	\$5,208,263	0.7%
PRIT Core Fund	\$5,208,263	0.7%	0.0%	\$0	\$5,208,263	0.7%
Total Domestic Equity	\$238,023,944	33.0%	31.0%	\$0	\$238,023,944	33.0%
Rhumblin Advisors S&P 500 Index Fund	\$74,117,103	10.3%	10.0%	\$0	\$74,117,103	10.3%
Coho Relative Value	\$53,899,916	7.5%	7.0%	\$0	\$53,899,916	7.5%
Polen Focused Growth	\$56,103,994	7.8%	7.0%	\$0	\$56,103,994	7.8%
Robeco Boston Partners Small Cap Value	\$26,609,689	3.7%	3.5%	\$0	\$26,609,689	3.7%
Loomis Sayles Small Cap Growth	\$27,293,242	3.8%	3.5%	\$0	\$27,293,242	3.8%
Total International Equity	\$141,231,012	19.6%	19.0%	-\$5,000,000	\$136,231,012	18.9%
SEG - Baxter Street Fund	\$43,418,515	6.0%	5.0%	-\$6,000,000	\$37,418,515	5.2%
Schroders International Alpha	\$54,639,802	7.6%	4.0%	-\$21,000,000	\$33,639,802	4.7%
Baillie Gifford	\$21,039,486	2.9%	3.0%	\$0	\$21,039,486	2.9%
Axiom Emerging Markets	\$22,133,209	3.1%	3.5%	\$0	\$22,133,209	3.1%
ABS Emerging Markets Strategic Portfolio	\$0	0.0%	3.5%	\$22,000,000	\$22,000,000	3.0%
Total Equity	\$379,254,956	52.5%	50.0%	-\$5,000,000	\$374,254,956	51.9%
Total Fixed Income	\$163,770,046	22.7%	24.0%	\$0	\$163,770,046	22.7%
Garcia Hamilton	\$38,910,871	5.4%	6.0%	\$0	\$38,910,871	5.4%
Lord Abbett	\$38,354,908	5.3%	4.0%	\$0	\$38,354,908	5.3%
Loomis Sayles Multi Sector Bonds	\$56,914,727	7.9%	8.0%	\$0	\$56,914,727	7.9%
Rhumblin TIPS	\$15,375,050	2.1%	4.0%	\$0	\$15,375,050	2.1%
Octagon Senior Secured Loans	\$14,159,137	2.0%	2.0%	\$0	\$14,159,137	2.0%
Invesco Mortgage Recovery	\$55,353	0.0%	0.0%	\$0	\$55,353	0.0%
Total Hedge Fund	\$43,455,160	6.0%	6.0%	\$0	\$43,455,160	6.0%
PRIM Absolute Return Fund	\$15,140,401	2.1%		\$0	\$15,140,401	2.1%
Corbin Pinehurst Partners	\$14,488,123	2.0%		\$0	\$14,488,123	2.0%
UBS Neutral Alpha Strategies	\$13,087,627	1.8%		\$0	\$13,087,627	1.8%
Entrust Peru Winddown	\$739,009	0.1%		\$0	\$739,009	0.1%
Total Real Estate	\$55,124,609	7.6%	10.0%	\$0	\$55,124,609	7.6%
TA Realty Core	\$22,333,673	3.1%		\$0	\$22,333,673	3.1%
Morgan Stanley PPF	\$23,870,642	3.3%		\$0	\$23,870,642	3.3%
Total Private Equity	\$64,758,117	9.0%	10.0%	\$0	\$64,758,117	9.0%
Cash	\$10,149,246	1.4%	0.0%	\$5,000,000	\$15,149,246	2.1%
Peoples United Cash	\$10,149,246	1.4%	0.0%	\$5,000,000	\$15,149,246	2.1%





REAL ESTATE STRATEGIC REVIEW AND PACING PLAN

MWRA RETIREMENT SYSTEM

NOVEMBER 16, 2021

Sebastian Grzejka, CAIA, Principal

Kiley Fischer, Analyst



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REAL ESTATE OUTLOOK

REAL ESTATE MARKET OBSERVATIONS

- **Divergence among winners and losers will continue**
- **We do not believe that “office is dead,” though there are likely to be some headwinds, and the recovery will be uneven**
- **Real estate capital markets are functioning properly**
- **Anticipate some distressed opportunities, though size of opportunity remains to be seen (substantial dry powder exists)**

ACTIONS & CLIENT POSITIONING

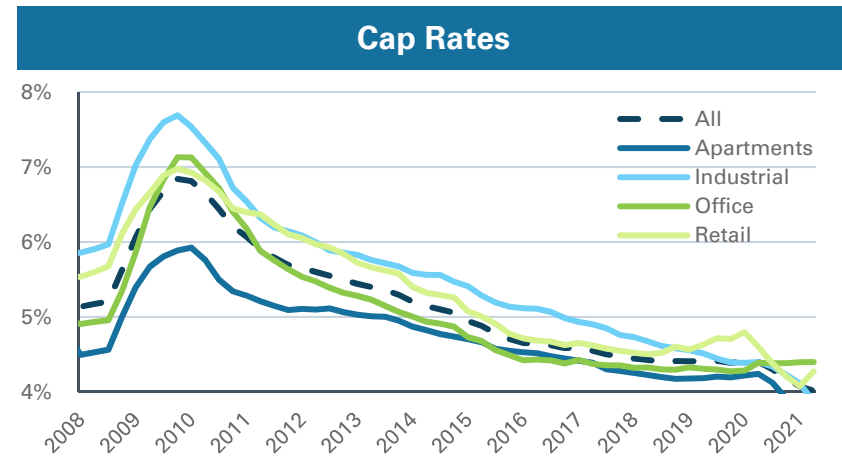
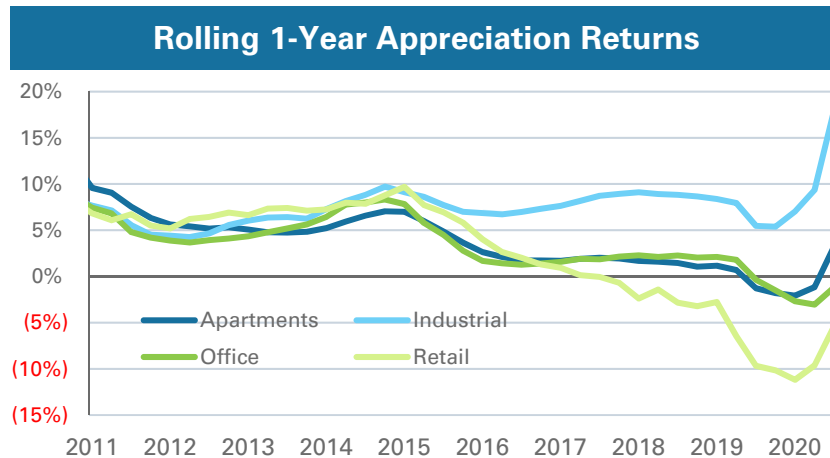
- **Focus on managers with a proven ability to adapt to changing market conditions**
- **Identify targeted strategies that emphasize property types with strong demand tailwinds**
- **Look to augment existing core real estate allocations with core-plus, debt strategies, and/or REITs**



OVERVIEW

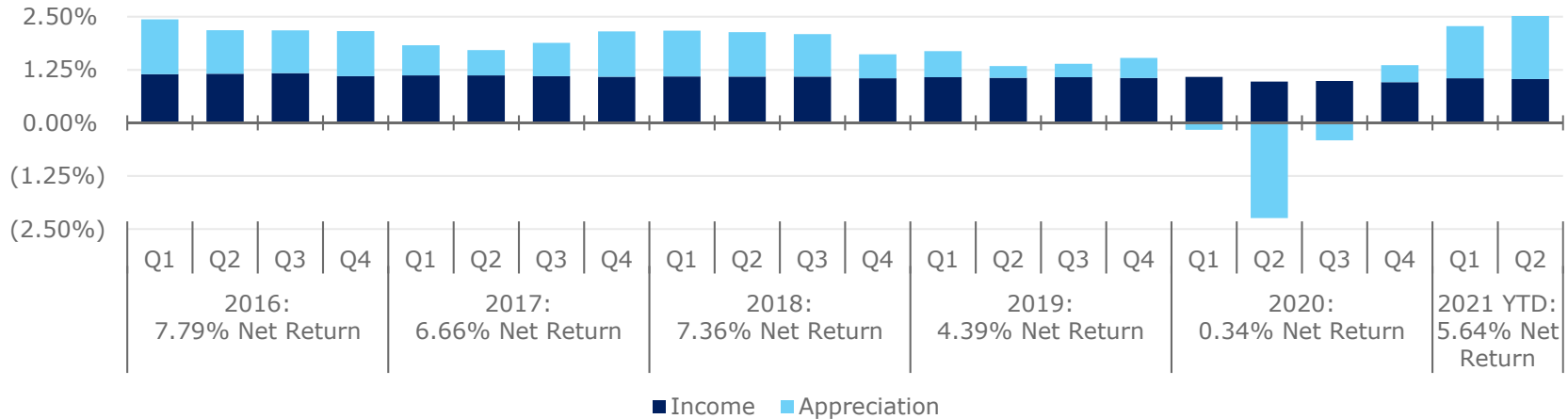
RETURN TRENDS VARY BY PROPERTY TYPE

- **COVID had accelerated some trends, and reversed others**
 - Accelerated: eCommerce (good for industrial, bad for retail)
 - Reversed: Gateway market favorability
- **Uncertainty persists – what changes in preferences will be permanent?**
- **Expect transaction volumes to increase as lender patience wears thin**
 - May also generate attractive deal flow for distressed investors
- **Vintage years during and following periods of distress tend to perform well**
 - However, large amount of dry powder tempers expectations of broad distressed opportunities

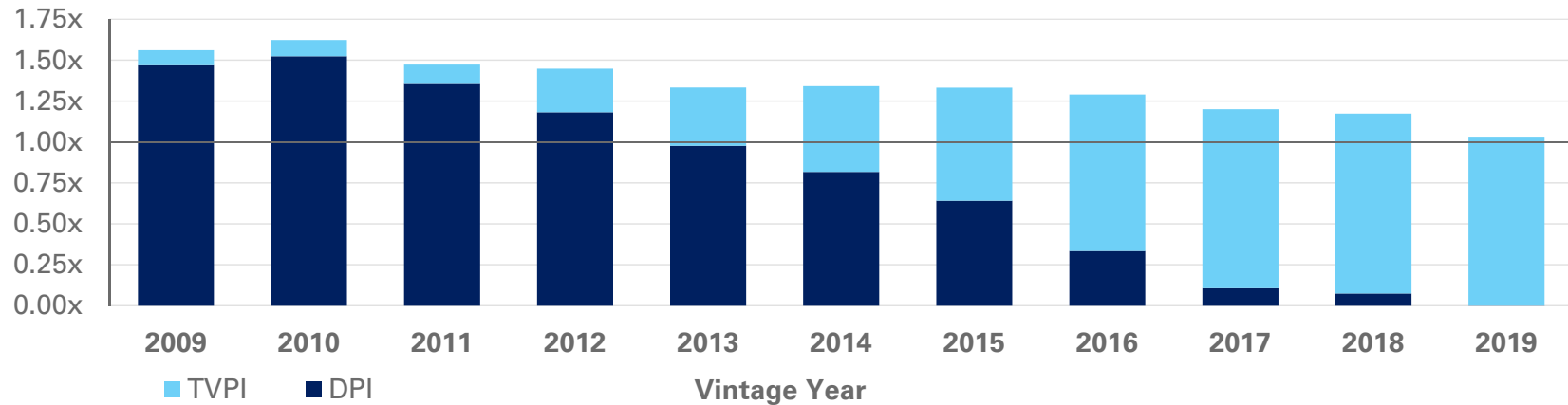


REAL ESTATE PERFORMANCE

CORE REAL ESTATE: CONTINUED STRONG PERFORMANCE IN 2ND QUARTER



VALUE-ADD & OPPORTUNISTIC: MEDIAN FUND RETURNS TICK DOWN SLIGHTLY IN 1H 2020

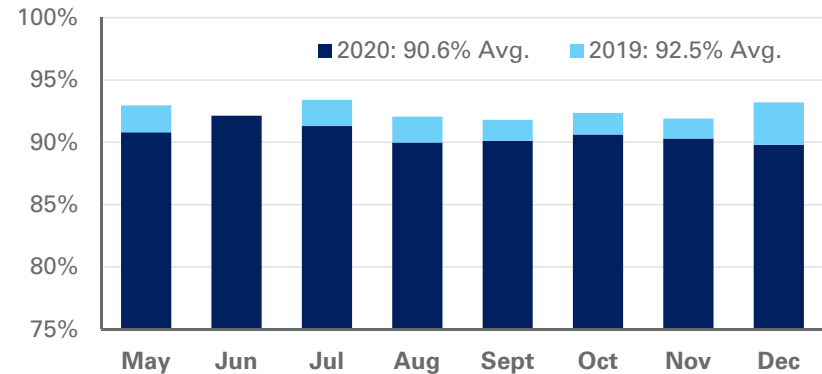


RESIDENTIAL

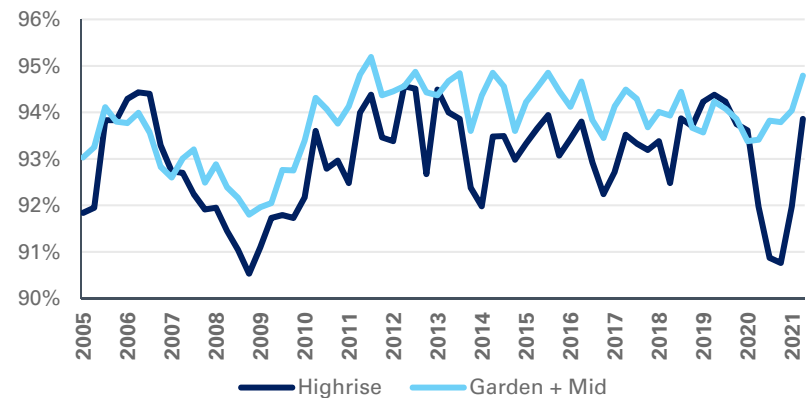
TALE OF TWO MARKETS

- **Rent collections remain generally strong nationwide**
- **Pandemic impact varies by property type, location, and tenant profile**
 - Suburban, less-dense product has performed well
 - Urban, more-dense assets have struggled
- **Class B multifamily and workforce housing remain attractive**
 - Stable demand; prices and rents less sensitive to economic growth
 - Limited new construction
- **Future trajectory of dense urban living remains challenged**
 - Most new development has been focused on urban luxury multifamily
 - Rent levels have deteriorated and vacancies ticked up in 2020
- **Single family housing is likely to benefit from current migration trends away from gateway cities**

Multifamily Rent Collections vs. 2019



Occupancy Rates Diverge

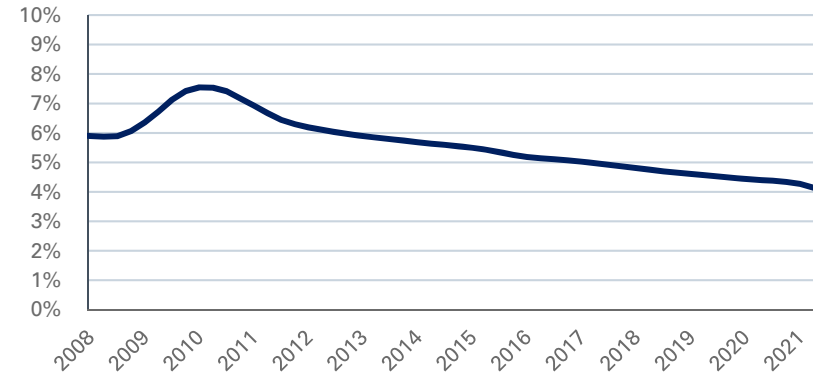


INDUSTRIAL

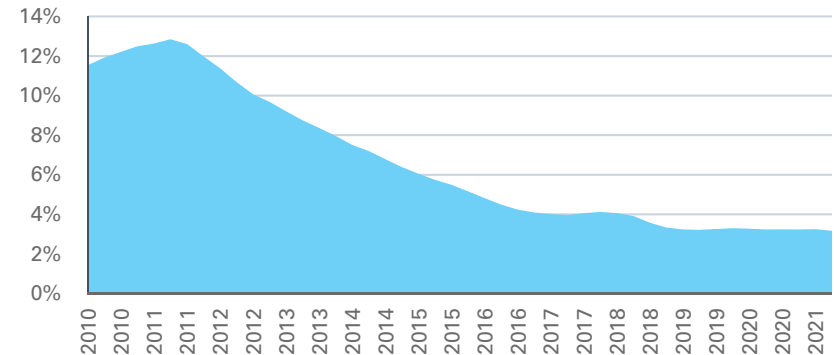
ECOMMERCE GROWTH, BOOSTED BY PANDEMIC, CONTINUES TO DRIVE DEMAND

- **eCommerce continues to be dominated by Amazon, but other retailers forced to catch-up in 2020**
- **Supply of infill industrial assets declining in many markets due to more valuable uses of land**
- **Growing focus on cold storage and other specialty industrial sectors**
 - Increased demand for grocery and pharmaceutical needs
 - Historically low occupancy levels and very limited new supply; older facilities are less efficient and increasingly becoming obsolete
- **Asset quality and location still matters; even with record high demand**
 - Manager skill and tenant relationships also remain critical

Industrial Cap Rates



Industrial Vacancy at All Time Lows



RETAIL WOES PERSIST

COVID-19 EXACERBATES CHALLENGES FOR RETAIL

- **Pre-COVID, there was “good” retail and “challenged” retail; today all retail is facing challenges**

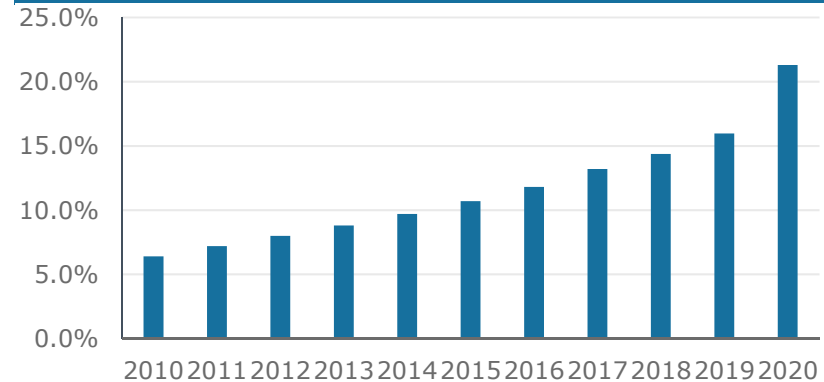
 - Even grocer-anchored retail has had challenges due to performance of in-line tenants

- **Recovery is expected for certain types of retail and/or certain tenants**

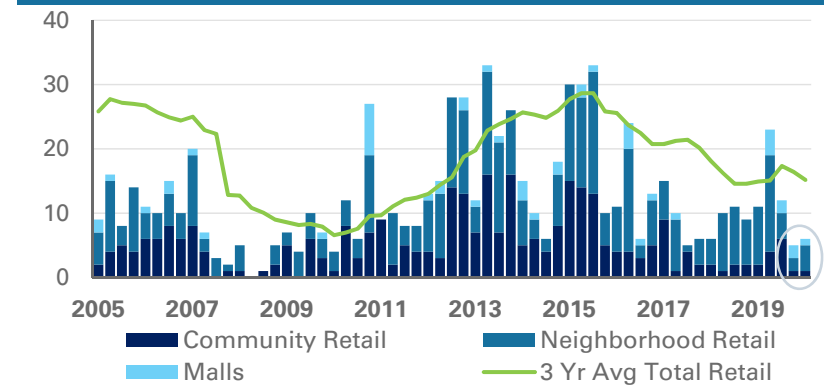
 - It’s likely going to be a lengthy recovery as retailers look to rebound and landlords look to capture deferred rent

- **Market pricing for retail assets is unclear, with only 11 private core transactions in the second and third quarters of 2020**

eCommerce % of Total Retail Sales



Private Core Asset Transaction Volumes



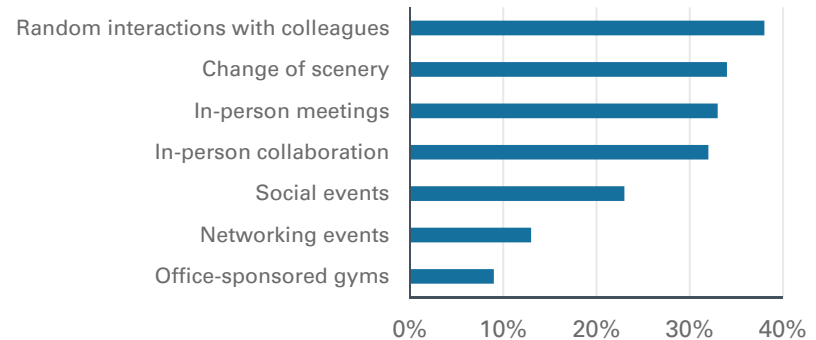
OFFICE

REASONS FOR OPTIMISM

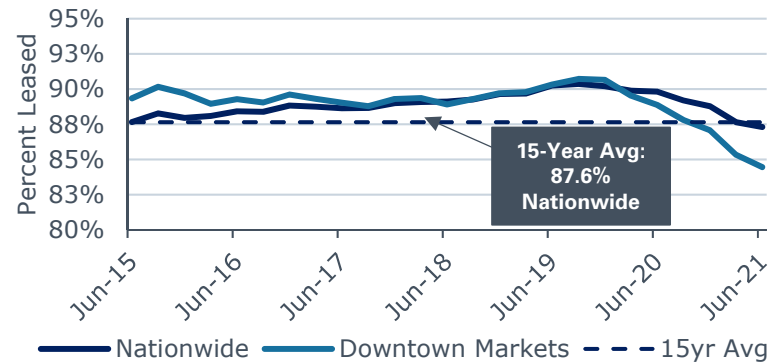
Return to Office Expected

- **Worker preferences have continued to evolve throughout the pandemic**
- **Likely a permanent increase in working from home, but not for all employees and not full-time**
- **Clear benefits to working in an office for both employee and employer**
 - Most office workers still want to be in an office at least 3 days per week
- **Reductions in workers may be offset by de-densification**
- **Overall, business leaders expect to use more office space, not less¹**

Most Missed Benefits of Working in Office (% Total Respondent)



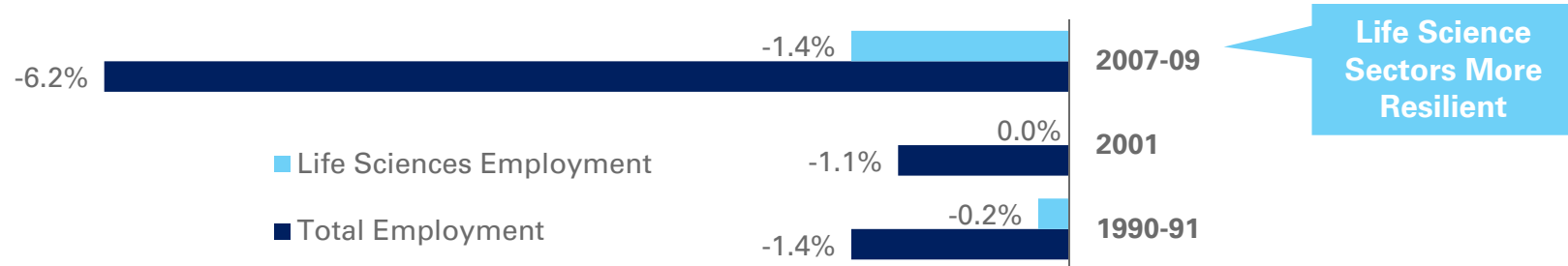
Healthy Occupancy & Long-Term Leases



THE FUTURE OF OFFICE

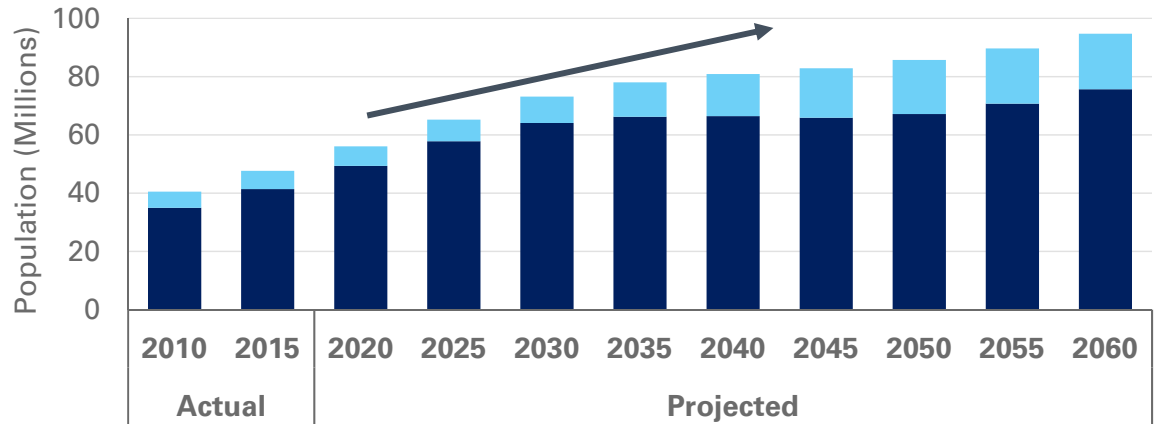
- **Office demand is shifting in yet-to-be determined ways**
 - Office occupancy was healthy going into 2020, and long-term leases mean that a permanent change in tenant preferences will take years to play out
 - Most expiring leases in 2020 were extended with short-term leases
- **COVID-19 pandemic merely accelerated several existing trends:**
 - Growth of non-traditional office markets (e.g., Salt Lake City, Austin, Nashville)
 - Adoption of flexible work structures (such as part-time work from home)
 - Increased the favorability of new office buildings
 - Pre-COVID, were favored for modern design, more natural light, and sustainability
 - Added benefits due to COVID include their faster and larger elevator systems and their better filtration and airflow
- **Does urbanization trend reverse?**
 - Companies compete for talent, therefore generating demand for office space in the cities where people want to live
 - Question of long-term living preferences remains unanswered
- **Office assets represent 1/3rd of assets in core real estate funds, but not all office is the same**
 - Medical office, engineering spaces, life science/lab space, media, are among sectors with more resilient demand drivers

EMPLOYMENT CHANGE IN RECESSIONS



OPPORTUNITIES IN ALTERNATIVE SECTORS

HEALTHCARE & SENIORS: LONG-TERM DEMAND TAILWINDS

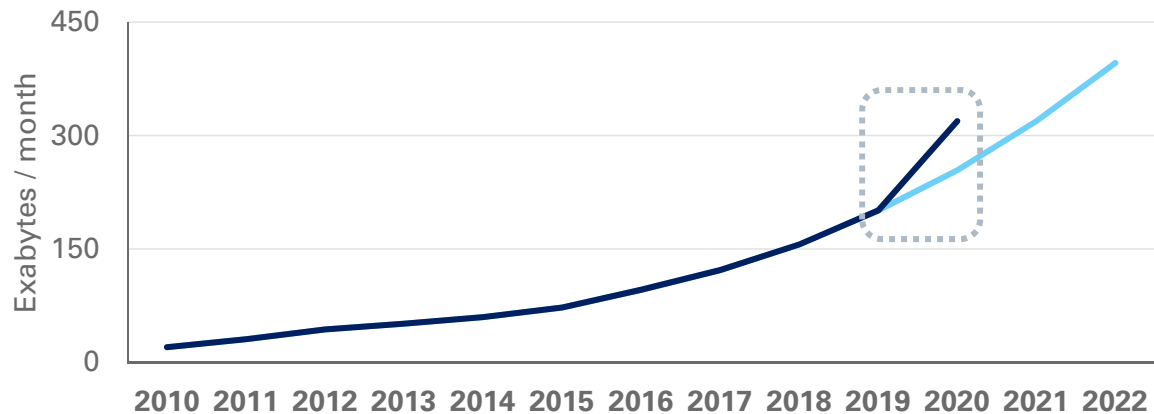


Long-term fundamentals vs. cyclical demand

- Driven by R&D innovation (genomics, gene and cell therapy, and artificial intelligence)
- Aging population with longer life expectancies

- 65-84 Years Old
- 85+ Years Old

COVID-19 ACCELERATED GROWTH IN INTERNET USAGE



Exponential growth "digital real assets" including data centers, fiber, and wireless infrastructure

- Growing internet infrastructure needs to keep up with technology demands

- Pre-COVID Projection
- Actual

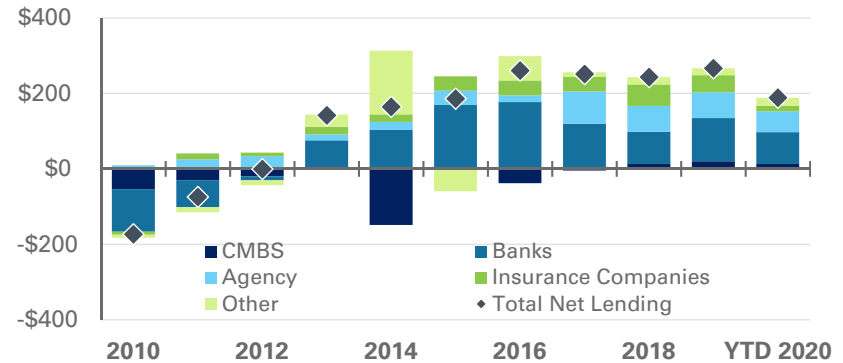


COMMERCIAL REAL ESTATE LENDING

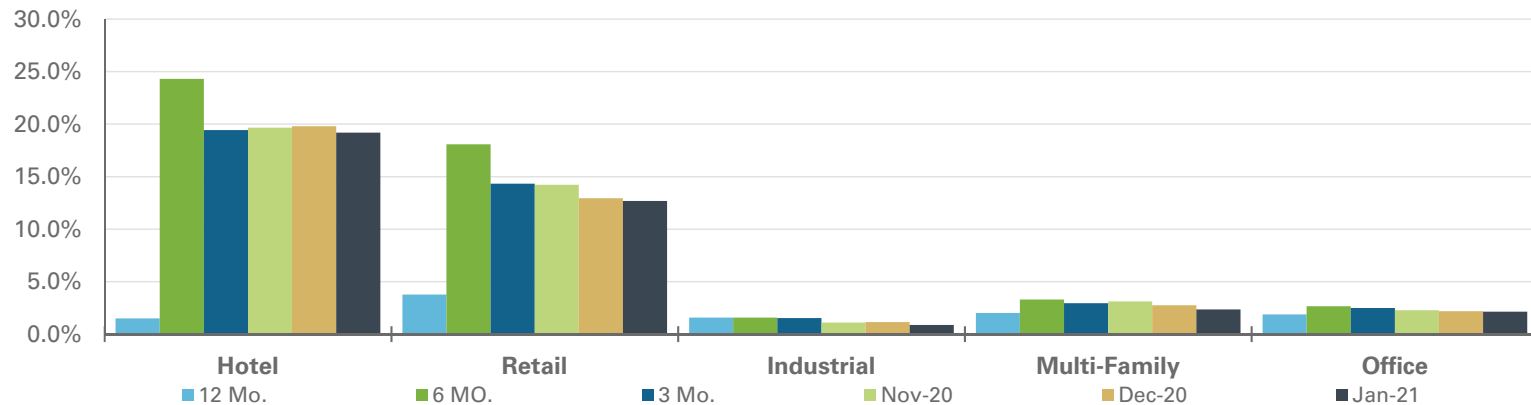
Lending Commentary

- **CMBS portends distress ahead**
 - Foreclosures on the rise for hotel and retail – and conditions may get worse when forbearance modifications expire
- **Net commercial real estate lending levels down**
- **Leveraged lenders particularly sidelined**
- **Opportunities remain for well-capitalized lenders**
 - Spreads have widened, advance rates decreased, terms have improved from pre-pandemic

