



# AGENDA REPORT

**TO:** Jestin D. Johnson  
City Administrator

**FROM:** Erin Roseman  
Finance Director

**SUBJECT:** Oakland PFRS's Investment Portfolio

**DATE:** November 13, 2023

City Administrator Approval

  
Jestin Johnson (Nov 29, 2023 21:49 PST)

Date: Nov 29, 2023

## RECOMMENDATION

**Staff Recommends That The City Council Receive An Informational Report On The Oakland Police And Fire Retirement System's ("PFRS", Or "System") Investment Portfolio As Of September 30, 2023.**

## EXECUTIVE SUMMARY

The attached Quarterly Investment Performance report (**Attachment A**) provided by the PFRS Investment Consultant, Meketa Investment Group (MIG), summarizes the performance of the PFRS investment portfolio for the quarter ended September 30, 2023.

During the most recent quarter, the PFRS Total Portfolio generated an absolute return of -2.8 percent, gross of fees, outperforming its policy benchmark by 0.2 percent. The portfolio underperformed its benchmark over the latest one-year period and outperformed for the three-year period and five-year period. This is discussed in more detail in this report's "Investment Performance" section.

	Quarter	1 Year	3 Year	5 Year
Total Portfolio	-2.8	10.9	3.9	4.2
Policy Benchmark	-3.0	12.2	3.5	4.0
<b>Excess Return</b>	<b>0.2</b>	<b>-1.3</b>	<b>0.4</b>	<b>0.2</b>

As of July 1, 2022, the System's Unfunded Actuarial Liability is approximately \$130.2 million, and the System had a Funded Ratio of 76.5 percent on an Actuarial Value of Assets (AVA) basis. This is discussed in more detail in the "PFRS Actuarial Valuation" section of this report.

## **BACKGROUND / LEGISLATIVE HISTORY**

The Oakland Police and Fire Retirement System is a closed defined benefit plan established by the City of Oakland's (the "City") Charter. PFRS is governed by a board of seven trustees (the "PFRS Board"). PFRS covers the City's sworn police and fire employees hired prior to July 1, 1976. PFRS was closed to new members on June 30, 1976. As of September 30, 2023, PFRS had 650 retired and no active members.

The System's investment portfolio is governed by the investment policy set by the PFRS Board. The PFRS Board sets an investment policy that authorizes investments in various domestic and international equity and fixed income securities. Eleven external investment managers currently manage the System's portfolio. Most of the portfolio is held in custody at Northern Trust. In accordance with the City Charter, the PFRS Board makes investment decisions in accordance with the prudent person standard as defined by applicable court decisions and as required by the California Constitution.

In March 1997, the City issued Taxable Pension Obligation Bonds, Series 1997 ("1997 POBs") and, as a result, deposited \$417 million into the System to pay the City's contributions through June 2011. As a result of the funding agreement entered at the time the 1997 POBs were issued, City payments to PFRS were suspended from February 25, 1997, to June 30, 2011. The City of Oakland resumed contributing to PFRS effective July 1, 2011, and contributed \$45.5 million for the fiscal year (FY) ended June 30, 2012.

In July 2012, the City issued \$212.5 million of Taxable Pension Obligation Bonds, Series 2012 ("2012 POBs"). The City subsequently deposited \$210 million into the System and entered a funding agreement with the PFRS Board. Thus, no additional contributions were required until July 1, 2017. As of the most recent actuary study dated July 1, 2022, the System's Unfunded Actuarial Liability is approximately \$130.2 million, and the System had a Funded Ratio of 76.5 percent on an Actuarial Value of Assets (AVA) basis. The City of Oakland is currently making monthly payments to the Plan for the FY 2023/2024 required contribution of \$40.76 million.

## **ANALYSIS AND POLICY ALTERNATIVES**

The attached report provided by the Oakland Police and Fire Retirement System's (PFRS) Investment Consultant and Actuary summarizes the performance of the PFRS' investment portfolio. This report is being provided in accordance with the City of Oakland Charter, to provide an update to the City Council on the status of the Oakland Police and Fire Retirement System.

The presentation of this report supports the Citywide priority of responsive, trustworthy government. This report communicates the PFRS's financial positions and obligations to the public, policy makers, retirees and stakeholders, while the annual audits of the PFRS finances provides assurance of the accuracy of information contained therein.

### ***PFRS' Membership***

The City Charter establishes plan membership, contribution, and benefit provisions. The System serves the City's sworn employees hired prior to July 1, 1976, who have not transferred to the California Public Employees' Retirement System ("CalPERS"). As of September 30, 2023, the System's membership was 650, as shown in **Table 1 below**.

<b>Table 1</b>			
PFRS Membership as of September 30, 2023			
<b>Membership</b>	<b>POLICE</b>	<b>FIRE</b>	<b>TOTAL</b>
Retiree	275	156	432
Beneficiary	128	91	218
<b>Total Membership</b>	403	247	650

**PFRS Investment Portfolio**

As of September 30, 2023, the PFRS' portfolio had an aggregate value of \$405.14 million, as shown in **Table 2**.

<b>Table 2</b>	
PFRS Investment Portfolio as of September 30, 2023	
<b>Investment</b>	<b>Fair Value</b>
Domestic Equities	\$165,391,122
Fixed Income	101,122,231
Covered Calls	22,157,801
International Equities	51,607,318
Crisis Risk Offset	39,485,989
Credit	9,329,974
Cash	16,049,014
<b>Total Portfolio</b>	<b>\$405,143,449</b>

As of September 30, 2023, the PFRS portfolio had an aggregate value of \$405.14 million. This represents a \$12.0 million decrease in investment value after \$3.0 million in outflows for the benefit payments over the quarter. During the previous one-year period, the PFRS Total Portfolio increased in value by \$22.7 million after drawdowns of \$17.6 million for benefit payments, as shown in Table 3 below. The investment drawdowns for benefit payments are less the City of Oakland Contributions to the PFRS Plan of \$10.2 million for the Quarter and \$34.7 million for the past year.

<b>Table 3</b> Change in PFRS Portfolio Valuation as of September 30, 2023		
<b>Total Plan Value</b>	<b>1 Quarter</b>	<b>1 Year</b>
Beginning Market Value	\$420,170,089	\$382,458,040
Investment Drawdowns for Benefit Payments	-3,020,018	-17,640,430
Gain/(Loss) on Investment	-12,006,623	40,325,838
<b>Ending Market Value</b>	<b>\$405,143,449</b>	<b>\$405,143,449</b>

***PFRS Investment Performance***

During the most recent quarter ending September 30, 2023, the PFRS Total Portfolio generated an absolute return of -2.8 percent, gross of fees, outperforming its policy benchmark by 0.2 percent. The portfolio underperformed with the benchmark over the one-year period and outperformed over the three-year and five-year periods.

Over the most recent quarter ending September 30, 2023, the Plan's Domestic Equity allocation underperformed its benchmark by -0.5 percent. The Plan's International Equity allocation outperformed its benchmark by 1.6 percent. The Plan's Fixed Income allocation outperformed its benchmark of -0.3 percent. The Plan's Credit allocation outperformed its benchmark by 1.0 percent. The Plan's Crisis Risk Offset allocation underperformed its benchmark by 1.0 percent, while the Covered Calls allocation outperformed its benchmark by 1.1 percent. Table 4 shows PFRS recent investment performance in comparison to its corresponding benchmarks.

<b>Table 4</b> PFRS Asset Class Performance as of September 30, 2023				
<b>Investment Type</b>	<b>Quarter</b>	<b>1 Year</b>	<b>3 Year</b>	<b>5 Year</b>
PFRS Total Fund	-2.8	10.9	3.9	4.2
PFRS Policy Benchmark	-3.0	12.2	3.5	4.0
Excess Returns	0.2	-1.3	0.4	0.2
PFRS Domestic Equity	-3.8	16.2	8.8	7.8
Benchmark: Russell 3000	-3.3	20.5	9.4	9.1
Excess Returns	-0.5	-4.3	-0.6	-1.3

<b>Table 4</b>				
PFRS Asset Class Performance as of September 30, 2023, <i>cont'd</i>				
<b>Investment Type</b>	<b>Quarter</b>	<b>1 Year</b>	<b>3 Year</b>	<b>5 Year</b>
PFRS International Equity	-2.2	26.2	5.8	4.1
Benchmark: MSCI ACWI Ex US	-3.8	20.4	3.7	2.6
Excess Returns	1.6	5.8	2.1	1.5
PFRS Fixed Income	-3.2	1.7	-4.3	0.6
Benchmark: Bloomberg Barclays	-2.9	1.6	-4.7	0.3
Excess Returns	-0.3	0.1	0.4	0.3
PFRS Credit	1.5	11.0	5.8	3.9
Benchmark: Bloomberg US High Yield	0.5	10.3	1.8	3.0
Excess Returns	1.0	0.7	4.0	0.9
PFRS Crisis Risk Offset	-1.4	-4.2	-7.3	-8.7
Benchmark: SG Multi Alt Risk Premia	-2.4	1.8	3.5	-0.3
Excess Returns	1.0	-6.0	-10.8	-8.4
PFRS Covered Calls	-1.7	20.6	10.4	8.2
Benchmark: CBOE BXM	-2.8	14.6	7.2	3.0
Excess Returns	1.1	6.0	3.2	5.2
Cash	0.0	0.0	0.0	0.8
Citigroup 3 Month T-Bill Index	1.3	4.5	1.7	1.7
Excess Returns	-1.3	-4.5	-1.7	-0.9

Note: Investment returns are gross of fees

**PFRS Actuarial Valuation**

As of the latest actuarial valuation dated July 1, 2022, the PFRS Funded Ratio (actuarial value of assets divided by present value of future benefits) is 76.5 percent. As a result of the funding agreement and the City's deposit of \$210 million in 2012 POBs to the System, no contributions were required until the fiscal year 2017/2018. The City resumed contributions to the System on July 1, 2017. The required contribution for fiscal year 2023/2024 is \$40.76 million. **Table 5** below shows a summary of the July 1, 2022, PFRS Actuarial valuation results.

<b>Table 5</b>	
Summary of Plan Results (\$ in thousands)	
	<b>July 01, 2022</b>
Actuarial Liability	\$ 552,966
Less: Actuarial Value of Assets	<u>(422,762)</u>
Unfunded Actuarial Liability	<u>\$ 130,204</u>
Funded Ratio (AVA) liability	<u>76.5%</u>

***Projected City of Oakland Contributions***

Article XXVI Section 2619 (6) required that the City fully fund the PFRS Plan by 2026. **Table 6** summarizes the projected employer contributions.

<b>Table 6</b>	
Projected Employer Contributions Police and Fire Retirement System (in millions)	
<b>Fiscal Year Ending</b>	<b>Employer Contribution</b>
2024	\$40.8
2025	44.0
2026	48.8

**FISCAL IMPACT**

This is an informational report. There are no budget implications associated with this report.

**PUBLIC OUTREACH / INTEREST**

This item did not require public outreach other than the required posting on the City's website.

**COORDINATION**

This report was prepared in coordination with the PFRS' Investment Consultant (Meketa) and PFRS' Actuary (Cheiron).

## **SUSTAINABLE OPPORTUNITIES**

**Economic:** Whenever possible, the PFRS Board seeks to benefit the local Oakland based economy. In 2006, the PFRS Board and staff created the PFRS Local Broker provision. This provision mandates that the PFRS Investment Managers consider using Oakland based brokers for all trades conducted on behalf of the fund based on best execution. This program aims to regenerate some of the commissions generated by the System into the Oakland economy.

**Environmental:** The PFRS Board supports a sustainable environment. On June 29, 2016, the PFRS Board passed Resolution No. 6927 prohibiting PFRS investment managers from investing PFRS funds in any publicly traded company which derives at least 50 percent of its revenue from the mining and extracting thermal coal.

**Race & Equity:** There are no race and equity opportunities associated with this report.

## **ACTION REQUESTED OF THE CITY COUNCIL**

Staff recommends that the Council receive this informational report on the Oakland Police and Fire Retirement System ("PFRS") Investment Portfolio as of September 30, 2023.

For questions regarding this report, please contact Erin Roseman, Director of Finance, at (510) 238-2026.

Respectfully submitted,



[Erin Roseman \(Nov 29, 2023 13:04 PST\)](#)

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ERIN ROSEMAN  
Director of Finance, Finance Department

Reviewed by:  
David Jones, Treasury Administrator

Prepared by:  
Téir Jenkins, Investment & Operations,  
Manager, Retirement Unit

## **Attachments (1):**

**Attachment A:** Oakland Police and Fire System Quarterly Investment Performance Report as of September 30, 2023

**ATTACHMENT A:**

**Oakland Police and Fire System Quarterly  
Investment Performance Report**

# Oakland Police and Fire Retirement System

Quarterly Performance Report  
as of September 30, 2023

## Agenda

1. Executive Summary
2. Economic and Market Update as of September 30, 2023
3. Quarterly Performance as of September 30, 2023
4. Manager Monitoring / Probation Status
5. Appendix
6. Disclaimer, Glossary, and Notes

## **Executive Summary**

### Total Portfolio Review

The Oakland Police and Fire Retirement System (OPFRS) finished the quarter with \$405.1 million in assets after net cash flows including monthly benefit payments. All asset classes in their acceptable target allocation ranges.

Cash Flow Summary (\$ Millions)	Quarter	1 Year
Beginning Market Value	420.2	382.5
Net Cash Flows (including Benefit Payments)	-3.0	-17.6
Net Investment Change (Gain/Loss)	-12.0	40.3
<b>Ending Market Value</b>	<b>405.1</b>	<b>405.1</b>

### Investment Performance<sup>1</sup>

	QTD / FYTD	YTD	1 Year	3 Year	5 Year
<b>Total Plan (Gross)</b>	-2.8	5.0	10.9	3.9	4.2
<b>Total Plan (Net)</b>	-2.9	4.8	10.5	3.5	3.9
<i>Policy Benchmark</i>	-3.0	5.9	12.2	3.5	4.0
Excess Return	0.1	-1.1	-1.7	0.0	-0.1
<i>Public DB (\$250M-\$1B) Median Fund</i>	-2.8	4.5	10.2	4.4	5.0
OPFRS Total Plan (Net) vs. Peer Median Fund	-0.1	0.3	0.4	-0.8	-1.1
<i>Peer Group Percentile Rank</i>	57	42	41	80	88

<sup>1</sup> Fiscal year begins on July 01. Peer group is Investment Metrics Public Defined Benefit plans with \$250 million to \$1 billion in assets. The number of peers is about 80 portfolios in each time period. Please see the Benchmark History section for the Policy Benchmark's current and historical compositions.

#### Asset Class and Manager Highlights<sup>1</sup>

- Total Plan's marginal quarterly outperformance was the result of domestic equity's underperformance and international equity's outperformance. For the 1-year period, domestic equity was the primary factor for Total Portfolio's underperformance.
- **Domestic equity** underperformed the Russell 3000 Index over all trailing periods.
  - EARNEST Partners and Brown Fundamental outperformed their respective benchmarks while all other active managers underperformed their respective benchmarks for the quarter.
- **International equity** outperformed the MSCI ACWI ex US (Net) for all periods except for the most recent quarter.
  - The active SGA MSCI ACWI ex US outperformed its benchmark over all time periods except since inception.
  - The passive Vanguard posted some variation<sup>2</sup> from the tracked benchmark over the periods measured.
- **Fixed income** slightly underperformed or matched its custom benchmark over the quarter, year-to-date, and 1-year time periods. The underlying managers outperformed their respective benchmarks across almost all time periods measured.
- The **Credit** segment, with Polen Capital as its only manager, outperformed the asset class's benchmark, Bloomberg US High Yield Index, for all time periods.
- **Covered Calls**, as well as both the passive BXM and the active DeltaShift strategies outperformed the CBOE S&P 500 Buy Write Index across all periods measured.
- The **Crisis Risk Offset** segment outperformed its custom benchmark over the quarter and year-to-date while underperforming over the longer time periods.
  - Among its underlying managers, Vanguard Long-Term Treasury ETF had double-digit negative returns over the quarter impacted by the rising rate environment. Its relative performance was within expectations.

<sup>1</sup> Please see the Benchmark History section for the custom benchmark compositions.

<sup>2</sup> Due to Vanguard's fair-value pricing methodology and timing of the international markets, the strategy's returns may deviate from its tracked index in the short-term that are expected to equalize over the longer term.

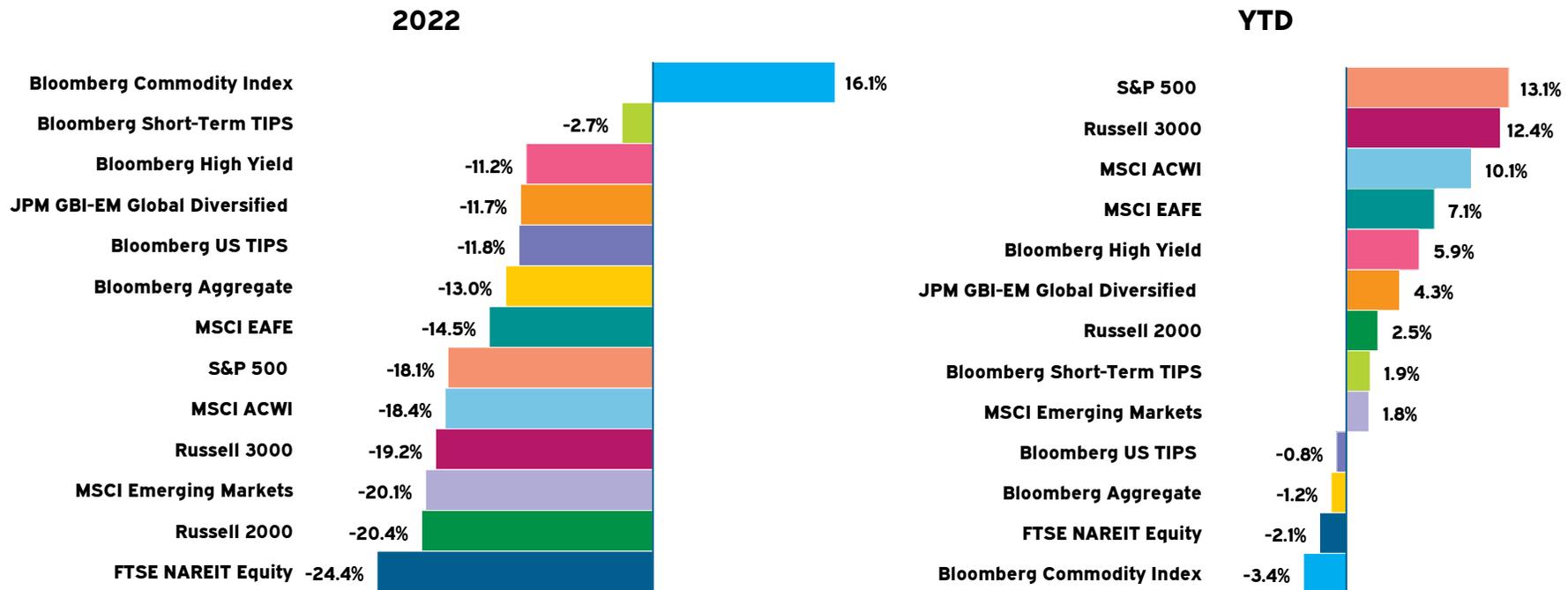
# **Economic and Market Update**

## Data as of September 30, 2023

### Commentary

- After a strong July, global assets turned negative in August and September as expectations shifted to the Fed keeping interest rates higher for longer. Weakening economic data from Europe and China, as well as further instability in the Chinese real estate sector and a strong US dollar, weighed on results.
- The Federal Open Markets Committee (FOMC) increased policy rates in July by 0.25% to a range of 5.25% - 5.5% and kept rates at that level at their September meeting. Markets are now largely expecting the FOMC to maintain interest rates at this level through the first half of next year.
  - US equity markets (Russell 3000 index) fell in the third quarter (-3.3%), bringing the year-to-date gains to 12.4%. The technology sector remains the key driver of results this year, helped by artificial intelligence optimism.
  - Non-US developed equity markets declined more than the US in the third quarter (MSCI EAFE -4.1%) with the strength of the US dollar adding 2.8% to the quarterly declines. This widened the gap between US and international developed equities for the year (12.4% versus 7.1%).
  - Emerging market equities experienced the smallest declines in the third quarter (-2.9%). Negative results were driven by China and again the strong US dollar. Emerging markets continue to significantly trail developed market equities year-to-date, returning just 1.8%, again driven by China.
  - Interest rates generally rose over the quarter, particularly for longer-dated maturities. The broad US bond market fell (-3.2%) for the quarter and turned negative (-1.2%) year-to-date, as higher income has offset capital losses from rising rates.
- For the rest of this year, the paths of inflation and monetary policy, slowing global growth, and the wars in Ukraine and Israel will all be key.

### Index Returns<sup>1</sup>



→ After a particularly difficult 2022, most public market assets are up thus far in 2023, led by developed market equities.

→ While hopes for a soft landing remain in place, the prospect of higher interest rates for longer weighed on market sentiment in August and September.

<sup>1</sup> Source: Bloomberg. Data is as of September 30, 2023.

