



AGENDA REPORT

TO: Jestin D. Johnson
City Administrator

FROM: Erin Roseman
Finance Director

SUBJECT: Oakland PFRS's Investment Portfolio
as of June 30, 2023

DATE: August 23, 2023

City Administrator Approval

Date: Sep 14, 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 June 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 June 30, 2023.

During the most recent quarter, the PFRS Total Portfolio generated an absolute return of 3.4 percent, gross of fees, underperforming its policy benchmark by -0.6 percent. The portfolio underperformed its benchmark over the latest one-year period and outperformed for the three-year and the five-year period. This is discussed in more detail in this report "Investment Performance" section.

	Quarter	1 Year	3 Year	5 Year
Total Portfolio	3.4	8.8	6.6	5.6
Policy Benchmark	4.0	10.4	6.2	5.5
Excess Return	-0.6	-1.6	0.4	0.1

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 this report "PFRS Actuarial Valuation" section.

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 June 30, 2023, PFRS had 654 retired members 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 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 provide assurance of the accuracy of the 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 June 30, 2023, the System's membership was 654 as shown in **Table 1** below.

Table 1			
PFRS Membership as of June 30, 2023,			
Membership	POLICE	FIRE	TOTAL
Retiree	277	159	436
Beneficiary	127	91	218
Total Membership	404	250	654

PFRS Investment Portfolio

As of June 30, 2023, the PFRS portfolio had an aggregate value of \$420.17 million, as shown in **Table 2**.

Table 2	
PFRS Investment Portfolio as of June 30, 2023,	
Investment	Fair Value
Domestic Equities	\$173,924,779
Fixed Income	104,462,270
Covered Calls	22,548,100
International Equities	55,841,087
Crisis Risk Offset	40,159,887
Credit	9,200,988
Cash	14,032,977
Total Portfolio	\$420,170,089

As of June 30, 2023, the PFRS portfolio had an aggregate value of \$420.17 million. This represents a \$13.6 million increase in investment value after \$4.6 million in outflows for the benefit payments over the quarter. During the previous one-year period, the PFRS Total Portfolio increased in value by \$33.9 million after drawdowns of \$20.0 million for benefit payments, as shown in **Table 3** below. The investment drawdowns for benefit payments are less City of Oakland Contributions to the PFRS Plan of \$8.2 million for the Quarter and \$32.7 million for FY 2022/2023.

Table 3 Change in PFRS Portfolio Valuation as of June 30, 2023,		
Total Plan Value	1 Quarter	1 Year
Beginning Market Value	\$411,182,049	\$406,308,110
Investment Drawdowns for Benefit Payments	(4,603,292)	(20,012,998)
Gain/(Loss) on Investment	13,591,332	33,874,977
Ending Market Value	\$420,170,089	\$420,170,089

PFRS Investment Performance

During the most recent quarter ending June 30, 2023, the PFRS Total Portfolio generated an absolute return of 3.4 percent, gross of fees, underperforming its policy benchmark by -0.6 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 June 30, 2023, the Plan's Domestic Equity allocation underperformed its benchmark by -2.4 percent. The Plan's International Equity allocation outperformed its benchmark by 0.7 percent. The Plan's Fixed Income allocation outperformed its benchmark of 0.1 percent. The Plan's Credit allocation outperformed its benchmark by 1.7 percent. The Plan's Crisis Risk Offset allocation underperformed its benchmark by -0.7 percent, while the Covered Calls allocation outperformed its benchmark by 1.3 percent. **Table 4** shows PFRS's recent investment performance in comparison to its corresponding benchmarks.

Table 4 PFRS Asset Class Performance as of June 30, 2023,				
Investment Type	Quarter	1 Year	3 Year	5 Year
PFRS Total Fund	3.4	8.8	6.6	5.6
PFRS Policy Benchmark	4.0	10.4	6.2	5.5
Excess Returns	-0.6	-1.6	0.4	0.1
PFRS Domestic Equity	6.0	14.9	13.1	10.0
Benchmark: Russell 3000	8.4	19.0	13.9	11.4
Excess Returns	-2.4	-4.1	-0.8	-1.4