Net Loan Originations



Delinquency Rate By Property Type (% 30 Days+)





REAL ESTATE PACING PLAN



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NEPC RECOMMENDATION

- **NEPC provides a review of the MWRA Retirement Systems private markets allocations to determine the commitment budget for the upcoming year**
 - We consider: existing manager commitments and anticipated calls/distributions, adjustments to the target allocation and the forecasted net growth rate.
 - An annual review provides an opportunity to make adjustments to any of the above factors and assess the program carefully so as to not over-allocate to illiquid investments.
- **The strategy is to maintain an active commitment pace in each vintage year going forward, being mindful of Plan’s liquidity needs**
 - Fund and manager recommendations are made in the context of the existing portfolio along with NEPC’s market views
 - Our goal is to develop a program that will invest in various strategies and achieve returns in excess of public market returns
 - Currently, the System has a 10% target allocation to real estate
- **Based on our review, the MWRA Retirement System should commit approximately \$20 million to real estate strategies in 2022**
 - We recommend focusing on value add strategies, which can encompass some of the opportunities discussed in the introductory section
 - The last commitment made by the System was a \$20 million allocation to TA Core Real Estate in 2019, following an increase in the policy target from 8% to 10%

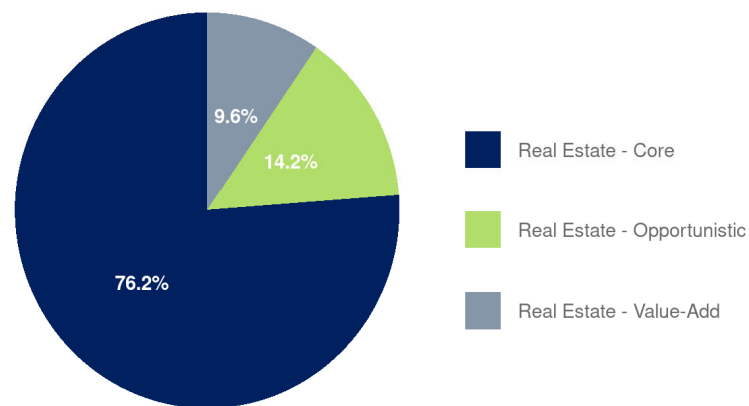


MWRA RETIREMENT REAL ESTATE SUMMARY

Plan Summary

Total Portfolio Assets	\$695.7
Current NAV %	7.4%
Current Total Exposure %	8.1%
Target Allocation %	10.0%
Ann. 10 Yr. Expected Return %	5.6%
Inflation Adjustment %	-2.3%
Net Growth Rate %	2.3%

Private Market Exposures

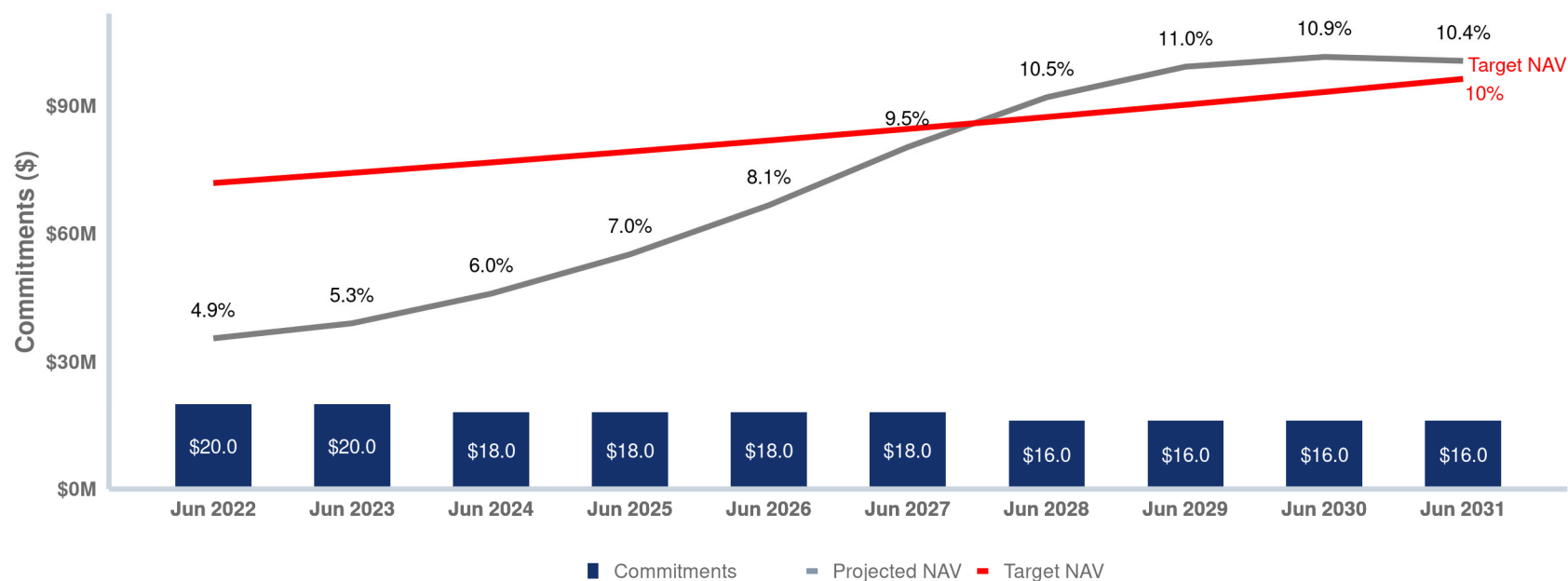


Current Allocations (in millions)

Asset Class	Investment Strategy	Commitment	Unfunded Commitment	NAV	Total Exposure
Real Estate	Real Estate - Core	\$48.9	\$0.0	\$42.8	\$42.8
	Real Estate - Opportunistic	\$14.5	\$4.6	\$3.4	\$8.0
	Real Estate - Value-Add	\$10.1	\$0.0	\$5.4	\$5.4
	Total	\$73.5	\$4.6	\$51.6	\$56.2
Grand Total		\$73.5	\$4.6	\$51.6	\$56.2



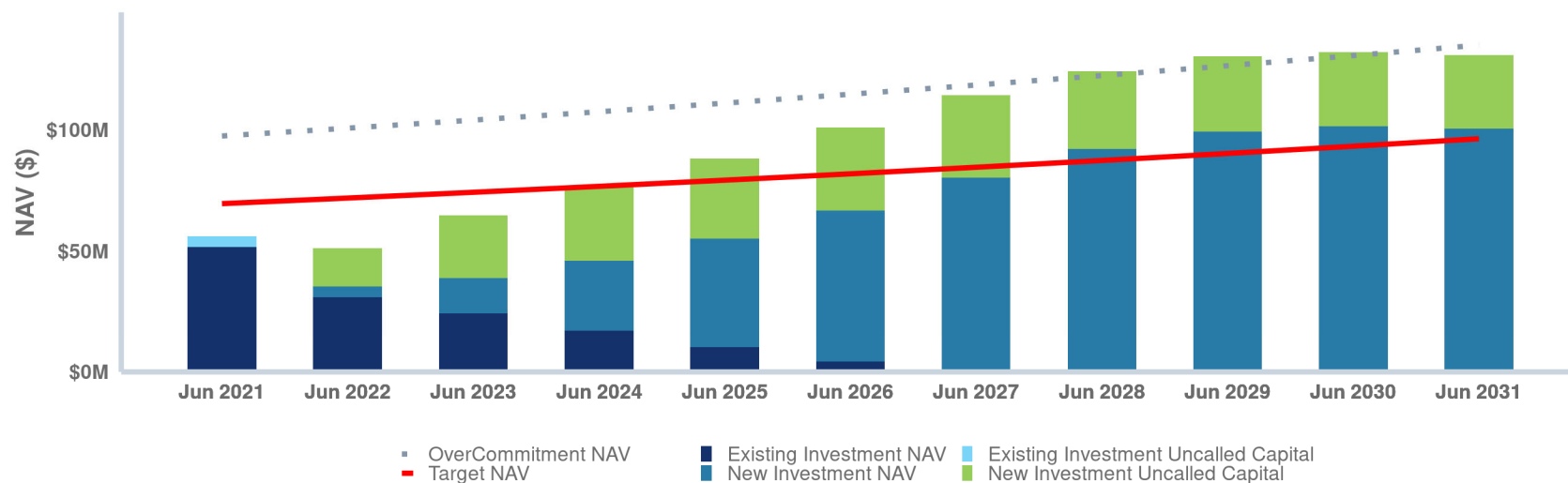
COMMITMENTS & ALLOCATION PROJECTIONS



Vintage	More Certain					Less Certain				
	Jun 2022	Jun 2023	Jun 2024	Jun 2025	Jun 2026	Jun 2027	Jun 2028	Jun 2029	Jun 2030	Jun 2031
Total Commitments (\$M)	\$20.0	\$20.0	\$18.0	\$18.0	\$18.0	\$18.0	\$16.0	\$16.0	\$16.0	\$16.0
Target (%)	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Projected NAV / Total Portfolio Assets	4.9%	5.3%	6.0%	7.0%	8.1%	9.5%	10.5%	11.0%	10.9%	10.4%



ASSET PROJECTIONS

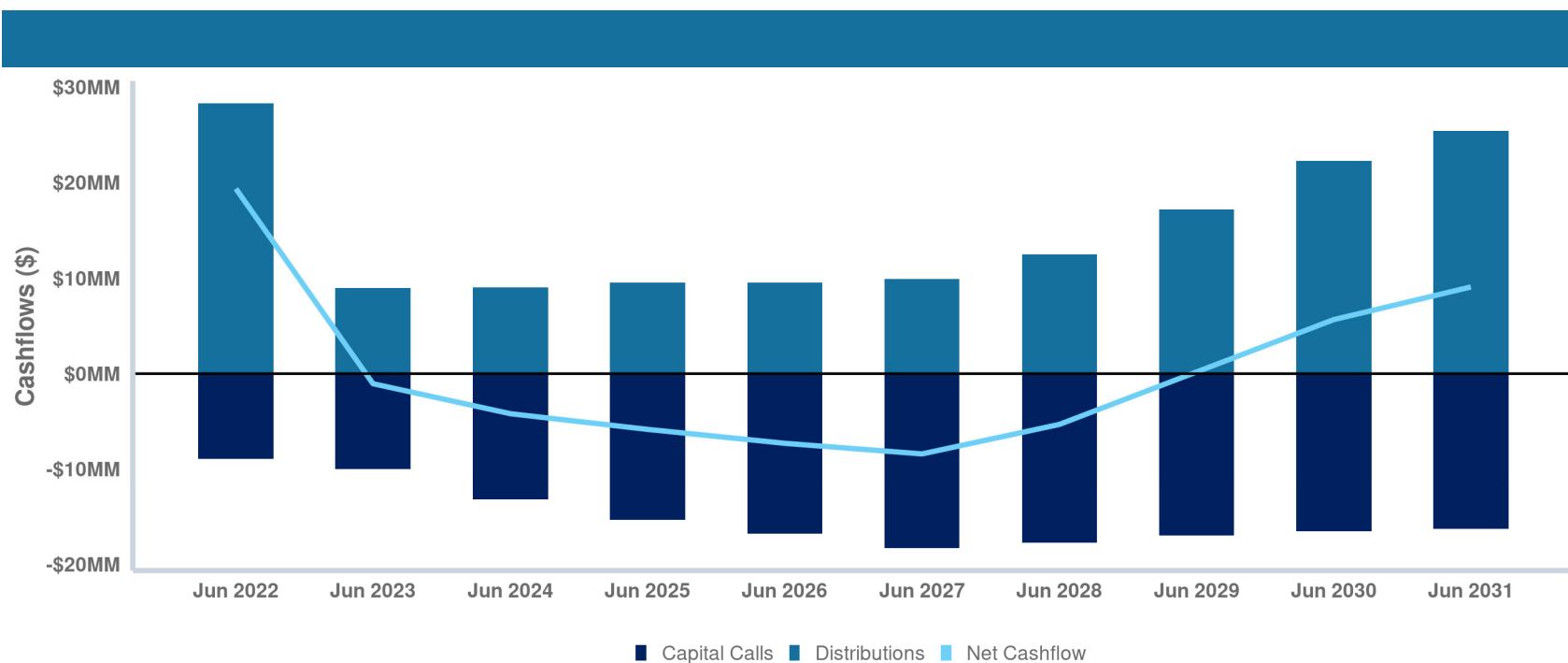


Projection Summary

Description	Jun 2021	Jun 2022	Jun 2023	Jun 2024	Jun 2025	Jun 2026	Jun 2027	Jun 2028	Jun 2029	Jun 2030	Jun 2031
Net Asset Value (NAV)	\$51.6	\$35.5	\$39.0	\$45.9	\$55.2	\$66.7	\$80.3	\$92.0	\$99.1	\$101.4	\$100.5
Uncalled Capital	\$4.6	\$15.7	\$25.7	\$30.4	\$33.1	\$34.2	\$33.9	\$32.1	\$31.1	\$30.5	\$30.2
NAV + Uncalled Capital	\$56.2	\$51.1	\$64.7	\$76.4	\$88.2	\$100.9	\$114.2	\$124.1	\$130.2	\$131.9	\$130.7
Target NAV	\$69.6	\$71.9	\$74.2	\$76.7	\$79.2	\$81.8	\$84.5	\$87.3	\$90.2	\$93.2	\$96.3
NAV (%)	7.4%	4.9%	5.3%	6.0%	7.0%	8.1%	9.5%	10.5%	11.0%	10.9%	10.4%
NAV + Uncalled Capital (%)	8.1%	7.1%	8.7%	10.0%	11.1%	12.3%	13.5%	14.2%	14.4%	14.2%	13.6%
Target Allocation (%)	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%



CASH FLOW PROJECTIONS



Projected Cashflows (in millions)

Vintage	Jun 2022	Jun 2023	Jun 2024	Jun 2025	Jun 2026	Jun 2027	Jun 2028	Jun 2029	Jun 2030	Jun 2031
Capital Calls	\$8.9	\$10.0	\$13.2	\$15.4	\$16.8	\$18.3	\$17.8	\$17.0	\$16.6	\$16.3
Distributions	\$28.3	\$8.9	\$9.0	\$9.5	\$9.5	\$9.9	\$12.5	\$17.2	\$22.3	\$25.4
Net Cash Flow	\$19.4	-\$1.1	-\$4.2	-\$5.8	-\$7.3	-\$8.4	-\$5.3	\$0.2	\$5.7	\$9.1





APPENDIX



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APPENDIX

Projection Summary

Description	Jun 2021	Jun 2022	Jun 2023	Jun 2024	Jun 2025	Jun 2026	Jun 2027	Jun 2028	Jun 2029	Jun 2030	Jun 2031
Net Asset Value (NAV)	\$51.6	\$35.5	\$39.0	\$45.9	\$55.2	\$66.7	\$80.3	\$92.0	\$99.1	\$101.4	\$100.5
Uncalled Capital	\$4.6	\$15.7	\$25.7	\$30.4	\$33.1	\$34.2	\$33.9	\$32.1	\$31.1	\$30.5	\$30.2
NAV + Uncalled Capital	\$56.2	\$51.1	\$64.7	\$76.4	\$88.2	\$100.9	\$114.2	\$124.1	\$130.2	\$131.9	\$130.7
Target NAV	\$69.6	\$71.9	\$74.2	\$76.7	\$79.2	\$81.8	\$84.5	\$87.3	\$90.2	\$93.2	\$96.3
OverCommitment Pace	1.4x	1.4x	1.4x	1.4x	1.4x	1.4x	1.4x	1.4x	1.4x	1.4x	1.4x
OverCommitment Target NAV	\$97.4	\$100.6	\$103.9	\$107.4	\$110.9	\$114.6	\$118.4	\$122.3	\$126.3	\$130.5	\$134.8
NAV (%)	7.4%	4.9%	5.3%	6.0%	7.0%	8.1%	9.5%	10.5%	11.0%	10.9%	10.4%
Uncalled Capital (%)	0.7%	2.2%	3.5%	4.0%	4.2%	4.2%	4.0%	3.7%	3.4%	3.3%	3.1%
NAV + Uncalled Capital (%)	8.1%	7.1%	8.7%	10.0%	11.1%	12.3%	13.5%	14.2%	14.4%	14.2%	13.6%
Target Allocation (%)	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Plan NAV	\$695.7	\$718.6	\$742.4	\$766.9	\$792.2	\$818.4	\$845.4	\$873.3	\$902.1	\$931.9	\$962.7



APPENDIX

Existing and New Funds included in this Pacing Study

Asset Class	Risk Proxy	Account Name	Vintage Year	Commitment Amount	Paid in Capital	Unfunded Commitment	Cumulative Distribution	Current NAV
Real Estate	RE - Core	Morgan Stanley Prime Property (\$2.8m commitment in '95)	2005	12,000,000	12,000,000	0	0	21,104,244
Real Estate	RE - Core	TA Realty Core Property Fund, LP (\$15m commitment in '19)	2019	20,000,000	20,000,000	0	1,357,503	21,724,355
Real Estate	RE - Core	PRIT Core Real Estate (\$10.9m commitment in '10)	2010	16,900,000	16,900,000	0	27,370,332	0
Real Estate	RE - Opportunistic	Cerberus Institutional Real Estate Partners III (\$1.5m commitment in '12)	2012	1,500,000	1,134,631	365,369	1,465,587	570,376
Real Estate	RE - Opportunistic	Stepstone (\$2m commitment in '11)	2010	2,000,000	1,310,000	690,000	1,161,675.0	639,022
Real Estate	RE - Opportunistic	Invesco Mortgage Recovery II (\$3M commitment in '15)	2015	3,000,000	1,944,363	1,055,637	1,635,229.0	757,068
Real Estate	RE - Opportunistic	Landmark VI (\$2m commitment in '11)	2010	2,000,000	1,754,530	245,470	2,636,017.0	79,556
Real Estate	RE - Opportunistic	Landmark VIII (\$4m commitment in '17)	2017	4,000,000	1,757,679	2,242,321	764,006.8	1,363,102
Real Estate	RE - Opportunistic	Z Terminated - Intercontinental Real Estate Fund IV (\$2m commitment in '05)	2005	2,000,000	2,000,000	0	1,205,470.9	0
Real Estate	RE - Value-Add	TA Realty Fund X LP (\$3.5m commitment in '12)	2012	3,500,000	3,500,000	0	5,276,313.0	329,270
Real Estate	RE - Value-Add	TerraCap Partners III, LP (\$2.6m commitment in '15)	2015	2,610,264	2,610,264	0	2,383,460.4	1,605,285
Real Estate	RE - Value-Add	TerraCap Partners IV, LP (\$4m commitment in '17)	2017	4,000,000	4,000,000	0	1,888,333.6	3,442,607



APPENDIX

Existing and New Funds included in this Pacing Study

Asset Class	Risk Proxy	Account Name	Vintage Year	Commitment Amount	Paid in Capital	Unfunded Commitment	Cumulative Distribution	Current NAV
Real Estate	RE - Value-Add	2022 Commitments	2022	20,000,000	0	20,000,000	0	0
Real Estate	RE - Value-Add	2023 Commitments	2023	20,000,000	0	20,000,000	0	0
Real Estate	RE - Value-Add	2024 Commitments	2024	18,000,000	0	18,000,000	0	0
Real Estate	RE - Value-Add	2025 Commitments	2025	18,000,000	0	18,000,000	0	0
Real Estate	RE - Value-Add	2026 Commitments	2026	18,000,000	0	18,000,000	0	0
Real Estate	RE - Value-Add	2027 Commitments	2027	18,000,000	0	18,000,000	0	0
Real Estate	RE - Value-Add	2028 Commitments	2028	16,000,000	0	16,000,000	0	0
Real Estate	RE - Value-Add	2029 Commitments	2029	16,000,000	0	16,000,000	0	0
Real Estate	RE - Value-Add	2030 Commitments	2030	16,000,000	0	16,000,000	0	0
Real Estate	RE - Value-Add	2031 Commitments	2031	16,000,000	0	16,000,000	0	0



PACING PLAN DISCLAIMERS

- **NEPC's private markets pacing analysis projects a potential level of future assets and cash flows for a single scenario based on a series of assumptions. This analysis is intended to help estimate future exposure levels. It is not a guarantee of future cash flows, appreciation or returns.**
- **The timing and amounts of projected future cash flows and market values of investments could vary significantly from the amounts projected in this pacing analysis due to manager-specific and industry-wide macroeconomic factors.**
- **Estimates of projected cash flows and market values for existing private markets commitments were made at the Fund level and do not incorporate any underlying portfolio company projections or analysis.**
- **The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.**
- **Data used to prepare this report was obtained directly from the investment managers and other third parties. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**
- **This report may contain confidential or proprietary information and is intended only for the designated recipient(s). If you are not a designated recipient, you may not copy or distribute this document.**



ALTERNATIVE INVESTMENT DISCLOSURES

It is important that investors understand the following characteristics of non-traditional investment strategies including hedge funds and private equity:

- 1. Performance can be volatile and investors could lose all or a substantial portion of their investment**
- 2. Leverage and other speculative practices may increase the risk of loss**
- 3. Past performance may be revised due to the revaluation of investments**
- 4. These investments can be illiquid, and investors may be subject to lock-ups or lengthy redemption terms**
- 5. A secondary market may not be available for all funds, and any sales that occur may take place at a discount to value**
- 6. These funds are not subject to the same regulatory requirements as registered investment vehicles**
- 7. Managers may not be required to provide periodic pricing or valuation information to investors**
- 8. These funds may have complex tax structures and delays in distributing important tax information**
- 9. These funds often charge high fees**
- 10. Investment agreements often give the manager authority to trade in securities, markets or currencies that are not within the manager's realm of expertise or contemplated investment strategy**





Q3 2021 INVESTMENT REPORT

MWRA EMPLOYEES' RETIREMENT SYSTEM

NOVEMBER 2021

Sebastian Grzejka, CAIA, Principal
Kiley Fischer, 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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Third Quarter Plan Performance	2





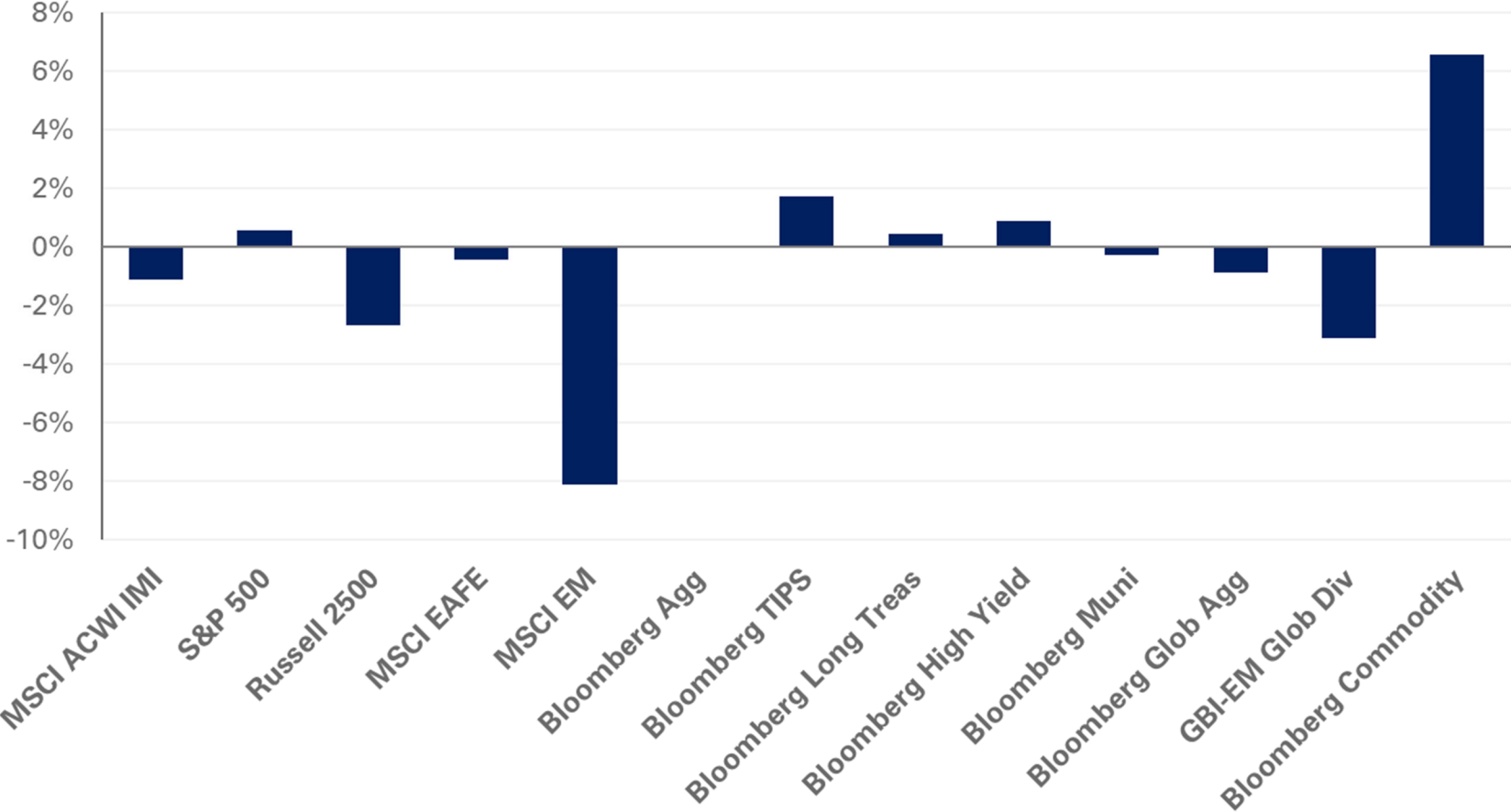
MARKET REVIEW



PROPRIETARY & CONFIDENTIAL

EMERGING MARKETS UNDERPERFORMED

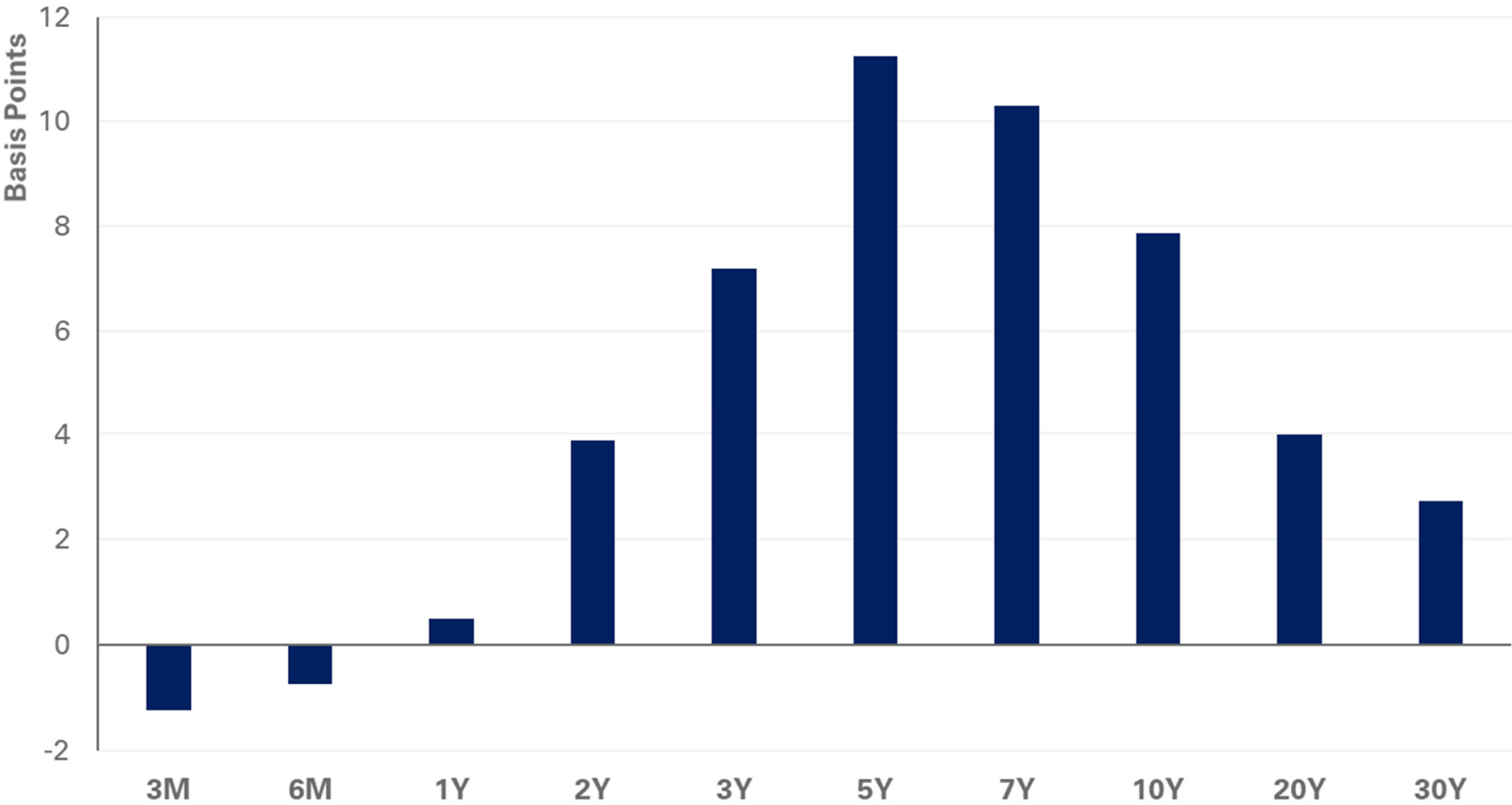
QUARTERLY TOTAL RETURNS



Source: MSCI, S&P, Russell, MSCI, Bloomberg, JPM, FactSet

U.S. TREASURY YIELDS SHIFTED HIGHER

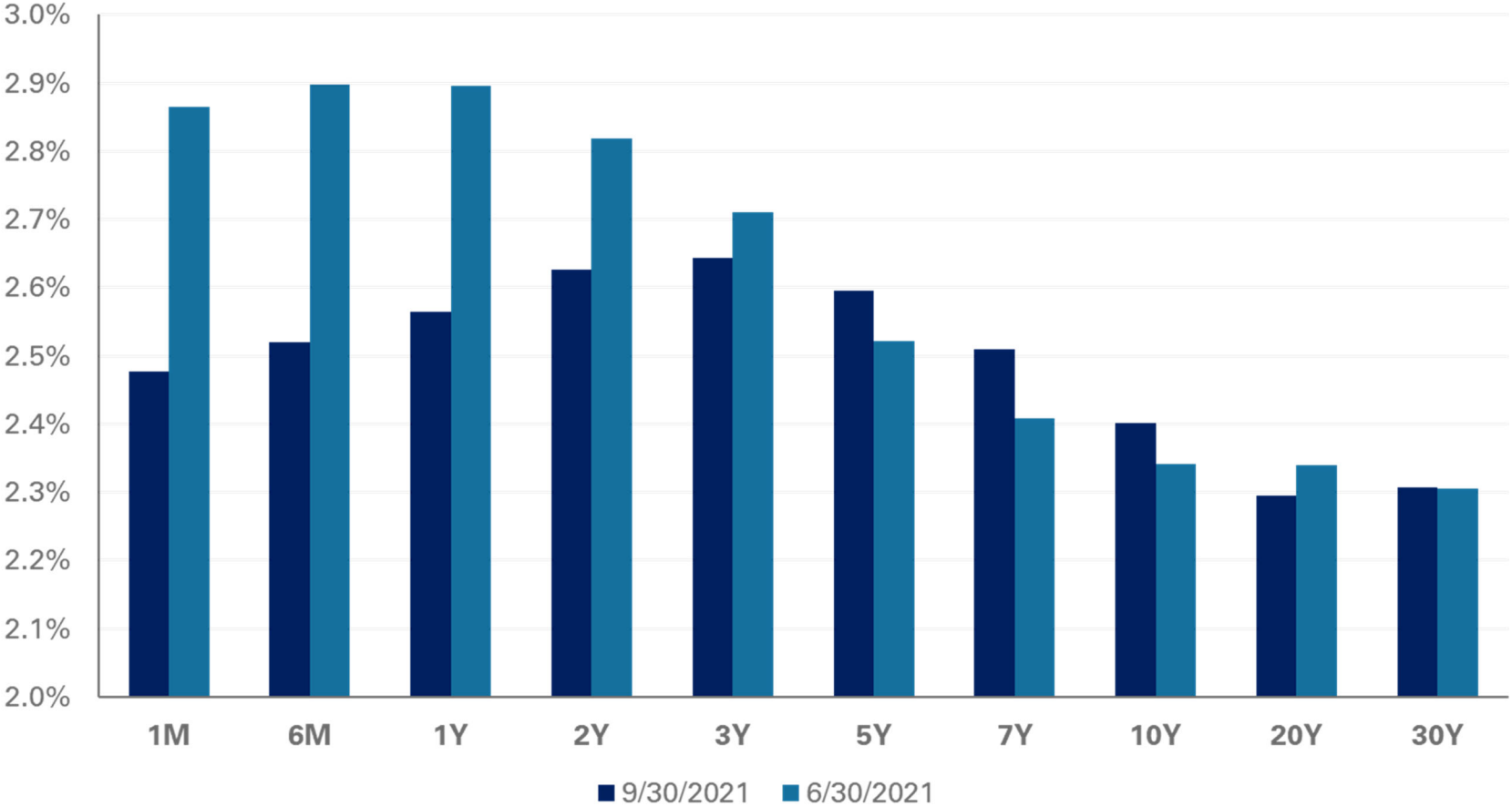
QUARTERLY CHANGE IN U.S. TREASURY YIELDS