### Domestic Equity Returns<sup>1</sup>

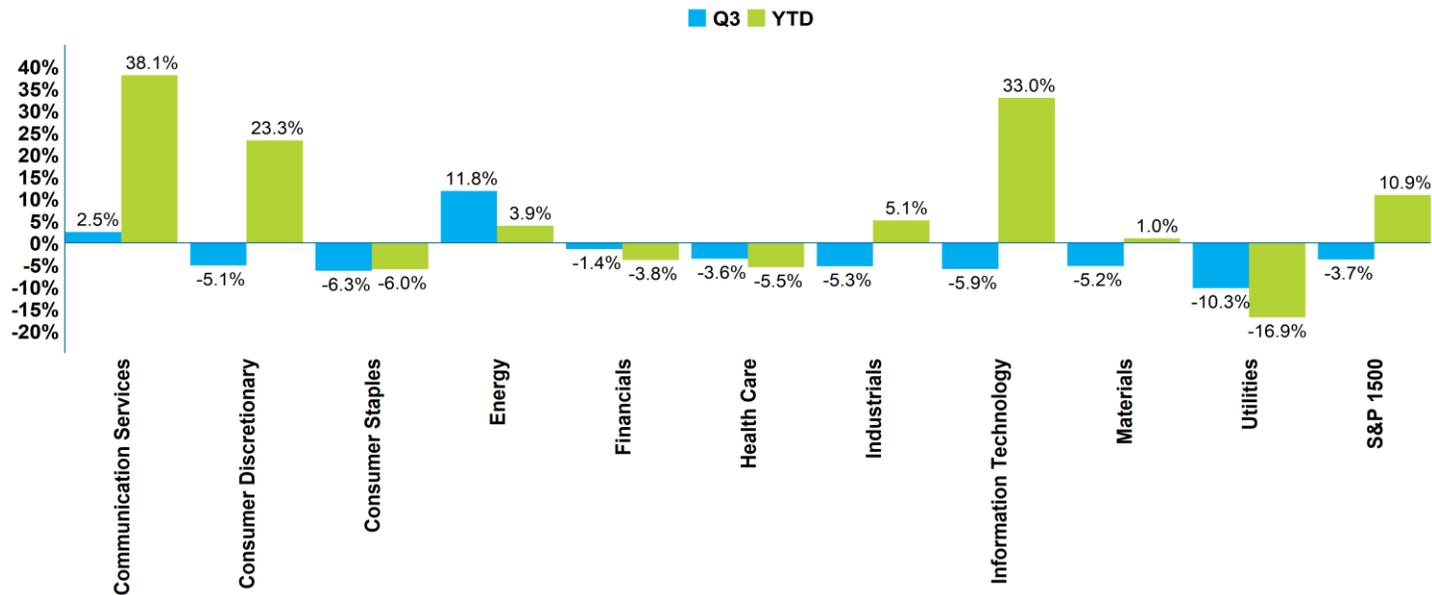
Domestic Equity	September (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	-4.8	-3.3	13.1	21.6	10.2	9.9	11.9
Russell 3000	-4.8	-3.3	12.4	20.5	9.4	9.1	11.3
Russell 1000	-4.7	-3.1	13.0	21.2	9.5	9.6	11.6
Russell 1000 Growth	-5.4	-3.1	25.0	27.7	8.0	12.4	14.5
Russell 1000 Value	-3.9	-3.2	1.8	14.4	11.1	6.2	8.4
Russell MidCap	-5.0	-4.7	3.9	13.4	8.1	6.4	9.0
Russell MidCap Growth	-4.9	-5.2	9.9	17.5	2.6	7.0	9.9
Russell MidCap Value	-5.1	-4.5	0.5	11.0	11.0	5.2	7.9
Russell 2000	-5.9	-5.1	2.5	8.9	7.2	2.4	6.6
Russell 2000 Growth	-6.6	-7.3	5.2	9.6	1.1	1.6	6.7
Russell 2000 Value	-5.2	-3.0	-0.5	7.8	13.3	2.6	6.2

#### US Equities: The Russell 3000 Index fell 3.3% in the third quarter but is up 12.4% YTD.

- US stocks fell 3.3% in the third quarter as healthy economic data and comments from the Fed caused investors to expect interest rates to remain higher for longer.
- Large cap stocks outperformed small cap stocks during the quarter, bringing their year-to-date outperformance to over 10%. The so called “Magnificent Seven” within the large cap market drove most of this outperformance despite a weak third quarter.
- Energy strongly led the way during the quarter posting double-digit gains while most other sectors declined. Oil prices rose after Saudi Arabia and Russia extended output cuts.

<sup>1</sup> Source: Bloomberg. Data is as of September 30, 2023.

### S&P 1500 Sector Returns<sup>1</sup>



→ Except for energy, which benefited from rising oil prices, all sectors were down in the third quarter.

→ So far in 2023, the communication services (+38.1%) and technology (+33.0%) sectors had the best results on artificial intelligence optimism. Given the continued strength in the US consumer the consumer discretionary sector followed (+23.3%), while more defensive sectors like utilities (-16.9%) and consumer staples (-6.0%) have trailed.

<sup>1</sup> Source: Bloomberg. Data is as of September 30, 2023.

### Foreign Equity Returns<sup>1</sup>

Foreign Equity	September (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	-3.2	-3.8	5.3	20.4	3.7	2.6	3.3
MSCI EAFE	-3.4	-4.1	7.1	25.6	5.8	3.2	3.8
MSCI EAFE (Local Currency)	-1.1	-1.3	10.7	20.3	10.8	5.7	6.8
MSCI EAFE Small Cap	-4.4	-3.5	1.8	17.9	1.1	0.8	4.3
MSCI Emerging Markets	-2.6	-2.9	1.8	11.7	-1.7	0.6	2.1
MSCI Emerging Markets (Local Currency)	-1.8	-1.4	4.0	10.9	0.6	2.7	4.9
MSCI China	-2.8	-1.9	-7.3	5.2	-14.3	-4.2	1.7

**Foreign Equity: Developed international equities (MSCI EAFE) fell 4.1% in the third quarter bringing the YTD gain to 7.1%. Emerging market equities (MSCI EM) fell 2.9% in the period, rising 1.8% YTD.**

- Outside of the US, equities were also weak during the third quarter with the continued strength of the US dollar being a key driver.
- Eurozone shares felt pressure from slowing GDP growth and an interest rate hike by the ECB, although inflation continued to ease. By contrast, the UK saw modest gains amid promising economic data including slowing inflation and GDP back around pre-pandemic levels. Japan outperformed regional peers for the quarter due in part to strong earnings.
- Emerging market performance, while negative, outpaced developed peers. Chinese markets saw losses in-line with other emerging market countries, driven largely by unease surrounding property company Evergrande and a continued lackluster reopening of the economy.

<sup>1</sup> Source: Bloomberg. Data is as of September 30, 2023.

### Fixed Income Returns<sup>1</sup>

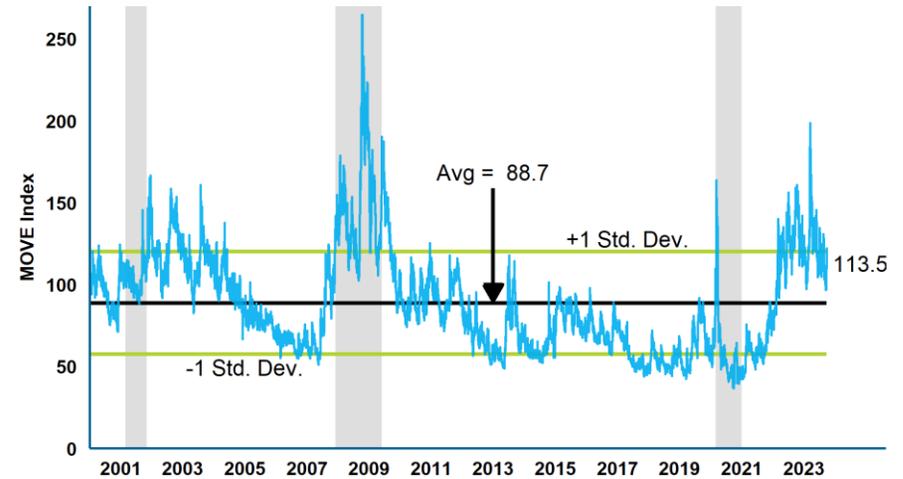
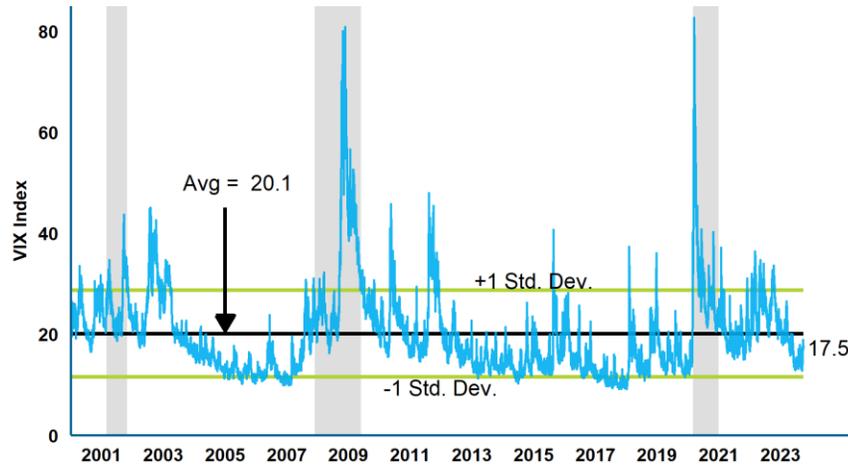
Fixed Income	September (%)	Q3 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	-2.4	-2.9	-0.6	1.6	-4.7	0.3	1.4	5.7	6.0
Bloomberg Aggregate	-2.5	-3.2	-1.2	0.6	-5.2	0.1	1.1	5.4	6.2
Bloomberg US TIPS	-1.8	-2.6	-0.8	1.2	-2.0	2.1	1.7	5.0	6.6
Bloomberg Short-term TIPS	-0.2	0.4	1.9	3.2	1.9	2.8	1.7	5.4	2.5
Bloomberg High Yield	-1.2	0.5	5.9	10.3	1.8	3.0	4.2	8.9	4.0
JPM GBI-EM Global Diversified (USD)	-3.4	-3.3	4.3	13.1	-2.7	0.0	-0.8	6.9	4.9

#### Fixed Income: The Bloomberg Universal index declined 2.9% in the third quarter and -0.6% YTD.

- The downgrade of US government debt from AAA to AA+ by Fitch combined with expectations for higher borrowing put upward pressure on longer-term rates for the quarter and weighed on overall results. Expectations for policy rates to remain higher for longer than previously expected also contributed to the decline in bonds.
- The broad US bond market (Bloomberg Aggregate) fell 3.2% for the quarter bringing YTD results into negative territory. The broader TIPS index fell by 2.6%, while the less interest-rate-sensitive short-term TIPS index outperformed most sectors, up 0.4%.
- High yield bonds were the strongest quarterly performers, up 0.5%, while emerging market bonds were the weakest performer, falling 3.3%. The two asset classes remain the top performers for the year as risk appetite in credit markets remains robust.

<sup>1</sup> Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of September 30, 2023. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration respectively.

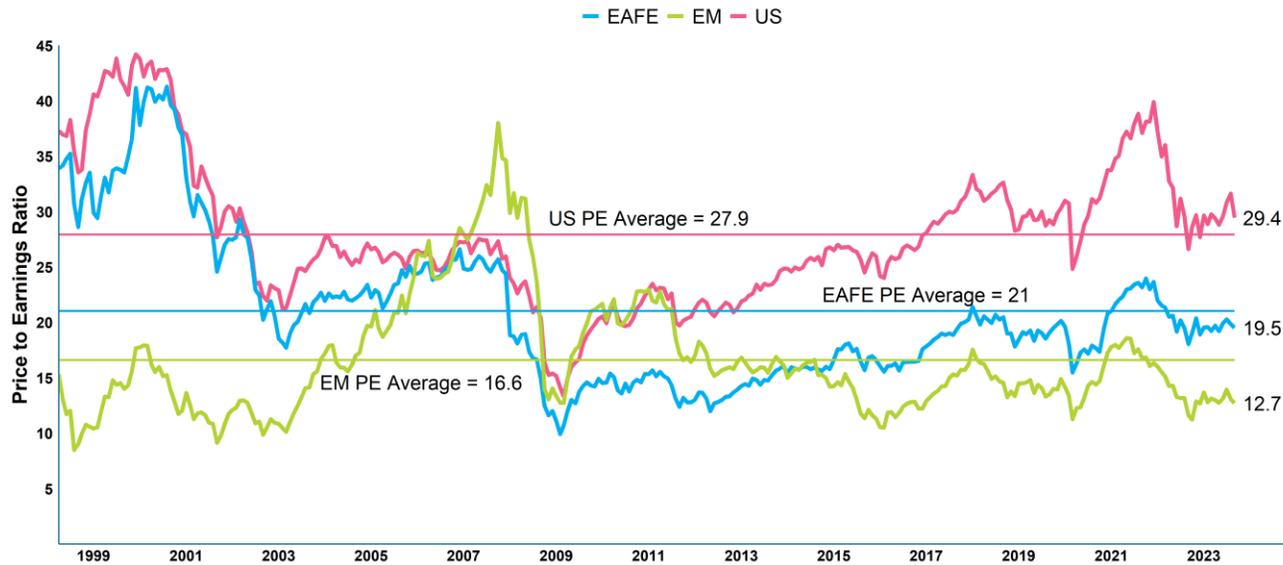
### Equity and Fixed Income Volatility<sup>1</sup>



- Volatility in equities (VIX) increased over the quarter but finished at a level below the long-term average. The recent increase in equity volatility has largely been driven by investors coming to terms that interest rates might remain higher for a longer period.
- In comparison, volatility in the bond market (MOVE) remains well above its long-run average (88.7) after last year's historic losses and due to continued policy uncertainty. Over the quarter, fixed income volatility finished slightly higher compared to where it started, like equities, driven by expectations for rates to stay higher for longer.

<sup>1</sup> Equity Volatility – Source: FRED. Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of September 2023. The average line indicated is the average of the VIX and MOVE values between January 2000 and September 2023.

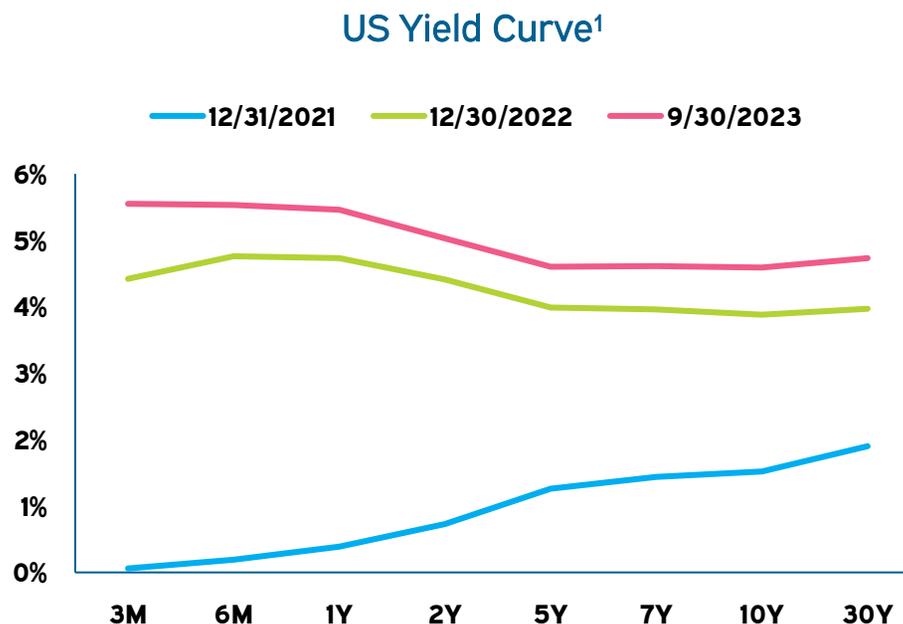
**Equity Cyclically Adjusted P/E Ratios<sup>1</sup>**



→ Given the strong technology-driven rally this year, the US equity price-to-earnings ratio increased above its long-run (21st century) average. With the equity market decline in August and September the P/E ratio fell from its recent peak.

→ International developed market valuations are below their own long-term average, with those for emerging markets the lowest and well under the long-term average (close to one standard deviation below).

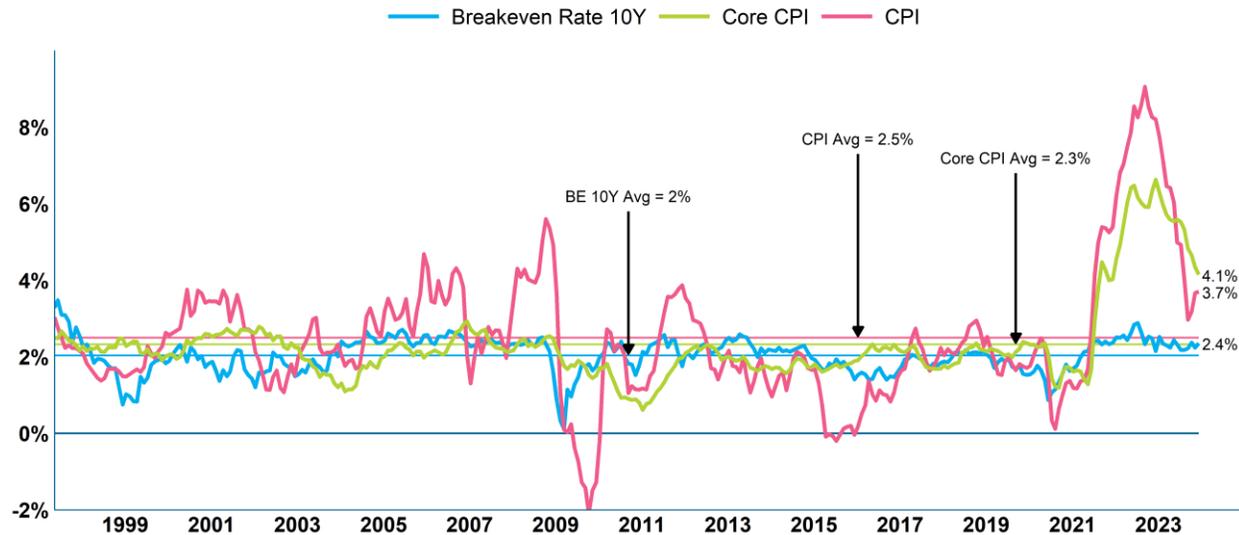
<sup>1</sup> US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years. Data is as of September 2023. The average line is the long-term average of the US, EM, and EAFE PE values from April 1998 to the recent month-end respectively.



- Overall rates have continued to increase this year, particularly at the policy sensitive front-end of the yield curve, but at much slower pace compared to last year.
- Over the quarter, very short-term interest rates (two years or less) increased only slightly as monetary policy has likely reached close to its terminal rate for this cycle. By contrast, longer-term rates rose dramatically as US debt was downgraded and investors came to terms with rates remaining higher for longer. The ten-year Treasury yield increased from 3.8% to 4.6% over the quarter.
- Because of the dynamic above, the yield curve's inversion decreased with the spread between two-year and ten-year Treasuries finishing the quarter at -0.47% (it started the quarter at -1.05%).

<sup>1</sup> Source: Bloomberg. Data is as of September 30, 2023.

**Ten-Year Breakeven Inflation and CPI<sup>1</sup>**

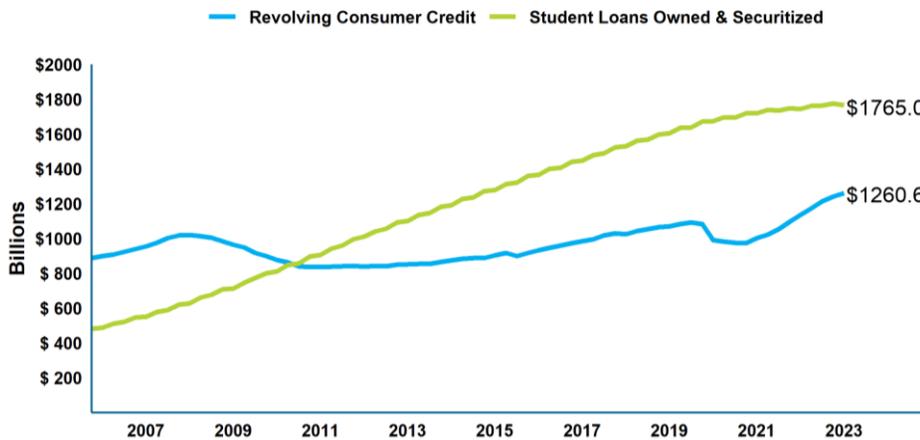


- After the steady decline in inflation from the June 2022 peak, consumer prices recently increased driven by energy prices.
- Year-over-year headline inflation was flat at 3.7% coming in slightly higher than expectations as improvements in energy prices were offset by higher shelter costs.
- Core inflation – excluding food and energy – continued its decline (4.3% to 4.1%) year-over-year. It remains stubbornly high, though, driven by shelter costs (+7.2%), particularly owners’ equivalent rent, and transportation services (+9.1%).
- Inflation expectations (breakevens) remain well below current inflation as investors continue to expect inflation to track back toward the Fed’s 2% average target.