Table 4				
PFRS Asset Class Performance as of June 30, 2023, <i>cont'd</i>				
Investment Type	Quarter	1 Year	3 Year	5 Year
PFRS International Equity	3.1	16.7	8.5	4.8
Benchmark: MSCI ACWI Ex US	2.4	12.7	7.2	3.5
Excess Returns	0.7	4.0	1.3	1.3
PFRS Fixed Income	-0.5	0.2	-2.7	1.3
Benchmark: Bloomberg Barclays	-0.6	-0.0	-3.4	1.0
Excess Returns	0.1	0.2	0.7	0.3
PFRS Credit	3.4	8.8	7.9	4.0
Benchmark: Bloomberg US High Yield	1.7	9.1	3.1	3.4
Excess Returns	1.7	-0.3	4.8	0.6
PFRS Crisis Risk Offset	2.0	-2.8	-7.3	--
Benchmark: SG Multi Alt Risk Premia	2.7	5.2	4.1	--
Excess Returns	-0.7	-8.0	-11.4	--
PFRS Covered Calls	7.4	16.6	13.7	9.9
Benchmark: CBOE BXM	4.3	9.0	10.6	4.6
Excess Returns	3.1	7.6	3.1	5.3
Cash	0.0	0.0	0.0	0.9
Citigroup 3 Month T-Bill Index	1.3	3.7	1.3	1.6
Excess Returns	-1.3	-3.7	-1.3	-0.7

Note: Data shows gross investment returns.

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 summarizes the July 1, 2022, PFRS Actuarial valuation results.

Table 5	
Summary of Plan Results (\$ in thousands)	
	July 01, 2022
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.

Table 6	
Projected Employer Contributions Police and Fire Retirement System (in millions)	
Fiscal Year Ending	Employer Contribution
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

No outreach was deemed necessary for the proposed policy action beyond the standard City Council agenda noticing procedures.

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, along with 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 June 30, 2023.

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

Respectfully submitted,



[Erin Roseman \(Sep 14, 2023 13:02 PDT\)](#)

ERIN ROSEMAN
Director of Finance, Finance Department

Reviewed by:
Dawn Hort, Assistant Treasury Administrator

Prepared by:
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Retirement Unit

Attachments (1):

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

Oakland Police and Fire Retirement System

Quarterly Performance Report
as of June 30, 2023

Agenda

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

Executive Summary

Total Portfolio Review

The Oakland Police and Fire Retirement System (OPFRS) finished the quarter with a market value of \$420.2 million.

→ This represents a \$13.6 million in investment gains after \$4.6 million in net outflows over the quarter.

→ Over the past 12 months, the Total Portfolio appreciated by \$33.9 million, after withdrawals totaling \$20.0 million for net outflows including benefit payments.

→ As of 06/30/2023, most asset classes were within acceptable allocation ranges relative to policy targets except for Fixed Income, which was marginally out of the policy range.¹

Investment Performance

→ During the quarter, the OPFRS portfolio generated an absolute return of 3.3%, net of fees, underperforming its policy benchmark² by -0.7%. The portfolio underperformed the benchmark over the trailing 1- and 5-year periods while outperforming the latter over the 3-year period.

- The quarterly underperformance was primarily driven by the Domestic Equity segment's performance.

	QTD	YTD	FYTD ³ / 1 Year	3 Year	5 Year
Total Portfolio (Gross)	3.4	8.0	8.8	6.6	5.6
Total Portfolio (Net)	3.3	7.9	8.5	6.3	5.3
Policy Benchmark	4.0	9.1	10.4	6.2	5.5
Excess Return (Net)	-0.7	-1.3	-1.9	0.1	-0.2
Peer Group Median Fund ³	3.1	7.3	8.5	7.5	6.3
vs. Peer Median	0.1	0.6	0.0	-1.2	-1.0

¹ Target weightings reflect the interim phase (where Crisis Risk Offset component is set to 10%) of the Plan's previously approved asset allocation (effective 5/31/2017).

² Evolving Policy Benchmark consists of 40% Russell 3000, 12% MSCI ACWI ex U.S., 33% Bloomberg Universal, 5% CBOE BXM, 6.7% SG Multi Asset Risk Premia, 3.3% Bloomberg Long Treasury from 1/1/2019 through 5/31/2022; and 40% Russell 3000 / 12% MSCI ACWI ex USA / 31% Bloomberg US Universal TR / 5% CBOE BXM / 10% Crisis Risk Offset Benchmark / 2% Bloomberg US High Yield thereafter.

³ Fiscal year begins on July 01. Peer group is Investment Metrics peer universe of Public Defined Benefit plans with \$250 million to \$1 billion in assets. The number of peers is about 80 portfolios in each time period.

Asset Class & Manager Highlights

- **Domestic equity** underperformed the Russell 3000 Index over all trailing periods.
 - All the active managers, except **Brown Fundamental Small Cap Value**, underperformed their respective benchmarks in the quarter, year-to-date, and 1-year time periods.
- **International equity** outperformed the MSCI ACWI ex US Index for all time periods measured.
 - The active **SGA MSCI ACWI ex US** outperformed its benchmark over all time periods except since inception.
 - The passive **Vanguard** posted some variation¹ from the tracked benchmark over the periods measured.
- **Fixed income** outperformed or matched its benchmark across all time periods. The underlying managers also 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 except in the 1- and 5-year trailing 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 trailed its custom benchmark across all time periods measured.
 - With the Committee's approval in the May meeting, this segment's benchmark has been updated effective 01/01/2023 to better reflect its underlying components and their respective targets.