Source: FactSet

NEAR-TERM INFLATION EXPECTATIONS SOFTENED

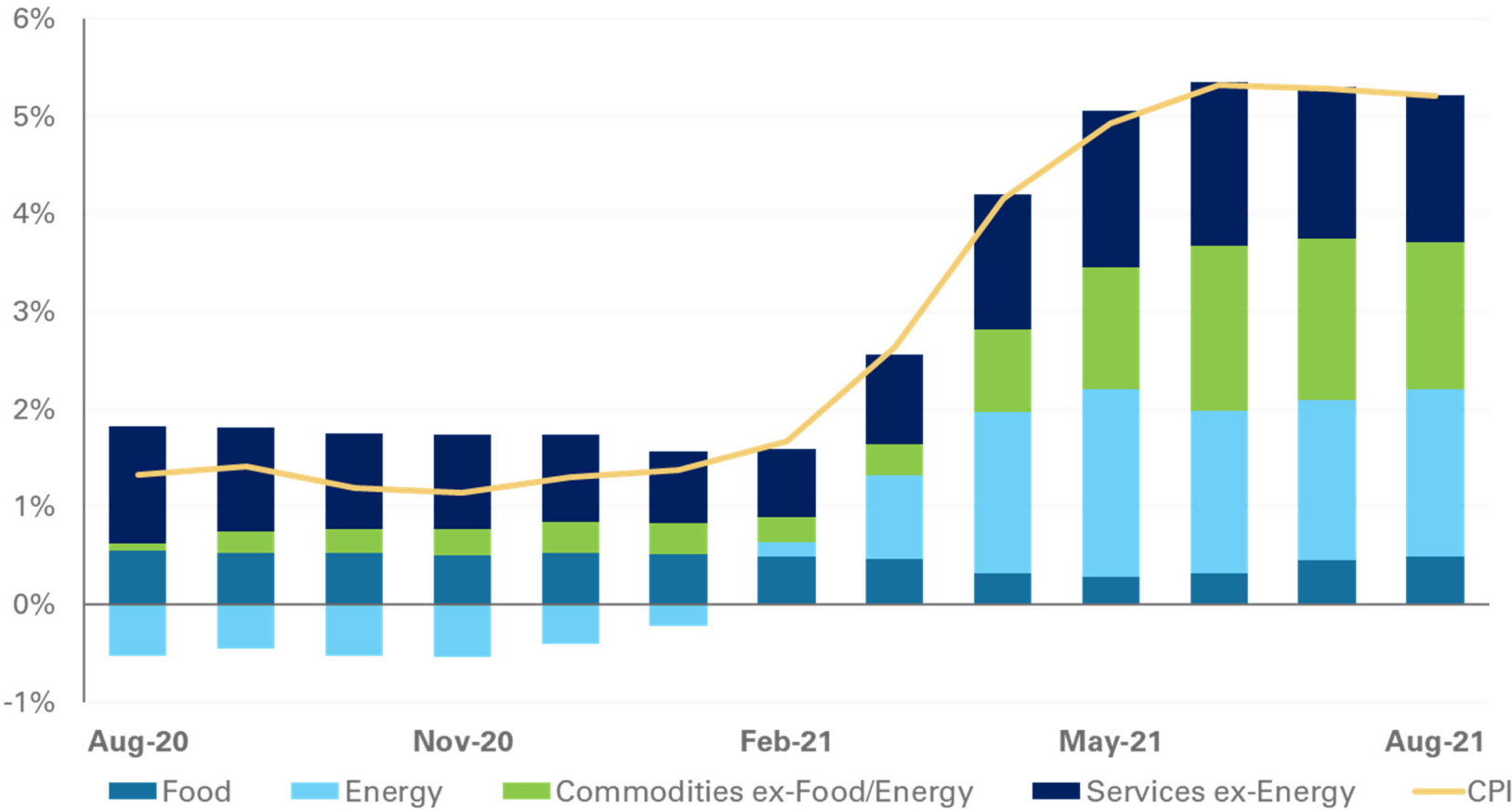
BREAKEVEN INFLATION CURVE



Source: FactSet

HEADLINE INFLATION REMAINED ELEVATED

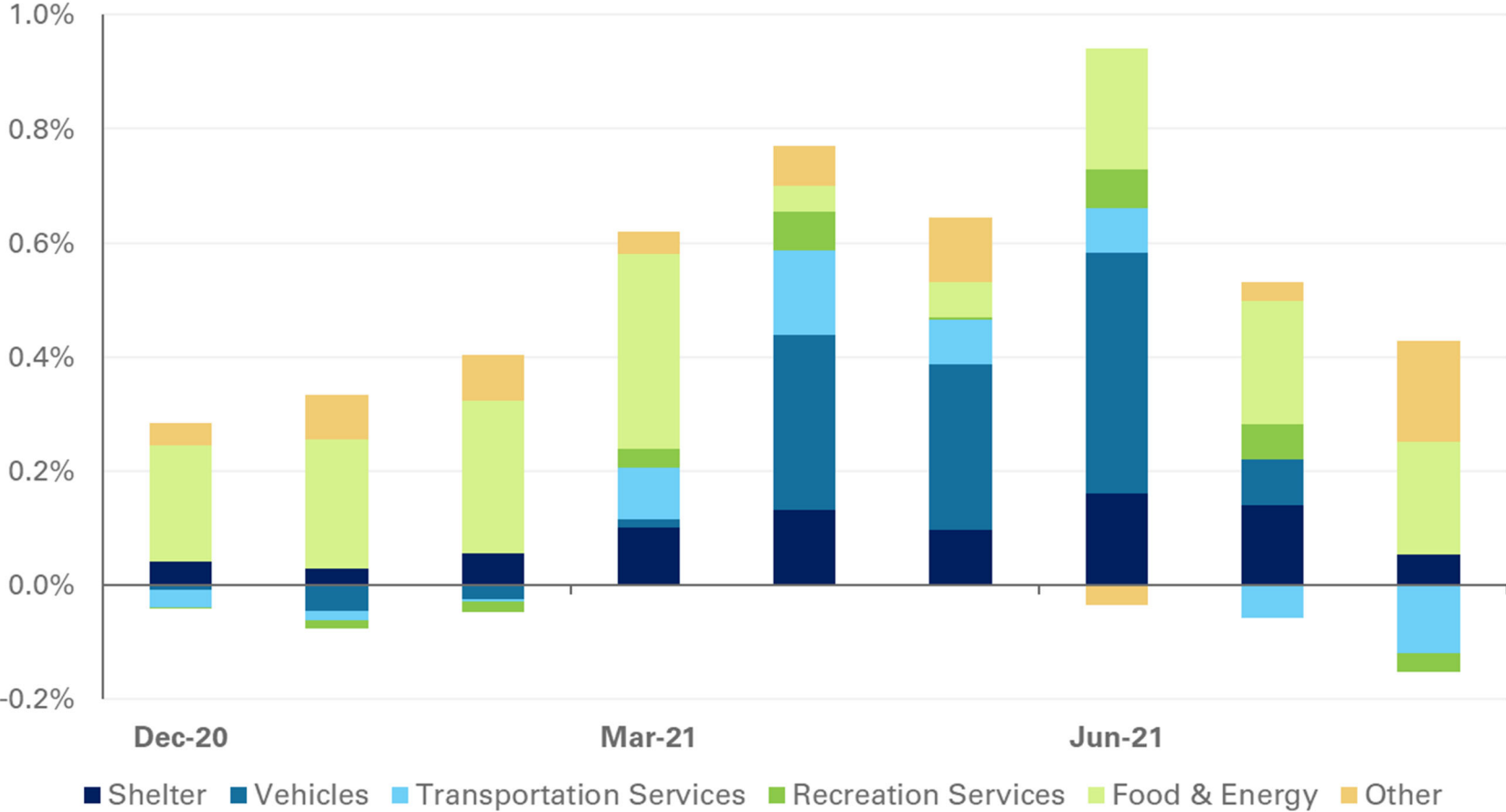
CONTRIBUTION TO YEAR-OVER-YEAR U.S. CPI-U



Source: FactSet

FOOD AND ENERGY PRICES TRENDED HIGHER

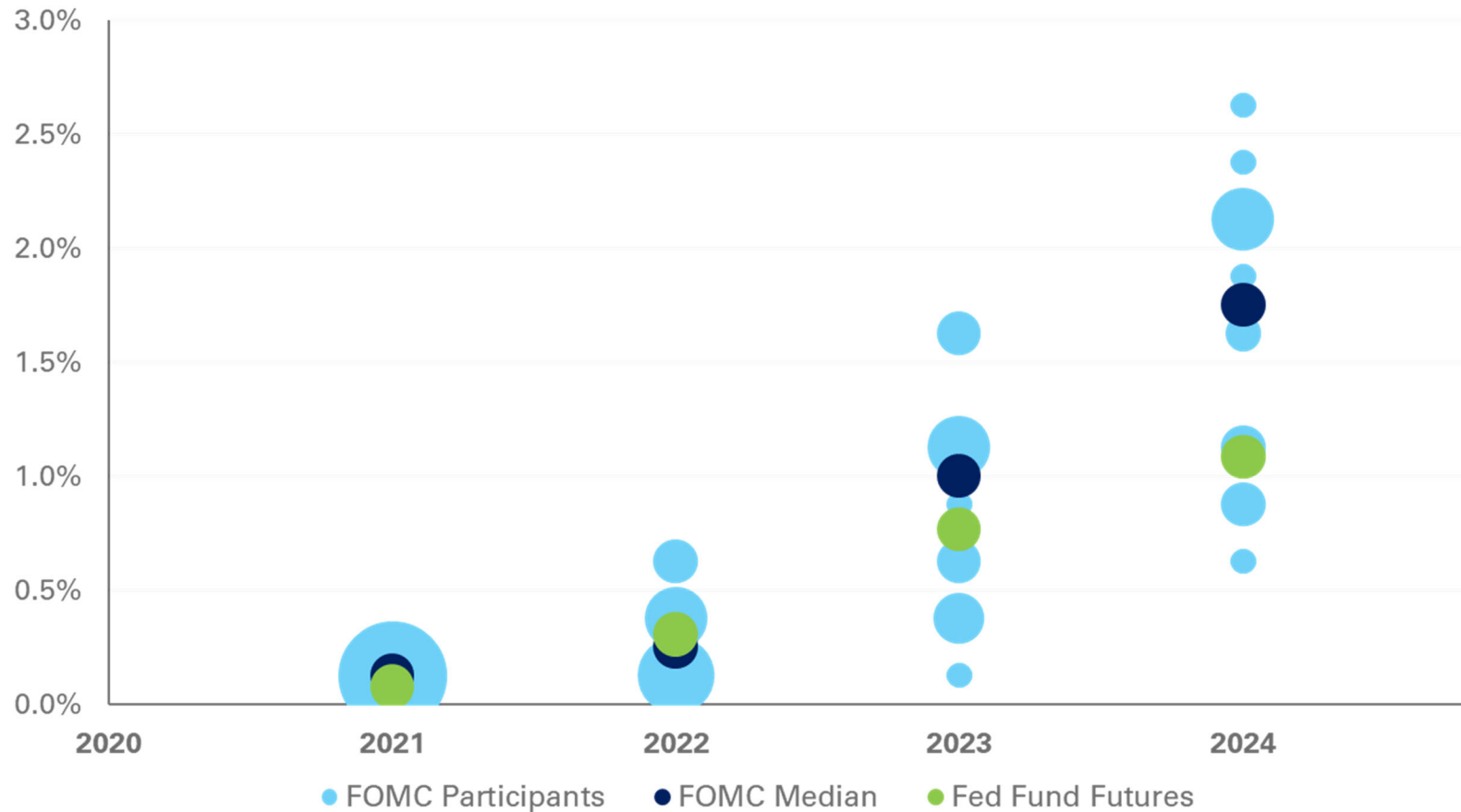
CONTRIBUTION TO MONTH-OVER-MONTH U.S. CPI-U



Source: FactSet

FED PROJECTING THREE RATE HIKES IN 2023

FED DOT PLOT VERSUS FED FUND FUTURES



FOMC Participant dot size reflects the number of policymakers forecasts of federal fund rate at the end of each calendar year
Source: FOMC, FactSet

CHINESE EQUITIES FELL INTO A BEAR MARKET

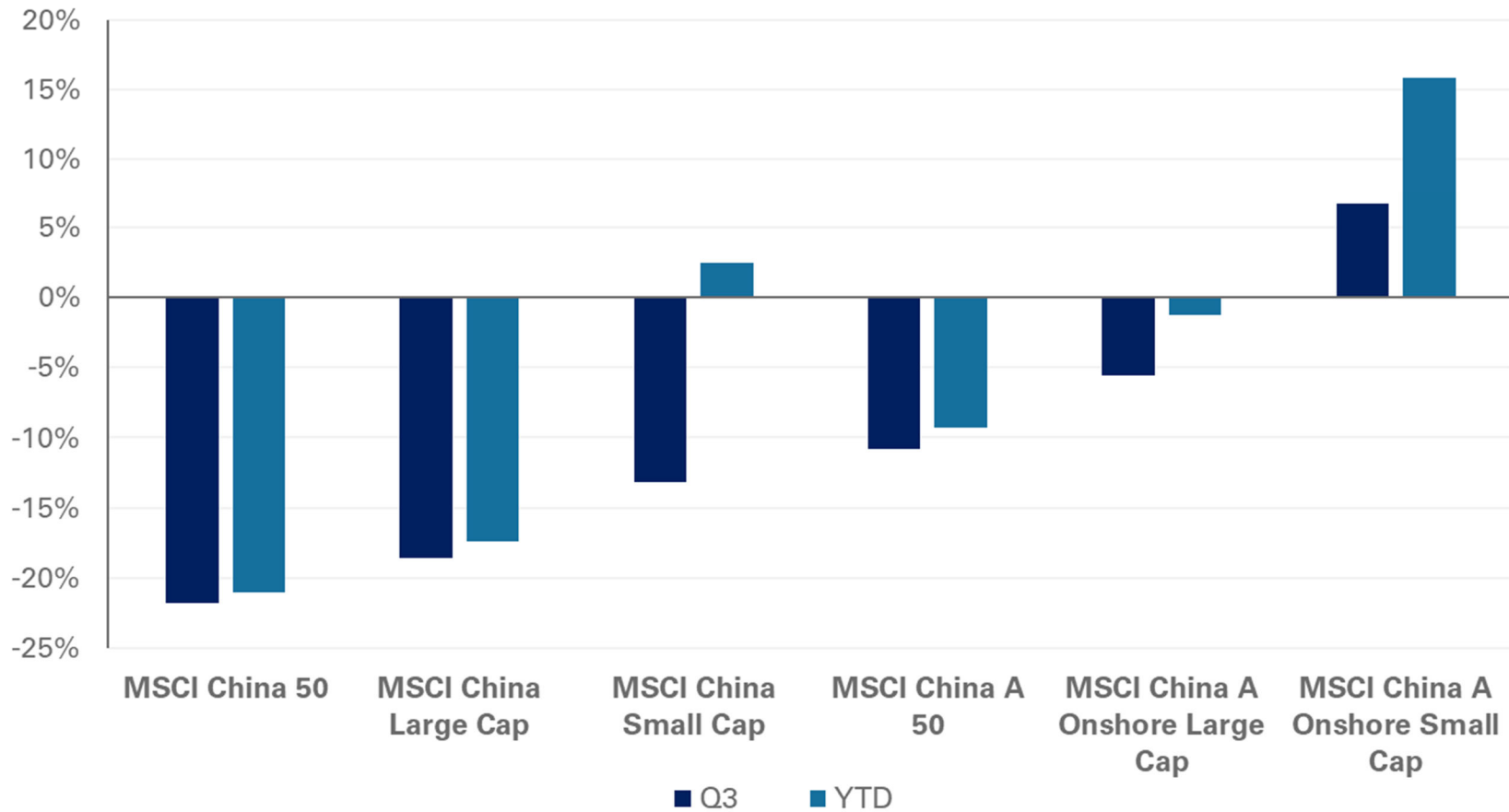
CUMULATIVE RETURN



Source: MSCI, FactSet

CHINA A-SHARES SMALL CAP OUTPERFORMED

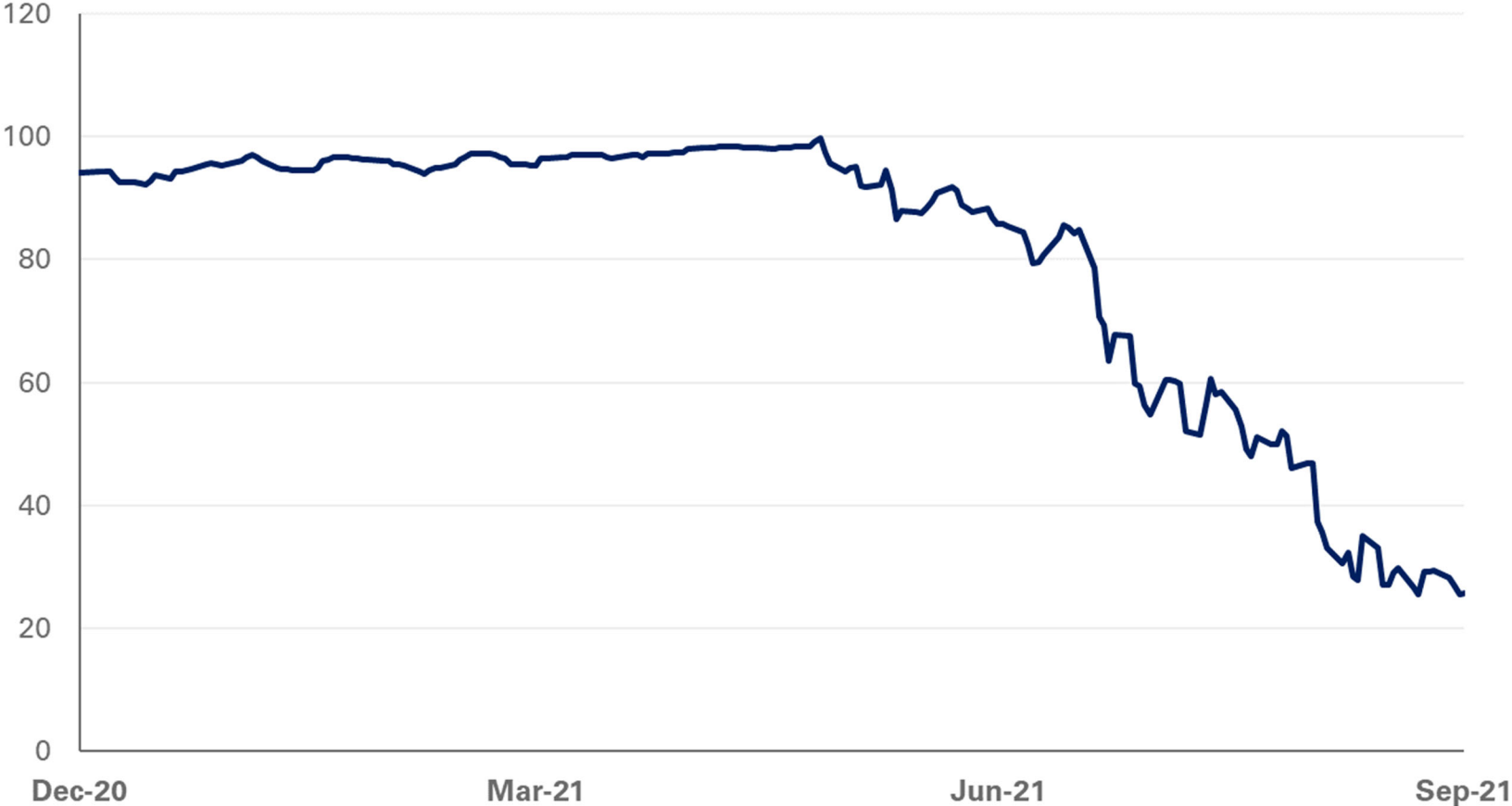
TOTAL RETURNS



Source: MSCI, FactSet

EVERGRANDE BOND PRICES PLUNGED

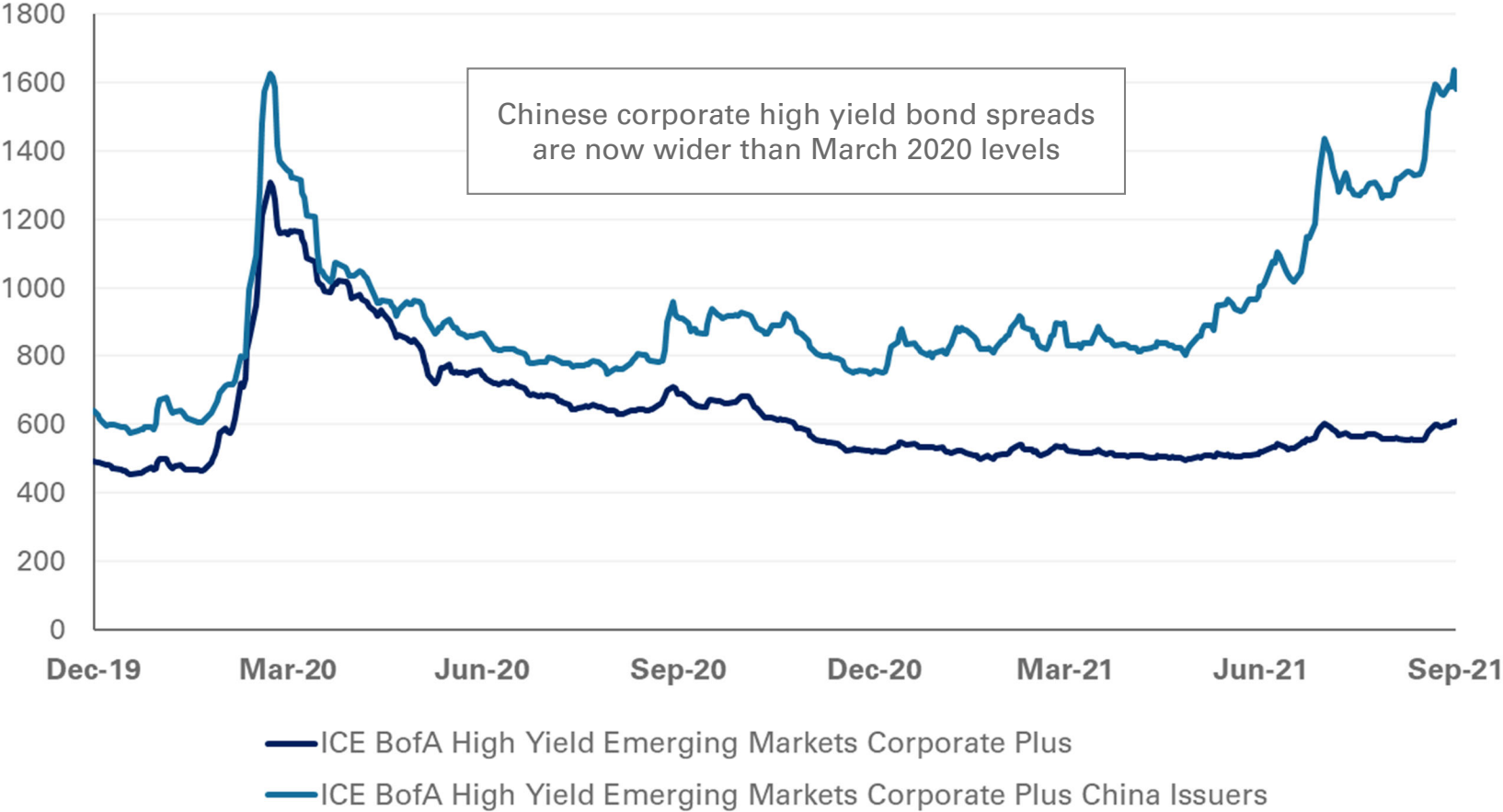
CHINA EVERGRANDE GROUP MARCH 2022 BOND PRICE



Source: FactSet

CHINA HIGH YIELD SPREADS WIDENED

OPTION ADJUSTED SPREAD



Source: ICE, FactSet

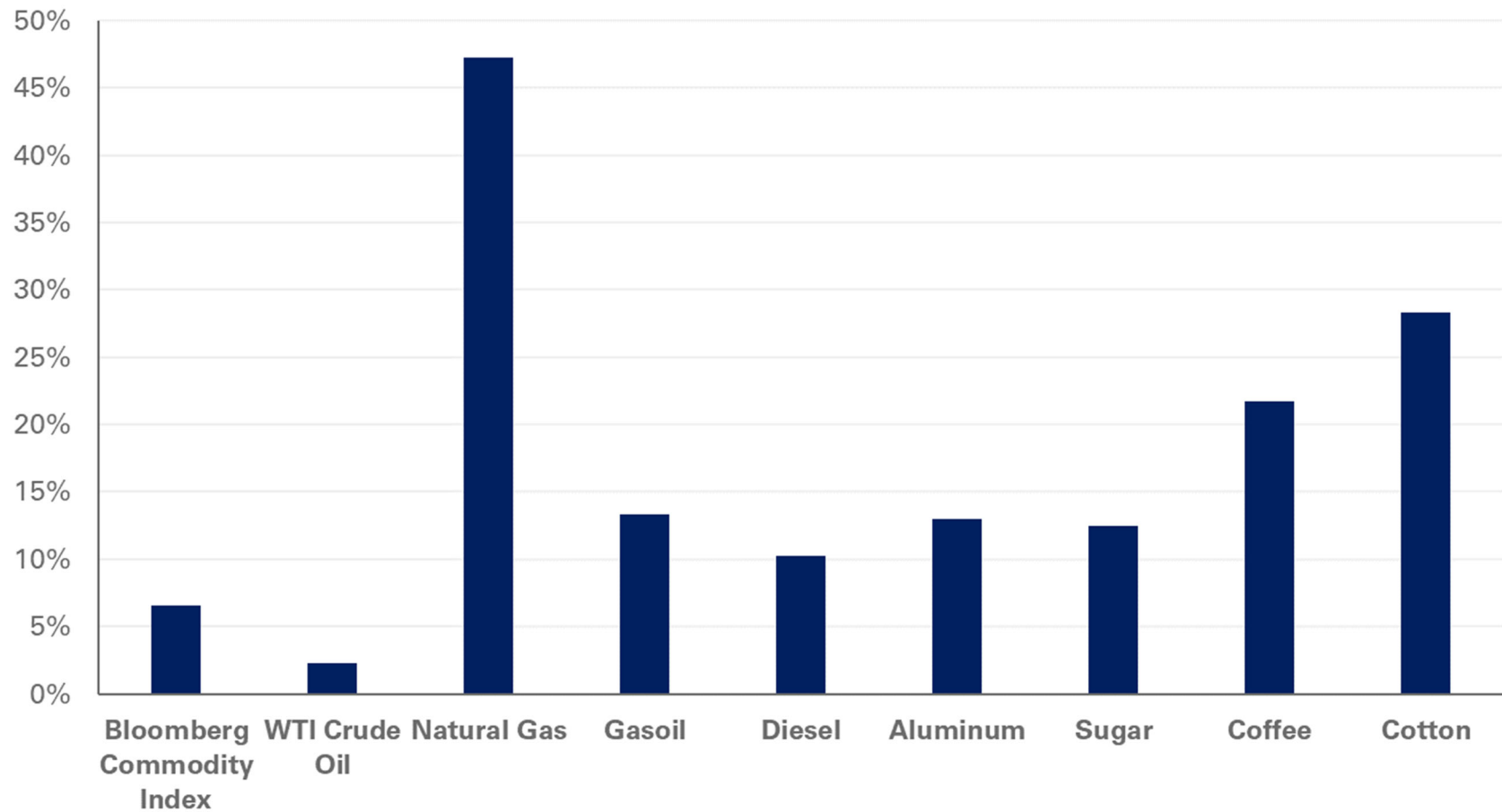
CHINA'S REGULATORY RESET

- **China introduced a wave of new regulations, implementing anti-monopoly, industry-specific, and consumer protection regulations**

Education	Technology	Entertainment/ Gaming	Real Estate
<ul style="list-style-type: none">• The country banned for-profit tutoring in core school subjects, required institutions offering tutoring to be registered as non-profit organizations, and limited the number of new licenses granted• The move combats soaring education costs, which have hampered family financials and have contributed to a declining birth rate for the country	<ul style="list-style-type: none">• The country introduced anti-monopoly legislation. The regulations imposed fines on industry titans, restrictions on social media algorithms, and new cybersecurity laws• The country is aiming to limit pricing power of its largest companies and exhibit control over consumer data	<ul style="list-style-type: none">• The country called for tighter restrictions on the gaming industry, limited the amount of time children can play video games, and cracked down on online fan groups and platforms• These restrictions are aimed at preventing addiction, limiting socialization, and molding the younger generation	<ul style="list-style-type: none">• The country imposed debt and land-buying limits, reduced access to funding for highly-levered companies, and streamlined mortgage approvals for first time home buyers• These limits are an attempt by the country to reduce broad risks in the real estate sector and to make housing more available and affordable