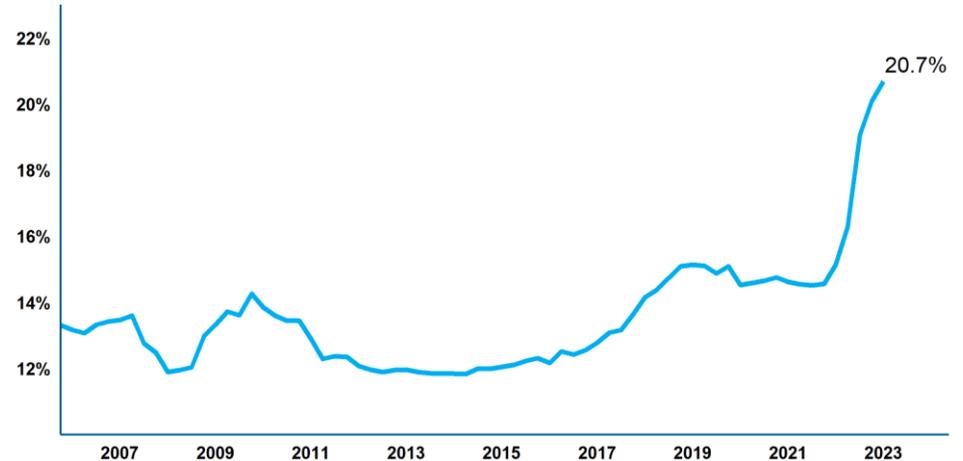
<sup>1</sup> Source: FRED. Data is as September 30, 2023. The CPI and 10 Year Breakeven average lines denote the average values from February 1997 to the present month-end, respectively. Breakeven values represent month-end values for comparative purposes.

### US Consumer Under Stress<sup>1</sup>

#### Revolving Consumer Credit & Student Loans (\$B)



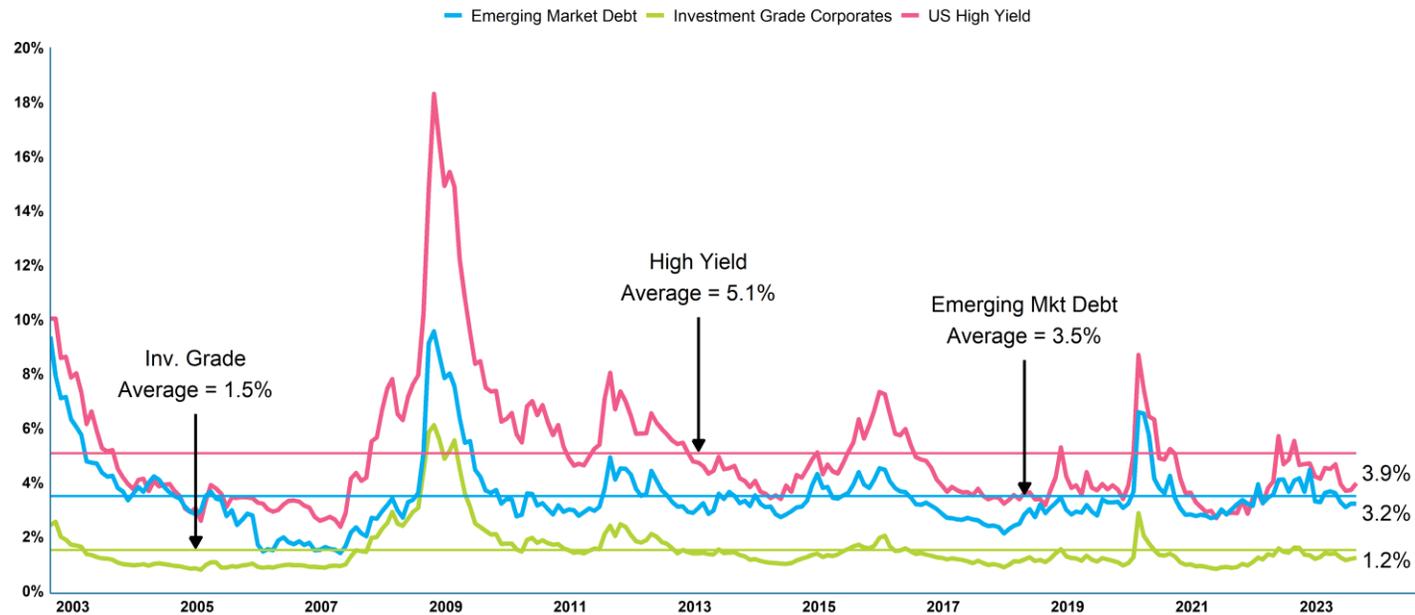
#### Consumer Credit Card Interest Rates (%)



- Despite the strong labor market and higher wages, pressures have started to build on the US consumer. This is an important consideration as consumer spending has been an important driver of economic growth.
- Revolving consumer credit surged to new highs in 2023 even as credit card interest rates hit levels not seen before (the prior peak was around 19% in the 1980s).
- The return of student loan repayments after a three-year pandemic-related reprieve could add to pressures on consumers' budgets. This might be partially balanced by recently initiated repayment and forgiveness programs.
- As we look ahead, the strength of the US consumers will remain key as they make up most of domestic growth (GDP).

<sup>1</sup> Source: FRED. The most recent data is as June 30, 2023. Revolving Consumer Credit data is seasonally adjusted to remove distortions during the holiday season.

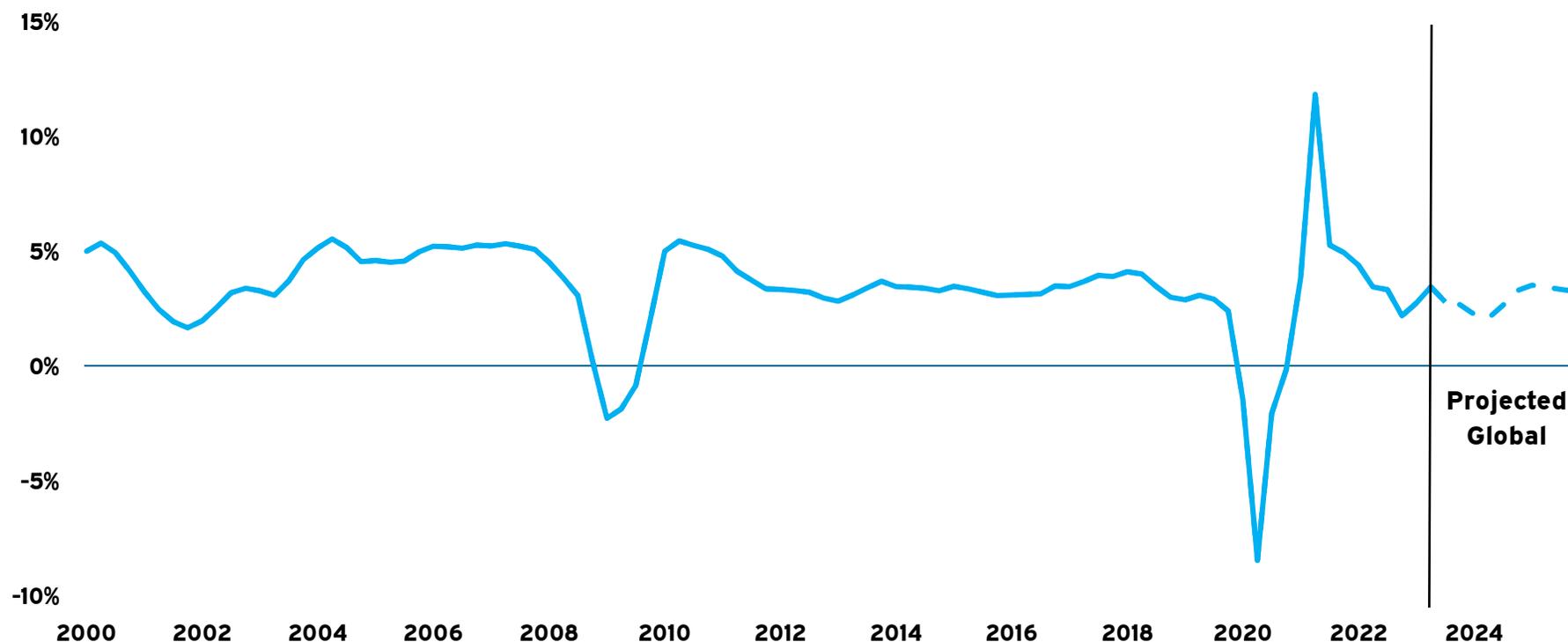
**Credit Spreads vs. US Treasury Bonds<sup>1</sup>**



- Credit spreads (the added yield above a comparable maturity Treasury) largely remained unchanged over the quarter.
- High yield spreads remain well below the long-term average given the overall risk appetite this year. Investment grade and emerging market spreads are also below their respective long-term averages, but by smaller margins.

<sup>1</sup> Sources: Bloomberg. Data is as of September 30, 2023. Average lines denote the average of the investment grade, high yield, and emerging market spread values from September 2002 to the recent month-end, respectively.

### Global Real Gross Domestic Product (GDP) Growth<sup>1</sup>



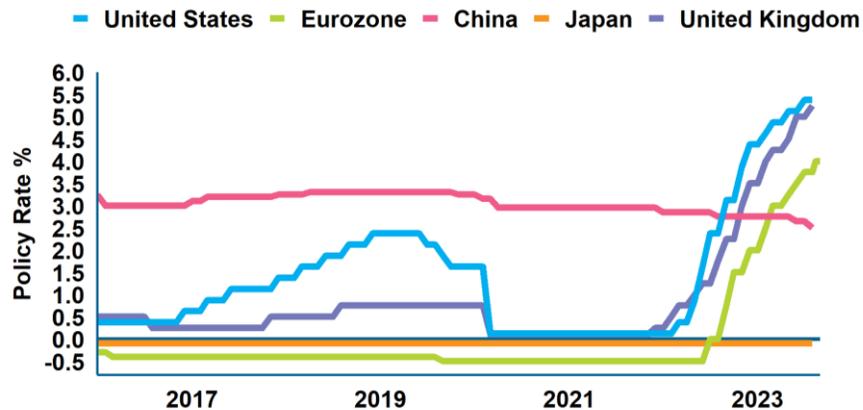
→ Global economies are expected to slow this year compared to 2022. The risk of recession remains elevated given policymakers' aggressive tightening, but optimism has started to grow over some central banks potentially navigating a soft landing.

→ The delicate balancing act of central banks trying to reduce inflation without dramatically disrupting labor markets and depressing economic growth, will remain key.

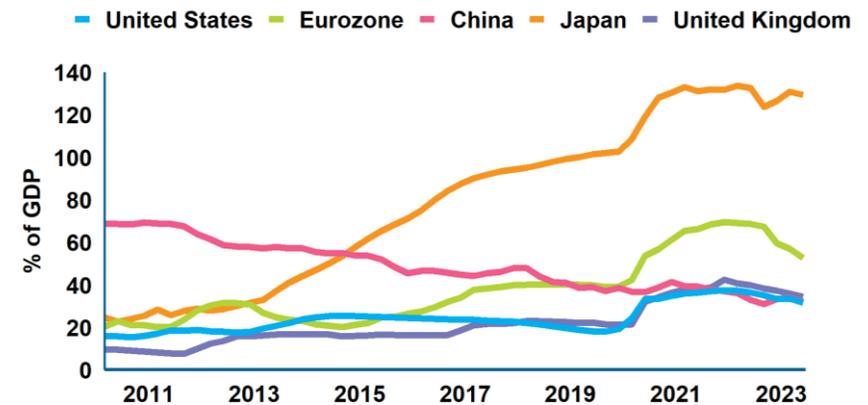
<sup>1</sup> Source: Oxford Economics (World GDP, US\$ prices & PPP exchange rate, real, % change YoY). Updated September 2023.

### Central Bank Response<sup>1</sup>

#### Policy Rates



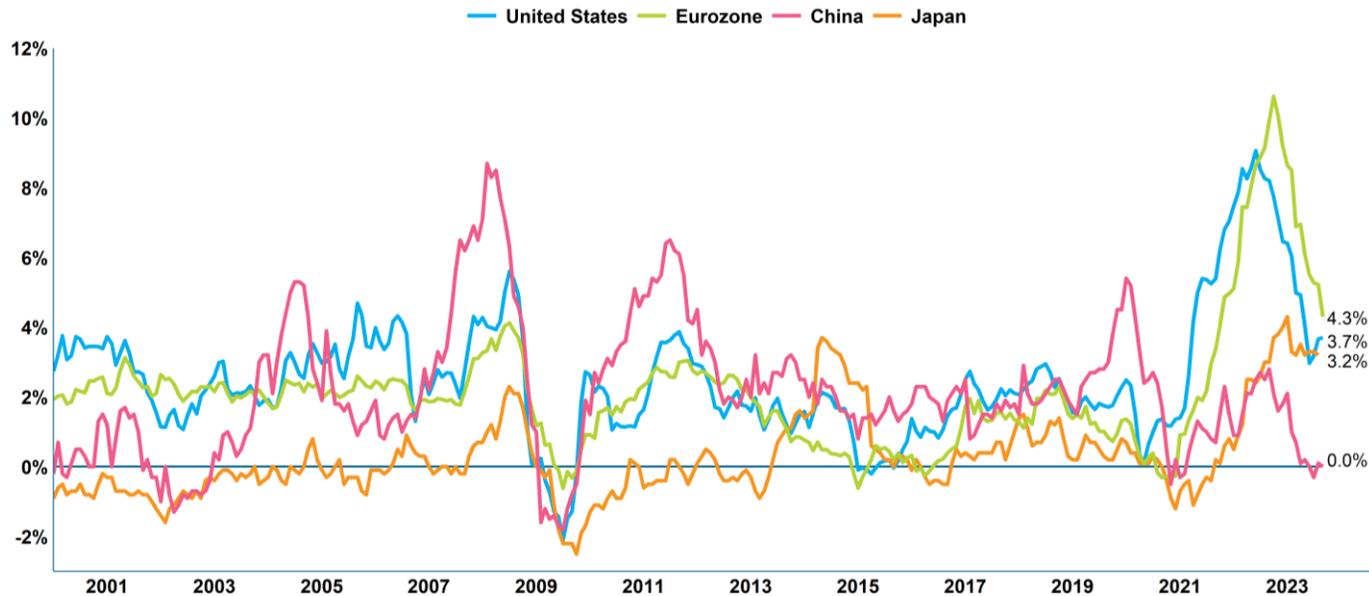
#### Balance Sheet as % of GDP



- Slowing inflation and growth have led to expectations for a reduction in the pace of aggressive policy tightening.
- In July the Fed raised rates another 25 basis points to a range of 5.25% to 5.50% and then kept rates at this level at their September meeting. Markets are expecting at most one more hike later this year.
- The European Central Bank also increased rates in July, with an additional hike in September, but rates remain lower than in the US. In Japan, expectations have increased that the BOJ will end its negative interest rate policy due to rising inflation.
- The central bank in China has continued to cut interest rates and inject liquidity into the banking system, as weaker than expected economic data appears to indicate a widespread slowdown.
- Risks remain for a policy error as central banks attempt to balance bringing down inflation, maintaining financial stability, and supporting growth.

<sup>1</sup> Source: Bloomberg. Policy rate data is as of September 30, 2023. China policy rate is defined as the medium-term lending facility 1 year interest rate. Balance sheet as % of GDP is based on quarterly data and is as of June 30, 2023.

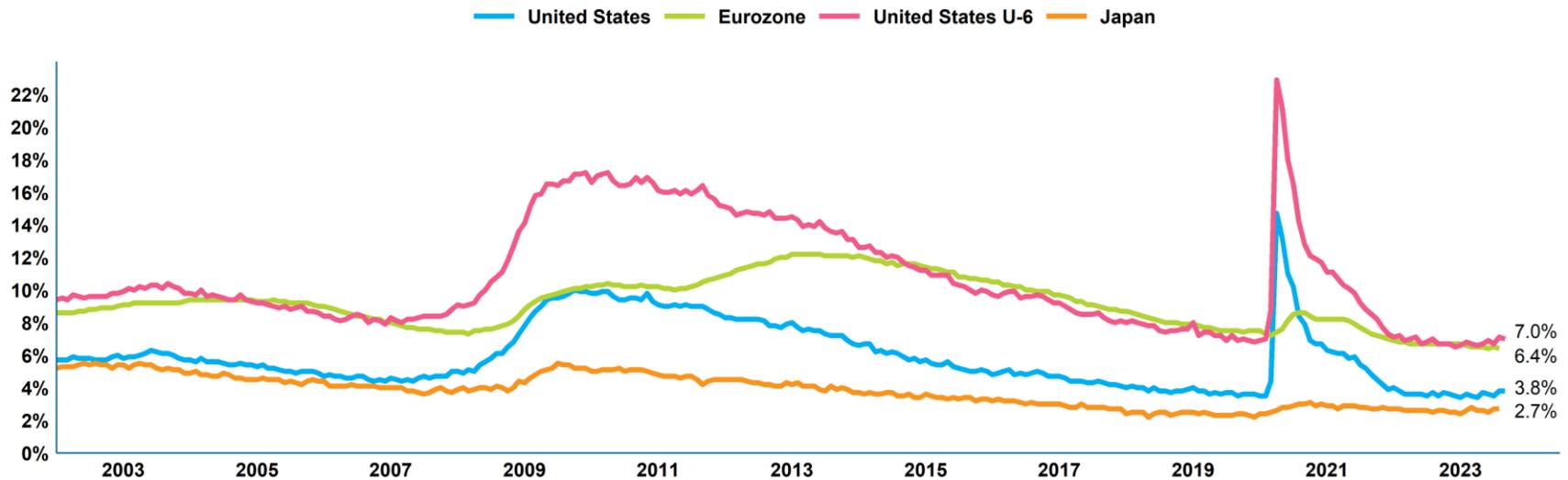
**Inflation (CPI Trailing Twelve Months)<sup>1</sup>**



- The inflation picture remains mixed across the major economies.
- In the US, inflation was flat at 3.7%, influenced by rising shelter costs, while eurozone inflation remained higher than the US at 4.3%, a level well off its peak, however. Despite 2023's significant declines in the US and Europe, inflation levels remain elevated compared to central bank targets.
- Inflation in Japan has increased to levels not seen in almost a decade largely driven by food and home related items. In China, deflationary pressures eased but prices were flat from a year prior.

<sup>1</sup> United States CPI and Eurozone CPI – Source: FRED. Japan CPI and China CPI - Source: Bloomberg. Data is as September 30, 2023. The most recent data for Japanese and Eurozone inflation is as of August 2023.

### Unemployment<sup>1</sup>



- Overall, the US labor market remains healthy with the unemployment rate relatively low, wage growth now positive in real terms, and initial claims for unemployment staying subdued. The pace of wage growth has slowed though, and despite remaining elevated, the number of job openings has declined from recent highs.
- In September, unemployment remained at 3.8%, a level only 0.2% higher than the start of the quarter. The labor force participation rate remained at 62.8% well off the lows of the pandemic (60.1%) but not back to pre-pandemic levels (63.3%). Broader measures of unemployment (U-6) finished the quarter at 7.0% up only slightly from the end of June (6.9%).
- Unemployment in Europe has also declined but remains higher than the US, while levels in Japan have been flat through the pandemic given less layoffs.

<sup>1</sup> Eurozone Unemployment - Source: Bloomberg. Japan, United States, United States U-6 Unemployment – Source: FRED. Data is as September 30, 2023, for the US. The most recent data for Eurozone unemployment is as of August 2023 and Japanese unemployment is as of August 2023.

**US Dollar versus Broad Currencies<sup>1</sup>**



- After a strong 2022, the US dollar declined late last year and into early this year as weaker economic data and lower inflation led to investors anticipating the end of FOMC tightening.
- Recently though, the dollar reversed course and appreciated against major currencies as relative growth remains strong and investors anticipate the FOMC keeping interest rates higher for longer.
- For the rest of this year, the track of inflation across economies and the corresponding monetary policies will be key drivers of currency moves.

<sup>1</sup> Source: Bloomberg. Data as of September 30, 2023.