¹ 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 June 30, 2023

Commentary

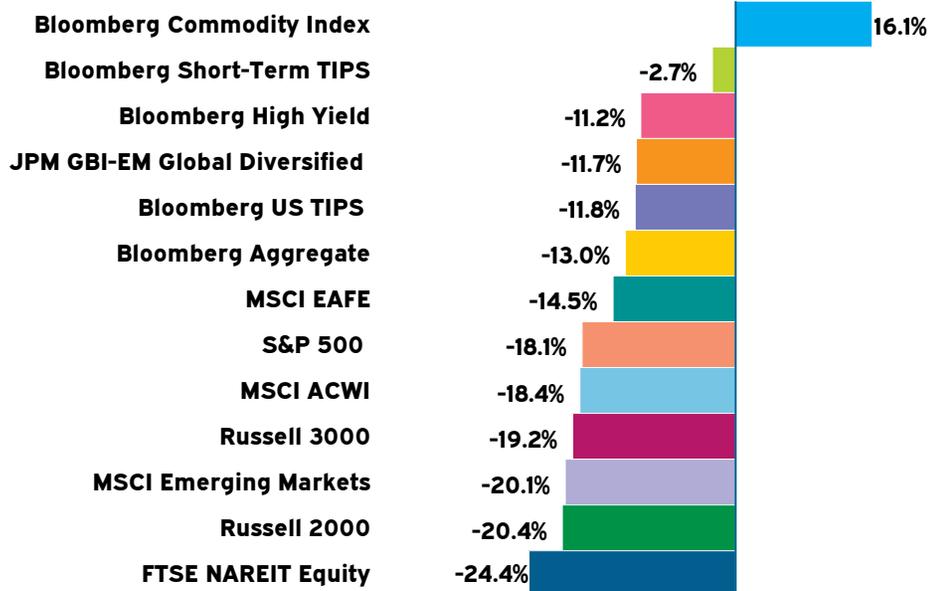
→ Asset returns were positive in June with US and Non-US equities posting gains, while most fixed income sectors sold-off on expectations for further interest rate hikes later this year. Except for commodities, most public market asset classes remain up for the year.

- Although the Fed skipped a rate-hike in June, Fed comments signaled further rate hikes in the 2H 2023; the US economy appears to be resilient supporting domestic demand and low unemployment.
- US equity markets (Russell 3000) rose in June (+6.8%) adding to YTD gains (+16.2%). Some of the largest technology names drove positive results. Growth stocks continued to outpace value stocks, particularly in the large cap space.
- Non-US developed equity markets rose in June (MSCI EAFE 4.6%) falling behind US equities in 2023 (+16.2% versus +11.7%). A strengthening US dollar weighed on returns.
- Emerging market equities rose in June (+3.8%) supported by positive returns in China (+4.0%). They significantly trail developed market equities YTD returning +4.9%, due partly to higher US-China tensions.
- Rates generally rose in June leading to bond markets declining, with the broad US bond market (Bloomberg Aggregate) falling 0.4% for the month. It remains positive (+2.1%) year-to-date, though, on declining inflation and expectations for the Fed to end their rate hikes soon.

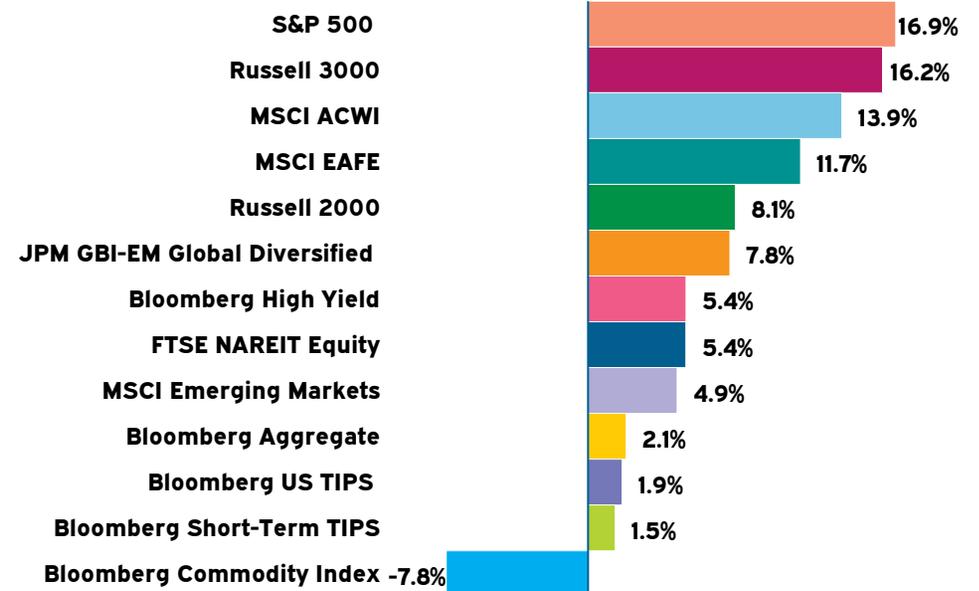
→ This year, the paths of inflation and monetary policy, slowing global growth and the war in Ukraine will all be key.