COMMODITY PRICES INCREASED

QUARTERLY CHANGES IN SPOT PRICE



Source: Bloomberg, FactSet



THIRD QUARTER PLAN PERFORMANCE

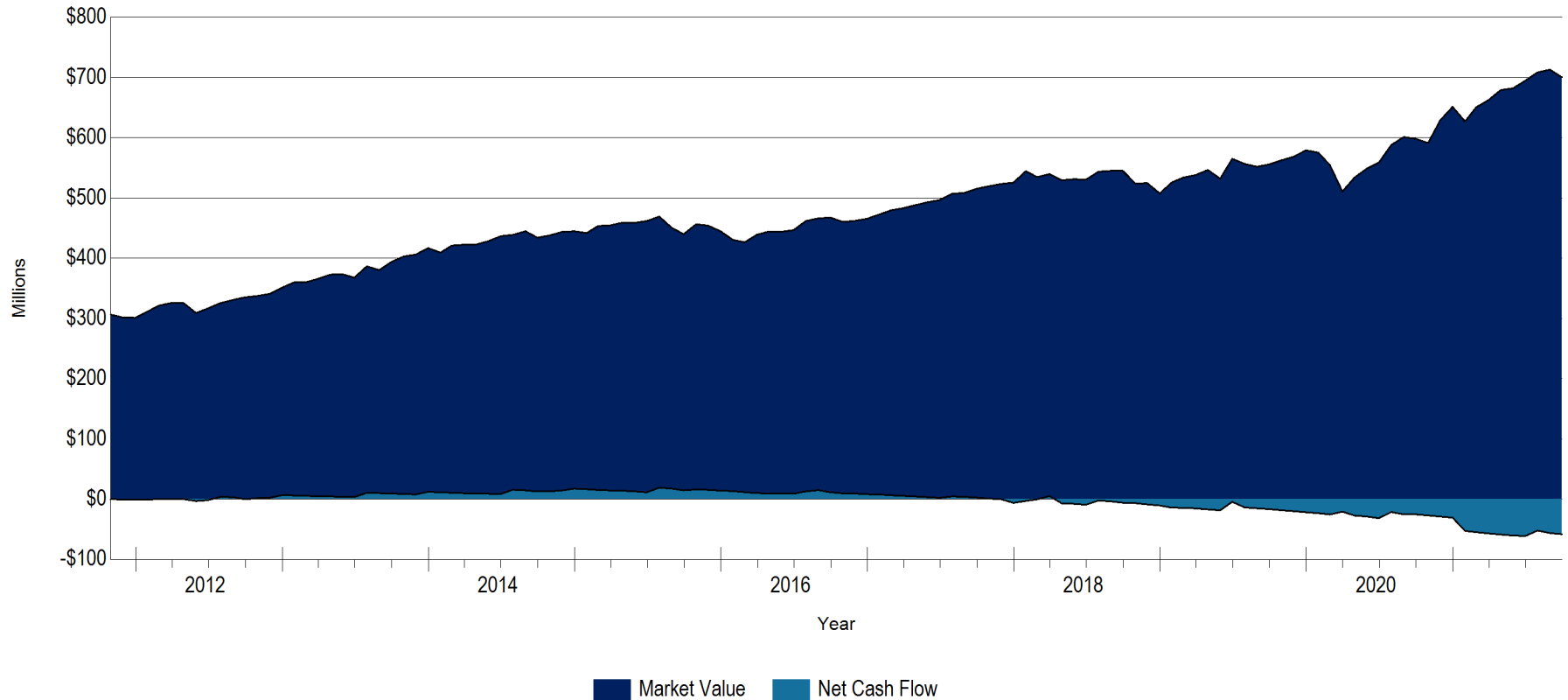


PROPRIETARY & CONFIDENTIAL

MWRA Employees' Retirement System

TOTAL FUND ASSET GROWTH SUMMARY

10 Years Ending September 30, 2021



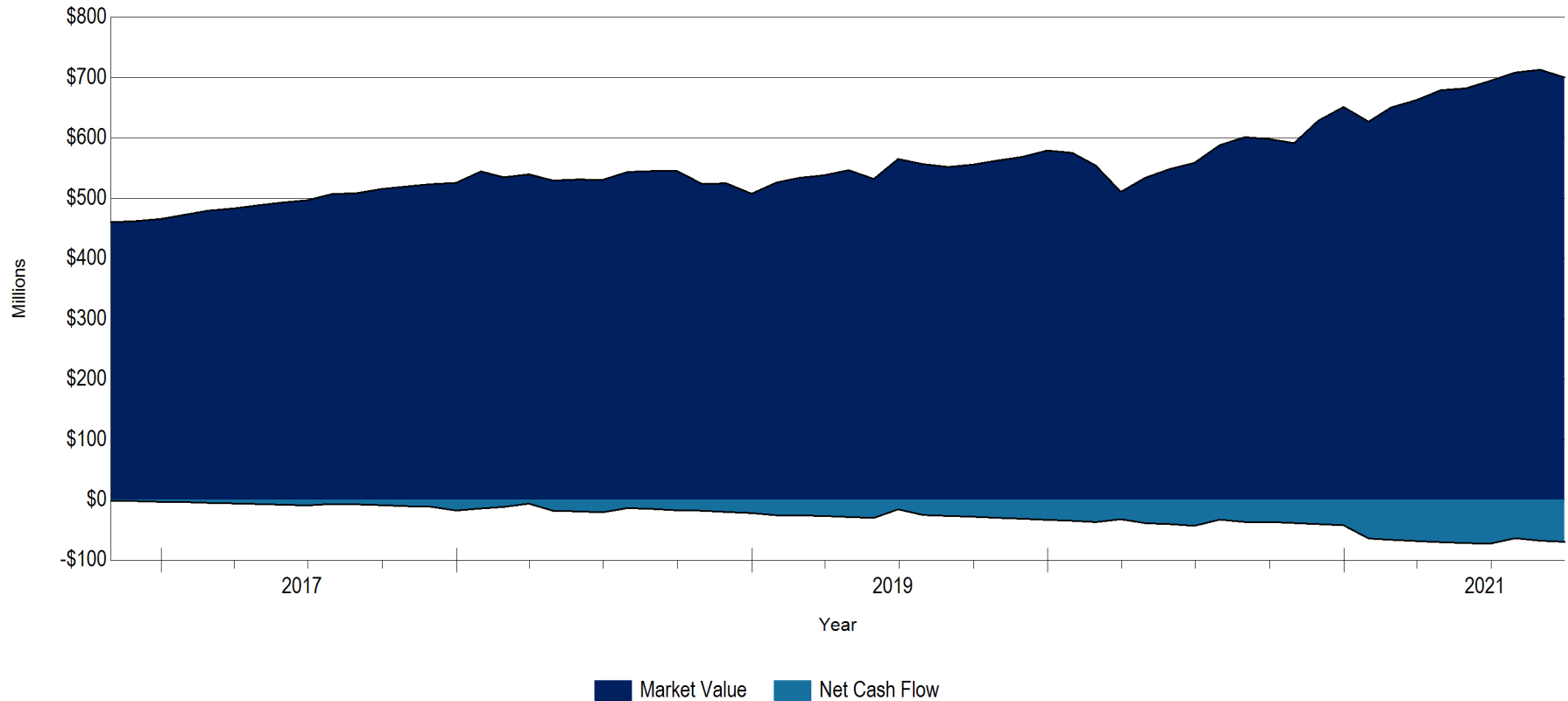
	Last Three Months	Year-To-Date	One Year	Three Years	Five Years	Seven Years	Ten Years
Beginning Market Value	\$694,664,362	\$651,404,918	\$598,354,684	\$545,200,560	\$467,512,405	\$434,089,866	\$290,128,300
Net Cash Flow	\$3,113,247	-\$27,470,125	-\$32,970,811	-\$52,226,452	-\$69,663,502	-\$70,935,075	-\$58,262,862
Net Investment Change	\$2,632,979	\$76,475,796	\$135,026,715	\$207,436,481	\$302,561,685	\$337,255,797	\$468,545,150
Ending Market Value	\$700,410,588	\$700,410,588	\$700,410,588	\$700,410,588	\$700,410,588	\$700,410,588	\$700,410,588



MWRA Employees' Retirement System

TOTAL ASSET GROWTH SUMMARY-CALENDAR YEAR

5 Years Ending September 30, 2021

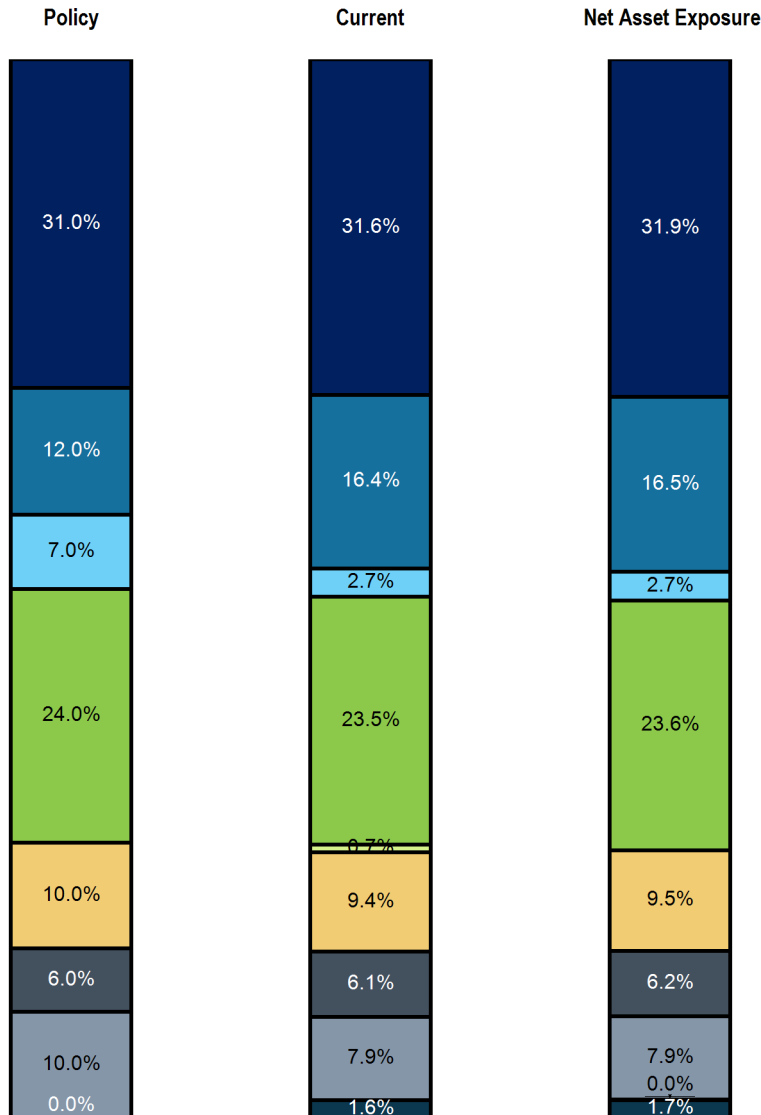


	2016	2017	2018	2019	2020
Beginning Market Value	\$444,744,803	\$465,451,611	\$525,597,128	\$507,653,878	\$579,228,207
Net Cash Flow	-\$6,027,819	-\$14,389,228	-\$4,272,726	-\$11,215,192	-\$8,986,694
Net Investment Change	\$26,946,982	\$74,534,744	-\$13,670,523	\$82,789,521	\$81,163,404
Ending Market Value	\$465,663,966	\$525,597,128	\$507,653,878	\$579,228,207	\$651,404,918



MWRA Employees' Retirement System

TOTAL FUND ASSET ALLOCATION vs. POLICY



Asset Allocation vs. Target			
	Policy	Current	Net Asset Exposure
Equity - Domestic	31.0%	31.6%	31.9%
Equity - International	12.0%	16.4%	16.5%
Emerging Equity	7.0%	2.7%	2.7%
Fixed Income	24.0%	23.5%	23.6%
Balanced	--	0.7%	--
Private Equity	10.0%	9.4%	9.5%
Hedge Funds	6.0%	6.1%	6.2%
Real Estate	10.0%	7.9%	7.9%
Real Assets	--	--	0.0%
Cash	0.0%	1.6%	1.7%
Total	100.0%	100.0%	100.0%

Asset class weights may not add up to 100% due to rounding.

Real Assets include Commodities, Real Estate, and TIPS.

Cash includes Other.

PIMCO All Asset reported on 1 Qtr. lag.

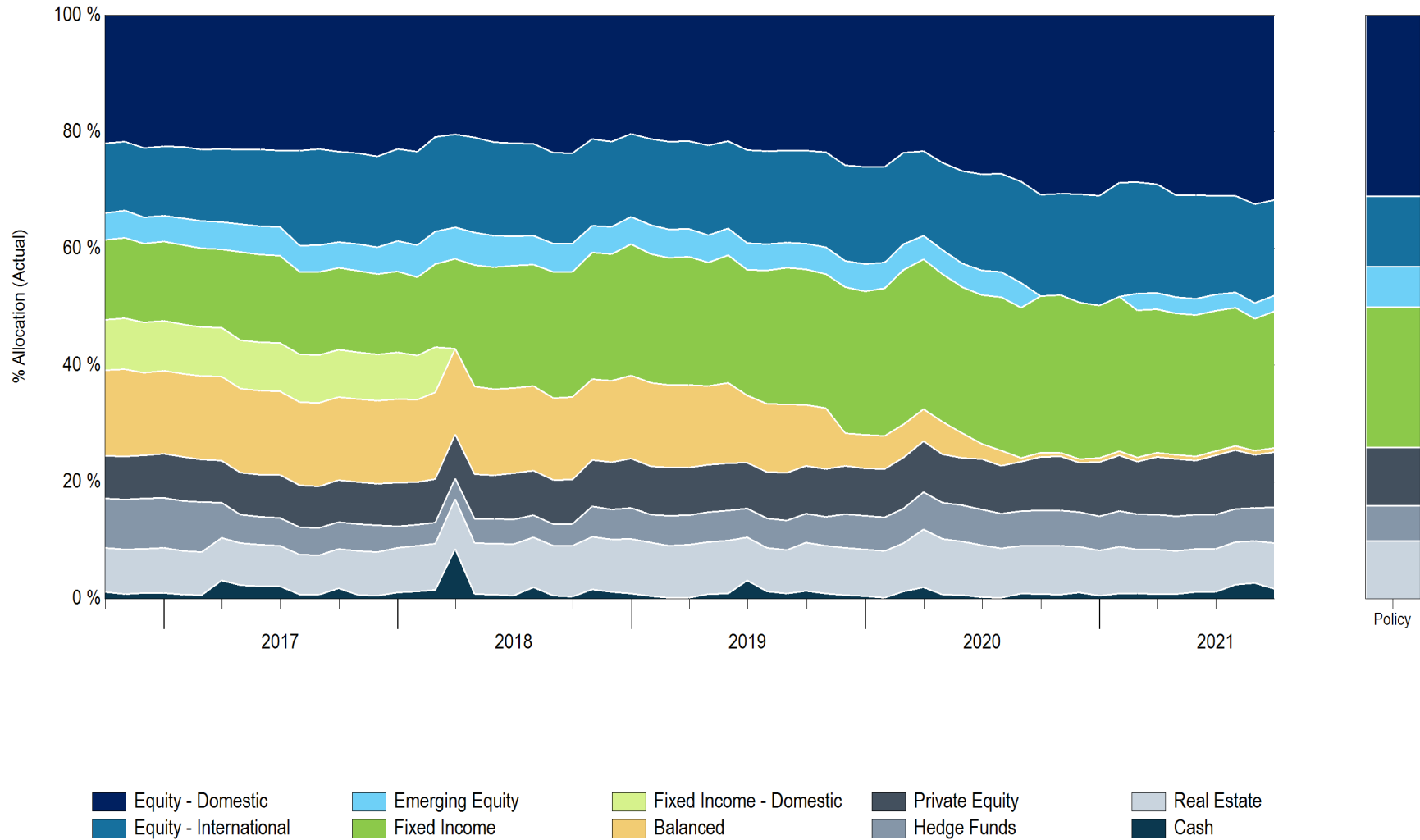
Policy Index Consists of: 24% S&P 500, 7% Russell 2000, 12% MSCI ACWI IMI , 7% MSCI Emerging Markets, 10% Bloomberg US Aggregate TR, 4% Bloomberg US TIPS TR, 10% Bloomberg US Universal TR, 10% NCREIF Property Index, 10% CJA US All PE , 6% HFRI Fund of Funds Composite Index.



MWRA Employees' Retirement System

TOTAL FUND ASSET ALLOCATION HISTORY

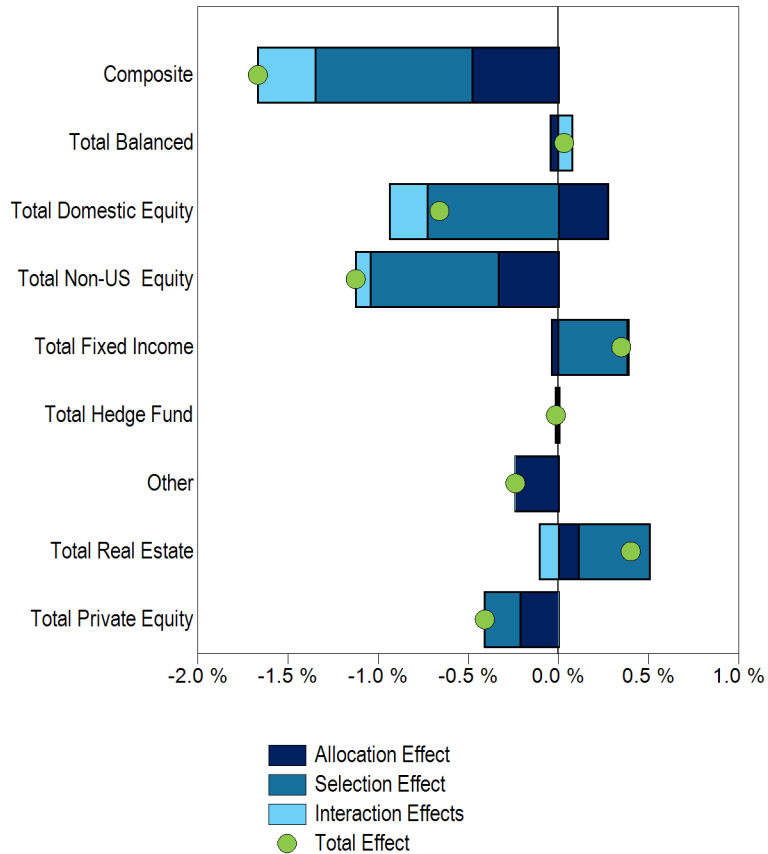
Asset Allocation History



MWRA Employees' Retirement System

TOTAL FUND ATTRIBUTION

Attribution Effects 1 Year Ending September 30, 2021



Attribution Summary 1 Year Ending September 30, 2021

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Balanced	24.8%	14.4%	10.5%	0.0%	0.0%	0.1%	0.0%
Total Domestic Equity	31.0%	34.2%	-3.2%	-0.7%	0.3%	-0.2%	-0.7%
Total Non-US Equity	20.3%	24.0%	-3.7%	-0.7%	-0.3%	-0.1%	-1.1%
Total Fixed Income	2.3%	1.0%	1.3%	0.4%	0.0%	0.0%	0.3%
Total Hedge Fund	14.1%	14.3%	-0.2%	0.0%	0.0%	0.0%	0.0%
Other	0.0%	0.0%	0.0%	0.0%	-0.2%	0.0%	-0.2%
Total Real Estate	15.8%	12.2%	3.6%	0.4%	0.1%	-0.1%	0.4%
Total Private Equity	37.7%	39.5%	-1.8%	-0.2%	-0.2%	0.0%	-0.4%
Total	18.7%	20.4%	-1.7%	-0.9%	-0.5%	-0.3%	-1.7%

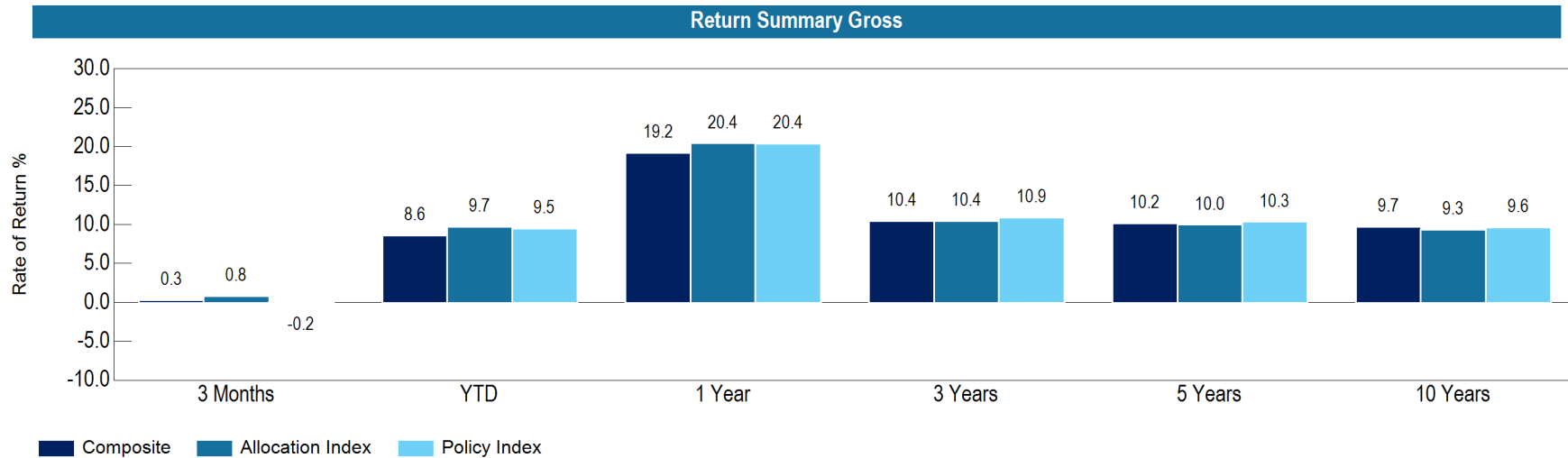
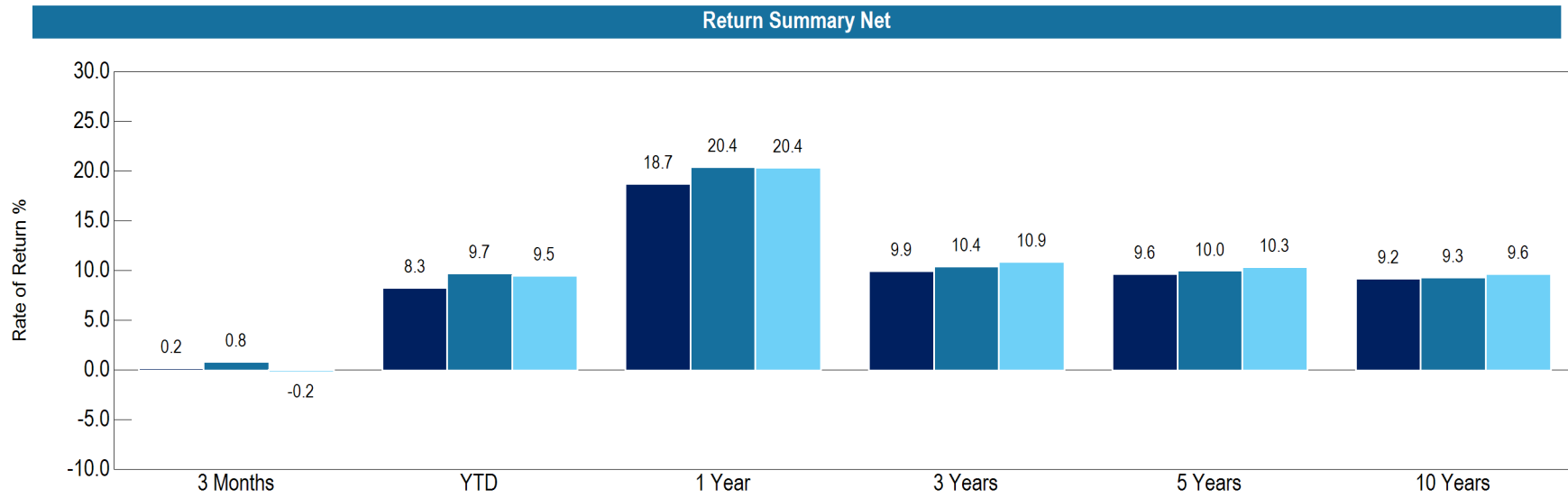
Note: Policy weights reflect the beginning of the period target weights.

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.



MWRA Employees' Retirement System

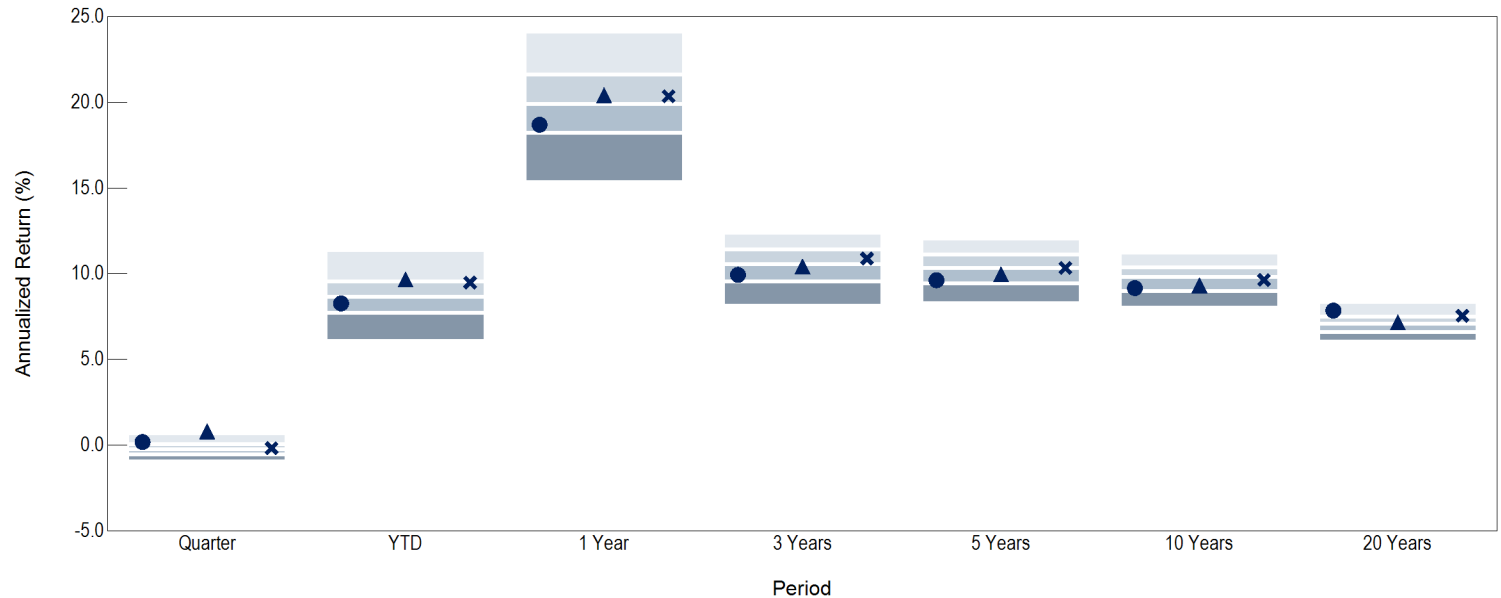
TOTAL FUND RETURN SUMMARY



MWRA Employees' Retirement System

TOTAL FUND RETURN SUMMARY vs. PEER UNIVERSE

Composite vs. InvMetrics Public DB Net



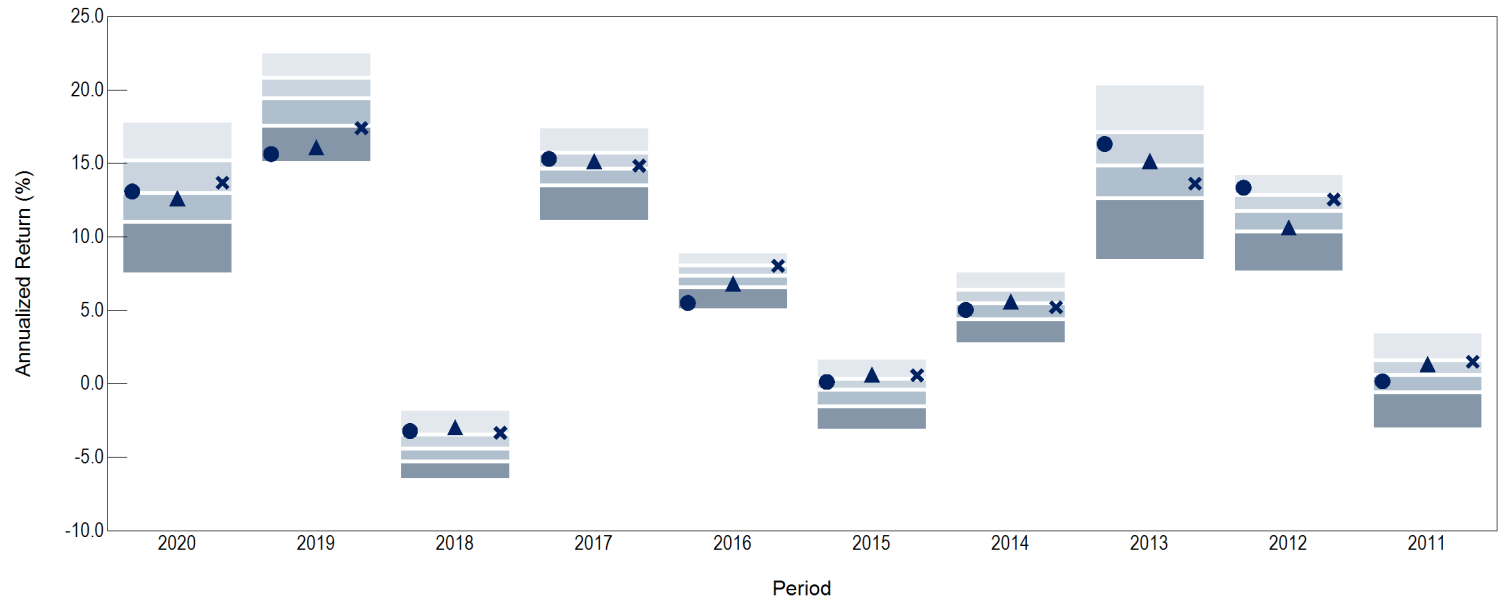
	Return (Rank)													
5th Percentile	0.7	11.4	24.1	12.4	12.0	11.2	8.3							
25th Percentile	0.1	9.6	21.6	11.4	11.1	10.4	7.5							
Median	-0.2	8.7	19.9	10.6	10.4	9.8	7.1							
75th Percentile	-0.5	7.7	18.2	9.6	9.5	9.0	6.6							
95th Percentile	-0.9	6.1	15.4	8.2	8.3	8.0	6.1							
# of Portfolios	488	484	483	471	454	381	165							
● Composite	0.2	(19)	8.3	(59)	18.7	(72)	9.9	(66)	9.6	(71)	9.2	(72)	7.8	(13)
▲ Allocation Index	0.8	(4)	9.7	(24)	20.4	(42)	10.4	(55)	10.0	(62)	9.3	(67)	7.2	(46)
x Policy Index	-0.2	(46)	9.5	(27)	20.4	(44)	10.9	(40)	10.3	(51)	9.6	(59)	7.5	(24)