## Summary

### Key Trends:

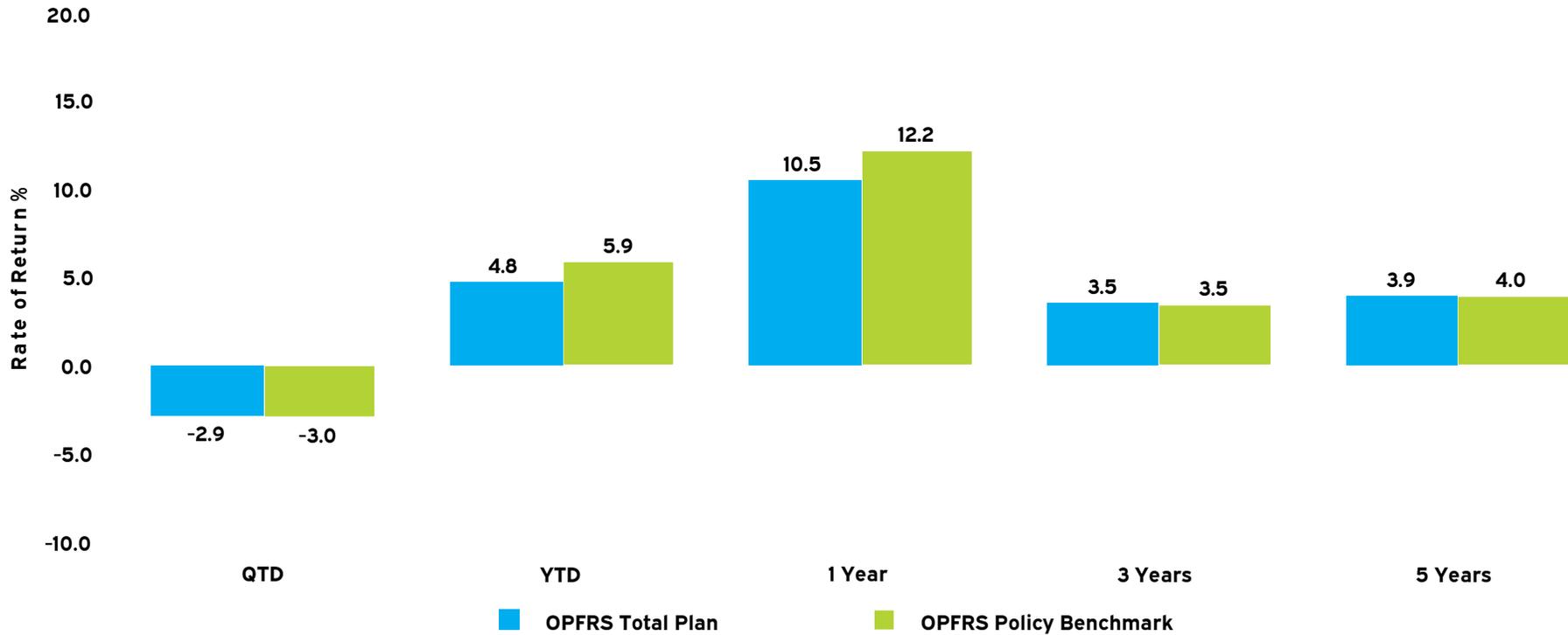
- The impact of inflation still above policy targets will remain key, with bond market volatility likely to stay high.
- Global monetary policies could diverge going forward. The risk of policy errors remains elevated as central banks try to reduce persistent inflation while not tipping their economies into recession.
- Growth is expected to slow globally this year, with many economies forecasted to tip into recession. However, optimism has been building that some economies could experience a soft landing. Inflation, monetary policy, and the war will all be key.
- In the US, consumers could feel pressure as certain components of inflation remain high (e.g., shelter), borrowing costs are elevated, and the job market may weaken.
- The key for US equities going forward will be whether earnings can remain resilient if growth continues to slow. Also, the future paths of the large technology companies that have driven market gains will be important.
- Equity valuations remain lower in emerging and developed markets, but risks remain, including the potential for recent strength in the US dollar to persist, higher inflation weighing particularly on Europe, and China's sluggish economic reopening and on-going weakness in the real estate sector. Japan's recent hint at potentially tightening monetary policy along with changes in corporate governance in the country could influence relative results.
- After month-end, heightened tensions in Israel could add to overall uncertainty and drive safe haven flows.

Quarterly **Performance**  
as of September 30, 2023

#### Summary of Cash Flows

	QTD	1 Year
<b>OPFRS Total Plan</b>		
<b>Beginning Market Value</b>	<b>420,170,089</b>	<b>382,458,040</b>
Net Cash Flow	-3,020,018	-17,640,430
Net Investment Change	-12,006,623	40,325,838
<b>Ending Market Value</b>	<b>405,143,449</b>	<b>405,143,449</b>

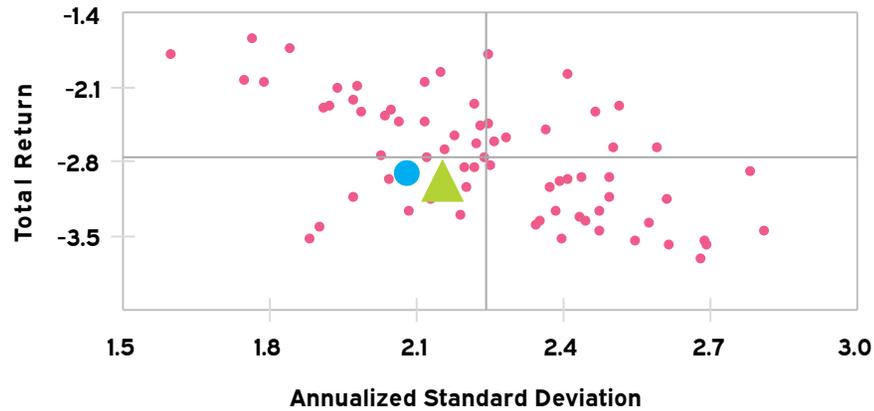
#### Return Summary Ending September 30, 2023



Total Plan performance is a mix of gross and net of fees; performance is gross of fees prior to January 2016 and thereafter.

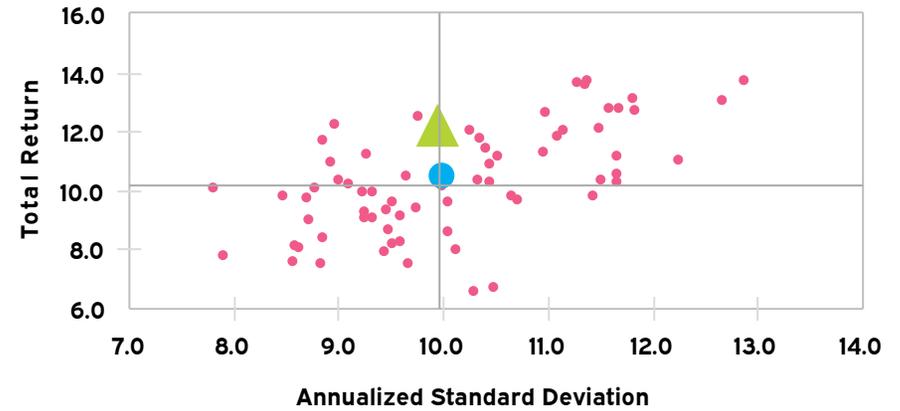
### Total Plan Risk/Return Summary | As of September 30, 2023

#### Risk-Return Summary QTD Ending September 30, 2023



- IM Public DB \$250M-\$1B
- OPFRS Total Plan
- ▲ OPFRS Policy Benchmark

#### Risk-Return Summary 1 Yr Ending September 30, 2023



- IM Public DB \$250M-\$1B
- OPFRS Total Plan
- ▲ OPFRS Policy Benchmark

	Return	Standard Deviation
--	--------	--------------------

OPFRS Total Plan	-2.9	2.1
OPFRS Policy Benchmark	-3.0	2.2
Median	-2.8	2.2

	Return	Standard Deviation
--	--------	--------------------

OPFRS Total Plan	10.5	10.0
OPFRS Policy Benchmark	12.2	9.9
Median	10.2	10.0

Total Plan performance is a mix of gross and net of fees; performance is gross of fees prior to January 2016 and thereafter. Parentheses contain percentile rankings. Calculation based on monthly periodicity. Fiscal year begins on July 1. Plan Sponsor Peer Group shown is net of fees.

## Asset Class Performance: Gross of Fees | As of September 30, 2023

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
<b>OPFRS Total Plan (Gross)</b>	<b>405,143,449</b>	<b>100.0</b>	<b>-2.8</b>	<b>5.0</b>	<b>10.9</b>	<b>3.9</b>	<b>4.2</b>	<b>6.5</b>	<b>6.5</b>	<b>Dec-88</b>
<i>OPFRS Policy Benchmark</i>			<i>-3.0</i>	<i>5.9</i>	<i>12.2</i>	<i>3.5</i>	<i>4.0</i>	<i>6.4</i>	<i>7.7</i>	
Excess Return			<i>0.2</i>	<i>-0.9</i>	<i>-1.3</i>	<i>0.4</i>	<i>0.2</i>	<i>0.1</i>	<i>-1.2</i>	
<b>Domestic Equity (Gross)</b>	<b>165,391,122</b>	<b>40.8</b>	<b>-3.8</b>	<b>7.3</b>	<b>16.2</b>	<b>8.8</b>	<b>7.8</b>	<b>10.6</b>	<b>8.6</b>	<b>Jun-97</b>
<i>Russell 3000 (Blend)</i>			<i>-3.3</i>	<i>12.4</i>	<i>20.5</i>	<i>9.4</i>	<i>9.1</i>	<i>11.3</i>	<i>8.9</i>	
Excess Return			<i>-0.5</i>	<i>-5.1</i>	<i>-4.3</i>	<i>-0.6</i>	<i>-1.3</i>	<i>-0.7</i>	<i>-0.3</i>	
<b>International Equity (Gross)</b>	<b>51,607,318</b>	<b>12.7</b>	<b>-2.2</b>	<b>9.7</b>	<b>26.2</b>	<b>5.8</b>	<b>4.1</b>	<b>4.9</b>	<b>5.2</b>	<b>Jan-98</b>
<i>MSCI ACWI ex US (Blend)</i>			<i>-3.8</i>	<i>5.3</i>	<i>20.4</i>	<i>3.7</i>	<i>2.6</i>	<i>3.3</i>	<i>4.8</i>	
Excess Return			<i>1.6</i>	<i>4.4</i>	<i>5.8</i>	<i>2.1</i>	<i>1.5</i>	<i>1.6</i>	<i>0.4</i>	
<b>Fixed Income (Gross)</b>	<b>101,122,231</b>	<b>25.0</b>	<b>-3.2</b>	<b>-0.4</b>	<b>1.7</b>	<b>-4.3</b>	<b>0.6</b>	<b>1.8</b>	<b>4.6</b>	<b>Jan-94</b>
<i>Bloomberg Universal (Blend)</i>			<i>-2.9</i>	<i>-0.6</i>	<i>1.6</i>	<i>-4.7</i>	<i>0.3</i>	<i>1.4</i>	<i>4.4</i>	
Excess Return			<i>-0.3</i>	<i>0.2</i>	<i>0.1</i>	<i>0.4</i>	<i>0.3</i>	<i>0.4</i>	<i>0.2</i>	
<b>Credit (Gross)</b>	<b>9,329,974</b>	<b>2.3</b>	<b>1.5</b>	<b>8.9</b>	<b>11.0</b>	<b>5.8</b>	<b>3.9</b>	<b>--</b>	<b>5.3</b>	<b>Feb-15</b>
<i>Blmbg. U.S. Corp: High Yield Index</i>			<i>0.5</i>	<i>5.9</i>	<i>10.3</i>	<i>1.8</i>	<i>3.0</i>	<i>4.2</i>	<i>4.1</i>	
Excess Return			<i>1.0</i>	<i>3.0</i>	<i>0.7</i>	<i>4.0</i>	<i>0.9</i>	<i>--</i>	<i>1.2</i>	
<b>Covered Calls (Gross)</b>	<b>22,157,801</b>	<b>5.5</b>	<b>-1.7</b>	<b>12.0</b>	<b>20.6</b>	<b>10.4</b>	<b>8.2</b>	<b>--</b>	<b>8.8</b>	<b>Apr-14</b>
<i>CBOE S&amp;P 500 Buy Write Index</i>			<i>-2.8</i>	<i>7.3</i>	<i>14.6</i>	<i>7.2</i>	<i>3.0</i>	<i>6.0</i>	<i>5.2</i>	
Excess Return			<i>1.1</i>	<i>4.7</i>	<i>6.0</i>	<i>3.2</i>	<i>5.2</i>	<i>--</i>	<i>3.6</i>	
<b>Crisis Risk Offset (Gross)</b>	<b>39,485,989</b>	<b>9.7</b>	<b>-1.4</b>	<b>0.6</b>	<b>-4.2</b>	<b>-7.3</b>	<b>-8.7</b>	<b>--</b>	<b>-7.8</b>	<b>Aug-18</b>
<i>Crisis Risk Offset Benchmark</i>			<i>-2.4</i>	<i>0.3</i>	<i>1.8</i>	<i>3.5</i>	<i>-0.3</i>	<i>--</i>	<i>-0.4</i>	
Excess Return			<i>1.0</i>	<i>0.3</i>	<i>-6.0</i>	<i>-10.8</i>	<i>-8.4</i>	<i>--</i>	<i>-7.4</i>	
<b>Cash (Gross)</b>	<b>16,049,014</b>	<b>4.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.8</b>	<b>0.7</b>	<b>0.6</b>	<b>Mar-11</b>

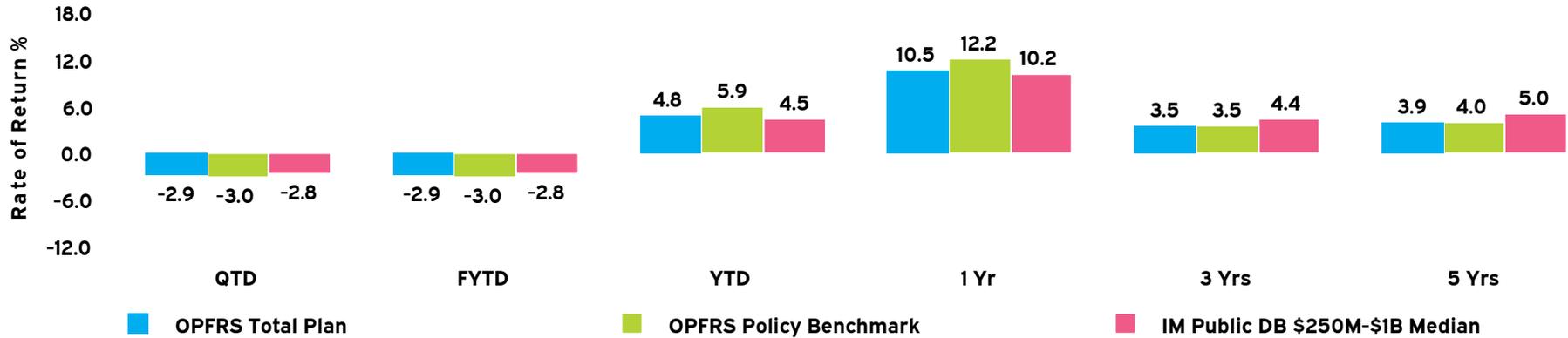
Performance shown is gross of fees. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see Benchmark History section for custom benchmark compositions.

## Asset Class Performance: Net of Fees | As of September 30, 2023

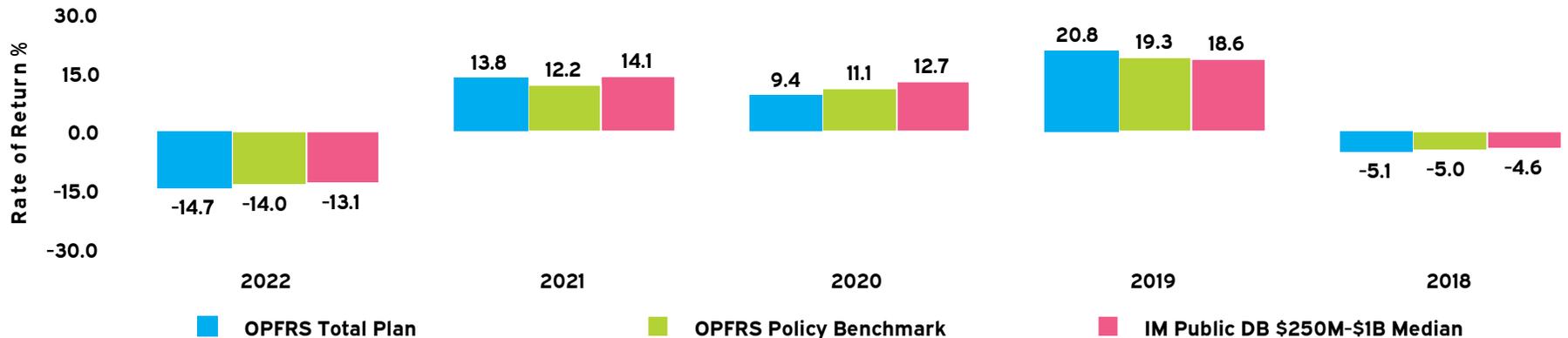
	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
<b>OPFRS Total Plan (Net)</b>	<b>405,143,449</b>	<b>100.0</b>	<b>-2.9</b>	<b>4.8</b>	<b>10.5</b>	<b>3.5</b>	<b>3.9</b>	<b>6.3</b>	<b>6.4</b>	<b>Dec-88</b>
<i>OPFRS Policy Benchmark</i>			-3.0	5.9	12.2	3.5	4.0	6.4	7.7	
Excess Return			0.1	-1.1	-1.7	0.0	-0.1	-0.1	-1.3	
<i>IM Public DB \$250M-\$1B Median (Net)</i>			-2.8	4.5	10.2	4.4	5.0	6.1	--	
IM Public DB \$250M-\$1B Median (Net) Rank			57	42	41	80	88	43	--	
<b>Domestic Equity (Net)</b>	<b>165,391,122</b>	<b>40.8</b>	<b>-3.9</b>	<b>7.0</b>	<b>15.8</b>	<b>8.4</b>	<b>7.5</b>	<b>10.4</b>	<b>8.6</b>	<b>Jun-97</b>
<i>Russell 3000 (Blend)</i>			-3.3	12.4	20.5	9.4	9.1	11.3	8.9	
Excess Return			-0.6	-5.4	-4.7	-1.0	-1.6	-0.9	-0.3	
<b>International Equity (Net)</b>	<b>51,607,318</b>	<b>12.7</b>	<b>-2.3</b>	<b>9.2</b>	<b>25.5</b>	<b>5.2</b>	<b>3.6</b>	<b>4.5</b>	<b>5.0</b>	<b>Jan-98</b>
<i>MSCI ACWI ex US (Blend)</i>			-3.8	5.3	20.4	3.7	2.6	3.3	4.8	
Excess Return			1.5	3.9	5.1	1.5	1.0	1.2	0.2	
<b>Fixed Income (Net)</b>	<b>101,122,231</b>	<b>25.0</b>	<b>-3.2</b>	<b>-0.6</b>	<b>1.5</b>	<b>-4.5</b>	<b>0.4</b>	<b>1.5</b>	<b>4.3</b>	<b>Jan-94</b>
<i>Bloomberg Universal (Blend)</i>			-2.9	-0.6	1.6	-4.7	0.3	1.4	4.4	
Excess Return			-0.3	0.0	-0.1	0.2	0.1	0.1	-0.1	
<b>Credit (Net)</b>	<b>9,329,974</b>	<b>2.3</b>	<b>1.4</b>	<b>8.4</b>	<b>10.4</b>	<b>5.1</b>	<b>3.2</b>	<b>--</b>	<b>4.6</b>	<b>Feb-15</b>
<i>Blmbg. U.S. Corp: High Yield Index</i>			0.5	5.9	10.3	1.8	3.0	4.2	4.1	
Excess Return			0.9	2.5	0.1	3.3	0.2	--	0.5	
<b>Covered Calls (Net)</b>	<b>22,157,801</b>	<b>5.5</b>	<b>-1.8</b>	<b>11.9</b>	<b>20.4</b>	<b>10.2</b>	<b>7.9</b>	<b>--</b>	<b>8.5</b>	<b>Apr-14</b>
<i>CBOE S&amp;P 500 Buy Write Index</i>			-2.8	7.3	14.6	7.2	3.0	6.0	5.2	
Excess Return			1.0	4.6	5.8	3.0	4.9	--	3.3	
<b>Crisis Risk Offset (Net)</b>	<b>39,485,989</b>	<b>9.7</b>	<b>-1.4</b>	<b>0.5</b>	<b>-4.3</b>	<b>-7.4</b>	<b>-8.9</b>	<b>--</b>	<b>-8.1</b>	<b>Aug-18</b>
<i>Crisis Risk Offset Benchmark</i>			-2.4	0.3	1.8	3.5	-0.3	--	-0.4	
Excess Return			1.0	0.2	-6.1	-10.9	-8.6	--	-7.7	
<b>Cash (Net)</b>	<b>16,049,014</b>	<b>4.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.8</b>	<b>0.7</b>	<b>0.6</b>	<b>Mar-11</b>

Performance shown is net of fees, except for Total Plan, Domestic Equity, and International Equity composites which have a mix of gross and net of fees performance. Please see the Addendum for more details. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see Benchmark History section for custom benchmark compositions.

#### Trailing Period Performance Ending September 30, 2023



#### Calendar Year Performance Ending December 31, 2022



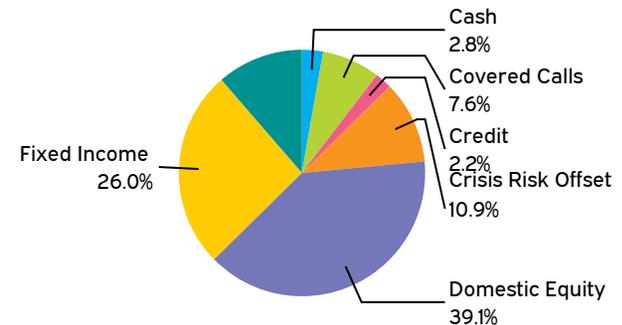
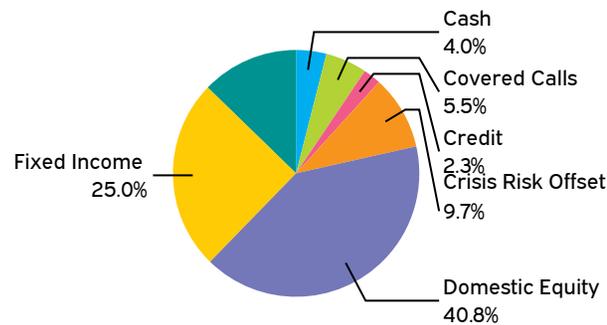
Total Plan performance is a mix of gross and net of fees; performance is gross of fees prior to January 2016 and thereafter. Fiscal year begins on July 1.

### Asset Allocation | As of September 30, 2023

	Current Balance (\$)	Current Allocation (%)	Policy (%)	Difference (%)	Policy Range (%)	Within IPS Range?
Domestic Equity	165,391,122	40.8	40.0	0.8	30.0 - 50.0	Yes
International Equity	51,607,318	12.7	12.0	0.7	8.0 - 14.0	Yes
Fixed Income	101,122,231	25.0	31.0	-6.0	25.0 - 40.0	Yes
Credit	9,329,974	2.3	2.0	0.3	1.0 - 3.0	Yes
Covered Calls	22,157,801	5.5	5.0	0.5	5.0 - 10.0	Yes
Crisis Risk Offset	39,485,989	9.7	10.0	-0.3	5.0 - 15.0	Yes
Cash	16,049,014	4.0	0.0	4.0	0.0 - 5.0	Yes
<b>Total</b>	<b>405,143,449</b>	<b>100.0</b>	<b>100.0</b>	<b>0.0</b>		

September 30, 2023: \$405,143,448.6

September 30, 2022: \$406,308,110.42



Cash account market value includes cash balances held in ETF accounts at the custodian and residuals from terminated managers. Target weights reflect the Plan's evolving asset allocation (effective 05/31/2017).

## Manager Performance - Net of Fees | As of September 30, 2023

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
<b>Domestic Equity</b>	<b>165,391,122</b>	<b>100.0</b>	<b>-3.9</b>	<b>7.0</b>	<b>15.8</b>	<b>8.4</b>	<b>7.5</b>	<b>10.4</b>	<b>8.6</b>	<b>Jun-97</b>
<i>Russell 3000 (Blend)</i>			-3.3	12.4	20.5	9.4	9.1	11.3	8.9	
Excess Return			-0.6	-5.4	-4.7	-1.0	-1.6	-0.9	-0.3	
Northern Trust Russell 1000	78,815,151	47.7	-3.1	13.0	21.2	9.4	9.5	11.5	12.8	Jun-10
<i>Russell 1000 Index</i>			-3.1	13.0	21.2	9.5	9.6	11.6	12.9	
Excess Return			0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	
EARNEST Partners	39,440,769	23.8	-4.5	3.6	11.4	8.6	8.3	10.8	8.8	Apr-06
<i>Russell Midcap Index</i>			-4.7	3.9	13.4	8.1	6.4	9.0	8.2	
Excess Return			0.2	-0.3	-2.0	0.5	1.9	1.8	0.6	
eV US Mid Cap Core Equity Rank			57	60	76	66	31	17	33	
Wellington Select Quality Equity	22,275,787	13.5	-4.7	0.3	14.1	--	--	--	0.8	May-22
<i>Russell 1000 Index</i>			-3.1	13.0	21.2	9.5	9.6	11.6	4.0	
Excess Return			-1.6	-12.7	-7.1	--	--	--	-3.2	
eV US Large Cap Core Equity Rank			88	94	80	--	--	--	77	
Brown Fundamental Small Cap Value	11,370,103	6.9	0.8	4.1	16.8	--	--	--	2.3	Apr-21
<i>Russell 2000 Value Index</i>			-3.0	-0.5	7.8	13.3	2.6	6.2	-4.1	
Excess Return			3.8	4.6	9.0	--	--	--	6.4	
eV US Small Cap Value Equity Rank			12	41	33	--	--	--	23	
Rice Hall James	13,489,312	8.2	-8.3	0.7	3.7	1.8	-0.3	--	4.8	Aug-17
<i>Russell 2000 Growth Index</i>			-7.3	5.2	9.6	1.1	1.6	6.7	5.3	
Excess Return			-1.0	-4.5	-5.9	0.7	-1.9	--	-0.5	
eV US Small Cap Growth Equity Rank			73	77	80	55	95	--	91	

Performance shown is net of fees, except for the Domestic Equity composite which has a mix of gross and net of fees performance. Please see the Addendum for more details. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see Benchmark History section for custom benchmark compositions.

### Manager Performance - Net of Fees | As of September 30, 2023

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
<b>International Equity</b>	<b>51,607,318</b>	<b>100.0</b>	<b>-2.3</b>	<b>9.2</b>	<b>25.5</b>	<b>5.2</b>	<b>3.6</b>	<b>4.5</b>	<b>5.0</b>	<b>Jan-98</b>
<i>MSCI ACWI ex US (Blend)</i>			-3.8	5.3	20.4	3.7	2.6	3.3	4.8	
Excess Return			1.5	3.9	5.1	1.5	1.0	1.2	0.2	
Vanguard Developed Markets ETF	14,640,298	28.4	-4.7	5.3	22.9	5.0	--	--	5.0	Sep-19
<i>FTSE Developed All Cap ex-U.S. Index</i>			-3.9	6.7	24.2	5.8	3.5	4.3	5.6	
Excess Return			-0.8	-1.4	-1.3	-0.8	--	--	-0.6	
SGA ACWI ex-U.S. Equity	36,967,020	71.6	-1.4	10.8	26.5	5.1	--	--	2.5	Dec-19
<i>MSCI AC World ex USA (Net)</i>			-3.8	5.3	20.4	3.7	2.6	3.3	2.6	
Excess Return			2.4	5.5	6.1	1.4	--	--	-0.1	
eV ACWI ex-US All Cap Core Eq Rank			12	3	11	37	--	--	68	

Performance shown is net of fees, except for the International Equity composite which has a mix of gross and net of fees performance. Please see the Addendum for more details. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see Benchmark History section for custom benchmark compositions.

### Manager Performance - Net of Fees | As of September 30, 2023

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
<b>Fixed Income</b>	<b>101,122,231</b>	<b>100.0</b>	<b>-3.2</b>	<b>-0.6</b>	<b>1.5</b>	<b>-4.5</b>	<b>0.4</b>	<b>1.5</b>	<b>4.3</b>	<b>Jan-94</b>
<i>Bloomberg Universal (Blend)</i>			-2.9	-0.6	1.6	-4.7	0.3	1.4	4.4	
Excess Return			-0.3	0.0	-0.1	0.2	0.1	0.1	-0.1	
Ramirez	68,697,575	67.9	-3.1	-0.6	1.0	-4.5	0.3	--	0.7	Feb-17
<i>Blmbg. U.S. Aggregate Index</i>			-3.2	-1.2	0.6	-5.2	0.1	1.1	0.3	
Excess Return			0.1	0.6	0.4	0.7	0.2	--	0.4	
eV US Core Fixed Inc Rank			54	35	41	22	54	--	32	
Wellington Core Bond	6,517,141	6.4	-3.1	-0.2	1.6	--	--	--	-5.5	Apr-21
<i>Blmbg. U.S. Aggregate Index</i>			-3.2	-1.2	0.6	-5.2	0.1	1.1	-5.2	
Excess Return			0.1	1.0	1.0	--	--	--	-0.3	
eV US Core Fixed Inc Rank			50	16	18	--	--	--	86	
Reams	25,907,515	25.6	-3.5	-0.5	2.6	-4.3	2.7	2.4	4.7	Feb-98
<i>Bloomberg Universal (Blend)</i>			-2.9	-0.6	1.6	-4.7	0.3	1.4	3.9	
Excess Return			-0.6	0.1	1.0	0.4	2.4	1.0	0.8	
eV US Core Plus Fixed Inc Rank			89	58	17	44	1	10	21	

Performance shown is net of fees. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see Benchmark History section for custom benchmark compositions.

### Manager Performance - Net of Fees | As of September 30, 2023

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
<b>Credit</b>	<b>9,329,974</b>	<b>100.0</b>	<b>1.4</b>	<b>8.4</b>	<b>10.4</b>	<b>5.1</b>	<b>3.2</b>	<b>--</b>	<b>4.6</b>	<b>Feb-15</b>
<i>Blmbg. U.S. Corp: High Yield Index</i>			<i>0.5</i>	<i>5.9</i>	<i>10.3</i>	<i>1.8</i>	<i>3.0</i>	<i>4.2</i>	<i>4.1</i>	
Excess Return			0.9	2.5	0.1	3.3	0.2	--	0.5	
<b>Polen Capital</b>	<b>9,329,974</b>	<b>100.0</b>	<b>1.4</b>	<b>8.4</b>	<b>10.4</b>	<b>5.1</b>	<b>3.2</b>	<b>--</b>	<b>4.6</b>	<b>Feb-15</b>
<i>ICE BofA High Yield Master II</i>			<i>0.5</i>	<i>6.0</i>	<i>10.2</i>	<i>1.8</i>	<i>2.8</i>	<i>4.2</i>	<i>4.0</i>	
Excess Return			0.9	2.4	0.2	3.3	0.4	--	0.6	
eV US High Yield Fixed Inc Rank			13	4	30	3	31	--	14	

Performance shown is net of fees. Since inception date and performance begin in the month following an investment's initial funding. Fiscal year begins on July 1. Please see Benchmark History section for custom benchmark compositions.

### Manager Performance - Net of Fees | As of September 30, 2023

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
<b>Covered Calls</b>	<b>22,157,801</b>	<b>100.0</b>	<b>-1.8</b>	<b>11.9</b>	<b>20.4</b>	<b>10.2</b>	<b>7.9</b>	<b>--</b>	<b>8.5</b>	<b>Apr-14</b>
<i>CBOE S&amp;P 500 Buy Write Index</i>			<i>-2.8</i>	<i>7.3</i>	<i>14.6</i>	<i>7.2</i>	<i>3.0</i>	<i>6.0</i>	<i>5.2</i>	
Excess Return			1.0	4.6	5.8	3.0	4.9	--	3.3	
Parametric BXM	11,106,210	50.1	-1.0	10.3	18.1	8.5	5.8	--	6.8	Apr-14
<i>CBOE S&amp;P 500 Buy Write Index</i>			<i>-2.8</i>	<i>7.3</i>	<i>14.6</i>	<i>7.2</i>	<i>3.0</i>	<i>6.0</i>	<i>5.2</i>	
Excess Return			1.8	3.0	3.5	1.3	2.8	--	1.6	
Parametric DeltaShift	11,051,591	49.9	-2.6	13.4	22.8	11.5	9.8	--	10.3	Apr-14
<i>CBOE S&amp;P 500 Buy Write Index</i>			<i>-2.8</i>	<i>7.3</i>	<i>14.6</i>	<i>7.2</i>	<i>3.0</i>	<i>6.0</i>	<i>5.2</i>	
Excess Return			0.2	6.1	8.2	4.3	6.8	--	5.1	

Performance shown is net of fees. Since inception date and performance begin in the month following an investment's initial funding. Fiscal year begins on July 1. Please see Benchmark History section for custom benchmark compositions.

## Manager Performance - Net of Fees | As of September 30, 2023

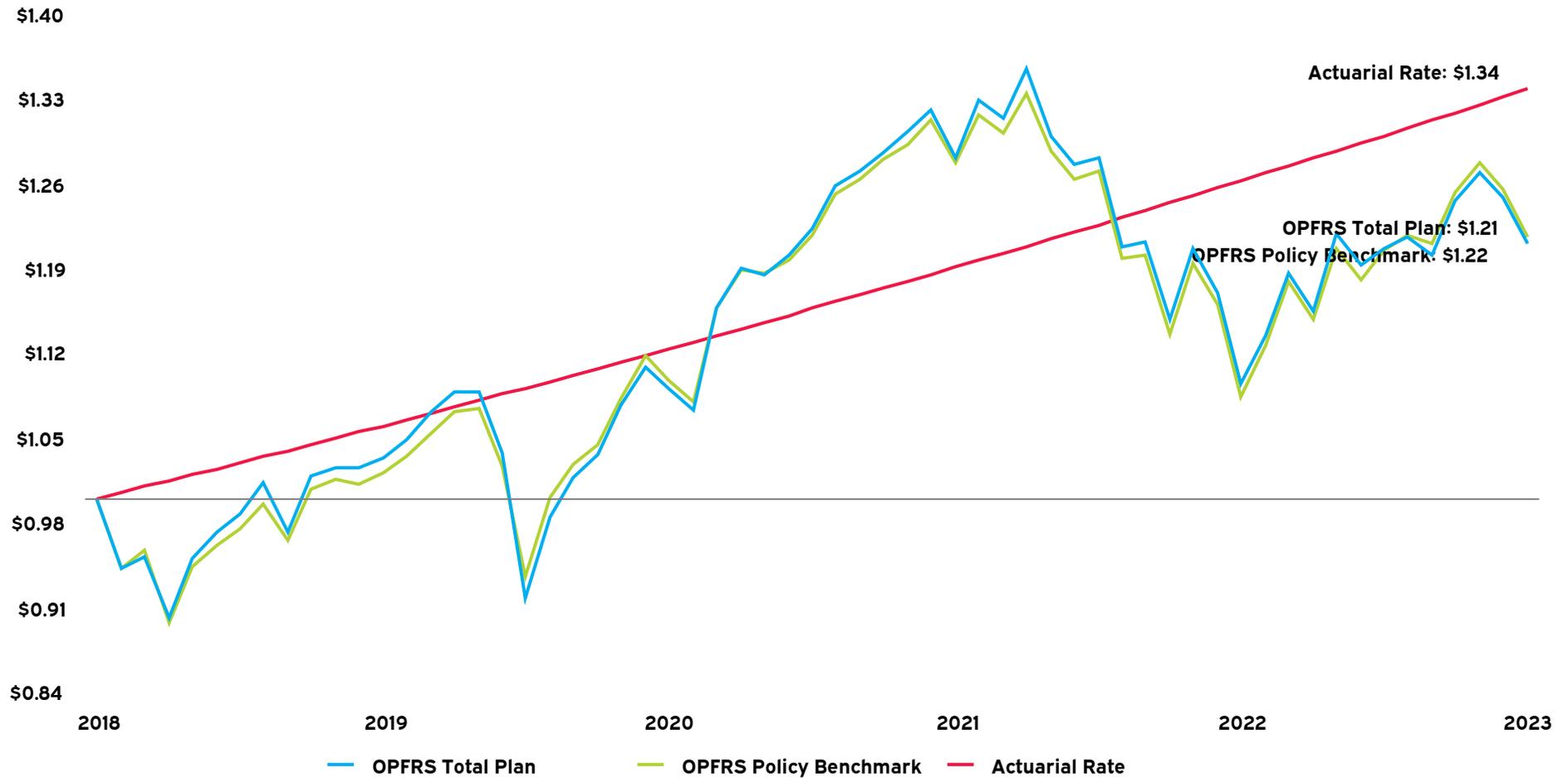
	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Crisis Risk Offset</b>	<b>39,485,989</b>	<b>100.0</b>	<b>-1.4</b>	<b>0.5</b>	<b>-4.3</b>	<b>-7.4</b>	<b>-8.9</b>	<b>--</b>	<b>-8.1</b>	<b>Aug-18</b>
<i>Crisis Risk Offset Benchmark</i>			<i>-2.4</i>	<i>0.3</i>	<i>1.8</i>	<i>3.5</i>	<i>-0.3</i>	<i>--</i>	<i>-0.4</i>	
Over/Under			1.0	0.2	-6.1	-10.9	-8.6	--	-7.7	
<b>Kepos Alternative Risk Premia</b>	<b>10,968,295</b>	<b>27.8</b>	<b>4.7</b>	<b>11.5</b>	<b>12.6</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>5.7</b>	<b>Feb-22</b>
<i>SG Multi Alternative Risk Premia Index</i>			<i>4.2</i>	<i>7.9</i>	<i>9.5</i>	<i>6.0</i>	<i>1.2</i>	<i>--</i>	<i>7.1</i>	
Over/Under			0.5	3.6	3.1	--	--	--	-1.4	
<b>Versor Trend Following</b>	<b>16,170,216</b>	<b>41.0</b>	<b>4.0</b>	<b>1.2</b>	<b>-9.7</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>5.1</b>	<b>Apr-22</b>
<i>SG Trend Index</i>			<i>0.8</i>	<i>0.9</i>	<i>-5.2</i>	<i>15.0</i>	<i>9.1</i>	<i>6.2</i>	<i>6.1</i>	
Over/Under			3.2	0.3	-4.5	--	--	--	-1.0	
<b>Vanguard Long-Term Treasury ETF</b>	<b>12,347,478</b>	<b>31.3</b>	<b>-11.9</b>	<b>-8.5</b>	<b>-9.5</b>	<b>-15.8</b>	<b>--</b>	<b>--</b>	<b>-6.7</b>	<b>Jul-19</b>
<i>Blmbg. U.S. Government: Long Term Bond Index</i>			<i>-11.8</i>	<i>-8.5</i>	<i>-9.0</i>	<i>-15.7</i>	<i>-2.8</i>	<i>0.8</i>	<i>-6.5</i>	
Over/Under			-0.1	0.0	-0.5	-0.1	--	--	-0.2	

Performance shown is net of fees. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see Benchmark History section for custom benchmark compositions.

**Cash Flow Summary  
Quarter To Date**

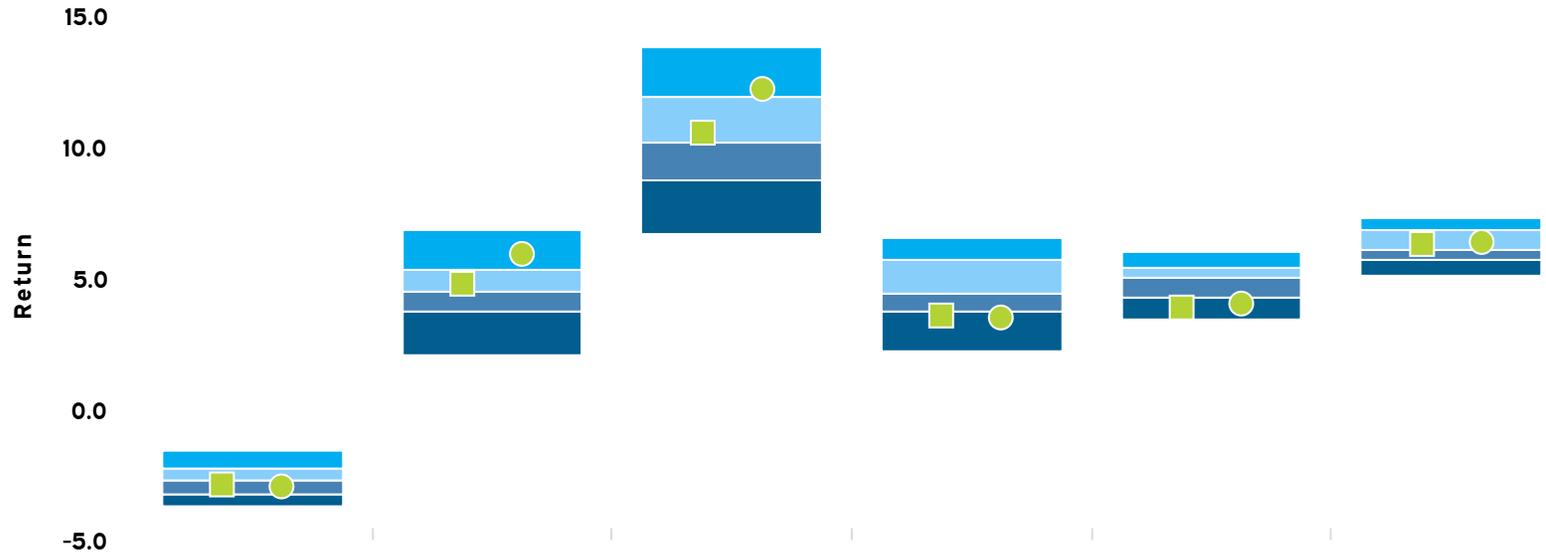
	Beginning Market Value	Net Cash Flow	Net Investment Change	Ending Market Value
Northern Trust Russell 1000	81,367,541	-	-2,552,390	78,815,151
EARNEST Partners	43,238,606	-2,000,000	-1,797,837	39,440,769
Wellington Select Quality Equity	23,373,498	-	-1,097,711	22,275,787
Brown Fundamental Small Cap Value	11,278,982	-	91,121	11,370,103
Rice Hall James	14,666,153	-	-1,176,841	13,489,312
Vanguard Developed Markets ETF	15,464,066	-	-823,768	14,640,298
SGA ACWI ex-U.S. Equity	40,377,022	-3,000,000	-410,002	36,967,020
Ramirez	70,891,932	-	-2,194,358	68,697,575
Wellington Core Bond	6,726,320	-	-209,180	6,517,141
Reams	26,844,017	-	-936,502	25,907,515
Polen Capital	9,200,988	-	128,986	9,329,974
Parametric BXM	11,207,891	-	-101,681	11,106,210
Parametric DeltaShift	11,340,209	-	-288,618	11,051,591
Kepos Alternative Risk Premia	10,476,679	-	491,617	10,968,295
Versor Trend Following	15,551,785	-	618,430	16,170,216
Vanguard Long-Term Treasury ETF	14,131,423	-	-1,783,945	12,347,478
Cash - Money Market	4,357,977	1,286,037	-	5,644,014
Cash - Treasury	9,675,000	730,000	-	10,405,000
Securities Lending Northern Trust	-	-36,055	36,055	-
<b>OPFRS Total Plan</b>	<b>420,170,089</b>	<b>-3,020,018</b>	<b>-12,006,623</b>	<b>405,143,449</b>

#### Growth of a Dollar 5 Years ending September 30, 2023



The actuarial expected rate of return was 8% through 6/30/2009, 7.5% through 6/30/2010, 7% through 6/30/2011, 6.75% through 6/30/2014, 6.5% through 2/31/2017 and 6.0% currently.