MWRA Employees' Retirement System

TOTAL FUND SUMMARY vs. PEER UNIVERSE - CALENDAR YEAR

Composite vs. InvMetrics Public DB Net

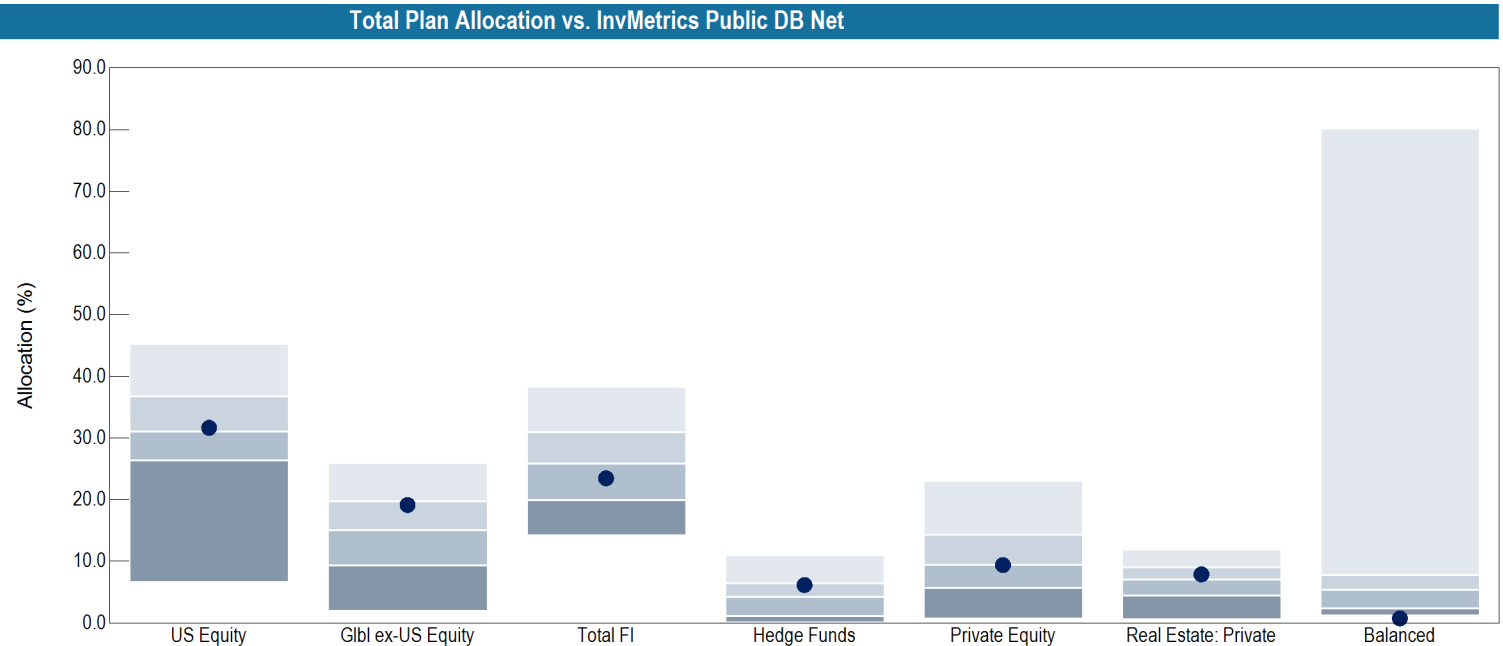


	Return (Rank)																			
5th Percentile	17.9	22.6	-1.7	17.5	9.0	1.7	7.7	20.4	14.3	3.6										
25th Percentile	15.3	20.8	-3.4	15.8	8.1	0.4	6.4	17.2	12.9	1.6										
Median	13.0	19.5	-4.4	14.7	7.4	-0.4	5.5	14.9	11.8	0.6										
75th Percentile	11.0	17.6	-5.2	13.6	6.6	-1.5	4.4	12.7	10.4	-0.5										
95th Percentile	7.5	15.1	-6.5	11.1	5.0	-3.2	2.7	8.4	7.6	-3.1										
# of Portfolios	596	550	496	269	269	262	210	191	159	137										
● Composite	13.1	(50)	15.6	(93)	-3.2	(21)	15.3	(36)	5.5	(92)	0.1	(31)	5.0	(62)	16.3	(36)	13.4	(16)	0.2	(63)
▲ Allocation Index	12.6	(55)	16.1	(91)	-3.0	(16)	15.1	(40)	6.8	(68)	0.6	(19)	5.6	(47)	15.2	(46)	10.6	(72)	1.3	(31)
× Policy Index	13.7	(43)	17.4	(77)	-3.3	(24)	14.8	(46)	8.0	(28)	0.6	(20)	5.2	(59)	13.6	(66)	12.6	(36)	1.5	(28)



MWRA Employees' Retirement System

TOTAL FUND ALLOCATIONS vs. PEER UNIVERSE



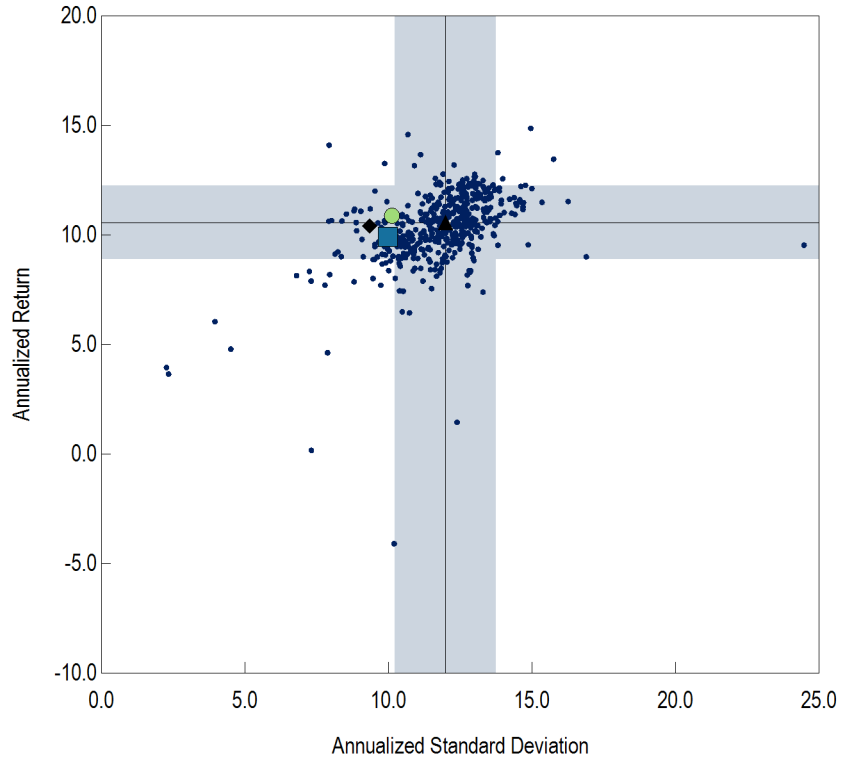
	Allocation (Rank)													
5th Percentile	45.3		25.9		38.3		11.0		23.0		11.9		80.1	
25th Percentile	36.8		19.9		31.0		6.5		14.5		9.1		7.9	
Median	31.2		15.2		26.0		4.3		9.5		7.1		5.5	
75th Percentile	26.4		9.4		20.0		1.2		5.8		4.5		2.5	
95th Percentile	6.7		2.1		14.4		0.2		0.9		0.7		1.4	
# of Portfolios	116		151		194		48		80		112		10	
● Composite	31.6	(49)	19.1	(33)	23.5	(62)	6.1	(30)	9.4	(51)	7.9	(42)	0.7	(99)



MWRA Employees' Retirement System

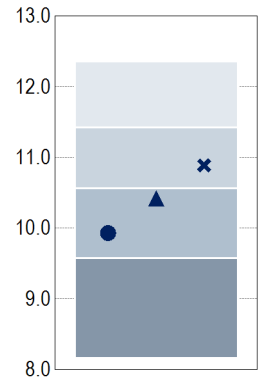
TOTAL FUND RISK/RETURN - 3 YEARS

3 Years Ending September 30, 2021



- Composite
- ◆ Allocation Index
- Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Net

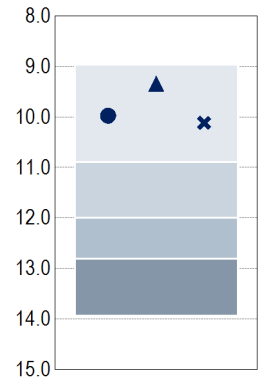
Annualized Return



● Composite	Value	9.93
	Rank	66
▲ Allocation Index	Value	10.42
	Rank	55
× Policy Index	Value	10.89
	Rank	40

Universe	5th %tile	12.36
	25th %tile	11.43
	Median	10.57
	75th %tile	9.58
	95th %tile	8.16

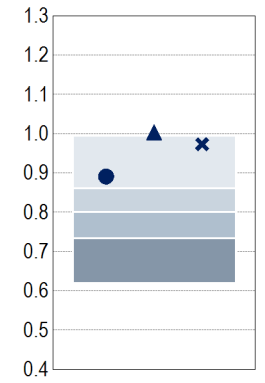
Annualized Standard Deviation



● Composite	Value	9.98
	Rank	12
▲ Allocation Index	Value	9.34
	Rank	6
× Policy Index	Value	10.12
	Rank	13

Universe	5th %tile	8.96
	25th %tile	10.88
	Median	11.99
	75th %tile	12.79
	95th %tile	13.92

Sharpe Ratio



● Composite	Value	0.89
	Rank	17
▲ Allocation Index	Value	1.00
	Rank	5
× Policy Index	Value	0.97
	Rank	7

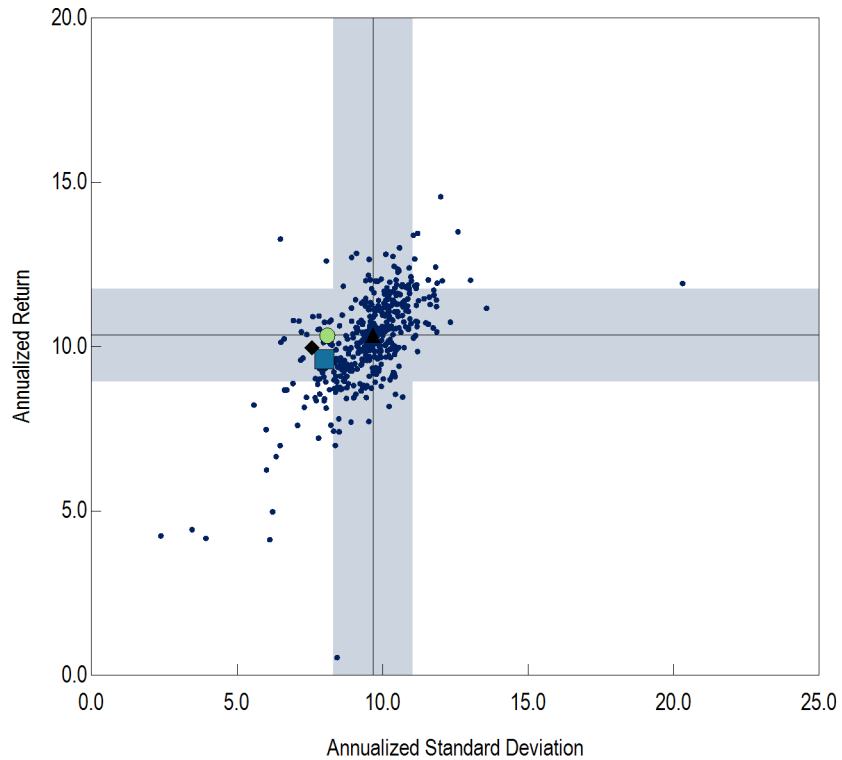
Universe	5th %tile	0.99
	25th %tile	0.86
	Median	0.80
	75th %tile	0.74
	95th %tile	0.62



MWRA Employees' Retirement System

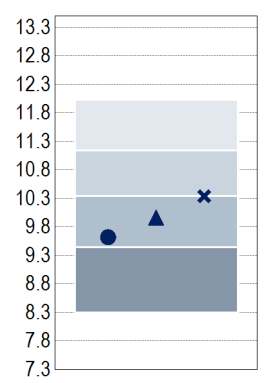
TOTAL FUND RISK/RETURN - 5 YEARS

5 Years Ending September 30, 2021



- Composite
- ◆ Allocation Index
- Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Net

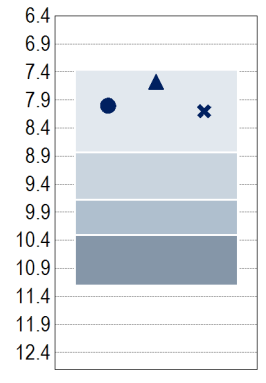
Annual Return



● Composite	Value	9.62
	Rank	71
▲ Allocation Index	Value	9.96
	Rank	62
× Policy Index	Value	10.33
	Rank	51

Universe	5th %tile	12.03
	25th %tile	11.14
	Median	10.35
	75th %tile	9.45
	95th %tile	8.31

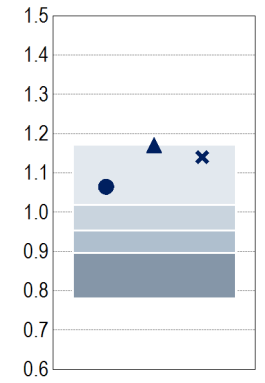
Annual Standard Deviation



● Composite	Value	8.00
	Rank	11
▲ Allocation Index	Value	7.57
	Rank	6
× Policy Index	Value	8.10
	Rank	12

Universe	5th %tile	7.36
	25th %tile	8.83
	Median	9.67
	75th %tile	10.30
	95th %tile	11.20

Sharpe Ratio



● Composite	Value	1.06
	Rank	13
▲ Allocation Index	Value	1.17
	Rank	6
× Policy Index	Value	1.14
	Rank	7

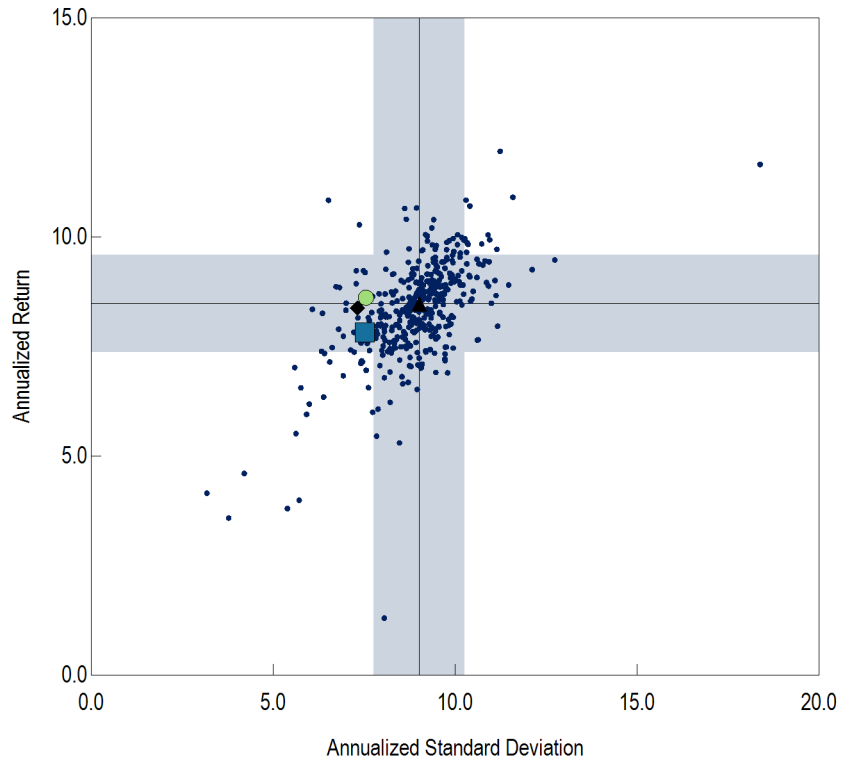
Universe	5th %tile	1.17
	25th %tile	1.02
	Median	0.96
	75th %tile	0.90
	95th %tile	0.78



MWRA Employees' Retirement System

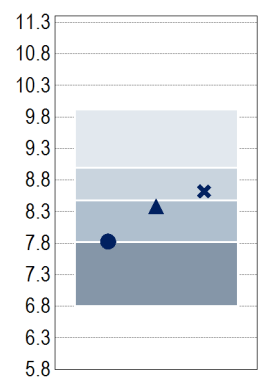
TOTAL FUND RISK/RETURN - 7 YEARS

7 Years Ending September 30, 2021



- Composite
- ◆ Allocation Index
- Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Net

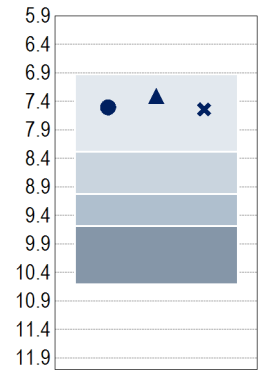
Annual Return



● Composite	
Value	7.82
Rank	76
▲ Allocation Index	
Value	8.38
Rank	53
× Policy Index	
Value	8.62
Rank	43

Universe	
5th %tile	9.92
25th %tile	9.00
Median	8.48
75th %tile	7.82
95th %tile	6.82

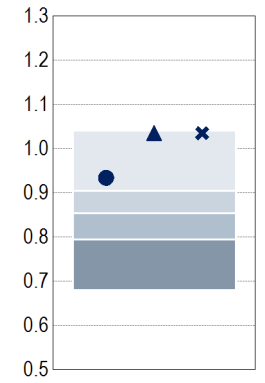
Annual Standard Deviation



● Composite	
Value	7.51
Rank	11
▲ Allocation Index	
Value	7.31
Rank	8
× Policy Index	
Value	7.54
Rank	12

Universe	
5th %tile	6.92
25th %tile	8.27
Median	9.01
75th %tile	9.58
95th %tile	10.60

Sharpe Ratio



● Composite	
Value	0.93
Rank	17
▲ Allocation Index	
Value	1.04
Rank	6
× Policy Index	
Value	1.03
Rank	6

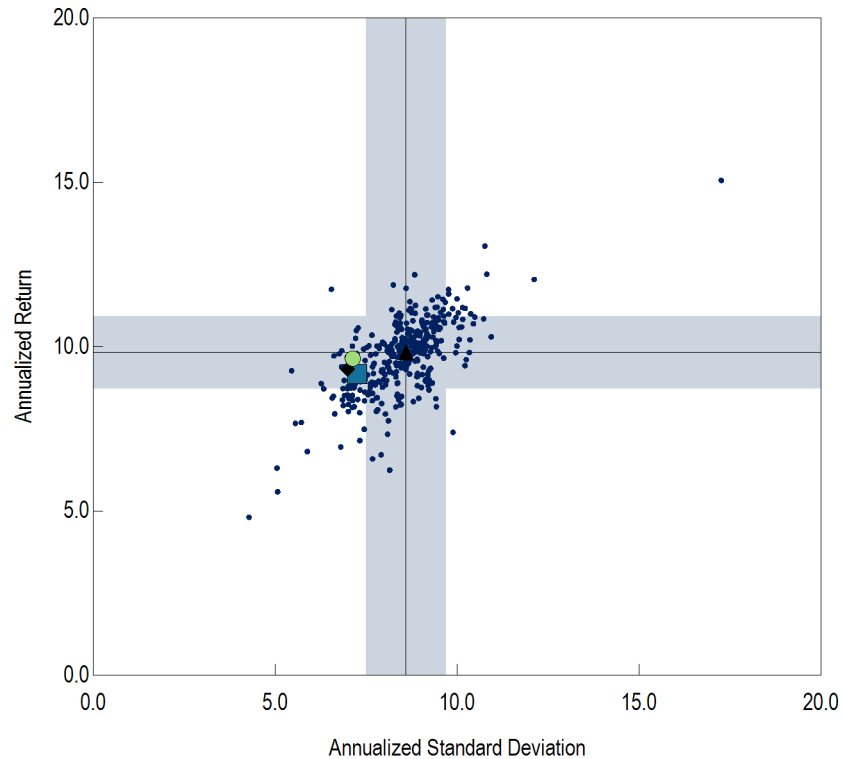
Universe	
5th %tile	1.04
25th %tile	0.91
Median	0.85
75th %tile	0.80
95th %tile	0.68



MWRA Employees' Retirement System

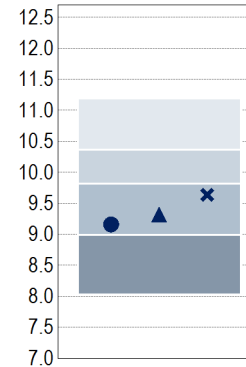
TOTAL FUND RISK/RETURN - 10 YEARS

10 Years Ending September 30, 2021



- Composite
- ◆ Allocation Index
- Policy Index
- ▲ Universe Median
- 68% Confidence Interval
- InvMetrics Public DB Net

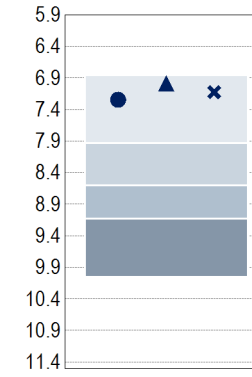
Annual Return



● Composite	Value	9.16
	Rank	72
▲ Allocation Index	Value	9.32
	Rank	67
× Policy Index	Value	9.64
	Rank	59

Universe	5th %tile	11.19
	25th %tile	10.38
	Median	9.83
	75th %tile	9.00
	95th %tile	8.03

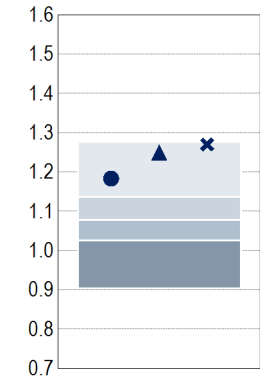
Annual Standard Deviation



● Composite	Value	7.25
	Rank	13
▲ Allocation Index	Value	6.99
	Rank	7
× Policy Index	Value	7.13
	Rank	11

Universe	5th %tile	6.86
	25th %tile	7.92
	Median	8.59
	75th %tile	9.12
	95th %tile	10.05

Sharpe Ratio



● Composite	Value	1.18
	Rank	15
▲ Allocation Index	Value	1.25
	Rank	6
× Policy Index	Value	1.27
	Rank	6

Universe	5th %tile	1.28
	25th %tile	1.14
	Median	1.08
	75th %tile	1.03
	95th %tile	0.90



MWRA Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	20 Yrs (%)	Rank	Inception (%)	Inception Date
Composite	700,410,588	100.0	100.0	0.2	19	18.7	72	9.9	66	9.6	71	9.2	72	7.8	13	7.1	Jan-86
Allocation Index				0.8	4	20.4	42	10.4	55	10.0	62	9.3	67	7.2	46	--	Jan-86
Policy Index				-0.2	46	20.4	44	10.9	40	10.3	51	9.6	59	7.5	24	--	Jan-86
InvMetrics Public DB Net Median				-0.2		19.9		10.6		10.4		9.8		7.1		8.3	Jan-86
Composite	700,410,588	100.0	100.0	0.2	25	18.7	74	9.9	67	9.6	72	9.2	74	7.8	29	7.1	Jan-86
Allocation Index				0.8	8	20.4	49	10.4	51	10.0	61	9.3	72	7.2	70	--	Jan-86
Policy Index				-0.2	54	20.4	50	10.9	38	10.3	48	9.6	61	7.5	44	--	Jan-86
InvMetrics Public DB Gross Median				-0.2		20.3		10.4		10.3		10.0		7.4		8.7	Jan-86
Total Balanced	5,208,263	0.7	0.0	2.3	--	24.8	--	10.5	--	8.2	--	6.7	--	--	--	5.6	Dec-10
PRIT Core Fund	5,208,263	0.7		2.3	1	24.8	52	11.6	4	11.1	1	10.3	1	8.2	22	7.4	Apr-99
60% S&P 500 / 40% Bloomberg Aggregate				0.4	15	16.9	79	12.1	1	11.4	1	11.2	1	7.7	30	6.7	Apr-99
Total Domestic Equity	221,566,792	31.6	31.0	-0.2	44	31.0	64	15.3	38	16.8	34	16.0	38	10.2	60	8.2	May-99
Russell 3000				-0.1	42	31.9	61	16.0	34	16.9	33	16.6	29	9.8	68	7.8	May-99
eV All US Equity Net Median				-0.5		35.3		13.1		14.5		15.0		10.6		9.8	May-99
Large Cap	171,853,548	24.5	24.0	0.5	27	27.1	81	16.6	30	17.6	29	16.4	32	--	--	14.6	Dec-10
eV All US Equity Net Median				-0.5		35.3		13.1		14.5		15.0		10.6		13.2	Dec-10
Rhumbline Advisors S&P 500 Index Fund	68,611,781	9.8	10.0	0.6	32	29.9	40	15.9	27	16.8	20	16.5	16	9.5	62	9.4	Apr-97
S&P 500				0.6	31	30.0	40	16.0	26	16.9	19	16.6	14	9.5	62	9.4	Apr-97
eV US Large Cap Core Equity Net Median				0.1		28.7		13.8		15.2		15.3		9.7		10.0	Apr-97
Coho Relative Value Equity	50,633,247	7.2	7.0	-1.7	81	19.1	99	10.3	48	11.8	49	--	--	--	--	12.1	Mar-16
Russell 1000 Value				-0.8	53	35.0	53	10.1	52	10.9	66	13.5	55	8.3	76	12.7	Mar-16
eV US Large Cap Value Equity Net Median				-0.7		35.4		10.2		11.8		13.6		8.9		13.1	Mar-16
Polen Focused Growth	52,608,521	7.5	7.0	2.6	9	29.5	23	23.8	17	24.3	16	--	--	--	--	22.3	Feb-16
Russell 1000 Growth				1.2	33	27.3	40	22.0	32	22.8	29	19.7	18	11.0	37	22.4	Feb-16
eV US Large Cap Growth Equity Net Median				0.5		26.4		20.6		21.0		18.3		10.7		20.4	Feb-16
Small Cap	49,713,244	7.1	7.0	-2.6	84	45.0	28	11.8	60	15.0	47	15.2	48	--	--	13.4	Dec-10
eV All US Equity Net Median				-0.5		35.3		13.1		14.5		15.0		10.6		13.2	Dec-10
Boston Partners Small Cap Value	24,948,015	3.6	3.5	-3.0	72	58.9	49	9.6	38	10.6	57	13.1	59	10.8	56	10.9	Feb-97
Russell 2000 Value				-3.0	72	63.9	34	8.6	52	11.0	48	13.2	53	9.8	76	9.5	Feb-97
eV US Small Cap Value Equity Net Median				-1.9		58.5		8.6		11.0		13.4		10.9		10.5	Feb-97
Loomis Sayles Small Cap Growth	24,765,229	3.5	3.5	-2.3	57	31.2	82	13.4	73	18.8	57	16.9	71	10.8	85	7.7	Jan-97
Russell 2000 Growth				-5.7	90	33.3	77	11.7	84	15.3	87	15.7	87	10.5	93	8.0	Jan-97
				-1.9		39.2		17.4		20.6		17.9		12.5		11.6	Jan-97

Notes:

1. Since inception return is 8.7% gross of fees. Prior to 1999, performance history does not capture separate net and gross returns
2. 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.
3. Importantly, all returns in this report, including those of the private real estate managers, are based on a time weighted return calculation and not based on IRRs, which can result in return differences.



MWRA Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	20 Yrs (%)	Rank	Inception (%)	Inception Date
Total Non-US Equity	133,896,661	19.1	19.0	-3.5	85	20.3	80	8.2	67	9.1	71	7.2	92	6.0	99	5.0	Mar-99
<i>eV All ACWI ex-US Equity Net Median</i>				-1.7		26.3		10.7		11.1		9.9		8.3		7.5	Mar-99
International Equity	114,982,139	16.4	12.0	-2.7	84	21.8	75	9.8	33	10.2	38	8.2	74	--	--	4.8	Sep-05
<i>eV All EAFE Equity Net Median</i>				-0.8		26.0		7.9		9.1		9.2		7.6		6.1	Sep-05
SEG Baxter Street	42,659,182	6.1	5.0	-2.0	59	18.2	88	12.0	41	11.6	45	--	--	--	--	11.9	May-16
<i>MSCI ACWI ex USA</i>				-3.0	78	23.9	64	8.0	70	8.9	72	7.5	85	7.2	88	8.9	May-16
<i>eV All ACWI ex-US Equity Net Median</i>				-1.7		26.3		10.7		11.1		9.9		8.3		11.1	May-16
Schroder International Alpha Trust Class 1	52,281,359	7.5	4.0	-1.0	37	27.9	43	13.1	31	12.5	32	--	--	--	--	8.6	Mar-12
<i>MSCI ACWI ex USA</i>				-3.0	78	23.9	64	8.0	70	8.9	72	7.5	85	7.2	88	6.1	Mar-12
<i>eV All ACWI ex-US Equity Net Median</i>				-1.7		26.3		10.7		11.1		9.9		8.3		8.5	Mar-12
Baillie Gifford International Growth Fund Class K	20,041,598	2.9	3.0	-8.1	99	14.7	96	--	--	--	--	--	--	--	--	14.7	Oct-20
<i>MSCI ACWI ex USA</i>				-3.0	78	23.9	64	8.0	70	8.9	72	7.5	85	7.2	88	23.9	Oct-20
<i>eV All ACWI ex-US Equity Net Median</i>				-1.7		26.3		10.7		11.1		9.9		8.3		26.3	Oct-20
Emerging Markets Equity	18,914,522	2.7	7.0	-8.3	68	--	--	--	--	--	--	--	--	--	--	-5.5	Mar-21
<i>MSCI Emerging Markets</i>				-8.1	65	18.2	67	8.6	63	9.2	54	6.1	70	11.0	68	-4.9	Mar-21
<i>eV Emg Mkts Equity Net Median</i>				-6.8		21.4		9.6		9.5		6.6		11.3		-2.9	Mar-21
Axiom Emerging Markets Trust Class 2	18,914,522	2.7	7.0	-8.3	68	--	--	--	--	--	--	--	--	--	--	-5.5	Mar-21
<i>MSCI Emerging Markets</i>				-8.1	65	18.2	67	8.6	63	9.2	54	6.1	70	11.0	68	-4.9	Mar-21
<i>eV Emg Mkts Equity Net Median</i>				-6.8		21.4		9.6		9.5		6.6		11.3		-2.9	Mar-21

Note:

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



MWRA Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	20 Yrs (%)	Rank	Inception (%)	Inception Date
Total Fixed Income	164,267,797	23.5	24.0	0.4	23	2.3	39	6.1	32	4.3	31	5.1	28	6.5	19	6.5	Mar-99
<i>eV All US Fixed Inc Net Median</i>				0.1		1.2		5.0		3.3		3.5		4.4		4.7	Mar-99
Garcia Hamilton Fixed Income Aggregate	38,874,392	5.6	6.0	-0.2	96	-1.7	97	4.5	97	--	--	--	--	--	--	3.9	Apr-18
<i>Bloomberg US Aggregate TR</i>				0.1	42	-0.9	71	5.4	78	2.9	80	3.0	83	4.3	72	4.5	Apr-18
<i>eV US Core Fixed Inc Net Median</i>				0.0		-0.3		5.7		3.2		3.4		4.6		4.8	Apr-18
Lord Abbett Core Fixed Income	33,342,033	4.8	4.0	0.1	37	0.3	31	5.6	52	--	--	--	--	--	--	4.8	Apr-18
<i>Bloomberg US Aggregate TR</i>				0.1	42	-0.9	71	5.4	78	2.9	80	3.0	83	4.3	72	4.5	Apr-18
<i>eV US Core Fixed Inc Net Median</i>				0.0		-0.3		5.7		3.2		3.4		4.6		4.8	Apr-18
Rhumblin TIPS	22,955,443	3.3	4.0	1.8	32	5.3	61	7.4	36	4.3	64	--	--	--	--	4.6	Jun-16
<i>Bloomberg US TIPS TR</i>				1.8	33	5.2	67	7.4	36	4.3	64	3.1	50	5.1	80	4.7	Jun-16
<i>eV US TIPS / Inflation Fixed Inc Net Median</i>				1.6		5.3		7.2		4.6		3.1		5.3		4.8	Jun-16
Loomis Sayles Multisector Full Discretion Trust	56,912,049	8.1	8.0	0.3	7	4.3	2	7.2	3	6.0	1	6.3	1	8.3	1	7.8	Mar-99
<i>Bloomberg US Aggregate TR</i>				0.1	42	-0.9	71	5.4	78	2.9	80	3.0	83	4.3	72	4.7	Mar-99
<i>Bloomberg US High Yield TR</i>				0.9	1	11.3	1	6.9	3	6.5	1	7.4	1	8.1	1	6.9	Mar-99
<i>eV US Core Fixed Inc Net Median</i>				0.0		-0.3		5.7		3.2		3.4		4.6		4.9	Mar-99
Octagon Senior Secured Credit Cayman Fund Ltd. - Class L Acc, Series 1	12,128,527	1.7	2.0	0.8	1	7.1	2	--	--	--	--	--	--	--	--	4.4	Aug-19
<i>Credit Suisse Leveraged Loan</i>				1.1	1	8.5	2	4.1	99	4.6	3	5.0	2	4.8	30	4.3	Aug-19
<i>eV US Core Fixed Inc Net Median</i>				0.0		-0.3		5.7		3.2		3.4		4.6		4.1	Aug-19
Invesco Mortgage Recovery Loans Feeder Fund	55,353	0.0		0.0	82	-0.3	96	0.5	99	0.4	99	6.4	1	--	--	11.2	Apr-10
<i>Bloomberg US Aggregate TR</i>				0.1	78	-0.9	99	5.4	91	2.9	98	3.0	99	4.3	98	3.6	Apr-10
<i>eV US Core Plus Fixed Inc Net Median</i>				0.1		1.5		6.1		3.9		4.2		5.2		4.7	Apr-10

Note:

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



MWRA Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	20 Yrs (%)	Rank	Inception (%)	Inception Date
Total Hedge Fund	43,017,112	6.1	6.0	1.8	--	14.1	--	6.2	--	5.5	--	4.8	--	--	--	3.8	Oct-06
PRIM Portfolio Completion Strategies	15,140,401	2.2		0.2	--	14.5	--	4.3	--	5.2	--	5.2	--	--	--	4.0	Oct-06
Corbin Pinehurst Partners	14,162,388	2.0		2.7	--	19.8	--	--	--	--	--	--	--	--	--	10.5	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				0.7	--	14.3	--	6.5	--	5.8	--	4.5	--	4.0	--	7.8	Nov-18
UBS Neutral Alpha Strategies	12,974,747	1.9		2.8	--	8.9	--	--	--	--	--	--	--	--	--	6.7	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				0.7	--	14.3	--	6.5	--	5.8	--	4.5	--	4.0	--	7.8	Nov-18
Entrust Peru Wind Down	739,576	0.1		-0.6	--	0.3	--	-3.9	--	--	--	--	--	--	--	-3.8	Dec-17
<i>HFRI Fund of Funds Composite Index</i>				0.7	--	14.3	--	6.5	--	5.8	--	4.5	--	4.0	--	5.6	Dec-17
Other	11,535,749	1.6	0.0	0.0	--	0.0	--	1.3	--	1.3	--	0.7	--	--	--	0.6	Dec-10
Cash Account	11,535,749	1.6		0.0	49	0.0	58	1.3	37	1.3	50	0.7	58	1.4	24	1.8	Feb-00
91 Day T-Bills				0.0	23	0.0	47	1.0	76	1.1	77	0.6	72	1.2	72	1.5	Feb-00
<i>eV US Cash Management Net Median</i>				0.0		0.0		1.2		1.3		0.7		1.4		1.7	Feb-00
Total Real Estate	55,173,005	7.9	10.0	7.5	--	15.8	--	8.4	--	8.6	--	10.9	--	8.0	--	8.0	Apr-99
<i>NCREIF Property Index</i>				5.2	--	12.2	--	6.7	--	6.8	--	9.0	--	8.4	--	8.7	Apr-99
Morgan Stanley Prime Property (\$2.8m commitment in '95)	22,333,673	3.2		5.8	--	12.5	--	6.7	--	7.4	--	10.4	--	8.2	--	8.6	Sep-95
TA Realty Core Property Fund, LP (\$15m commitment in '19)	23,870,642	3.4		11.0	--	23.8	--	--	--	--	--	--	--	--	--	12.5	Jun-19
Invesco Mortgage Recovery II (\$3M commitment in '15)	956,909	0.1		0.0	--	-43.3	--	-14.2	--	-2.9	--	--	--	--	--	-1.8	Oct-15
Landmark VI (\$2m commitment in '11)	79,068	0.0		-0.6	--	-8.9	--	-13.7	--	-8.4	--	2.4	--	--	--	2.6	Jul-11
Landmark VIII (\$4m commitment in '17)	1,269,659	0.2		0.0	--	11.2	--	6.8	--	--	--	--	--	--	--	13.5	Nov-17
StepStone Real Estate Fund II (\$2m commitment in '11)	639,022	0.1		0.0	--	3.3	--	-3.1	--	0.7	--	--	--	--	--	2.5	May-12
Cerberus Institutional Real Estate Partners III (\$1.5m commitment in '12)	806,044	0.1		41.3	--	68.7	--	23.1	--	15.4	--	--	--	--	--	16.6	May-13
TA Realty Fund X LP (\$3.5m commitment in '12)	183,863	0.0		0.0	--	2.0	--	4.7	--	6.1	--	--	--	--	--	8.3	May-13
TerraCap Partners III, LP (\$2.6m commitment in '15)	1,577,007	0.2		0.0	--	3.3	--	5.3	--	9.8	--	--	--	--	--	9.7	Jul-15
TerraCap Partners IV, LP (\$4m commitment in '17)	3,419,289	0.5		0.0	--	8.9	--	8.8	--	--	--	--	--	--	--	9.5	Nov-17
Cerberus Institutional Real Estate Partners III AIV, S.C.A. SICAV-RAIF	37,830	0.0		0.0	--	--	--	--	--	--	--	--	--	--	--	-2.1	Mar-21

Notes:

1. Importantly, all returns in this report, including those of the private real estate managers, are based on a time weighted return calculation and not based on IRRs, which can result in return differences.
2. Corbin Pinehurst Partners is preliminary as of 09/30/2021 and is subject to change when finalized.
3. Courtland/Mesirow MFire name has been updated to StepStone Real Estate Fund II.



MWRA Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	20 Yrs (%)	Rank	Inception (%)	Inception Date
Total Private Equity	65,745,208	9.4	10.0	2.0	--	37.7	--	14.9	--	14.0	--	13.2	--	9.8	--	10.3	Apr-99
CJA US All PE				0.0	--	39.5	--	19.3	--	18.6	--	15.8	--	14.0	--	13.5	Apr-99
NASDAQ W/O Income				-0.4	--	29.4	--	21.5	--	22.2	--	19.6	--	12.0	--	8.2	Apr-99
PRIM Vintage Year 2008 (\$3m commitment in '08)	1,063,426	0.2		11.8	--	46.2	--	16.0	--	20.5	--	19.5	--	--	--	10.2	Jun-08
PRIM Vintage Year 2009 (\$1m commitment in '09)	151,101	0.0		15.3	--	76.6	--	47.0	--	36.2	--	26.9	--	--	--	15.8	Nov-09
PRIM Vintage Year 2010 (\$1m commitment in '10)	811,105	0.1		23.7	--	104.4	--	34.7	--	32.0	--	23.1	--	--	--	15.6	Jun-10
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	1,116,667	0.2		26.0	--	112.3	--	34.9	--	30.4	--	17.3	--	--	--	10.9	May-11
PRIM Vintage Year 2012 (\$1m commitment in '12)	895,899	0.1		10.2	--	56.3	--	29.9	--	27.0	--	--	--	--	--	-7.6	Jun-12
PRIM Vintage Year 2014 (\$2m commitment in '14)	2,423,099	0.3		12.7	--	48.7	--	28.7	--	27.3	--	--	--	--	--	8.4	Jun-14
PRIM Vintage Year 2017 (\$2m commitment in '17)	2,269,715	0.3		16.3	--	63.3	--	25.1	--	--	--	--	--	--	--	18.4	May-17
PRIM Vintage Year 2020 (\$5m commitment in '20)	1,508,969	0.2		5.1	--	37.1	--	--	--	--	--	--	--	--	--	22.6	Mar-20
PRIM Vintage Year 2021 (\$5m commitment in '21)	723,004	0.1		2.2	--	--	--	--	--	--	--	--	--	--	--	-0.2	Dec-20
Alcentra European DLF (\$5m commitment in '14)	139,763	0.0		0.0	--	9.2	--	-0.1	--	3.4	--	--	--	--	--	4.8	Jan-15
Ascent Fund IV (\$2m commitment in '04)	6,783	0.0		0.0	--	-10.7	--	-41.9	--	-33.7	--	-32.2	--	--	--	-21.0	Jul-04
Ascent Fund IV-B (\$1m commitment in '16)	115,725	0.0		0.0	--	-20.5	--	-26.3	--	-16.2	--	--	--	--	--	-15.5	Jul-16
Ascent Fund V (\$2m commitment in '08)	1,995,137	0.3		0.0	--	22.8	--	2.4	--	1.7	--	7.1	--	--	--	5.5	Oct-08
Ascent VI (\$3m commitment in '15)	3,061,939	0.4		0.0	--	3.3	--	-2.1	--	5.1	--	--	--	--	--	0.8	Dec-15
CVI Credit Value Fund IV A LP (\$6m commitment in '17)	5,810,815	0.8		0.0	--	15.0	--	5.3	--	--	--	--	--	--	--	5.6	Dec-17
Z Terminated - Invesco Fund IV (\$3m commitment in '03)	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--	Feb-04
Invesco Fund VI (\$5m commitment in '13)	3,351,389	0.5		0.0	--	72.0	--	31.9	--	25.3	--	--	--	--	--	20.7	Jul-13
Kayne Energy Fund VII (\$5m commitment in '15)	1,839,625	0.3		0.0	--	23.1	--	-36.4	--	-17.7	--	--	--	--	--	-12.0	Jan-16
Foundry 2007 (\$3m commitment in '07)	500,263	0.1		0.0	--	141.9	--	-9.2	--	-2.4	--	8.6	--	--	--	21.5	Dec-07
Foundry 2010 (\$3m commitment in '10)	4,371,695	0.6		0.0	--	19.1	--	14.3	--	14.5	--	13.5	--	--	--	11.0	Jan-11
Foundry 2010 Annex (\$0.4m commitment in '15)	396,262	0.1		0.0	--	16.9	--	43.2	--	38.7	--	--	--	--	--	27.5	Sep-15
Pinebridge PEP V (\$6m commitment in '07)	886,598	0.1		0.0	--	19.3	--	7.5	--	5.6	--	9.8	--	--	--	--	Mar-08
Landmark XV (\$3m commitment in '13)	1,431,074	0.2		0.0	--	39.3	--	9.9	--	13.4	--	--	--	--	--	13.9	Nov-13
JFL Equity Investors IV, L.P. (\$6m commitment in '16)	6,604,571	0.9		0.0	--	69.5	--	48.3	--	--	--	--	--	--	--	41.4	Jan-17
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)	5,226,644	0.7		0.0	--	32.1	--	27.2	--	--	--	--	--	--	--	22.5	Feb-17
Park Square Credit Opportunities III (\$3m commitment in '17)	2,617,632	0.4		0.0	--	6.4	--	8.4	--	--	--	--	--	--	--	6.6	Feb-18
Ironsides Constitution Opportunities (\$3m commitment in '18)	2,424,874	0.3		0.0	--	13.6	--	12.6	--	--	--	--	--	--	--	12.6	Oct-18

Note:

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



MWRA Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	3 Mo (%)	Rank	1 Yr (%)	Rank	3 Yrs (%)	Rank	5 Yrs (%)	Rank	10 Yrs (%)	Rank	20 Yrs (%)	Rank	Inception (%)	Inception Date
HarbourVest Dover Street X (\$9m commitment in '20)	4,184,308	0.6		0.0	--	42.5	--	--	--	--	--	--	--	--	--	105.6	Jun-20
Hamilton Lane Secondary Fund V LP (\$9m commitment in '20)	5,163,962	0.7		0.0	--	50.6	--	--	--	--	--	--	--	--	--	50.6	Jul-20
JFL Equity Investors V, L.P. (\$9m commitment in '20)	4,653,162	0.7		0.0	--	-6.4	--	--	--	--	--	--	--	--	--	-12.8	Sep-20
<i>Private Equity Benchmark (1 Qtr. Lag)</i>				13.5	--	53.9	--	20.8	--	19.5	--	15.3	--	13.4	--	61.8	Sep-20

Note:

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



MWRA Employees' Retirement System

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 7.1% for the current month.
- 4 - Preliminary Total Composite gross of fee since inception return is 8.8% for the current month.
- 5 - Targets, Allocation Index, and Policy Index have been updated to reflect new allocation of 06/01/2020.
- 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, 10% Bloomberg US Aggregate TR, 4% Bloomberg US TIPS TR, 10% Bloomberg US Universal TR, 10% NCREIF Property Index, 10% CJA US All PE , 6% HFRI Fund of Funds Composite Index.
- 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



QUARTERLY PERFORMANCE REPORT

MWRA Employees' Retirement System

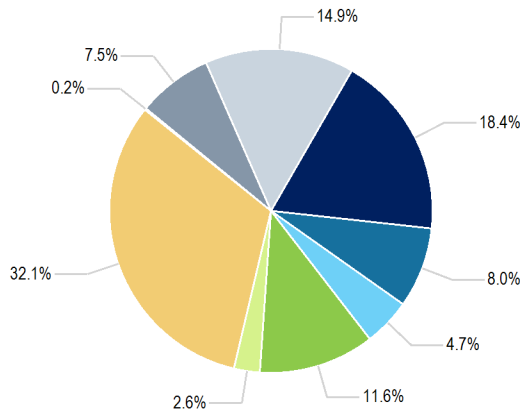
June 30, 2021



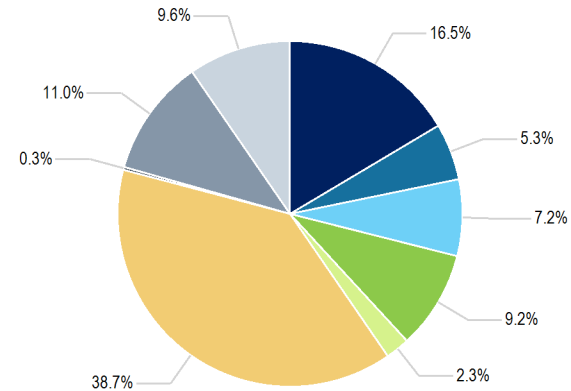
BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

MWRA Employees' Retirement System ANALYSIS BY STRATEGY

Private Markets Valuation by Strategy



Private Markets Fund Exposure by Strategy



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

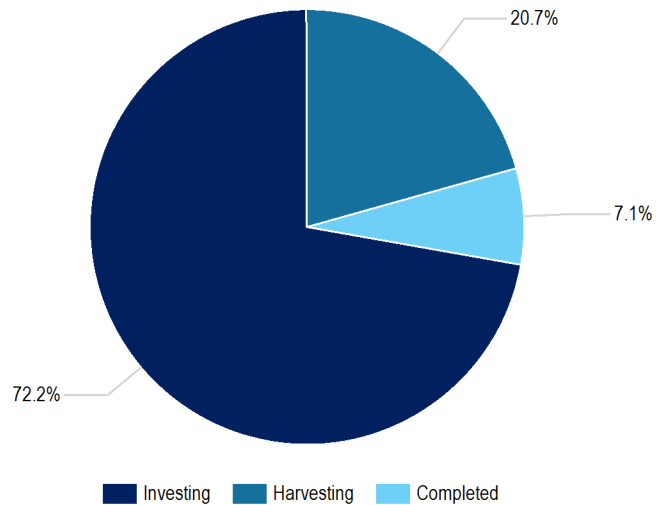
Buyout, Direct Lending, Energy, Growth Equity, Venture Capital, Co-Investments, Distressed, Fund of Funds, Secondary

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	\$18,433,530	\$5,851,661	0.68	\$12,581,869	\$114,412	\$9,142,707	\$13,089,291	\$22,231,998	\$9,535,717	\$18,940,952	0.72	1.75	14.67%
Total Co-Investments	\$4,900,000	\$380,720	0.92	\$4,519,280	\$46,833	\$2,203,826	\$5,719,730	\$7,923,556	\$3,357,444	\$6,100,450	0.48	1.74	12.41%
Total Direct Lending	\$8,000,000	\$4,854,719	0.39	\$3,145,281	\$26,581	\$1,471,943	\$3,378,132	\$4,850,075	\$1,678,213	\$8,232,851	0.46	1.53	7.39%
Total Distressed	\$9,000,000	\$2,353,559	0.74	\$6,646,441	\$10,063	\$104,935	\$8,235,689	\$8,340,624	\$1,684,120	\$10,589,248	0.02	1.25	9.61%
Total Energy	\$5,000,000	\$757,272	0.85	\$4,242,728	-\$40,917	\$984,075	\$1,839,625	\$2,823,700	-\$1,378,111	\$2,596,897	0.23	0.67	-12.91%
Total Fund of Funds	\$38,500,000	\$21,706,036	0.44	\$16,793,964	\$217,107	\$17,197,276	\$22,798,476	\$39,995,752	\$22,984,680	\$44,504,512	1.01	2.35	16.84%
Total Growth Equity	\$900,000	\$194,403	0.78	\$705,597	-\$9,254	\$1,235,115	\$113,328	\$1,348,443	\$652,100	\$307,731	1.77	1.94	9.75%
Total Secondaries	\$12,600,000	\$7,311,215	0.42	\$5,288,785	\$14,362	\$2,674,452	\$5,340,588	\$8,015,040	\$2,711,893	\$12,651,803	0.50	1.51	16.71%
Total Venture Capital	\$20,123,012	\$456,528	0.98	\$19,666,484	\$64,437	\$25,365,734	\$10,613,470	\$35,979,204	\$16,248,283	\$11,069,998	1.29	1.82	11.97%
Total	\$117,456,542	\$43,866,113	0.63	\$73,590,430	\$443,624	\$60,380,062	\$71,128,330	\$131,508,392	\$57,474,338	\$114,994,442	0.82	1.78	13.09%

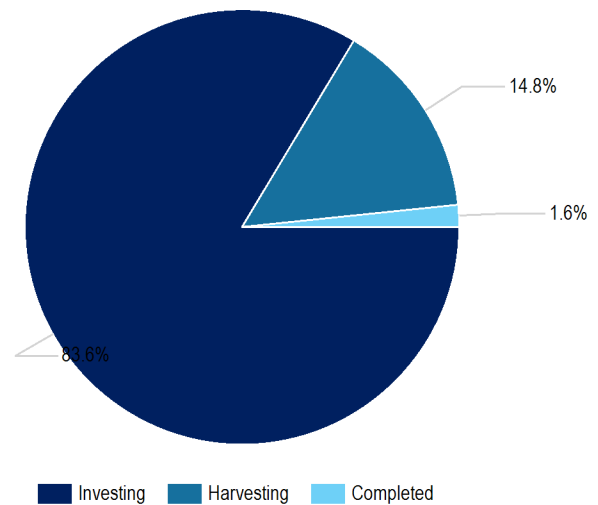


MWRA Employees' Retirement System ANALYSIS BY LIFECYCLE

Commitment by Lifecycle



Unfunded Commitment by Lifecycle



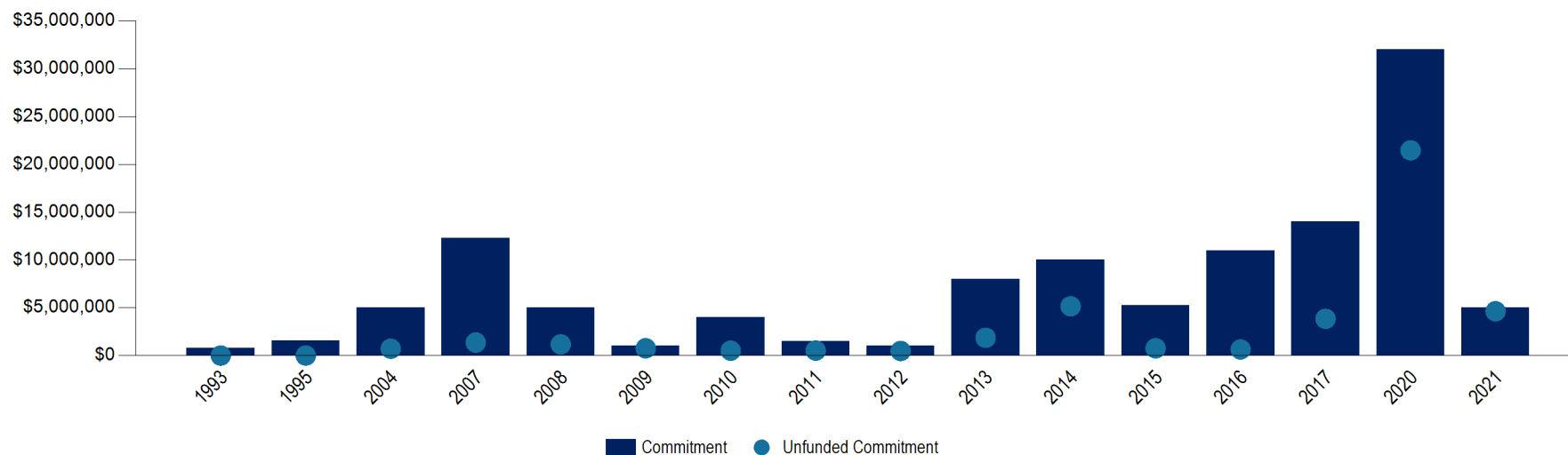
Lifecycle	Commitments			Contributions & Distributions			Valuations			Performance		
	Commitment	Unfunded Commitment	Call Ratio	Cumulative Contributions	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	DPI	TVPI	IRR
Total Investing	\$84,768,205	\$36,677,724	0.57	\$48,090,481	\$35,378	\$22,131,485	\$61,149,011	\$83,280,496	\$35,154,637	0.46	1.73	19.04%
Total Harvesting	\$24,313,530	\$6,471,155	0.73	\$17,842,376	\$124,552	\$28,234,985	\$9,979,319	\$38,214,303	\$20,247,376	1.57	2.13	13.00%
Total Completed	\$8,374,807	\$717,234	0.91	\$7,657,573	\$283,694	\$10,013,593	\$0	\$10,013,593	\$2,072,325	1.26	1.26	6.22%
Total	\$117,456,542	\$43,866,113	0.63	\$73,590,430	\$443,624	\$60,380,062	\$71,128,330	\$131,508,392	\$57,474,338	0.82	1.78	13.09%



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	\$5,178,912	\$6,783	\$5,185,695	\$670,731	1.15	1.15	2.14%
Total 2007	\$12,313,530	\$1,359,296	0.89	\$10,954,234	\$158,583	\$22,186,612	\$1,386,861	\$23,573,473	\$12,460,656	2.00	2.12	14.46%
Total 2008	\$5,000,000	\$1,166,681	0.77	\$3,833,319	\$2,212	\$4,775,189	\$3,045,133	\$7,820,323	\$3,984,791	1.24	2.04	12.42%
Total 2009	\$1,000,000	\$756,264	0.24	\$243,736	\$109	\$548,851	\$185,285	\$734,136	\$490,291	2.25	3.01	20.90%
Total 2010	\$4,000,000	\$513,456	0.87	\$3,486,544	\$180	\$3,174,541	\$5,076,821	\$8,251,362	\$4,764,638	0.91	2.37	13.07%
Total 2011	\$1,500,000	\$517,547	0.65	\$982,453	\$159	\$1,788,536	\$958,109	\$2,746,645	\$1,764,033	1.82	2.80	20.35%
Total 2012	\$1,000,000	\$480,765	0.52	\$519,235	\$44	\$562,545	\$869,212	\$1,431,756	\$912,478	1.08	2.76	21.05%
Total 2013	\$8,000,000	\$1,861,151	0.77	\$6,138,849	-\$9,117	\$5,815,218	\$10,995,819	\$16,811,037	\$10,681,305	0.95	2.74	20.24%
Total 2014	\$10,000,000	\$5,153,680	0.48	\$4,846,320	\$26,581	\$2,212,707	\$6,012,190	\$8,224,897	\$3,351,996	0.45	1.69	9.41%
Total 2015	\$5,268,205	\$757,272	0.86	\$4,510,933	-\$40,917	\$1,255,900	\$2,296,078	\$3,551,978	-\$918,038	0.28	0.79	-7.38%



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 2016	\$11,000,000	\$640,822	0.94	\$10,359,178	\$75,121	\$7,895,820	\$14,352,218	\$22,248,038	\$11,813,739	0.76	2.13	30.83%
Total 2017	\$14,000,000	\$3,842,512	0.73	\$10,157,488	\$10,089	\$253,690	\$12,795,971	\$13,049,661	\$2,882,083	0.02	1.28	11.32%
Total 2020	\$32,000,000	\$21,466,612	0.33	\$10,533,388	-\$11,619	\$415,547	\$12,785,555	\$13,201,102	\$2,679,332	0.04	1.25	49.62%
Total 2021	\$5,000,000	\$4,632,822	0.07	\$367,178	\$0	\$0	\$362,294	\$362,294	-\$4,884	0.00	0.99	-2.41%
Total	\$117,456,542	\$43,866,113	0.63	\$73,590,430	\$443,624	\$60,380,062	\$71,128,330	\$131,508,392	\$57,474,338	0.82	1.78	13.09%



APPENDIX

MWRA Employees' Retirement System

June 30, 2021



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	3.83%	-3.63%	-1.70%	-14.70%	-8.99%	2.19%	1.60%	7.31%	0.78	MSCI ACWI
AIG PEP V Co-Investment, L.P.	2007	\$900,000	5.88%	9.70%	19.16%	-0.83%	-0.69%	5.67%	0.74%	9.02%	0.64	MSCI ACWI
AIG PEP V Europe, L.P.	2007	\$1,660,412	-3.22%	-11.98%	-16.80%	12.50%	17.18%	6.99%	2.37%	6.73%	0.80	MSCI ACWI
AIG PEP V Large Market U.S. Buyout, L.P.	2007	\$720,000	4.01%	14.74%	43.75%	15.86%	18.00%	14.21%	7.83%	-2.21%	1.26	MSCI ACWI
AIG PEP V Preferred Participation Fund, L.P.	2007	\$503,561	0.08%	-0.54%	38.94%	3.68%	-2.27%	15.85%	11.51%	8.23%	1.16	MSCI ACWI
AIG PEP V Secondary, L.P.	2007	\$600,000	4.90%	3.21%	4.84%	-12.49%	-5.18%	3.19%	6.78%	9.81%	0.90	MSCI ACWI
AIG PEP V Small-Mid Market U.S. Buyout, L.P.	2007	\$900,000	6.71%	9.90%	24.62%	20.37%	15.01%	13.58%	9.75%		1.40	MSCI ACWI
AIG PEP V US Venture, L.P.	2007	\$480,000	-0.11%	0.60%	7.99%	-0.68%	3.62%	11.62%	13.14%		1.58	MSCI ACWI
Alcentra European Direct Lending Fund I, L.P.	2014	\$5,000,000	4.89%	6.05%	8.27%	-1.84%	5.02%		7.12%	7.16%	1.00	MSCI ACWI
Ascent Venture Partners II, L.P.	1995	\$774,807							26.71%			
Ascent Venture Partners IV(B), L.P.	2016	\$1,000,000	-13.54%	-13.92%	-21.84%	-27.63%	-14.42%		-1.64%	8.44%	0.77	MSCI ACWI
Ascent Venture Partners IV, L.P.	2004	\$2,000,000	-4.44%	-5.14%	-6.61%	-44.06%	-34.45%	-34.33%	-27.09%	8.18%	0.13	MSCI ACWI
Ascent Venture Partners V, L.P.	2008	\$2,000,000	18.75%	18.98%	25.39%	1.77%	1.91%	8.36%	7.88%	10.52%	0.87	MSCI ACWI
Ascent Venture Partners VI, L.P.	2014	\$3,000,000	1.75%	2.85%	5.03%	-1.08%	3.01%		2.35%	13.98%	0.67	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	2.39%	8.78%	20.38%	7.89%			7.88%	20.10%	0.79	MSCI ACWI
Dover Street X, L.P.	2020	\$9,000,000	22.92%	32.09%	62.45%				103.72%	41.97%	1.26	Russell 3000
Foundry Venture Capital 2007, L.P.	2007	\$3,000,000	6.96%	55.86%	151.04%	23.19%	7.19%	15.41%	42.81%	15.54%	3.66	MSCI ACWI
Foundry Venture Capital 2010 Annex, L.P.	2015	\$268,205	-0.03%	-0.08%	129.51%	39.56%	32.12%		26.21%	11.16%	1.65	MSCI ACWI
Foundry Venture Capital 2010, L.P.	2010	\$3,000,000	17.17%	17.08%	53.12%	16.24%	13.06%	12.47%	11.89%	10.66%	1.08	MSCI ACWI
Hamilton Lane Secondary Fund V, L.P.	2020	\$9,000,000	20.89%	22.06%	74.48%				79.85%	35.20%	1.21	MSCI ACWI
Invesco Fund IV, L.P.	2004	\$3,000,000	-14.41%	-14.41%	-23.01%	-28.30%	4.60%	9.82%	10.33%			
Invesco Partnership Fund VI, L.P.	2013	\$5,000,000	2.99%	39.38%	97.38%	30.03%	24.72%		21.37%	10.87%	1.68	MSCI ACWI
Ironsides Opportunities Fund, L.P.	2017	\$3,000,000	3.52%	7.37%	18.91%				14.44%	18.62%	0.96	MSCI ACWI
JFL Equity Investors IV, L.P.	2016	\$6,000,000	16.58%	36.72%	66.03%	49.39%			40.34%	12.27%	1.73	MSCI ACWI
JFL Equity Investors V, L.P.	2020	\$9,000,000	-1.73%	-4.13%					-12.51%	26.63%	0.83	MSCI ACWI
Kayne Anderson Energy Fund VII, L.P.	2015	\$5,000,000	11.55%	48.54%	35.22%	-32.26%	-13.21%		-12.91%	15.13%	0.56	MSCI ACWI
Landmark Equity Partners XV, L.P.	2013	\$3,000,000	5.48%	4.66%	49.35%	12.16%	14.89%		13.73%	10.23%	1.07	MSCI ACWI
Mass PRIM AIVY 2008	2008	\$3,000,000	9.04%	10.81%	44.48%	10.80%	17.29%	19.16%	17.34%	7.57%	1.42	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
Mass PRIM AIVY 2009	2009	\$1,000,000	12.82%	35.19%	152.83%	35.10%	25.48%	22.14%	20.90%	5.19%	1.74	MSCI ACWI
Mass PRIM AIVY 2010	2010	\$1,000,000	29.20%	48.85%	105.58%	24.44%	20.11%	19.50%	19.15%	8.56%	1.63	MSCI ACWI
Mass PRIM AIVY 2011	2011	\$1,500,000	36.52%	52.80%	74.74%	24.38%	21.40%	20.36%	20.35%	8.26%	1.64	MSCI ACWI
Mass PRIM AIVY 2012	2012	\$1,000,000	13.85%	30.28%	78.56%	24.98%	22.59%		21.05%	8.86%	1.65	MSCI ACWI
Mass PRIM AIVY 2014	2014	\$2,000,000	9.44%	23.15%	56.96%	26.15%	26.00%		25.01%	11.47%	1.59	MSCI ACWI
Mass PRIM AIVY 2017	2017	\$2,000,000	7.76%	27.08%	64.83%	26.71%			28.58%	19.52%	1.16	MSCI ACWI
Mass PRIM AIVY 2020	2020	\$5,000,000	14.08%	25.26%	51.44%				41.61%	34.26%	1.03	MSCI ACWI
Mass PRIM AIVY 2021	2021	\$5,000,000	-13.98%	-23.68%					-2.41%	4.70%	0.96	MSCI ACWI
Park Square Capital Credit Opportunities III (USD), L.P.	2017	\$3,000,000	1.77%	3.93%	8.59%	9.11%			8.50%	20.16%	0.81	MSCI ACWI
Private Advisors Small Co Coinvestment Fund, L.P.	2016	\$4,000,000	9.28%	20.76%	44.02%	33.73%			27.20%	14.52%	1.30	MSCI ACWI
Ticonderoga Concord Partners III, L.P.	1995	\$800,000							-8.06%			
Total		\$117,456,542	9.24%	21.47%	46.76%	16.54%	15.14%	13.19%	13.09%			