#### Plan Sponsor Peer Group Performance Comparison vs. InvMetrics Public DB \$250M-\$1B Net



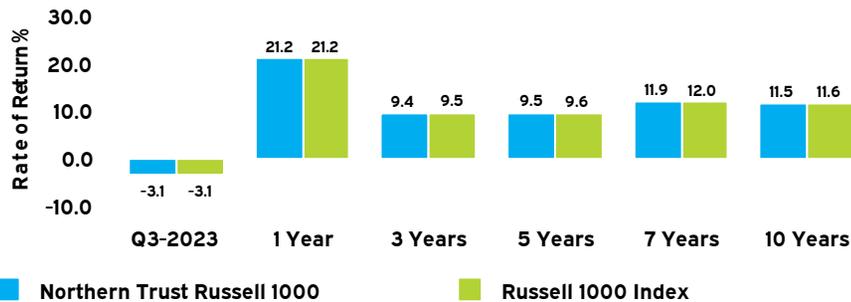
	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
■ OPFRS Total Plan	-2.9 (57)	4.8 (42)	10.5 (41)	3.5 (80)	3.9 (88)	6.3 (43)
● OPFRS Policy Benchmark	-3.0 (63)	5.9 (14)	12.2 (20)	3.5 (80)	4.0 (88)	6.4 (42)
5th Percentile	-1.6	6.8	13.8	6.5	6.0	7.3
1st Quartile	-2.3	5.3	11.9	5.7	5.4	6.8
Median	-2.8	4.5	10.2	4.4	5.0	6.1
3rd Quartile	-3.3	3.7	8.7	3.7	4.3	5.7
95th Percentile	-3.7	2.0	6.6	2.2	3.4	5.1
Population	86	82	81	79	78	67

Total Plan performance is a mix of gross and net of fees; performance is gross of fees prior to January 2016 and net of fees thereafter. Parentheses contain percentile rankings. Calculation based on monthly periodicity. Fiscal year begins on July 1.

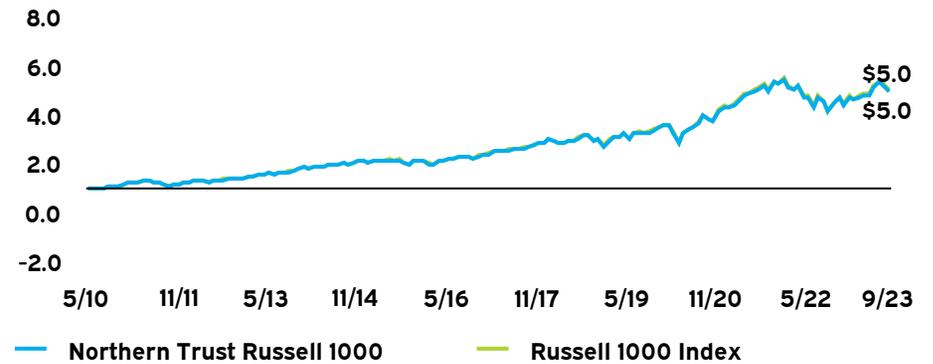
## **Portfolio Characteristics & Manager Profiles**

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
Northern Trust Russell 1000	0.00	1.00	0.23	-0.42	0.01	1.00	99.78	99.81
Russell 1000 Index	0.00	1.00	-	-0.42	0.00	1.00	100.00	100.00

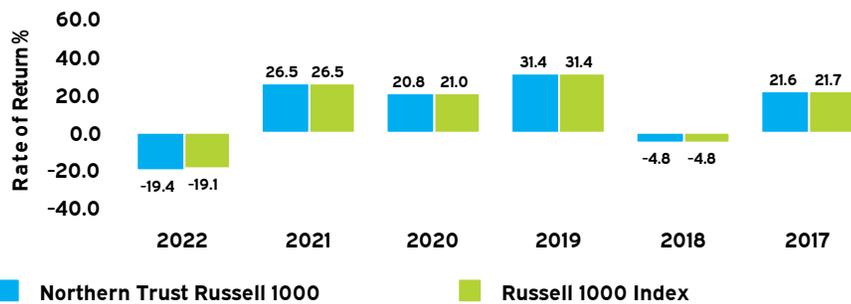
### Trailing Performance



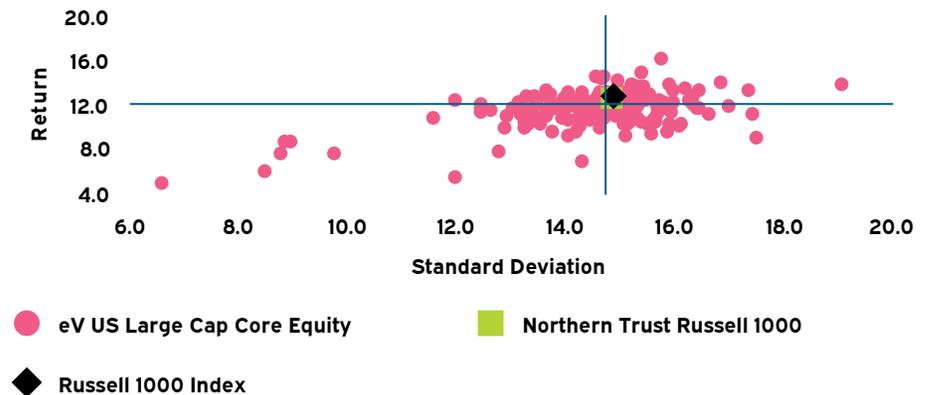
### Growth of \$1 - Since Inception



### Calendar Year Returns



### Risk/Return - Since Inception



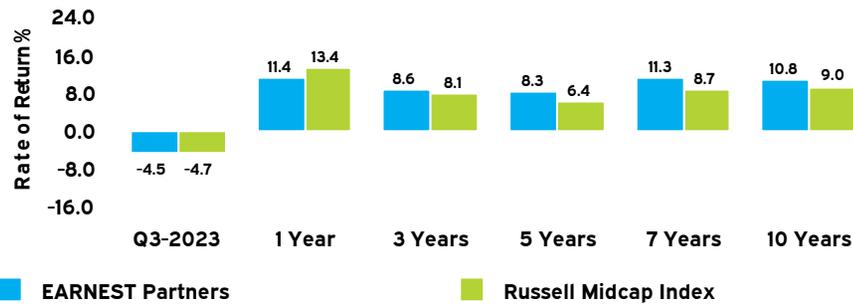
	QTD Return	QTD Risk
Northern Trust Russell 1000	-3.14	3.36
Russell 1000 Index	-3.15	3.36

Performance shown is net of fees. Risk is measured as Standard Deviation.

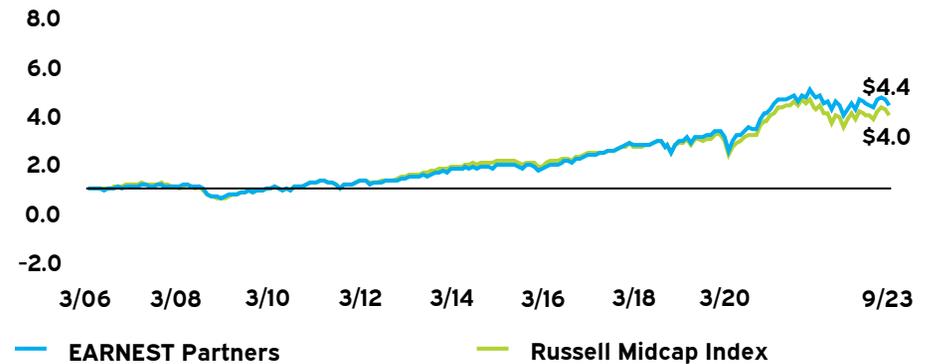
EARNEST Partners | As of September 30, 2023

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
EARNEST Partners	-0.22	0.84	0.03	-0.57	0.80	0.98	75.43	87.61
Russell Midcap Index	0.00	1.00	-	-0.49	0.00	1.00	100.00	100.00

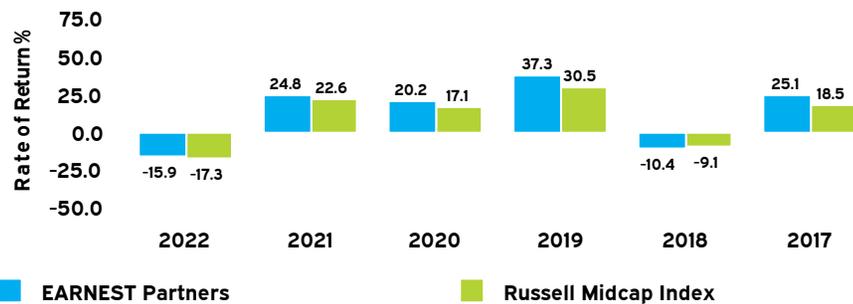
### Trailing Performance



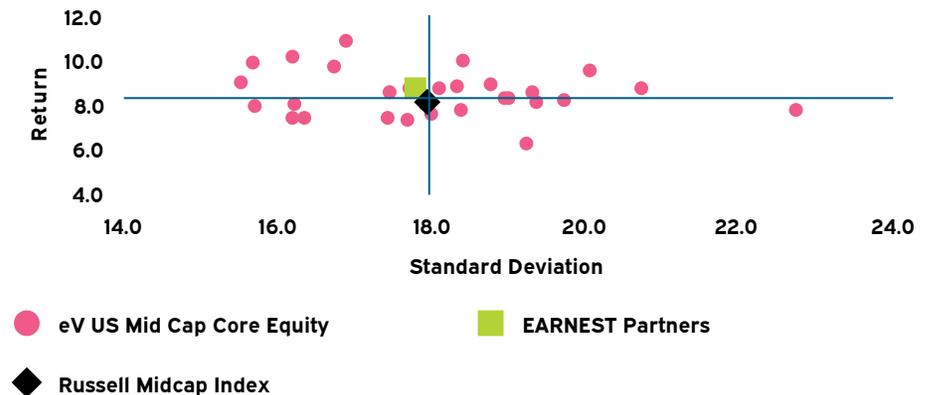
### Growth of \$1 - Since Inception



### Calendar Year Returns



### Risk/Return - Since Inception



	QTD Return	QTD Risk
EARNEST Partners	-4.54	3.32
Russell Midcap Index	-4.68	3.92

Performance shown is net of fees. Risk is measured as Standard Deviation.

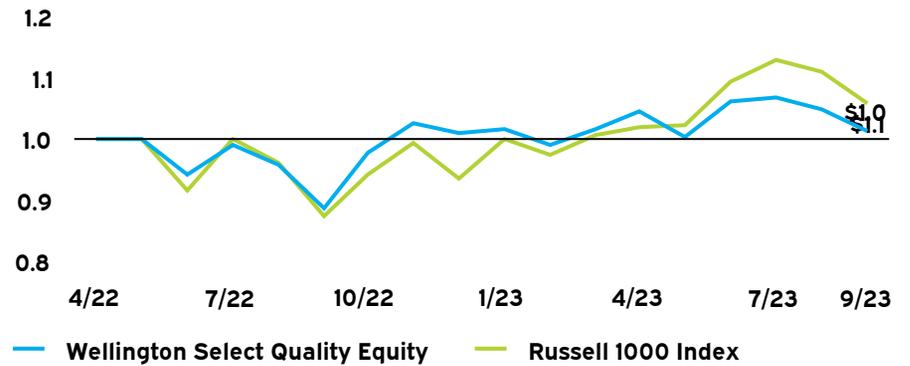
### Wellington Select Quality Equity | As of September 30, 2023

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
Wellington Select Quality Equity	-1.08	0.50	-0.34	-1.18	1.70	1.00	16.61	82.19
Russell 1000 Index	0.00	1.00	-	-0.42	0.00	1.00	100.00	100.00

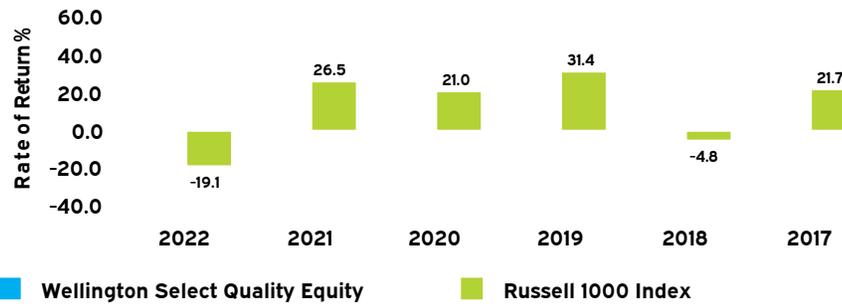
#### Trailing Performance



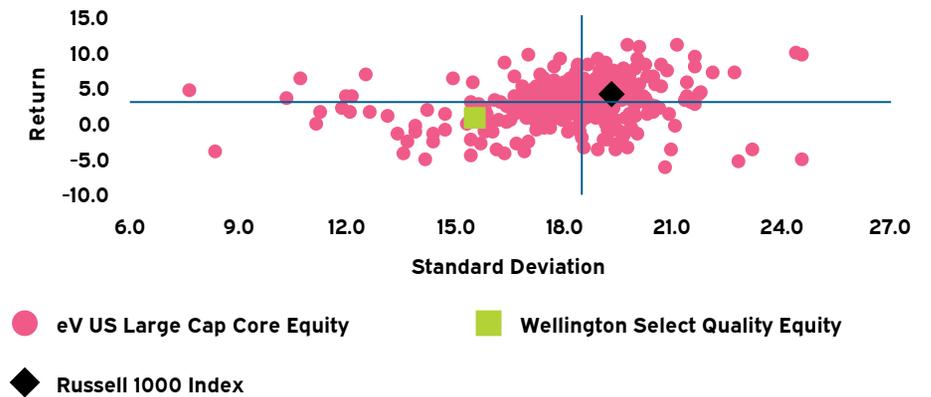
#### Growth of \$1 - Since Inception



#### Calendar Year Returns



#### Risk/Return - Since Inception



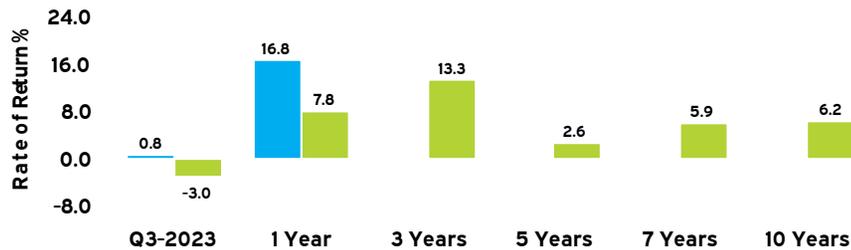
	QTD Return	QTD Risk
Wellington Select Quality Equity	-4.70	1.67
Russell 1000 Index	-3.15	3.36

Performance shown is net of fees. Risk is measured as Standard Deviation.

### Brown Fundamental Small Cap Value | As of September 30, 2023

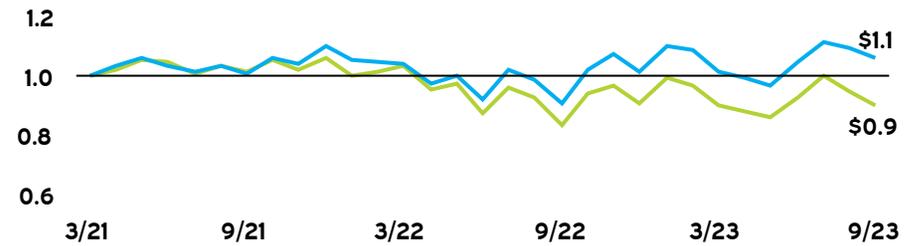
	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
Brown Fundamental Small Cap Value	0.96	0.72	0.68	-0.02	1.73	0.98	84.86	53.12
Russell 2000 Value Index	0.00	1.00	-	-0.21	0.00	1.00	100.00	100.00

#### Trailing Performance



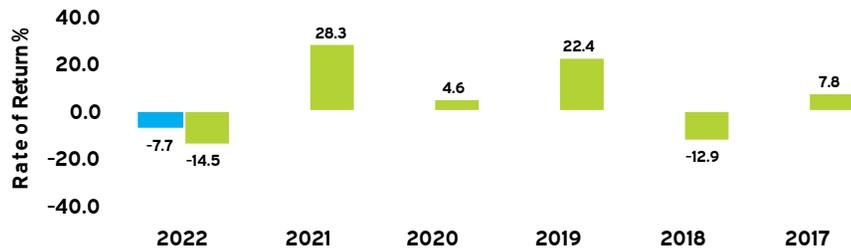
■ Brown Fundamental Small Cap Value ■ Russell 2000 Value Index

#### Growth of \$1 - Since Inception



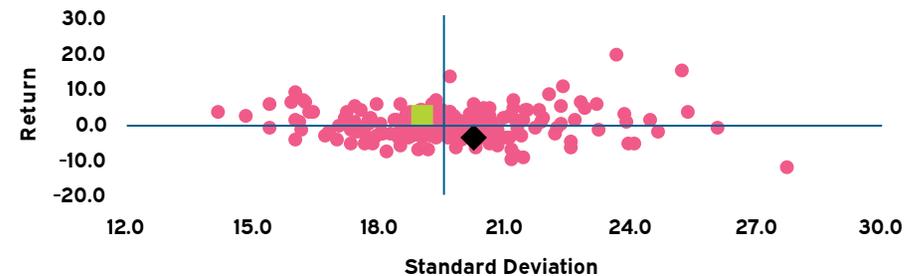
— Brown Fundamental Small Cap Value  
— Russell 2000 Value Index

#### Calendar Year Returns



■ Brown Fundamental Small Cap Value ■ Russell 2000 Value Index

#### Risk/Return - Since Inception



● eV US Small Cap Value Equity ■ Brown Fundamental Small Cap Value  
◆ Russell 2000 Value Index

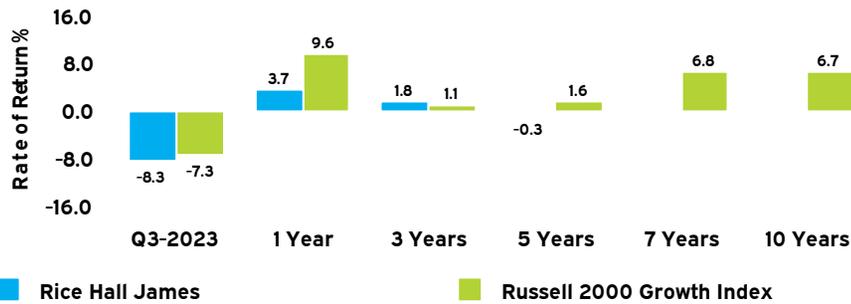
	QTD Return	QTD Risk
Brown Fundamental Small Cap Value	0.81	4.33
Russell 2000 Value Index	-2.96	5.92

Performance shown is net of fees. Risk is measured as Standard Deviation.

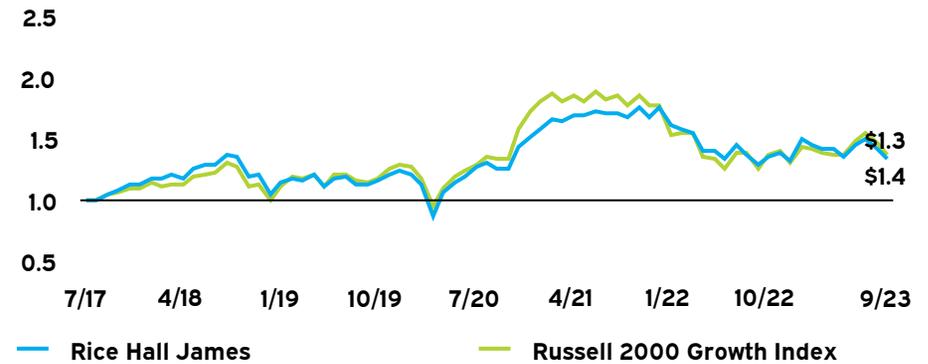
Rice Hall James | As of September 30, 2023

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
Rice Hall James	-0.77	0.83	-0.43	-0.76	0.86	1.00	67.45	96.50
Russell 2000 Growth Index	0.00	1.00	-	-0.56	0.00	1.00	100.00	100.00

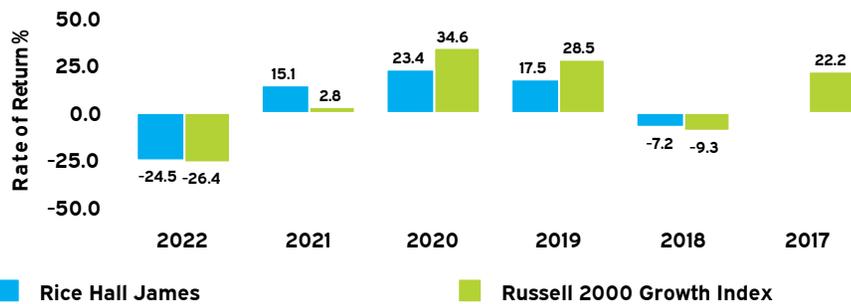
### Trailing Performance



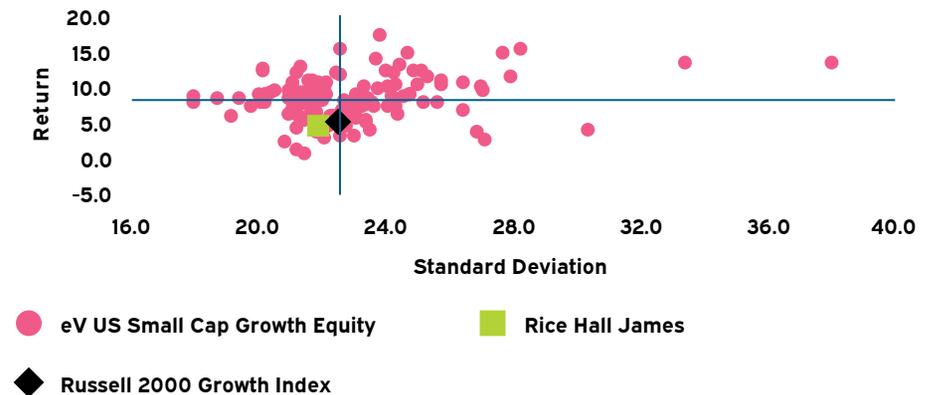
### Growth of \$1 - Since Inception



### Calendar Year Returns



### Risk/Return - Since Inception



	QTD Return	QTD Risk
Rice Hall James	-8.26	4.18
Russell 2000 Growth Index	-7.32	5.02

Performance shown is net of fees. Risk is measured as Standard Deviation.