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	\$122,805	\$426,752	\$11,622	\$425,655	\$57,954	\$483,609	\$45,235	0.97	1.10	1.60%
AIG PEP V Co-Investment, L.P.	2007	\$900,000	\$22,644	\$877,356	\$32,765	\$885,186	\$73,068	\$958,254	\$48,133	0.97	1.05	0.74%
AIG PEP V Europe, L.P.	2007	\$1,660,412	\$575,078	\$1,085,334	\$25,194	\$1,292,083	\$22,763	\$1,314,847	\$204,318	1.16	1.18	2.37%
AIG PEP V Large Market U.S. Buyout, L.P.	2007	\$720,000	\$131,894	\$588,106	-\$11,616	\$862,272	\$162,454	\$1,024,726	\$448,236	1.50	1.78	7.83%
AIG PEP V Preferred Participation Fund, L.P.	2007	\$503,561	\$3,899	\$499,662	\$28,158	\$778,653	\$317,237	\$1,095,890	\$568,070	1.48	2.08	11.51%
AIG PEP V Secondary, L.P.	2007	\$600,000	\$191,709	\$408,291	\$17,277	\$559,856	\$36,133	\$595,989	\$170,421	1.32	1.40	6.78%
AIG PEP V Small-Mid Market U.S. Buyout, L.P.	2007	\$900,000	\$194,403	\$705,597	-\$9,254	\$1,235,115	\$113,328	\$1,348,443	\$652,100	1.77	1.94	9.75%
AIG PEP V US Venture, L.P.	2007	\$480,000	\$71,864	\$408,136	\$12,941	\$788,687	\$103,661	\$892,348	\$471,271	1.87	2.12	13.14%
Alcentra European Direct Lending Fund I, L.P.	2014	\$5,000,000	\$4,164,852	\$835,148	\$26,581	\$1,365,134	\$723,563	\$2,088,697	\$1,226,968	1.58	2.42	7.12%
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	\$793,136	\$117,538	\$910,674	-\$57,161	0.82	0.94	-1.64%
Ascent Venture Partners IV, L.P.	2004	\$2,000,000	\$0	\$2,000,000	\$0	\$334,111	\$6,783	\$340,894	-\$1,659,106	0.17	0.17	-27.09%
Ascent Venture Partners V, L.P.	2008	\$2,000,000	\$60,000	\$1,940,000	\$0	\$1,298,211	\$1,995,137	\$3,293,348	\$1,353,348	0.67	1.70	7.88%
Ascent Venture Partners VI, L.P.	2014	\$3,000,000	\$180,000	\$2,820,000	\$0	\$0	\$3,061,939	\$3,061,939	\$241,939	0.00	1.09	2.35%
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	\$1,200,000	\$4,800,000	-\$1,229	\$0	\$5,810,815	\$5,810,815	\$1,012,044	0.00	1.21	7.88%
Dover Street X, L.P.	2020	\$9,000,000	\$6,300,000	\$2,700,000	\$6,202	\$415,547	\$3,809,176	\$4,224,723	\$1,518,521	0.15	1.56	103.72%
Foundry Venture Capital 2007, L.P.	2007	\$3,000,000	\$45,000	\$2,955,000	\$0	\$14,506,308	\$500,263	\$15,006,571	\$12,051,571	4.91	5.08	42.81%
Foundry Venture Capital 2010 Annex, L.P.	2015	\$268,205	\$0	\$268,205	\$0	\$271,825	\$456,453	\$728,278	\$460,073	1.01	2.72	26.21%
Foundry Venture Capital 2010, L.P.	2010	\$3,000,000	\$67,500	\$2,932,500	\$0	\$2,204,665	\$4,371,695	\$6,576,360	\$3,643,860	0.75	2.24	11.89%
Hamilton Lane Secondary Fund V, L.P.	2020	\$9,000,000	\$6,088,212	\$2,911,788	-\$17,882	\$0	\$4,202,063	\$4,202,063	\$1,308,157	0.00	1.45	79.85%
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	\$4,116,169	\$9,500,540	\$13,616,709	\$9,658,354	1.04	3.44	21.37%
Ironsides Opportunities Fund, L.P.	2017	\$3,000,000	\$1,153,559	\$1,846,441	\$11,292	\$104,935	\$2,424,874	\$2,529,809	\$672,076	0.06	1.36	14.44%
JFL Equity Investors IV, L.P.	2016	\$6,000,000	\$250,581	\$5,749,419	\$61,053	\$5,784,043	\$8,588,018	\$14,372,061	\$8,561,590	1.00	2.47	40.34%
JFL Equity Investors V, L.P.	2020	\$9,000,000	\$4,767,403	\$4,232,597	\$0	\$0	\$3,940,865	\$3,940,865	-\$291,732	0.00	0.93	-12.51%
Kayne Anderson Energy Fund VII, L.P.	2015	\$5,000,000	\$757,272	\$4,242,728	-\$40,917	\$984,075	\$1,839,625	\$2,823,700	-\$1,378,111	0.23	0.67	-12.91%
Landmark Equity Partners XV, L.P.	2013	\$3,000,000	\$819,506	\$2,180,494	-\$9,117	\$1,699,049	\$1,495,279	\$3,194,328	\$1,022,951	0.78	1.47	13.73%
Mass PRIM AIVY 2008	2008	\$3,000,000	\$1,106,681	\$1,893,319	\$2,212	\$3,476,978	\$1,049,996	\$4,526,974	\$2,631,443	1.83	2.39	17.34%



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
Mass PRIM AIVY 2009	2009	\$1,000,000	\$756,264	\$243,736	\$109	\$548,851	\$185,285	\$734,136	\$490,291	2.25	3.01	20.90%
Mass PRIM AIVY 2010	2010	\$1,000,000	\$445,956	\$554,044	\$180	\$969,876	\$705,126	\$1,675,002	\$1,120,778	1.75	3.02	19.15%
Mass PRIM AIVY 2011	2011	\$1,500,000	\$517,547	\$982,453	\$159	\$1,788,536	\$958,109	\$2,746,645	\$1,764,033	1.82	2.80	20.35%
Mass PRIM AIVY 2012	2012	\$1,000,000	\$480,765	\$519,235	\$44	\$562,545	\$869,212	\$1,431,756	\$912,478	1.08	2.76	21.05%
Mass PRIM AIVY 2014	2014	\$2,000,000	\$808,828	\$1,191,172	\$0	\$847,573	\$2,226,688	\$3,074,261	\$1,883,089	0.71	2.58	25.01%
Mass PRIM AIVY 2017	2017	\$2,000,000	\$799,086	\$1,200,914	\$26	\$41,946	\$1,905,713	\$1,947,659	\$746,718	0.03	1.62	28.58%
Mass PRIM AIVY 2020	2020	\$5,000,000	\$4,310,997	\$689,003	\$61	\$0	\$833,451	\$833,451	\$144,386	0.00	1.21	41.61%
Mass PRIM AIVY 2021	2021	\$5,000,000	\$4,632,822	\$367,178	\$0	\$0	\$362,294	\$362,294	-\$4,884	0.00	0.99	-2.41%
Park Square Capital Credit Opportunities III (USD), L.P.	2017	\$3,000,000	\$689,867	\$2,310,133	\$0	\$106,809	\$2,654,569	\$2,761,378	\$451,245	0.05	1.20	8.50%
Private Advisors Small Co Coinvestment Fund, L.P.	2016	\$4,000,000	\$358,076	\$3,641,924	\$14,068	\$1,318,640	\$5,646,662	\$6,965,302	\$3,309,311	0.36	1.91	27.20%
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		\$117,456,542	\$43,866,113	\$73,590,430	\$443,624	\$60,380,062	\$71,128,330	\$131,508,392	\$57,474,338	0.82	1.78	13.09%



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	\$793,136	\$117,538	\$910,674	-\$57,161	0.82	0.94	-1.64%
Ascent Venture Partners VI, L.P.	2014	\$3,000,000	\$180,000	\$2,820,000	\$0	\$0	\$3,061,939	\$3,061,939	\$241,939	0.00	1.09	2.35%
CVI Credit Value Fund A IV, L.P.	2017	\$6,000,000	\$1,200,000	\$4,800,000	-\$1,229	\$0	\$5,810,815	\$5,810,815	\$1,012,044	0.00	1.21	7.88%
Dover Street X, L.P.	2020	\$9,000,000	\$6,300,000	\$2,700,000	\$6,202	\$415,547	\$3,809,176	\$4,224,723	\$1,518,521	0.15	1.56	103.72%
Foundry Venture Capital 2010 Annex, L.P.	2015	\$268,205	\$0	\$268,205	\$0	\$271,825	\$456,453	\$728,278	\$460,073	1.01	2.72	26.21%
Hamilton Lane Secondary Fund V, L.P.	2020	\$9,000,000	\$6,088,212	\$2,911,788	-\$17,882	\$0	\$4,202,063	\$4,202,063	\$1,308,157	0.00	1.45	79.85%
Invesco Partnership Fund VI, L.P.	2013	\$5,000,000	\$1,041,645	\$3,958,355	\$0	\$4,116,169	\$9,500,540	\$13,616,709	\$9,658,354	1.04	3.44	21.37%
Ironsides Opportunities Fund, L.P.	2017	\$3,000,000	\$1,153,559	\$1,846,441	\$11,292	\$104,935	\$2,424,874	\$2,529,809	\$672,076	0.06	1.36	14.44%
JFL Equity Investors IV, L.P.	2016	\$6,000,000	\$250,581	\$5,749,419	\$61,053	\$5,784,043	\$8,588,018	\$14,372,061	\$8,561,590	1.00	2.47	40.34%
JFL Equity Investors V, L.P.	2020	\$9,000,000	\$4,767,403	\$4,232,597	\$0	\$0	\$3,940,865	\$3,940,865	-\$291,732	0.00	0.93	-12.51%
Kayne Anderson Energy Fund VII, L.P.	2015	\$5,000,000	\$757,272	\$4,242,728	-\$40,917	\$984,075	\$1,839,625	\$2,823,700	-\$1,378,111	0.23	0.67	-12.91%
Mass PRIM AIVY 2008	2008	\$3,000,000	\$1,106,681	\$1,893,319	\$2,212	\$3,476,978	\$1,049,996	\$4,526,974	\$2,631,443	1.83	2.39	17.34%
Mass PRIM AIVY 2009	2009	\$1,000,000	\$756,264	\$243,736	\$109	\$548,851	\$185,285	\$734,136	\$490,291	2.25	3.01	20.90%
Mass PRIM AIVY 2010	2010	\$1,000,000	\$445,956	\$554,044	\$180	\$969,876	\$705,126	\$1,675,002	\$1,120,778	1.75	3.02	19.15%
Mass PRIM AIVY 2011	2011	\$1,500,000	\$517,547	\$982,453	\$159	\$1,788,536	\$958,109	\$2,746,645	\$1,764,033	1.82	2.80	20.35%
Mass PRIM AIVY 2012	2012	\$1,000,000	\$480,765	\$519,235	\$44	\$562,545	\$869,212	\$1,431,756	\$912,478	1.08	2.76	21.05%
Mass PRIM AIVY 2014	2014	\$2,000,000	\$808,828	\$1,191,172	\$0	\$847,573	\$2,226,688	\$3,074,261	\$1,883,089	0.71	2.58	25.01%
Mass PRIM AIVY 2017	2017	\$2,000,000	\$799,086	\$1,200,914	\$26	\$41,946	\$1,905,713	\$1,947,659	\$746,718	0.03	1.62	28.58%
Mass PRIM AIVY 2020	2020	\$5,000,000	\$4,310,997	\$689,003	\$61	\$0	\$833,451	\$833,451	\$144,386	0.00	1.21	41.61%
Mass PRIM AIVY 2021	2021	\$5,000,000	\$4,632,822	\$367,178	\$0	\$0	\$362,294	\$362,294	-\$4,884	0.00	0.99	-2.41%
Park Square Capital Credit Opportunities III (USD), L.P.	2017	\$3,000,000	\$689,867	\$2,310,133	\$0	\$106,809	\$2,654,569	\$2,761,378	\$451,245	0.05	1.20	8.50%
Private Advisors Small Co Coinvestment Fund, L.P.	2016	\$4,000,000	\$358,076	\$3,641,924	\$14,068	\$1,318,640	\$5,646,662	\$6,965,302	\$3,309,311	0.36	1.91	27.20%
Total Investing		\$84,768,205	\$36,677,724	\$48,090,481	\$35,378	\$22,131,485	\$61,149,011	\$83,280,496	\$35,154,637	0.46	1.73	19.04%
Harvesting												
AIG PEP V Asia, L.P.	2007	\$549,557	\$122,805	\$426,752	\$11,622	\$425,655	\$57,954	\$483,609	\$45,235	0.97	1.10	1.60%
AIG PEP V Co-Investment, L.P.	2007	\$900,000	\$22,644	\$877,356	\$32,765	\$885,186	\$73,068	\$958,254	\$48,133	0.97	1.05	0.74%
AIG PEP V Europe, L.P.	2007	\$1,660,412	\$575,078	\$1,085,334	\$25,194	\$1,292,083	\$22,763	\$1,314,847	\$204,318	1.16	1.18	2.37%
AIG PEP V Large Market U.S. Buyout, L.P.	2007	\$720,000	\$131,894	\$588,106	-\$11,616	\$862,272	\$162,454	\$1,024,726	\$448,236	1.50	1.78	7.83%
AIG PEP V Preferred Participation Fund, L.P.	2007	\$503,561	\$3,899	\$499,662	\$28,158	\$778,653	\$317,237	\$1,095,890	\$568,070	1.48	2.08	11.51%
AIG PEP V Secondary, L.P.	2007	\$600,000	\$191,709	\$408,291	\$17,277	\$559,856	\$36,133	\$595,989	\$170,421	1.32	1.40	6.78%
AIG PEP V Small-Mid Market U.S. Buyout, L.P.	2007	\$900,000	\$194,403	\$705,597	-\$9,254	\$1,235,115	\$113,328	\$1,348,443	\$652,100	1.77	1.94	9.75%



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 US Venture, L.P.	2007	\$480,000	\$71,864	\$408,136	\$12,941	\$788,687	\$103,661	\$892,348	\$471,271	1.87	2.12	13.14%
Alcentra European Direct Lending Fund I, L.P.	2014	\$5,000,000	\$4,164,852	\$835,148	\$26,581	\$1,365,134	\$723,563	\$2,088,697	\$1,226,968	1.58	2.42	7.12%
Ascent Venture Partners IV, L.P.	2004	\$2,000,000	\$0	\$2,000,000	\$0	\$334,111	\$6,783	\$340,894	-\$1,659,106	0.17	0.17	-27.09%
Ascent Venture Partners V, L.P.	2008	\$2,000,000	\$60,000	\$1,940,000	\$0	\$1,298,211	\$1,995,137	\$3,293,348	\$1,353,348	0.67	1.70	7.88%
Foundry Venture Capital 2007, L.P.	2007	\$3,000,000	\$45,000	\$2,955,000	\$0	\$14,506,308	\$500,263	\$15,006,571	\$12,051,571	4.91	5.08	42.81%
Foundry Venture Capital 2010, L.P.	2010	\$3,000,000	\$67,500	\$2,932,500	\$0	\$2,204,665	\$4,371,695	\$6,576,360	\$3,643,860	0.75	2.24	11.89%
Landmark Equity Partners XV, L.P.	2013	\$3,000,000	\$819,506	\$2,180,494	-\$9,117	\$1,699,049	\$1,495,279	\$3,194,328	\$1,022,951	0.78	1.47	13.73%
Total Harvesting		\$24,313,530	\$6,471,155	\$17,842,376	\$124,552	\$28,234,985	\$9,979,319	\$38,214,303	\$20,247,376	1.57	2.13	13.00%
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%
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		\$8,374,807	\$717,234	\$7,657,573	\$283,694	\$10,013,593	\$0	\$10,013,593	\$2,072,325	1.26	1.26	6.22%
Total		\$117,456,542	\$43,866,113	\$73,590,430	\$443,624	\$60,380,062	\$71,128,330	\$131,508,392	\$57,474,338	0.82	1.78	13.09%



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	\$334,111	\$6,783	\$340,894	-\$1,659,106	0.17	0.17	-27.09%
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	\$5,178,912	\$6,783	\$5,185,695	\$670,731	1.15	1.15	2.14%
2007												
AIG PEP V Asia, L.P.	2007	\$549,557	\$122,805	\$426,752	\$11,622	\$425,655	\$57,954	\$483,609	\$45,235	0.97	1.10	1.60%
AIG PEP V Co-Investment, L.P.	2007	\$900,000	\$22,644	\$877,356	\$32,765	\$885,186	\$73,068	\$958,254	\$48,133	0.97	1.05	0.74%
AIG PEP V Europe, L.P.	2007	\$1,660,412	\$575,078	\$1,085,334	\$25,194	\$1,292,083	\$22,763	\$1,314,847	\$204,318	1.16	1.18	2.37%
AIG PEP V Large Market U.S. Buyout, L.P.	2007	\$720,000	\$131,894	\$588,106	-\$11,616	\$862,272	\$162,454	\$1,024,726	\$448,236	1.50	1.78	7.83%
AIG PEP V Preferred Participation Fund, L.P.	2007	\$503,561	\$3,899	\$499,662	\$28,158	\$778,653	\$317,237	\$1,095,890	\$568,070	1.48	2.08	11.51%
AIG PEP V Secondary, L.P.	2007	\$600,000	\$191,709	\$408,291	\$17,277	\$559,856	\$36,133	\$595,989	\$170,421	1.32	1.40	6.78%
AIG PEP V Small-Mid Market U.S. Buyout, L.P.	2007	\$900,000	\$194,403	\$705,597	-\$9,254	\$1,235,115	\$113,328	\$1,348,443	\$652,100	1.77	1.94	9.75%
AIG PEP V US Venture, L.P.	2007	\$480,000	\$71,864	\$408,136	\$12,941	\$788,687	\$103,661	\$892,348	\$471,271	1.87	2.12	13.14%
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	\$500,263	\$15,006,571	\$12,051,571	4.91	5.08	42.81%
Total 2007		\$12,313,530	\$1,359,296	\$10,954,234	\$158,583	\$22,186,612	\$1,386,861	\$23,573,473	\$12,460,656	2.00	2.12	14.46%
2008												
Ascent Venture Partners V, L.P.	2008	\$2,000,000	\$60,000	\$1,940,000	\$0	\$1,298,211	\$1,995,137	\$3,293,348	\$1,353,348	0.67	1.70	7.88%
Mass PRIM AIVY 2008	2008	\$3,000,000	\$1,106,681	\$1,893,319	\$2,212	\$3,476,978	\$1,049,996	\$4,526,974	\$2,631,443	1.83	2.39	17.34%
Total 2008		\$5,000,000	\$1,166,681	\$3,833,319	\$2,212	\$4,775,189	\$3,045,133	\$7,820,323	\$3,984,791	1.24	2.04	12.42%
2009												
Mass PRIM AIVY 2009	2009	\$1,000,000	\$756,264	\$243,736	\$109	\$548,851	\$185,285	\$734,136	\$490,291	2.25	3.01	20.90%
Total 2009		\$1,000,000	\$756,264	\$243,736	\$109	\$548,851	\$185,285	\$734,136	\$490,291	2.25	3.01	20.90%



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	\$2,204,665	\$4,371,695	\$6,576,360	\$3,643,860	0.75	2.24	11.89%
Mass PRIM AIVY 2010	2010	\$1,000,000	\$445,956	\$554,044	\$180	\$969,876	\$705,126	\$1,675,002	\$1,120,778	1.75	3.02	19.15%
Total 2010		\$4,000,000	\$513,456	\$3,486,544	\$180	\$3,174,541	\$5,076,821	\$8,251,362	\$4,764,638	0.91	2.37	13.07%
2011												
Mass PRIM AIVY 2011	2011	\$1,500,000	\$517,547	\$982,453	\$159	\$1,788,536	\$958,109	\$2,746,645	\$1,764,033	1.82	2.80	20.35%
Total 2011		\$1,500,000	\$517,547	\$982,453	\$159	\$1,788,536	\$958,109	\$2,746,645	\$1,764,033	1.82	2.80	20.35%
2012												
Mass PRIM AIVY 2012	2012	\$1,000,000	\$480,765	\$519,235	\$44	\$562,545	\$869,212	\$1,431,756	\$912,478	1.08	2.76	21.05%
Total 2012		\$1,000,000	\$480,765	\$519,235	\$44	\$562,545	\$869,212	\$1,431,756	\$912,478	1.08	2.76	21.05%
2013												
Invesco Partnership Fund VI, L.P.	2013	\$5,000,000	\$1,041,645	\$3,958,355	\$0	\$4,116,169	\$9,500,540	\$13,616,709	\$9,658,354	1.04	3.44	21.37%
Landmark Equity Partners XV, L.P.	2013	\$3,000,000	\$819,506	\$2,180,494	-\$9,117	\$1,699,049	\$1,495,279	\$3,194,328	\$1,022,951	0.78	1.47	13.73%
Total 2013		\$8,000,000	\$1,861,151	\$6,138,849	-\$9,117	\$5,815,218	\$10,995,819	\$16,811,037	\$10,681,305	0.95	2.74	20.24%
2014												
Alcentra European Direct Lending Fund I, L.P.	2014	\$5,000,000	\$4,164,852	\$835,148	\$26,581	\$1,365,134	\$723,563	\$2,088,697	\$1,226,968	1.58	2.42	7.12%
Ascent Venture Partners VI, L.P.	2014	\$3,000,000	\$180,000	\$2,820,000	\$0	\$0	\$3,061,939	\$3,061,939	\$241,939	0.00	1.09	2.35%
Mass PRIM AIVY 2014	2014	\$2,000,000	\$808,828	\$1,191,172	\$0	\$847,573	\$2,226,688	\$3,074,261	\$1,883,089	0.71	2.58	25.01%
Total 2014		\$10,000,000	\$5,153,680	\$4,846,320	\$26,581	\$2,212,707	\$6,012,190	\$8,224,897	\$3,351,996	0.45	1.69	9.41%
2015												
Foundry Venture Capital 2010 Annex, L.P.	2015	\$268,205	\$0	\$268,205	\$0	\$271,825	\$456,453	\$728,278	\$460,073	1.01	2.72	26.21%
Kayne Anderson Energy Fund VII, L.P.	2015	\$5,000,000	\$757,272	\$4,242,728	-\$40,917	\$984,075	\$1,839,625	\$2,823,700	-\$1,378,111	0.23	0.67	-12.91%
Total 2015		\$5,268,205	\$757,272	\$4,510,933	-\$40,917	\$1,255,900	\$2,296,078	\$3,551,978	-\$918,038	0.28	0.79	-7.38%
2016												
Ascent Venture Partners IV(B), L.P.	2016	\$1,000,000	\$32,164	\$967,836	\$0	\$793,136	\$117,538	\$910,674	-\$57,161	0.82	0.94	-1.64%
JFL Equity Investors IV, L.P.	2016	\$6,000,000	\$250,581	\$5,749,419	\$61,053	\$5,784,043	\$8,588,018	\$14,372,061	\$8,561,590	1.00	2.47	40.34%
Private Advisors Small Co Coinvestment Fund, L.P.	2016	\$4,000,000	\$358,076	\$3,641,924	\$14,068	\$1,318,640	\$5,646,662	\$6,965,302	\$3,309,311	0.36	1.91	27.20%
Total 2016		\$11,000,000	\$640,822	\$10,359,178	\$75,121	\$7,895,820	\$14,352,218	\$22,248,038	\$11,813,739	0.76	2.13	30.83%



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	\$1,200,000	\$4,800,000	-\$1,229	\$0	\$5,810,815	\$5,810,815	\$1,012,044	0.00	1.21	7.88%
Ironsides Opportunities Fund, L.P.	2017	\$3,000,000	\$1,153,559	\$1,846,441	\$11,292	\$104,935	\$2,424,874	\$2,529,809	\$672,076	0.06	1.36	14.44%
Mass PRIM AIVY 2017	2017	\$2,000,000	\$799,086	\$1,200,914	\$26	\$41,946	\$1,905,713	\$1,947,659	\$746,718	0.03	1.62	28.58%
Park Square Capital Credit Opportunities III (USD), L.P.	2017	\$3,000,000	\$689,867	\$2,310,133	\$0	\$106,809	\$2,654,569	\$2,761,378	\$451,245	0.05	1.20	8.50%
Total 2017		\$14,000,000	\$3,842,512	\$10,157,488	\$10,089	\$253,690	\$12,795,971	\$13,049,661	\$2,882,083	0.02	1.28	11.32%
2020												
Dover Street X, L.P.	2020	\$9,000,000	\$6,300,000	\$2,700,000	\$6,202	\$415,547	\$3,809,176	\$4,224,723	\$1,518,521	0.15	1.56	103.72%
Hamilton Lane Secondary Fund V, L.P.	2020	\$9,000,000	\$6,088,212	\$2,911,788	-\$17,882	\$0	\$4,202,063	\$4,202,063	\$1,308,157	0.00	1.45	79.85%
JFL Equity Investors V, L.P.	2020	\$9,000,000	\$4,767,403	\$4,232,597	\$0	\$0	\$3,940,865	\$3,940,865	-\$291,732	0.00	0.93	-12.51%
Mass PRIM AIVY 2020	2020	\$5,000,000	\$4,310,997	\$689,003	\$61	\$0	\$833,451	\$833,451	\$144,386	0.00	1.21	41.61%
Total 2020		\$32,000,000	\$21,466,612	\$10,533,388	-\$11,619	\$415,547	\$12,785,555	\$13,201,102	\$2,679,332	0.04	1.25	49.62%
2021												
Mass PRIM AIVY 2021	2021	\$5,000,000	\$4,632,822	\$367,178	\$0	\$0	\$362,294	\$362,294	-\$4,884	0.00	0.99	-2.41%
Total 2021		\$5,000,000	\$4,632,822	\$367,178	\$0	\$0	\$362,294	\$362,294	-\$4,884	0.00	0.99	-2.41%
Total		\$117,456,542	\$43,866,113	\$73,590,430	\$443,624	\$60,380,062	\$71,128,330	\$131,508,392	\$57,474,338	0.82	1.78	13.09%



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	\$122,805	\$426,752	\$11,622	\$425,655	\$57,954	\$483,609	\$45,235	0.97	1.10	1.60%
AIG PEP V Europe, L.P.	2007	\$1,660,412	\$575,078	\$1,085,334	\$25,194	\$1,292,083	\$22,763	\$1,314,847	\$204,318	1.16	1.18	2.37%
AIG PEP V Large Market U.S. Buyout, L.P.	2007	\$720,000	\$131,894	\$588,106	-\$11,616	\$862,272	\$162,454	\$1,024,726	\$448,236	1.50	1.78	7.83%
AIG PEP V Preferred Participation Fund, L.P.	2007	\$503,561	\$3,899	\$499,662	\$28,158	\$778,653	\$317,237	\$1,095,890	\$568,070	1.48	2.08	11.51%
JFL Equity Investors IV, L.P.	2016	\$6,000,000	\$250,581	\$5,749,419	\$61,053	\$5,784,043	\$8,588,018	\$14,372,061	\$8,561,590	1.00	2.47	40.34%
JFL Equity Investors V, L.P.	2020	\$9,000,000	\$4,767,403	\$4,232,597	\$0	\$0	\$3,940,865	\$3,940,865	-\$291,732	0.00	0.93	-12.51%
Total Buyout		\$18,433,530	\$5,851,661	\$12,581,869	\$114,412	\$9,142,707	\$13,089,291	\$22,231,998	\$9,535,717	0.72	1.75	14.67%
Co-Investments												
AIG PEP V Co-Investment, L.P.	2007	\$900,000	\$22,644	\$877,356	\$32,765	\$885,186	\$73,068	\$958,254	\$48,133	0.97	1.05	0.74%
Private Advisors Small Co Coinvestment Fund, L.P.	2016	\$4,000,000	\$358,076	\$3,641,924	\$14,068	\$1,318,640	\$5,646,662	\$6,965,302	\$3,309,311	0.36	1.91	27.20%
Total Co-Investments		\$4,900,000	\$380,720	\$4,519,280	\$46,833	\$2,203,826	\$5,719,730	\$7,923,556	\$3,357,444	0.48	1.74	12.41%
Direct Lending												
Aicentra European Direct Lending Fund I, L.P.	2014	\$5,000,000	\$4,164,852	\$835,148	\$26,581	\$1,365,134	\$723,563	\$2,088,697	\$1,226,968	1.58	2.42	7.12%
Park Square Capital Credit Opportunities III (USD), L.P.	2017	\$3,000,000	\$689,867	\$2,310,133	\$0	\$106,809	\$2,654,569	\$2,761,378	\$451,245	0.05	1.20	8.50%
Total Direct Lending		\$8,000,000	\$4,854,719	\$3,145,281	\$26,581	\$1,471,943	\$3,378,132	\$4,850,075	\$1,678,213	0.46	1.53	7.39%
Distressed												
CVI Credit Value Fund A IV, L.P.	2017	\$6,000,000	\$1,200,000	\$4,800,000	-\$1,229	\$0	\$5,810,815	\$5,810,815	\$1,012,044	0.00	1.21	7.88%
Ironsides Opportunities Fund, L.P.	2017	\$3,000,000	\$1,153,559	\$1,846,441	\$11,292	\$104,935	\$2,424,874	\$2,529,809	\$672,076	0.06	1.36	14.44%
Total Distressed		\$9,000,000	\$2,353,559	\$6,646,441	\$10,063	\$104,935	\$8,235,689	\$8,340,624	\$1,684,120	0.02	1.25	9.61%
Energy												
Kayne Anderson Energy Fund VII, L.P.	2015	\$5,000,000	\$757,272	\$4,242,728	-\$40,917	\$984,075	\$1,839,625	\$2,823,700	-\$1,378,111	0.23	0.67	-12.91%
Total Energy		\$5,000,000	\$757,272	\$4,242,728	-\$40,917	\$984,075	\$1,839,625	\$2,823,700	-\$1,378,111	0.23	0.67	-12.91%
Fund of Funds												
Hamilton Lane Secondary Fund V, L.P.	2020	\$9,000,000	\$6,088,212	\$2,911,788	-\$17,882	\$0	\$4,202,063	\$4,202,063	\$1,308,157	0.00	1.45	79.85%
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	\$4,116,169	\$9,500,540	\$13,616,709	\$9,658,354	1.04	3.44	21.37%
Mass PRIM AIVY 2008	2008	\$3,000,000	\$1,106,681	\$1,893,319	\$2,212	\$3,476,978	\$1,049,996	\$4,526,974	\$2,631,443	1.83	2.39	17.34%
Mass PRIM AIVY 2009	2009	\$1,000,000	\$756,264	\$243,736	\$109	\$548,851	\$185,285	\$734,136	\$490,291	2.25	3.01	20.90%
Mass PRIM AIVY 2010	2010	\$1,000,000	\$445,956	\$554,044	\$180	\$969,876	\$705,126	\$1,675,002	\$1,120,778	1.75	3.02	19.15%
Mass PRIM AIVY 2011	2011	\$1,500,000	\$517,547	\$982,453	\$159	\$1,788,536	\$958,109	\$2,746,645	\$1,764,033	1.82	2.80	20.35%



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 2012	2012	\$1,000,000	\$480,765	\$519,235	\$44	\$562,545	\$869,212	\$1,431,756	\$912,478	1.08	2.76	21.05%
Mass PRIM AIVY 2014	2014	\$2,000,000	\$808,828	\$1,191,172	\$0	\$847,573	\$2,226,688	\$3,074,261	\$1,883,089	0.71	2.58	25.01%
Mass PRIM AIVY 2017	2017	\$2,000,000	\$799,086	\$1,200,914	\$26	\$41,946	\$1,905,713	\$1,947,659	\$746,718	0.03	1.62	28.58%
Mass PRIM AIVY 2020	2020	\$5,000,000	\$4,310,997	\$689,003	\$61	\$0	\$833,451	\$833,451	\$144,386	0.00	1.21	41.61%
Mass PRIM AIVY 2021	2021	\$5,000,000	\$4,632,822	\$367,178	\$0	\$0	\$362,294	\$362,294	-\$4,884	0.00	0.99	-2.41%
Total Fund of Funds		\$38,500,000	\$21,706,036	\$16,793,964	\$217,107	\$17,197,276	\$22,798,476	\$39,995,752	\$22,984,680	1.01	2.35	16.84%
Growth Equity												
AIG PEP V Small-Mid Market U.S. Buyout, L.P.	2007	\$900,000	\$194,403	\$705,597	-\$9,254	\$1,235,115	\$113,328	\$1,348,443	\$652,100	1.77	1.94	9.75%
Total Growth Equity		\$900,000	\$194,403	\$705,597	-\$9,254	\$1,235,115	\$113,328	\$1,348,443	\$652,100	1.77	1.94	9.75%
Secondaries												
AIG PEP V Secondary, L.P.	2007	\$600,000	\$191,709	\$408,291	\$17,277	\$559,856	\$36,133	\$595,989	\$170,421	1.32	1.40	6.78%
Dover Street X, L.P.	2020	\$9,000,000	\$6,300,000	\$2,700,000	\$6,202	\$415,547	\$3,809,176	\$4,224,723	\$1,518,521	0.15	1.56	103.72%
Landmark Equity Partners XV, L.P.	2013	\$3,000,000	\$819,506	\$2,180,494	-\$9,117	\$1,699,049	\$1,495,279	\$3,194,328	\$1,022,951	0.78	1.47	13.73%
Total Secondaries		\$12,600,000	\$7,311,215	\$5,288,785	\$14,362	\$2,674,452	\$5,340,588	\$8,015,040	\$2,711,893	0.50	1.51	16.71%
Venture Capital												
AIG PEP V US Venture, L.P.	2007	\$480,000	\$71,864	\$408,136	\$12,941	\$788,687	\$103,661	\$892,348	\$471,271	1.87	2.12	13.14%
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	\$793,136	\$117,538	\$910,674	-\$57,161	0.82	0.94	-1.64%
Ascent Venture Partners IV, L.P.	2004	\$2,000,000	\$0	\$2,000,000	\$0	\$334,111	\$6,783	\$340,894	-\$1,659,106	0.17	0.17	-27.09%
Ascent Venture Partners V, L.P.	2008	\$2,000,000	\$60,000	\$1,940,000	\$0	\$1,298,211	\$1,995,137	\$3,293,348	\$1,353,348	0.67	1.70	7.88%
Ascent Venture Partners VI, L.P.	2014	\$3,000,000	\$180,000	\$2,820,000	\$0	\$0	\$3,061,939	\$3,061,939	\$241,939	0.00	1.09	2.35%
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	\$500,263	\$15,006,571	\$12,051,571	4.91	5.08	42.81%
Foundry Venture Capital 2010 Annex, L.P.	2015	\$268,205	\$0	\$268,205	\$0	\$271,825	\$456,453	\$728,278	\$460,073	1.01	2.72	26.21%
Foundry Venture Capital 2010, L.P.	2010	\$3,000,000	\$67,500	\$2,932,500	\$0	\$2,204,665	\$4,371,695	\$6,576,360	\$3,643,860	0.75	2.24	11.89%
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	\$456,528	\$19,666,484	\$64,437	\$25,365,734	\$10,613,470	\$35,979,204	\$16,248,283	1.29	1.82	11.97%
Total		\$117,456,542	\$43,866,113	\$73,590,430	\$443,624	\$60,380,062	\$71,128,330	\$131,508,392	\$57,474,338	0.82	1.78	13.09%



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.	5/31/2021			-244,855	-4,929	-249,785
Total: Alcentra European Direct Lending Fund I, L.P.				-244,855	-4,929	-249,785
Ascent Venture Partners VI, L.P.	4/30/2021	120,000				120,000
Total: Ascent Venture Partners VI, L.P.		120,000				120,000
CVI Credit Value Fund A IV, L.P.	5/31/2021			-600,000		-600,000
Total: CVI Credit Value Fund A IV, L.P.				-600,000		-600,000
Dover Street X, L.P.	4/30/2021	450,000				450,000
	6/30/2021	225,000			-105,272	119,728
Total: Dover Street X, L.P.		675,000			-105,272	569,728
Foundry Venture Capital 2010, L.P.	6/30/2021				-256,581	-256,581
Total: Foundry Venture Capital 2010, L.P.					-256,581	-256,581
Hamilton Lane Secondary Fund V, L.P.	4/30/2021	740,958	-30,568			710,390
	6/30/2021	595,830				595,830
Total: Hamilton Lane Secondary Fund V, L.P.		1,336,788	-30,568			1,306,220
Invesco Fund IV, L.P.	6/30/2021				-1,035	-1,035
Total: Invesco Fund IV, L.P.					-1,035	-1,035
Invesco Partnership Fund VI, L.P.	4/30/2021				-108,048	-108,048
	5/31/2021				-2,174,893	-2,174,893
Total: Invesco Partnership Fund VI, L.P.					-2,282,941	-2,282,941
Ironsides Opportunities Fund, L.P.	4/30/2021	179,193		-193,396	-44,306	-58,509
	6/30/2021	20,160		-157,527	-38,668	-176,034
Total: Ironsides Opportunities Fund, L.P.		199,354		-350,923	-82,973	-234,543
JFL Equity Investors IV, L.P.	4/30/2021				-227,630	-227,630



MWRA Employees' Retirement System

QUARTERLY TRANSACTION SUMMARY

Fund Name	Month Ended	Capital Call	Additional Fee	Temp Return of Capital	Distribution	Net Cash Flow
	5/31/2021				-486,361	-486,361
	6/30/2021	104,818				104,818
Total: JFL Equity Investors IV, L.P.		104,818			-713,990	-609,172
JFL Equity Investors V, L.P.	6/30/2021	1,807,366				1,807,366
Total: JFL Equity Investors V, L.P.		1,807,366				1,807,366
Kayne Anderson Energy Fund VII, L.P.	4/30/2021	3,564		-52,610		-49,046
Total: Kayne Anderson Energy Fund VII, L.P.		3,564		-52,610		-49,046
Landmark Equity Partners XV, L.P.	4/30/2021				-38,797	-38,797
	5/31/2021				-18,298	-18,298
	6/30/2021				-23,365	-23,365
Total: Landmark Equity Partners XV, L.P.					-80,459	-80,459
Mass PRIM AIVY 2008	4/30/2021				-12,087	-12,087
	5/31/2021				-47,649	-47,649
	6/30/2021				-16,625	-16,625
Total: Mass PRIM AIVY 2008					-76,361	-76,361
Mass PRIM AIVY 2009	4/30/2021				-12,504	-12,504
	5/31/2021				-1,571	-1,571
	6/30/2021				-1,294	-1,294
Total: Mass PRIM AIVY 2009					-15,369	-15,369
Mass PRIM AIVY 2010	4/30/2021				-56,196	-56,196
	5/31/2021				-26,933	-26,933
	6/30/2021				-15,028	-15,028
Total: Mass PRIM AIVY 2010					-98,157	-98,157
Mass PRIM AIVY 2011	4/30/2021				-28,391	-28,391
	5/31/2021				-165,476	-165,476



MWRA Employees' Retirement System

QUARTERLY TRANSACTION SUMMARY

Fund Name	Month Ended	Capital Call	Additional Fee	Temp Return of Capital	Distribution	Net Cash Flow
	6/30/2021				-222,950	-222,950
Total: Mass PRIM AIVY 2011					-416,816	-416,816
Mass PRIM AIVY 2012	4/30/2021				-13,970	-13,970
	5/31/2021				-15,793	-15,793
	6/30/2021	42				42
Total: Mass PRIM AIVY 2012		42			-29,763	-29,721
Mass PRIM AIVY 2014	4/30/2021				-58,424	-58,424
	5/31/2021				-2,280	-2,280
	6/30/2021				-51,869	-51,869
Total: Mass PRIM AIVY 2014					-112,573	-112,573
Mass PRIM AIVY 2017	4/30/2021	36,384				36,384
	5/31/2021	28,404				28,404
	6/30/2021	2,731				2,731
Total: Mass PRIM AIVY 2017		67,518				67,518
Mass PRIM AIVY 2020	4/30/2021	56,252				56,252
	5/31/2021	125,029				125,029
	6/30/2021	104,670				104,670
Total: Mass PRIM AIVY 2020		285,951				285,951
Mass PRIM AIVY 2021	4/30/2021	83,205				83,205
	5/31/2021	83,349				83,349
	6/30/2021	200,624				200,624
Total: Mass PRIM AIVY 2021		367,178				367,178
Park Square Capital Credit Opportunities III (USD), L.P.	5/31/2021				-69,340	-69,340
Total: Park Square Capital Credit Opportunities III (USD), L.P.					-69,340	-69,340
Grand Total		4,967,580	-30,568	-1,248,389	-4,346,560	-657,937



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

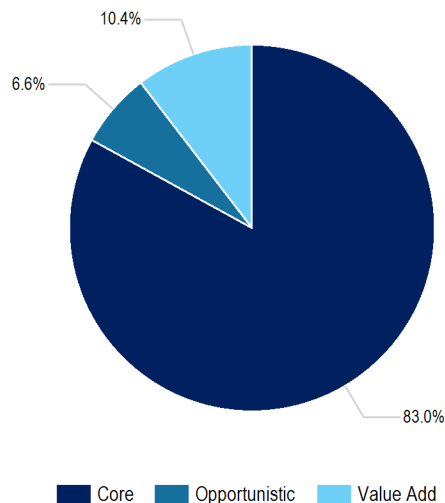
June 30, 2021



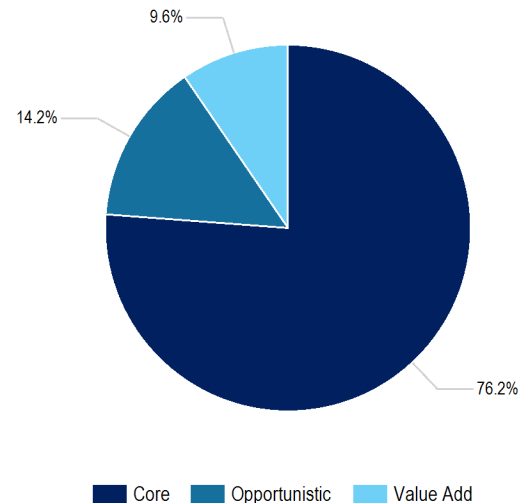
BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

MWRA Employees' Retirement System ANALYSIS BY STRATEGY

Private Markets Valuation by Strategy



Private Markets Fund Exposure by Strategy

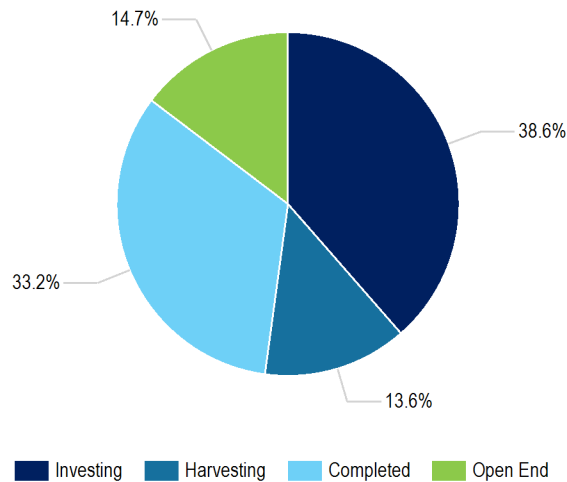


Investments	Commitments			Contributions & Distributions			Valuations				Performance		
	Investment Strategy	Commitment	Unfunded Commitment	Call Ratio	Cumulative Contributions	Additional Fees	Cumulative Distributions	Valuation	Total Value	Net Benefit	Fund Exposure	DPI	TVPI
Total Core	\$52,587,180	\$0	1.00	\$52,587,180	\$0	\$35,786,039	\$42,828,598	\$78,614,637	\$26,027,457	\$42,828,598	0.68	1.49	10.10%
Total Opportunistic	\$14,500,000	\$4,598,797	0.68	\$9,901,203	\$4,898	\$8,867,986	\$3,409,124	\$12,277,110	\$2,371,009	\$8,007,921	0.90	1.24	4.57%
Total Value Add	\$14,610,264	\$0	1.00	\$14,610,264	\$3,600	\$15,599,430	\$5,377,162	\$20,976,592	\$6,362,728	\$5,377,162	1.07	1.44	9.82%
Total	\$81,697,444	\$4,598,797	0.94	\$77,098,647	\$8,498	\$60,253,455	\$51,614,884	\$111,868,339	\$34,761,194	\$56,213,681	0.78	1.45	9.27%

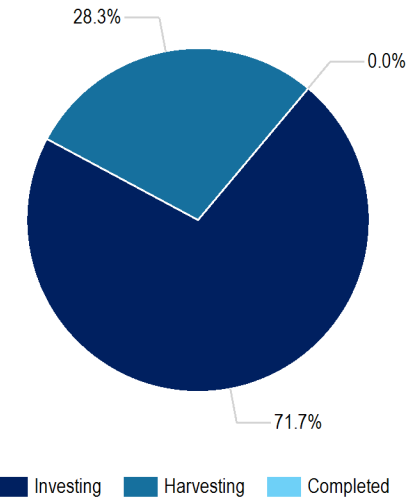


MWRA Employees' Retirement System ANALYSIS BY LIFECYCLE

Commitment by Lifecycle



Unfunded Commitment by Lifecycle



Lifecycle	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	\$31,500,000	\$3,297,690	0.90	\$28,202,310	\$20,487	\$6,637,105	\$27,739,462	\$34,376,567	\$6,153,770	0.24	1.22	8.78%
Total Harvesting	\$11,110,264	\$1,301,107	0.88	\$9,809,157	-\$11,989	\$11,931,019	\$2,771,179	\$14,702,198	\$4,905,030	1.22	1.50	12.07%
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	\$12,000,000	\$0	1.00	\$12,000,000	\$0	\$0	\$21,104,244	\$21,104,244	\$9,104,244	0.00	1.76	11.79%
Total	\$81,697,444	\$4,598,797	0.94	\$77,098,647	\$8,498	\$60,253,455	\$51,614,884	\$111,868,339	\$34,761,194	0.78	1.45	9.27%



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	\$21,104,244	\$23,546,282	\$7,546,282	0.15	1.47	6.13%
Total 2010	\$20,900,000	\$935,470	0.96	\$19,964,530	-\$1,167	\$31,168,024	\$718,578	\$31,886,602	\$11,923,239	1.56	1.60	10.23%
Total 2012	\$5,000,000	\$365,369	0.93	\$4,634,631	\$10,932	\$6,741,900	\$899,646	\$7,641,546	\$2,995,983	1.45	1.64	12.35%
Total 2015	\$5,610,264	\$1,055,637	0.81	\$4,554,627	-\$27,350	\$4,018,689	\$2,362,353	\$6,381,042	\$1,853,765	0.89	1.41	8.99%
Total 2017	\$8,000,000	\$2,242,321	0.72	\$5,757,679	\$26,083	\$2,652,340	\$4,805,709	\$7,458,049	\$1,674,287	0.46	1.29	9.18%
Total 2019	\$20,000,000	\$0	1.00	\$20,000,000	\$0	\$1,357,503	\$21,724,355	\$23,081,857	\$3,081,857	0.07	1.15	8.48%
Total	\$81,697,444	\$4,598,797	0.94	\$77,098,647	\$8,498	\$60,253,455	\$51,614,884	\$111,868,339	\$34,761,194	0.78	1.45	9.27%



APPENDIX

MWRA Employees' Retirement System

June 30, 2021



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	9.76%	4.07%	13.72%	9.59%	6.87%		11.88%
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	3.97%	7.60%	-42.35%	-4.37%	7.49%		6.56%
Landmark Real Estate Fund VI, L.P.	2010	\$2,000,000	-2.60%	-2.92%	-12.08%	-12.60%	-4.35%	13.37%	19.64%
Landmark Real Estate Partners VIII, L.P.	2017	\$4,000,000	3.72%	2.70%	13.95%	6.42%			11.67%
Mass PRIM Real Estate 2010	2010	\$16,900,000							10.01%
Prime Property Fund, LLC	2005	\$12,000,000	2.78%	4.74%	7.42%	4.99%	6.04%	9.07%	11.79%
Real Estate Global Partnership Fund II, L.P.	2010	\$2,000,000	3.13%	3.97%	3.85%	-2.59%	2.59%		6.18%
TA Associates Realty Fund X, L.P.	2012	\$3,500,000	-1.30%	1.94%	-0.09%	14.07%	12.05%		12.55%
TA Realty Core Property Fund, L.P.	2019	\$20,000,000	5.26%	7.66%	12.30%				8.48%
TerraCap Partners III, L.P.	2015	\$2,610,264	0.80%	0.93%	3.41%	7.60%	16.83%		10.21%
TerraCap Partners IV (Institutional), L.P.	2017	\$4,000,000	0.03%	5.08%	10.37%	9.90%			8.69%
Total		\$81,697,444	3.62%	5.76%	8.47%	6.37%	7.61%	9.89%	9.27%



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	\$1,465,587	\$570,376	\$2,035,963	\$901,332	1.29	1.79	11.88%
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	\$1,055,637	\$1,944,363	\$0	\$1,635,229	\$757,068	\$2,392,297	\$447,934	0.84	1.23	6.56%
Landmark Real Estate Fund VI, L.P.	2010	\$2,000,000	\$245,470	\$1,754,530	\$4,429	\$2,636,017	\$79,556	\$2,715,573	\$956,614	1.50	1.54	19.64%
Landmark Real Estate Partners VIII, L.P.	2017	\$4,000,000	\$2,242,321	\$1,757,679	\$6,065	\$764,007	\$1,363,102	\$2,127,109	\$363,365	0.43	1.21	11.67%
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	\$21,104,244	\$21,104,244	\$9,104,244	0.00	1.76	11.79%
Real Estate Global Partnership Fund II, L.P.	2010	\$2,000,000	\$690,000	\$1,310,000	-\$5,596	\$1,161,675	\$639,022	\$1,800,697	\$496,293	0.89	1.38	6.18%
TA Associates Realty Fund X, L.P.	2012	\$3,500,000	\$0	\$3,500,000	\$10,932	\$5,276,313	\$329,270	\$5,605,583	\$2,094,651	1.50	1.60	12.55%
TA Realty Core Property Fund, L.P.	2019	\$20,000,000	\$0	\$20,000,000	\$0	\$1,357,503	\$21,724,355	\$23,081,857	\$3,081,857	0.07	1.15	8.48%
TerraCap Partners III, L.P.	2015	\$2,610,264	\$0	\$2,610,264	-\$27,350	\$2,383,460	\$1,605,285	\$3,988,745	\$1,405,831	0.92	1.54	10.21%
TerraCap Partners IV (Institutional), L.P.	2017	\$4,000,000	\$0	\$4,000,000	\$20,018	\$1,888,334	\$3,442,607	\$5,330,941	\$1,310,922	0.47	1.33	8.69%
Total		\$81,697,444	\$4,598,797	\$77,098,647	\$8,498	\$60,253,455	\$51,614,884	\$111,868,339	\$34,761,194	0.78	1.45	9.27%



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	\$1,465,587	\$570,376	\$2,035,963	\$901,332	1.29	1.79	11.88%
Landmark Real Estate Partners VIII, L.P.	2017	\$4,000,000	\$2,242,321	\$1,757,679	\$6,065	\$764,007	\$1,363,102	\$2,127,109	\$363,365	0.43	1.21	11.67%
Real Estate Global Partnership Fund II, L.P.	2010	\$2,000,000	\$690,000	\$1,310,000	-\$5,596	\$1,161,675	\$639,022	\$1,800,697	\$496,293	0.89	1.38	6.18%
TA Realty Core Property Fund, L.P.	2019	\$20,000,000	\$0	\$20,000,000	\$0	\$1,357,503	\$21,724,355	\$23,081,857	\$3,081,857	0.07	1.15	8.48%
TerraCap Partners IV (Institutional), L.P.	2017	\$4,000,000	\$0	\$4,000,000	\$20,018	\$1,888,334	\$3,442,607	\$5,330,941	\$1,310,922	0.47	1.33	8.69%
Total Investing		\$31,500,000	\$3,297,690	\$28,202,310	\$20,487	\$6,637,105	\$27,739,462	\$34,376,567	\$6,153,770	0.24	1.22	8.78%
Harvesting												
Invesco Mortgage Recovery Fund II, L.P.	2015	\$3,000,000	\$1,055,637	\$1,944,363	\$0	\$1,635,229	\$757,068	\$2,392,297	\$447,934	0.84	1.23	6.56%
Landmark Real Estate Fund VI, L.P.	2010	\$2,000,000	\$245,470	\$1,754,530	\$4,429	\$2,636,017	\$79,556	\$2,715,573	\$956,614	1.50	1.54	19.64%
TA Associates Realty Fund X, L.P.	2012	\$3,500,000	\$0	\$3,500,000	\$10,932	\$5,276,313	\$329,270	\$5,605,583	\$2,094,651	1.50	1.60	12.55%
TerraCap Partners III, L.P.	2015	\$2,610,264	\$0	\$2,610,264	-\$27,350	\$2,383,460	\$1,605,285	\$3,988,745	\$1,405,831	0.92	1.54	10.21%
Total Harvesting		\$11,110,264	\$1,301,107	\$9,809,157	-\$11,989	\$11,931,019	\$2,771,179	\$14,702,198	\$4,905,030	1.22	1.50	12.07%
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	\$21,104,244	\$21,104,244	\$9,104,244	0.00	1.76	11.79%
Total Open End		\$12,000,000	\$0	\$12,000,000	\$0	\$0	\$21,104,244	\$21,104,244	\$9,104,244	0.00	1.76	11.79%
Total		\$81,697,444	\$4,598,797	\$77,098,647	\$8,498	\$60,253,455	\$51,614,884	\$111,868,339	\$34,761,194	0.78	1.45	9.27%



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	\$21,104,244	\$21,104,244	\$9,104,244	0.00	1.76	11.79%
Total 2005		\$16,000,000	\$0	\$16,000,000	\$0	\$2,442,038	\$21,104,244	\$23,546,282	\$7,546,282	0.15	1.47	6.13%
2010												
Landmark Real Estate Fund VI, L.P.	2010	\$2,000,000	\$245,470	\$1,754,530	\$4,429	\$2,636,017	\$79,556	\$2,715,573	\$956,614	1.50	1.54	19.64%
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	\$1,161,675	\$639,022	\$1,800,697	\$496,293	0.89	1.38	6.18%
Total 2010		\$20,900,000	\$935,470	\$19,964,530	-\$1,167	\$31,168,024	\$718,578	\$31,886,602	\$11,923,239	1.56	1.60	10.23%
2012												
Cerberus Institutional Real Estate Partners III, L.P.	2012	\$1,500,000	\$365,369	\$1,134,631	\$0	\$1,465,587	\$570,376	\$2,035,963	\$901,332	1.29	1.79	11.88%
TA Associates Realty Fund X, L.P.	2012	\$3,500,000	\$0	\$3,500,000	\$10,932	\$5,276,313	\$329,270	\$5,605,583	\$2,094,651	1.50	1.60	12.55%
Total 2012		\$5,000,000	\$365,369	\$4,634,631	\$10,932	\$6,741,900	\$899,646	\$7,641,546	\$2,995,983	1.45	1.64	12.35%
2015												
Invesco Mortgage Recovery Fund II, L.P.	2015	\$3,000,000	\$1,055,637	\$1,944,363	\$0	\$1,635,229	\$757,068	\$2,392,297	\$447,934	0.84	1.23	6.56%
TerraCap Partners III, L.P.	2015	\$2,610,264	\$0	\$2,610,264	-\$27,350	\$2,383,460	\$1,605,285	\$3,988,745	\$1,405,831	0.92	1.54	10.21%
Total 2015		\$5,610,264	\$1,055,637	\$4,554,627	-\$27,350	\$4,018,689	\$2,362,353	\$6,381,042	\$1,853,765	0.89	1.41	8.99%
2017												
Landmark Real Estate Partners VIII, L.P.	2017	\$4,000,000	\$2,242,321	\$1,757,679	\$6,065	\$764,007	\$1,363,102	\$2,127,109	\$363,365	0.43	1.21	11.67%
TerraCap Partners IV (Institutional), L.P.	2017	\$4,000,000	\$0	\$4,000,000	\$20,018	\$1,888,334	\$3,442,607	\$5,330,941	\$1,310,922	0.47	1.33	8.69%
Total 2017		\$8,000,000	\$2,242,321	\$5,757,679	\$26,083	\$2,652,340	\$4,805,709	\$7,458,049	\$1,674,287	0.46	1.29	9.18%
2019												
TA Realty Core Property Fund, L.P.	2019	\$20,000,000	\$0	\$20,000,000	\$0	\$1,357,503	\$21,724,355	\$23,081,857	\$3,081,857	0.07	1.15	8.48%
Total 2019		\$20,000,000	\$0	\$20,000,000	\$0	\$1,357,503	\$21,724,355	\$23,081,857	\$3,081,857	0.07	1.15	8.48%
Total		\$81,697,444	\$4,598,797	\$77,098,647	\$8,498	\$60,253,455	\$51,614,884	\$111,868,339	\$34,761,194	0.78	1.45	9.27%



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	\$21,104,244	\$21,104,244	\$9,104,244	0.00	1.76	11.79%
TA Realty Core Property Fund, L.P.	2019	\$20,000,000	\$0	\$20,000,000	\$0	\$1,357,503	\$21,724,355	\$23,081,857	\$3,081,857	0.07	1.15	8.48%
Total Core		\$52,587,180	\$0	\$52,587,180	\$0	\$35,786,039	\$42,828,598	\$78,614,637	\$26,027,457	0.68	1.49	10.10%
Opportunistic												
Cerberus Institutional Real Estate Partners III, L.P.	2012	\$1,500,000	\$365,369	\$1,134,631	\$0	\$1,465,587	\$570,376	\$2,035,963	\$901,332	1.29	1.79	11.88%
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	\$1,055,637	\$1,944,363	\$0	\$1,635,229	\$757,068	\$2,392,297	\$447,934	0.84	1.23	6.56%
Landmark Real Estate Fund VI, L.P.	2010	\$2,000,000	\$245,470	\$1,754,530	\$4,429	\$2,636,017	\$79,556	\$2,715,573	\$956,614	1.50	1.54	19.64%
Landmark Real Estate Partners VIII, L.P.	2017	\$4,000,000	\$2,242,321	\$1,757,679	\$6,065	\$764,007	\$1,363,102	\$2,127,109	\$363,365	0.43	1.21	11.67%
Real Estate Global Partnership Fund II, L.P.	2010	\$2,000,000	\$690,000	\$1,310,000	-\$5,596	\$1,161,675	\$639,022	\$1,800,697	\$496,293	0.89	1.38	6.18%
Total Opportunistic		\$14,500,000	\$4,598,797	\$9,901,203	\$4,898	\$8,867,986	\$3,409,124	\$12,277,110	\$2,371,009	0.90	1.24	4.57%
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	\$5,276,313	\$329,270	\$5,605,583	\$2,094,651	1.50	1.60	12.55%
TerraCap Partners III, L.P.	2015	\$2,610,264	\$0	\$2,610,264	-\$27,350	\$2,383,460	\$1,605,285	\$3,988,745	\$1,405,831	0.92	1.54	10.21%
TerraCap Partners IV (Institutional), L.P.	2017	\$4,000,000	\$0	\$4,000,000	\$20,018	\$1,888,334	\$3,442,607	\$5,330,941	\$1,310,922	0.47	1.33	8.69%
Total Value Add		\$14,610,264	\$0	\$14,610,264	\$3,600	\$15,599,430	\$5,377,162	\$20,976,592	\$6,362,728	1.07	1.44	9.82%
Total		\$81,697,444	\$4,598,797	\$77,098,647	\$8,498	\$60,253,455	\$51,614,884	\$111,868,339	\$34,761,194	0.78	1.45	9.27%



MWRA Employees' Retirement System

QUARTERLY TRANSACTION SUMMARY

Fund Name	Month Ended	Capital Call	Additional Fee	Temp Return of Capital	Distribution	Net Cash Flow
Landmark Real Estate Fund VI, L.P.	6/30/2021				-6,399	-6,399
Total: Landmark Real Estate Fund VI, L.P.					-6,399	-6,399
Landmark Real Estate Partners VIII, L.P.	5/31/2021				-88,454	-88,454
	6/30/2021				-74,835	-74,835
Total: Landmark Real Estate Partners VIII, L.P.					-163,289	-163,289
Real Estate Global Partnership Fund II, L.P.	6/30/2021				-10,000	-10,000
Total: Real Estate Global Partnership Fund II, L.P.					-10,000	-10,000
TA Associates Realty Fund X, L.P.	5/31/2021				-46,493	-46,493
Total: TA Associates Realty Fund X, L.P.					-46,493	-46,493
TA Realty Core Property Fund, L.P.	5/31/2021				-208,427	-208,427
Total: TA Realty Core Property Fund, L.P.					-208,427	-208,427
TerraCap Partners III, L.P.	4/30/2021				-135,777	-135,777
Total: TerraCap Partners III, L.P.					-135,777	-135,777
TerraCap Partners IV (Institutional), L.P.	6/30/2021				-257,721	-257,721
Total: TerraCap Partners IV (Institutional), L.P.					-257,721	-257,721
Grand Total					-828,106	-828,106



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