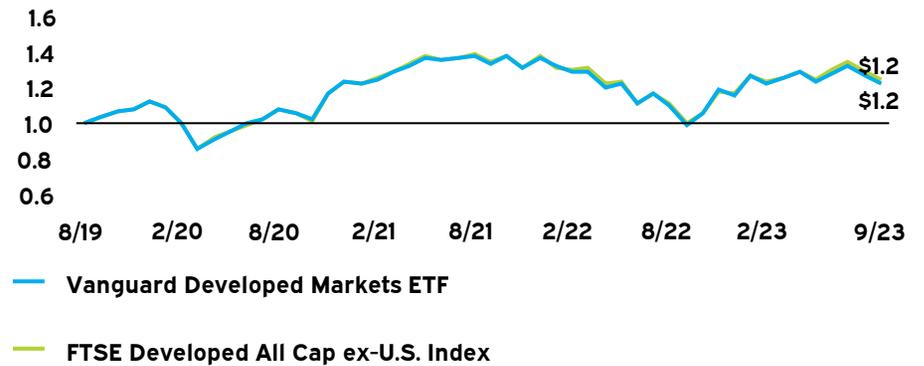
### Vanguard Developed Markets ETF | As of September 30, 2023

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
Vanguard Developed Markets ETF	-0.32	0.95	-1.49	-0.59	0.18	1.00	86.72	104.23
FTSE Developed All Cap ex-U.S. Index	0.00	1.00	-	-0.49	0.00	1.00	100.00	100.00

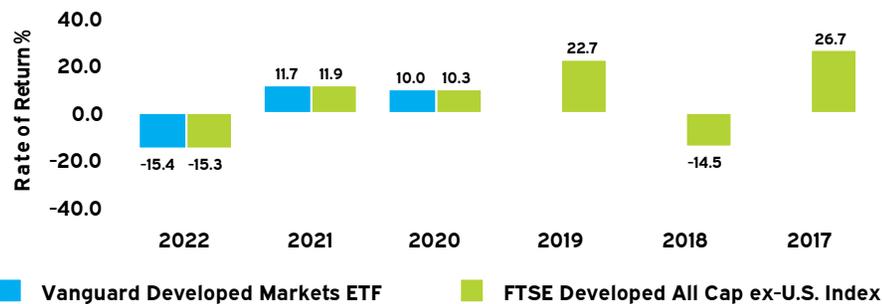
#### Trailing Performance



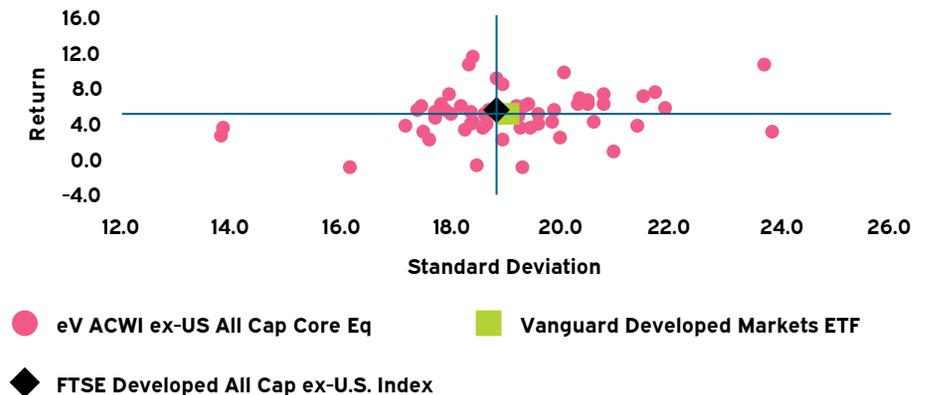
#### Growth of \$1 - Since Inception



#### Calendar Year Returns



#### Risk/Return - Since Inception



	QTD Return	QTD Risk
Vanguard Developed Markets ETF	-4.68	3.30
FTSE Developed All Cap ex-U.S. Index	-3.92	3.46

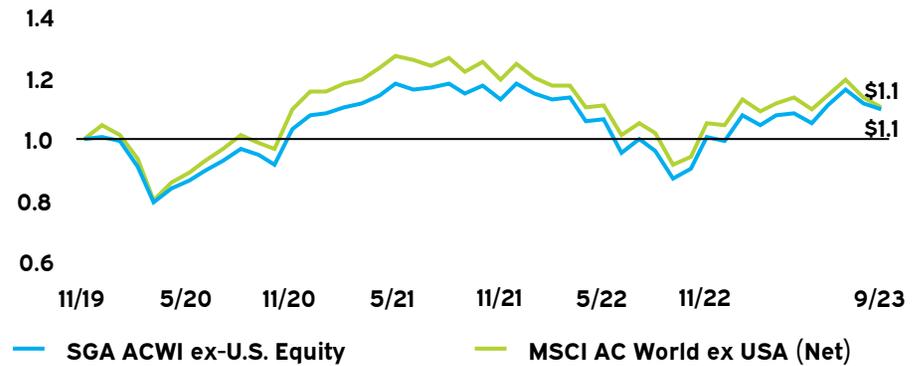
Performance shown is net of fees. Risk is measured as Standard Deviation.

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
SGA ACWI ex-U.S. Equity	0.63	0.86	1.44	-0.26	0.55	1.00	100.66	69.43
MSCI AC World ex USA (Net)	0.00	1.00	-	-0.43	0.00	1.00	100.00	100.00

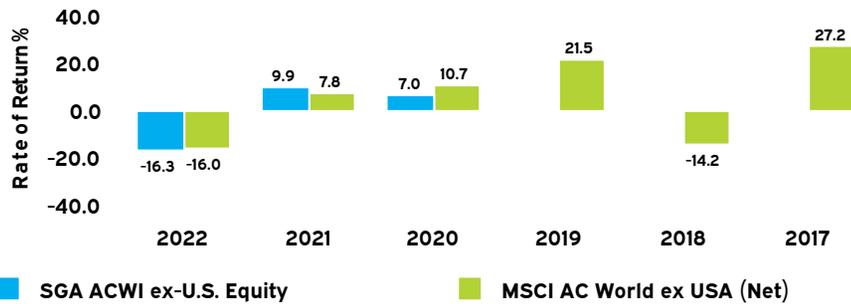
### Trailing Performance



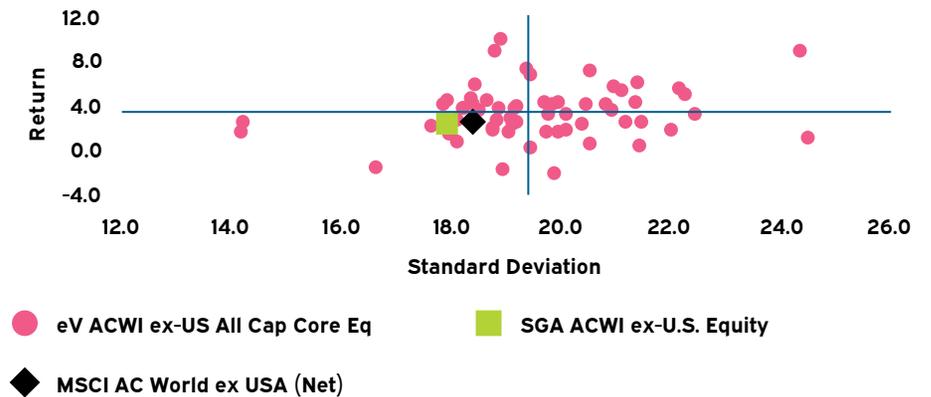
### Growth of \$1 - Since Inception



### Calendar Year Returns



### Risk/Return - Since Inception



	QTD Return	QTD Risk
SGA ACWI ex-U.S. Equity	-1.39	3.25
MSCI AC World ex USA (Net)	-3.77	3.77

Performance shown is net of fees. Risk is measured as Standard Deviation.

#### Account Information

Account Name	Ramirez
Account Structure	Separate Account
Inception Date	01/30/2017
Asset Class	US Fixed Income
Benchmark	Blmbg. U.S. Aggregate Index
Peer Group	eV US Core Fixed Inc

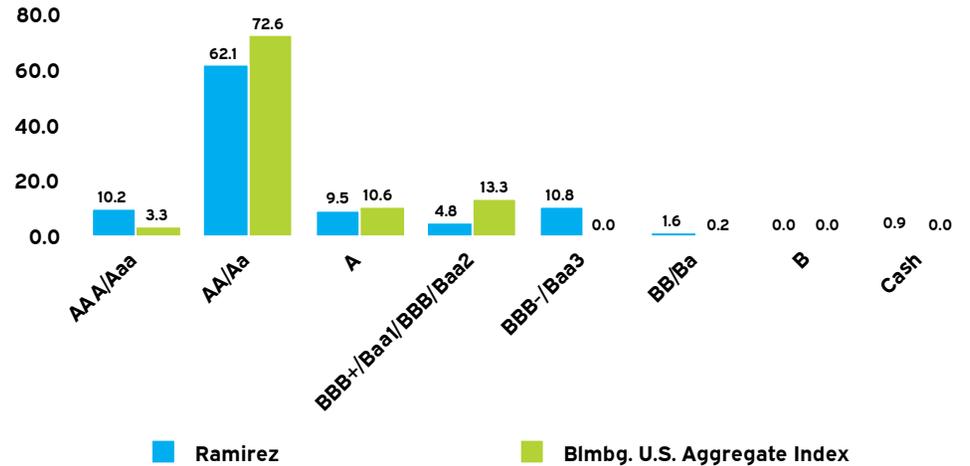
#### Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Ramirez	-3.1	-0.6	1.0	-4.5	0.3

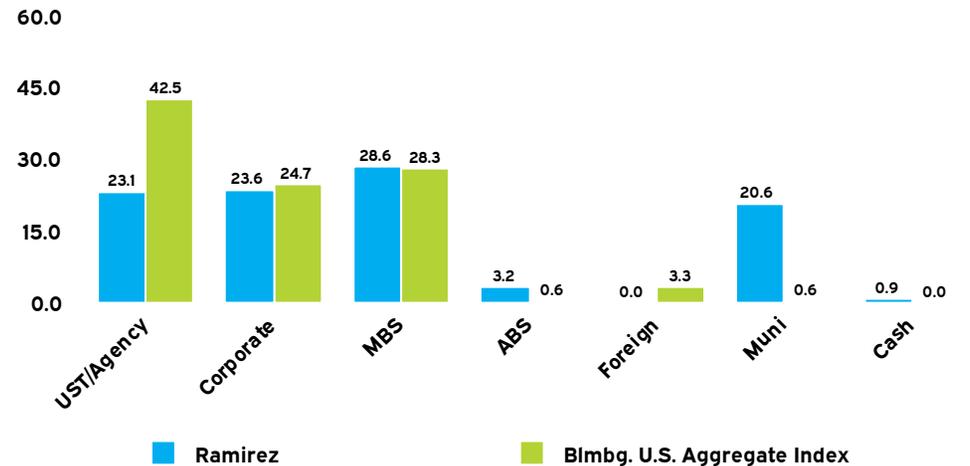
#### Portfolio Fixed Income Characteristics

	Q3-23 Portfolio	Q2-23 Portfolio
Yield To Maturity	5.7	5.1
Average Duration	6.2	6.1
Average Quality	AA	AA
Weighted Average Maturity	9.1	9.2

#### Credit Quality Allocation



#### Sector Allocation



Performance shown is net of fees.

#### Account Information

Account Name	Wellington Core Bond
Account Structure	Commingled Fund
Inception Date	04/01/2021
Asset Class	US Fixed Income
Benchmark	Blmbg. U.S. Aggregate Index
Peer Group	eV US Core Fixed Inc

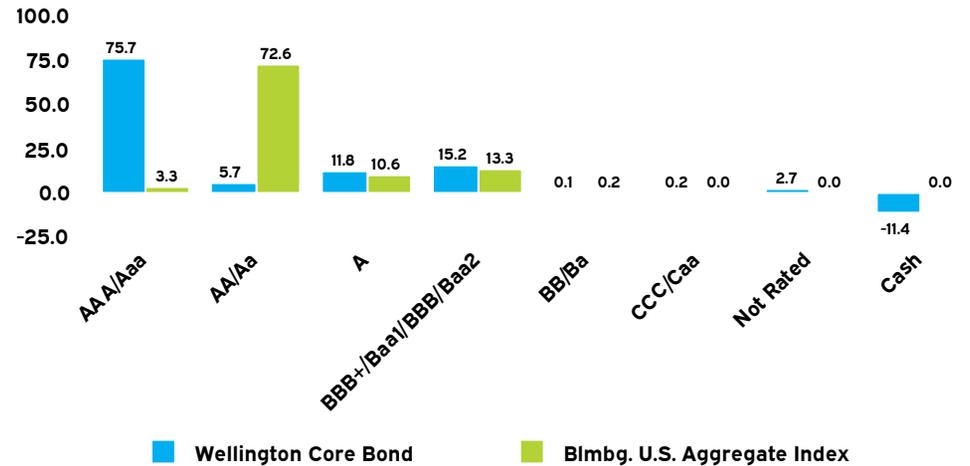
#### Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Wellington Core Bond	-3.1	-0.2	1.6	-	-

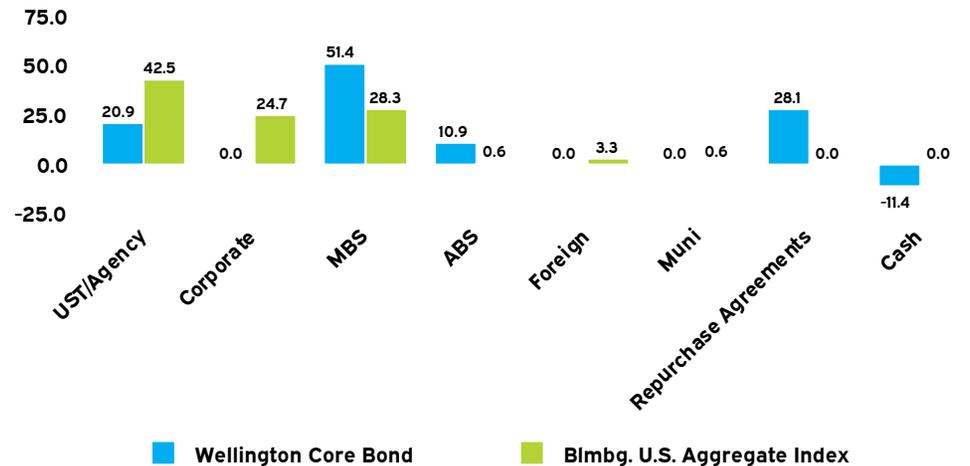
#### Portfolio Fixed Income Characteristics

	Q3-23 Portfolio	Q2-23 Portfolio
Yield To Maturity	5.3	5.3
Average Duration	6.7	6.8
Average Quality	AA	AA
Weighted Average Maturity	-	-

#### Credit Quality Allocation



#### Sector Allocation



Performance shown is net of fees.

#### Account Information

Account Name	Reams
Account Structure	Separate Account
Inception Date	01/01/1998
Asset Class	US Fixed Income
Benchmark	Bloomberg Universal (Blend)
Peer Group	eV US Core Plus Fixed Inc

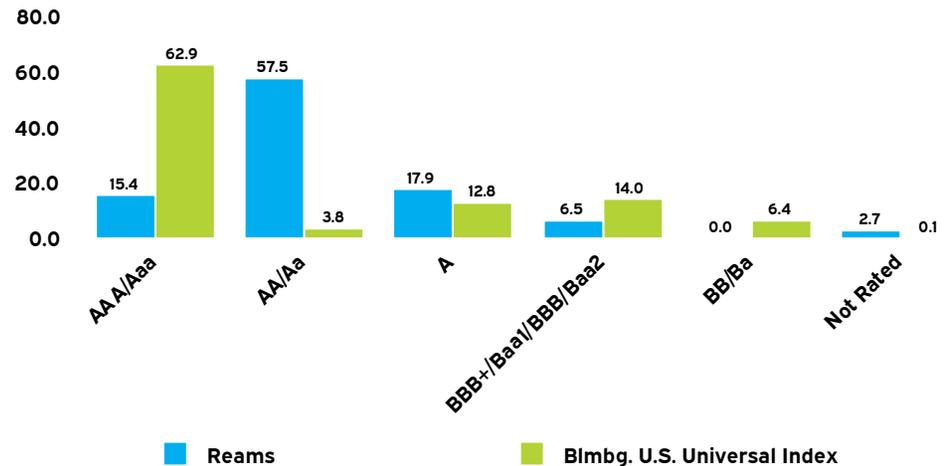
#### Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Reams	-3.5	-0.5	2.6	-4.3	2.7

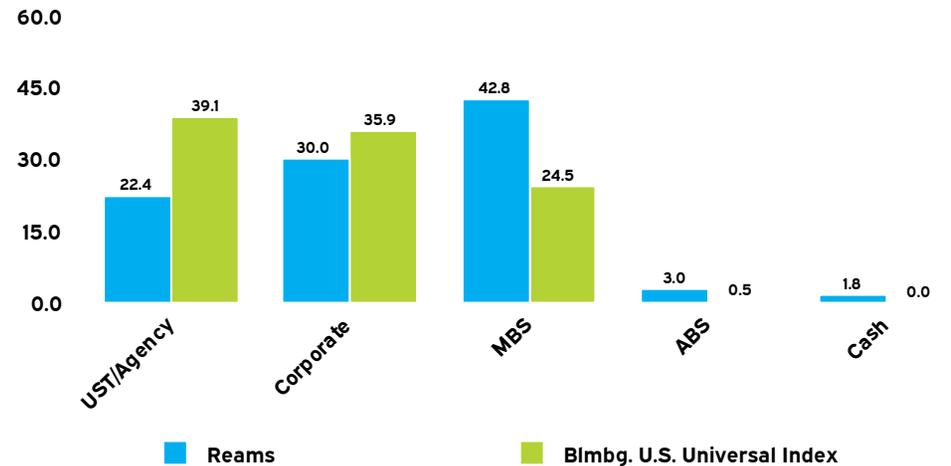
#### Portfolio Fixed Income Characteristics

	Q3-23 Portfolio	Q2-23 Portfolio
Yield To Maturity	6.4	5.5
Average Duration	6.9	6.7
Average Quality	AA	AA
Weighted Average Maturity	-	-

#### Credit Quality Allocation



#### Sector Allocation



Performance shown is net of fees.

#### Account Information

Account Name	Polen Capital
Account Structure	Commingled Fund
Inception Date	02/01/2015
Asset Class	US Fixed Income
Benchmark	ICE BofA High Yield Master II
Peer Group	eV US High Yield Fixed Inc

#### Portfolio Performance Summary

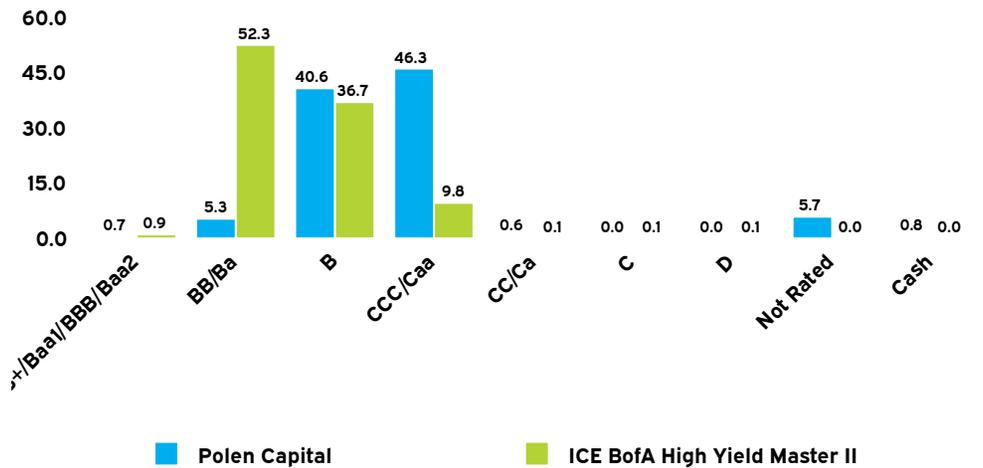
	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Polen Capital	1.4	8.4	10.4	5.1	3.2

#### Portfolio Fixed Income Characteristics

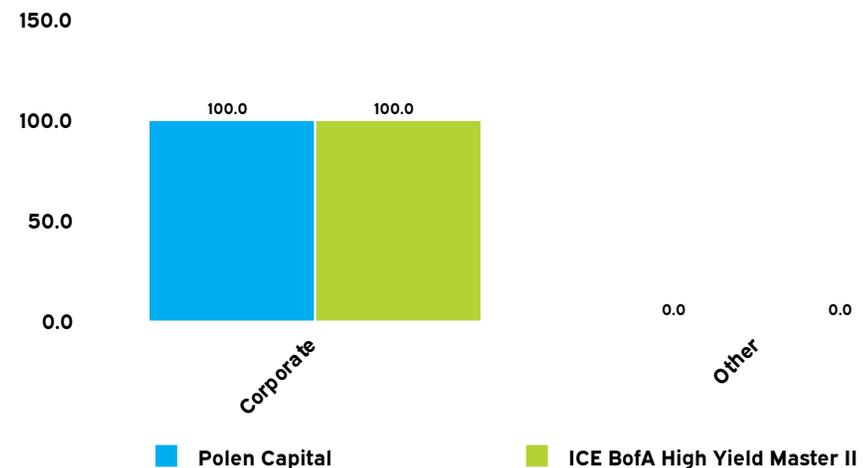
	Q3-23 Portfolio	Q2-23 Portfolio
Yield To Maturity	10.8	11.0
Average Duration	1.8	1.8
Average Quality	BBB	BBB
Weighted Average Maturity	-	-

Performance shown is net of fees.

#### Credit Quality Allocation



#### Sector Allocation



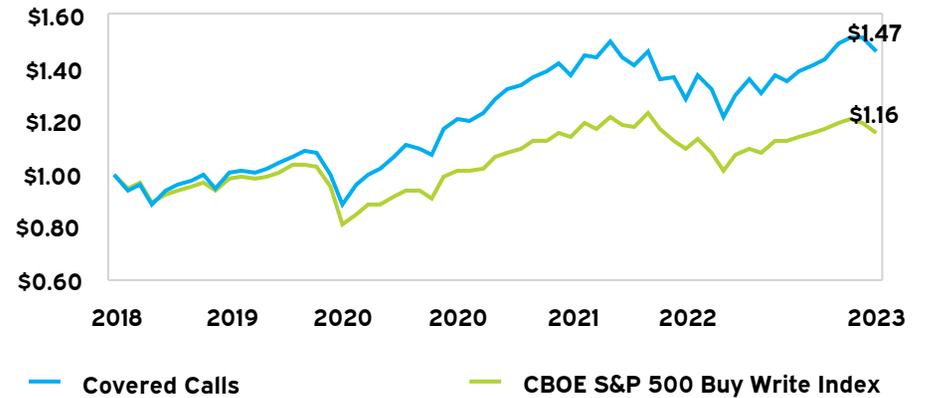
Covered Calls | As of September 30, 2023

	Return	Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Capture	Down Capture	Inception Date
Covered Calls	8.5	11.5	3.1	1.0	0.8	4.0	122.7	104.5	04/01/2014
CBOE S&P 500 Buy Write Index	5.2	10.6	0.0	1.0	-	0.0	100.0	100.0	
Parametric BXM	6.8	9.5	2.2	0.9	0.4	3.2	99.0	85.7	04/01/2014
CBOE S&P 500 Buy Write Index	5.2	10.6	0.0	1.0	-	0.0	100.0	100.0	
Parametric DeltaShift	10.3	13.9	4.2	1.2	0.8	6.2	145.4	120.6	04/01/2014
CBOE S&P 500 Buy Write Index	5.2	10.6	0.0	1.0	-	0.0	100.0	100.0	

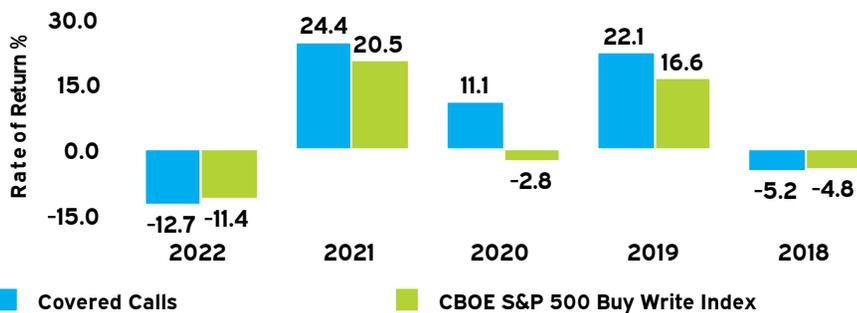
### Trailing Period Performance



### Growth of a Dollar



### Calendar Year Performance



Performance shown is net of fees.

### Crisis Risk Offset | As of September 30, 2023

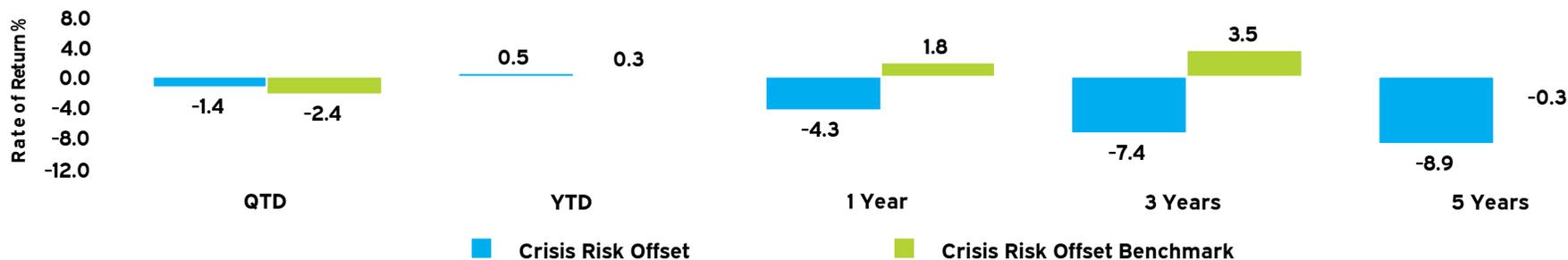
	Return	Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Capture	Down Capture	Inception Date
Crisis Risk Offset	-8.1	11.3	-7.3	0.8	-0.7	10.5	24.4	129.8	08/01/2018
Crisis Risk Offset Benchmark	-0.4	5.3	0.0	1.0	-	0.0	100.0	100.0	
Kepos Alternative Risk Premia	5.7	5.9	1.2	0.6	-0.2	5.2	68.7	49.7	02/01/2022
SG Multi Alternative Risk Premia Index	7.1	5.2	0.0	1.0	-	0.0	100.0	100.0	
Versor Trend Following	5.1	16.5	-1.5	1.2	-0.1	6.8	105.3	110.3	04/01/2022
SG Trend Index	6.1	13.1	0.0	1.0	-	0.0	100.0	100.0	
Vanguard Long-Term Treasury ETF	-6.7	14.6	-0.1	1.0	-0.1	1.1	101.9	102.1	07/01/2019
Blmbg. U.S. Government: Long Term Bond Index	-6.5	14.3	0.0	1.0	-	0.0	100.0	100.0	

### Correlation Matrix

#### 3 Months Ending September 30, 2023

	Crisis Risk Offset	MSCI AC World Index Value	S&P 500 Index	Blmbg. Global Aggregate
Crisis Risk Offset	1.00			
MSCI AC World Index Value	0.34	1.00		
S&P 500 Index	-0.11	0.89	1.00	
Blmbg. Global Aggregate	-0.15	0.88	1.00	1.00

### Trailing Period Performance



Performance shown is net of fees.

## Additional Information

Benchmark History		
From Date	To Date	Benchmark
<b>OPFRS Total Plan</b>		
06/01/2022	Present	40.0% Russell 3000 Index, 12.0% MSCI AC World ex USA (Net), 31.0% Blmbg. U.S. Universal Index, 2.0% Blmbg. U.S. Corp: High Yield Index, 5.0% CBOE S&P 500 Buy Write Index, 10.0% Crisis Risk Offset Benchmark
01/01/2019	06/01/2022	40.0% Russell 3000 Index, 12.0% MSCI AC World ex USA index, 31.0% Blmbg. U.S. Universal Index, 5.0% CBOE S&P 500 Buy Write Index, 2.0% Blmbg. U.S. Treasury: Long, 10.0% Crisis Risk Offset Benchmark
05/01/2016	01/01/2019	48.0% Russell 3000 Index, 12.0% MSCI AC World ex USA index, 20.0% Blmbg. U.S. Universal Index, 20.0% CBOE BXM
10/01/2015	05/01/2016	43.0% Russell 3000 Index, 12.0% MSCI AC World ex USA index, 20.0% Blmbg. U.S. Universal Index, 15.0% CBOE BXM, 10.0% CPI - All Urban Consumers (unadjusted) +3%
01/01/2014	10/01/2015	48.0% Russell 3000 Index, 12.0% MSCI AC World ex USA index, 20.0% Blmbg. U.S. Universal Index, 10.0% CBOE BXM, 10.0% CPI - All Urban Consumers (unadjusted) +3%
03/01/2013	01/01/2014	40.0% Russell 3000 Index, 10.0% MSCI AC World ex USA index, 17.0% Blmbg. U.S. Universal Index, 33.0% ICE BofA 3 Month U.S. T-Bill
08/01/2012	03/01/2013	20.0% Russell 3000 Index, 7.0% MSCI AC World ex USA index, 18.0% Blmbg. U.S. Universal Index, 55.0% ICE BofA 3 Month U.S. T-Bill
10/01/2007	08/01/2012	53.0% Russell 3000 Index, 17.0% MSCI AC World ex USA index, 30.0% Blmbg. U.S. Universal Index
04/01/2006	10/01/2007	35.0% Russell 3000 Index, 15.0% MSCI AC World ex USA index, 50.0% Blmbg. U.S. Universal Index
01/01/2005	04/01/2006	35.0% Russell 3000 Index, 50.0% Blmbg. U.S. Aggregate Index, 15.0% MSCI AC World ex USA index
04/01/1998	01/01/2005	20.0% Russell 1000 Value Index, 10.0% Russell 1000 Index, 5.0% Russell Midcap Index, 50.0% Blmbg. U.S. Aggregate Index, 15.0% MSCI EAFE (Net)
09/01/1988	04/01/1998	40.0% S&P 500 Index, 55.0% Blmbg. U.S. Aggregate Index, 5.0% FTSE 3 Month T-Bill

**Benchmark History**

From Date	To Date	Benchmark
<b>Domestic Equity</b>		
01/01/2005	Present	100.0% Russell 3000 Index
04/01/1998	01/01/2005	57.1% Russell 1000 Value Index, 28.6% Russell 1000 Index, 14.3% Russell Midcap Index
09/01/1988	04/01/1998	100.0% S&P 500 Index
<b>International Equity</b>		
01/01/2005	Present	100.0% MSCI AC World ex USA (Net)
01/01/1998	01/01/2005	100.0% MSCI EAFE Index
<b>Fixed Income</b>		
04/01/2006	Present	100.0% Blmbg. U.S. Universal Index
01/01/1976	04/01/2006	100.0% Blmbg. U.S. Aggregate Index
<b>Covered Calls</b>		
03/01/2014	Present	CBOE S&P 500 Buy Write Index
<b>Crisis Risk Offset</b>		
01/01/2023	Present	33.3% SG Trend Index, 33.3% SG Multi Alternative Risk Premia Index, 33.3% Blmbg. U.S. Government: Long Term Bond Index
08/01/2018	01/01/2023	100.0% SG Multi Alternative Risk Premia Index
<b>Cash</b>		
03/01/2011	Present	FTSE 3 Month T-Bill

## **Manager Monitoring / Probation Status**

Managers on Watch/Probation Status

Manager & Strategy	Concern Triggering Watch Status	Date of Corrective Action <sup>1</sup>	Months Since Placement	Performance <sup>2</sup> Since Placement	Peer Group Rank Since Placement
Versor Trend Following	Organization / Performance	9/27/2023	0	--	--
<i>Benchmark: SG Trend Index</i>	--	--	--	--	--

Investment Manager Monitoring Criteria<sup>3</sup>

Investment managers are evaluated on ongoing and periodic basis using both quantitative performance criteria and qualitative aspects of the managers. The quantitative criteria for different asset classes are as follows.

Asset Class	Short-term (Rolling 12 months)	Medium-term (Rolling 36 months)	Long-term (60 + months)
Active Domestic Equity	Fund return < benchmark return by 3.5%	Annualized Fund return < benchmark return by 1.75% for 6 consecutive months	VRR <sup>4</sup> < 0.97 for 6 consecutive months
Active International Equity	Fund return < benchmark return by 4.5%	Annualized Fund return < benchmark return by 2.0% for 6 consecutive months	VRR < 0.97 for 6 consecutive months
Passive International Equity	Tracking Error > 0.50%	Tracking Error > 0.45% for 6 consecutive months	Annualized Fund return < benchmark return by 0.4% for 6 consecutive months
Fixed Income	Fund return < benchmark return by 1.5%	Annualized Fund return < benchmark return by 1.0% for 6 consecutive months	VRR < 0.98 for 6 consecutive months

<sup>1</sup> Date when the Board voted to either monitor a manager at a heightened level or place it on probation.

<sup>2</sup> Annualized performance if over one year. Performance shown is net of fees.

<sup>3</sup> Per Investment Policy Statement and Manager Guidelines, Revised 5/31/2023, section H.

<sup>4</sup> VRR (Value Relative Ratio) is calculated as manager cumulative return/ benchmark cumulative return.

# Appendix

### Additional Information

**Performance Return Types:** Performance shown is net of fees, except for OPFRS Total Plan, Domestic Equity, and International Equity Composites, which have a mix of gross and net of fees performance. Performance shown for OPFRS Total Plan and International Equity composite is gross of fees prior to January 2016. Performance shown for Domestic Equity composite is gross of fees prior to January 2017.

**Inception Date:** Since inception date and performance begin in the month following an investments initial funding.

**Fiscal Year:** Fiscal year begins on July 1.

**Fair Value Pricing Methodology:** Though Vanguard Developed Markets ETF is a passive strategy, short-term performance may appear to diverge from the index it tracks more than would be expected. This is due to Fair Value Pricing (FVP) adjustments that address the pricing discrepancies that may arise from time-zone differences among global securities markets. The resulting temporary divergence is expected to correct itself when the foreign markets reopen.

## **Disclaimer, Glossary, and Notes**

WE HAVE PREPARED THIS REPORT (THIS "REPORT") FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT (THE "RECIPIENT").

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

INFORMATION USED TO PREPARE THIS REPORT WAS OBTAINED FROM INVESTMENT MANAGERS, CUSTODIANS, AND OTHER EXTERNAL SOURCES. WHILE WE HAVE EXERCISED REASONABLE CARE IN PREPARING THIS REPORT, WE CANNOT GUARANTEE THE ACCURACY OF ALL SOURCE INFORMATION CONTAINED HEREIN.

CERTAIN INFORMATION CONTAINED IN THIS REPORT MAY CONSTITUTE "FORWARD - LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "AIM," "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," "CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. ANY FORWARD-LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION ARE BASED UPON CURRENT ASSUMPTIONS. CHANGES TO ANY ASSUMPTIONS MAY HAVE A MATERIAL IMPACT ON FORWARD - LOOKING STATEMENTS, FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS. ACTUAL RESULTS MAY THEREFORE BE MATERIALLY DIFFERENT FROM ANY FORECASTS, PROJECTIONS, VALUATIONS, OR RESULTS IN THIS PRESENTATION.

PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

**Credit Risk:** Refers to the risk that the issuer of a fixed income security may default (i.e., the issuer will be unable to make timely principal and/or interest payments on the security.)

**Duration:** Measure of the sensitivity of the price of a bond to a change in its yield to maturity. Duration summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. For example, the price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. Conversely, the price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three-year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

**Information Ratio:** This statistic is a measure of the consistency of a portfolio's performance relative to a benchmark. It is calculated by subtracting the benchmark return from the portfolio return (excess return), and dividing the resulting excess return by the standard deviation (volatility) of this excess return. A positive information ratio indicates outperformance versus the benchmark, and the higher the information ratio, the more consistent the outperformance.

**Jensen's Alpha:** A measure of the average return of a portfolio or investment in excess of what is predicted by its beta or "market" risk.  $\text{Portfolio Return} - [\text{Risk Free Rate} + \text{Beta} * (\text{market return} - \text{Risk Free Rate})]$ .

**Market Capitalization:** For a firm, market capitalization is the total market value of outstanding common stock. For a portfolio, market capitalization is the sum of the capitalization of each company weighted by the ratio of holdings in that company to total portfolio holdings; thus it is a weighted-average capitalization. Meketa Investment Group considers the largest 65% of the broad domestic equity market as large capitalization, the next 25% of the market as medium capitalization, and the smallest 10% of stocks as small capitalization.

**Market Weighted:** Stocks in many indices are weighted based on the total market capitalization of the issue. Thus, the individual returns of higher market-capitalization issues will more heavily influence an index's return than the returns of the smaller market-capitalization issues in the index.

**Maturity:** The date on which a loan, bond, mortgage, or other debt/security becomes due and is to be paid off.

**Prepayment Risk:** The risk that prepayments will increase (homeowners will prepay all or part of their mortgage) when mortgage interest rates decline; hence, investors' monies will be returned to them in a lower interest rate environment. Also, the risk that prepayments will slow down when mortgage interest rates rise; hence, investors will not have as much money as previously anticipated in a higher interest rate environment. A prepayment is any payment in excess of the scheduled mortgage payment.

**Price-Book Value (P/B) Ratio:** The current market price of a stock divided by its book value per share. Meketa Investment Group calculates P/B as the current price divided by Compustat's quarterly common equity. Common equity includes common stock, capital surplus, retained earnings, and treasury stock adjusted for both common and nonredeemable preferred stock. Similar to high P/E stocks, stocks with high P/B's tend to be riskier investments.

**Price-Earnings (P/E) Ratio:** A stock's market price divided by its current or estimated future earnings. Lower P/E ratios often characterize stocks in low growth or mature industries, stocks in groups that have fallen out of favor, or stocks of established blue chip companies with long records of stable earnings and regular dividends. Sometimes a company that has good fundamentals may be viewed unfavorably by the market if it is an industry that is temporarily out of favor. Or a business may have experienced financial problems causing investors to be skeptical about its future. Either of these situations would result in lower relative P/E ratios. Some stocks exhibit above-average sales and earnings growth or expectations for above average growth. Consequently, investors are willing to pay more for these companies' earnings, which results in elevated P/E ratios. In other words, investors will pay more for shares of companies whose profits, in their opinion, are expected to increase faster than average. Because future events are in no way assured, high P/E stocks tend to be riskier and more volatile investments. Meketa Investment Group calculates P/E as the current price divided by the I/B/E/S consensus of twelve-month forecast earnings per share.

**Quality Rating:** The rank assigned a security by such rating services as Fitch, Moody's, and Standard & Poor's. The rating may be determined by such factors as (1) the likelihood of fulfillment of dividend, income, and principal payment of obligations; (2) the nature and provisions of the issue; and (3) the security's relative position in the event of liquidation of the company. Bonds assigned the top four grades (AAA, AA, A, BBB) are considered investment grade because they are eligible bank investments as determined by the controller of the currency.

**Sharpe Ratio:** A commonly used measure of risk-adjusted return. It is calculated by subtracting the risk free return (usually three-month Treasury bill) from the portfolio return and dividing the resulting excess return by the portfolio's total risk level (standard deviation). The result is a measure of return per unit of total risk taken. The higher the Sharpe ratio, the better the fund's historical risk adjusted performance.

**STIF Account:** Short-term investment fund at a custodian bank that invests in cash-equivalent instruments. It is generally used to safely invest the excess cash held by portfolio managers.

**Standard Deviation:** A measure of the total risk of an asset or a portfolio. Standard deviation measures the dispersion of a set of numbers around a central point (e.g., the average return). If the standard deviation is small, the distribution is concentrated within a narrow range of values. For a normal distribution, about two thirds of the observations will fall within one standard deviation of the mean, and 95% of the observations will fall within two standard deviations of the mean.

**Style:** The description of the type of approach and strategy utilized by an investment manager to manage funds. For example, the style for equities is determined by portfolio characteristics such as price-to-book value, price-to-earnings ratio, and dividend yield. Equity styles include growth, value, and core.

**Tracking Error:** A divergence between the price behavior of a position or a portfolio and the price behavior of a benchmark, as defined by the difference in standard deviation.

**Yield to Maturity:** The yield, or return, provided by a bond to its maturity date; determined by a mathematical process, usually requiring the use of a “basis book.” For example, a 5% bond pays \$5 a year interest on each \$100 par value. To figure its current yield, divide \$5 by \$95—the market price of the bond—and you get 5.26%. Assume that the same bond is due to mature in five years. On the maturity date, the issuer is pledged to pay \$100 for the bond that can be bought now for \$95. In other words, the bond is selling at a discount of 5% below par value. To figure yield to maturity, a simple and approximate method is to divide 5% by the five years to maturity, which equals 1% pro rata yearly. Add that 1% to the 5.26% current yield, and the yield to maturity is roughly 6.26%.

$$\frac{5\% \text{ (discount)}}{5 \text{ (yrs. to maturity)}} = 1\% \text{ pro rata, plus } 5.26\% \text{ (current yield)} = 6.26\% \text{ (yield to maturity)}$$

**Yield to Worst:** The lowest potential yield that can be received on a bond without the issuer actually defaulting. The yield to worst is calculated by making worst-case scenario assumptions on the issue by calculating the returns that would be received if provisions, including prepayment, call, or sinking fund, are used by the issuer.

**NCREIF Property Index (NPI):** Measures unleveraged investment performance of a very large pool of individual commercial real estate properties acquired in the private market by tax-exempt institutional investors for investment purposes only. The NPI index is capitalization-weighted for a quarterly time series composite total rate of return.

**NCREIF Fund Index - Open End Diversified Core Equity (NFI-ODCE):** Measures the investment performance of 28 open-end commingled funds pursuing a core investment strategy that reflects funds' leverage and cash positions. The NFI-ODCE index is equal-weighted and is reported gross and net of fees for a quarterly time series composite total rate of return.

Sources: Investment Terminology, International Foundation of Employee Benefit Plans, 1999.

The Handbook of Fixed Income Securities, Fabozzi, Frank J., 1991

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Throughout this report, numbers may not sum due to rounding.

Returns for periods greater than one year are annualized throughout this report.

Values shown are in millions of dollars, unless noted otherwise.