Index Returns¹

2022



YTD



→ After a particularly difficult 2022, most public market assets are up thus far in 2023, building on gains from the fourth quarter of last year.

→ Risk sentiment has been supported by expectations that policy tightening could be ending soon, as inflation continues to fall, and growth has slowed.

¹ Source: Bloomberg and FactSet. Data is as of June 30, 2023.

Domestic Equity Returns¹

Domestic Equity	June (%)	Q2 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	6.6	8.7	16.9	19.6	14.6	12.3	12.8
Russell 3000	6.8	8.4	16.2	19.0	13.9	11.4	12.3
Russell 1000	6.8	8.6	16.7	19.4	14.1	11.9	12.6
Russell 1000 Growth	6.8	12.8	29.0	27.1	13.7	15.1	15.7
Russell 1000 Value	6.6	4.1	5.1	11.5	14.3	8.1	9.2
Russell MidCap	8.3	4.8	9.0	14.9	12.5	8.4	10.3
Russell MidCap Growth	7.7	6.2	15.9	23.1	7.6	9.7	11.5
Russell MidCap Value	8.7	3.9	5.2	10.5	15.0	6.8	9.0
Russell 2000	8.1	5.2	8.1	12.3	10.8	4.2	8.2
Russell 2000 Growth	8.3	7.1	13.6	18.5	6.1	4.2	8.8
Russell 2000 Value	7.9	3.2	2.5	6.0	15.4	3.5	7.3

US Equities: Russell 3000 Index rose 8.4% in the second quarter and 16.2% YTD.

- US stocks rose sharply in the second quarter of 2023. Most of the gains came in the month of June when the Fed kept its target rate unchanged for the first time since early 2022. Investors are expressing optimism that the Fed can tame inflation without widespread disruptions to the equity markets.
- With the exception of energy and utilities, each sector of the Russell 3000 index appreciated during the second quarter. Technology led all sectors and was driven by enthusiasm for growth stocks, particularly those with exposure to artificial intelligence (e.g., NVIDIA).
- Large cap stocks continue to outperform small cap stocks, driven by technology and the underperformance of small cap biotechnology stocks. Growth stocks continue to broadly outperform value stocks.

¹ Source: Bloomberg. Data is as of June 30, 2023.

Foreign Equity Returns¹

Foreign Equity	June (%)	Q2 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	4.5	2.4	9.5	12.7	7.2	3.5	4.7
MSCI EAFE	4.6	3.0	11.7	18.8	8.9	4.4	5.4
MSCI EAFE (Local Currency)	3.6	4.3	12.1	17.5	11.7	6.4	7.7
MSCI EAFE Small Cap	2.9	0.6	5.5	10.2	5.7	1.3	6.2
MSCI Emerging Markets	3.8	0.9	4.9	1.8	2.3	0.9	2.9
MSCI Emerging Markets (Local Currency)	3.4	1.7	5.6	3.3	3.9	3.0	5.7
MSCI China	4.0	-9.7	-5.5	-16.8	-10.3	-5.3	3.0

Foreign Equity: Developed international equities (MSCI EAFE) rose 3.0% in the second quarter bringing the YTD results to +11.7%. Emerging market equities (MSCI EM) rose 0.9% in the quarter, rising 4.9% YTD.

- Eurozone and Japan markets continued their strength in June, wrapping up a strong second quarter. In Europe, financials and IT led returns whereas energy and communication services lagged. Enthusiasm for AI helped company fundamentals and prices for semiconductor stocks. Headline inflation was down in June, although core inflation was up slightly month over month. Energy and materials were the main drivers for falling UK equities, along with Bank of England rate hikes. Optimism continues to build for Japanese investors, while the Yen remains weak and Bank of Japan remains dovish.
- Emerging markets were laggards as China equities struggled from weak export demands and rising negative sentiments. Brazil, India and Taiwan are bright spots in EM, the former due to good earnings and macro, the latter from AI and IT strength.

¹ Source: Bloomberg. Data is as of June 30, 2023.

Fixed Income Returns¹

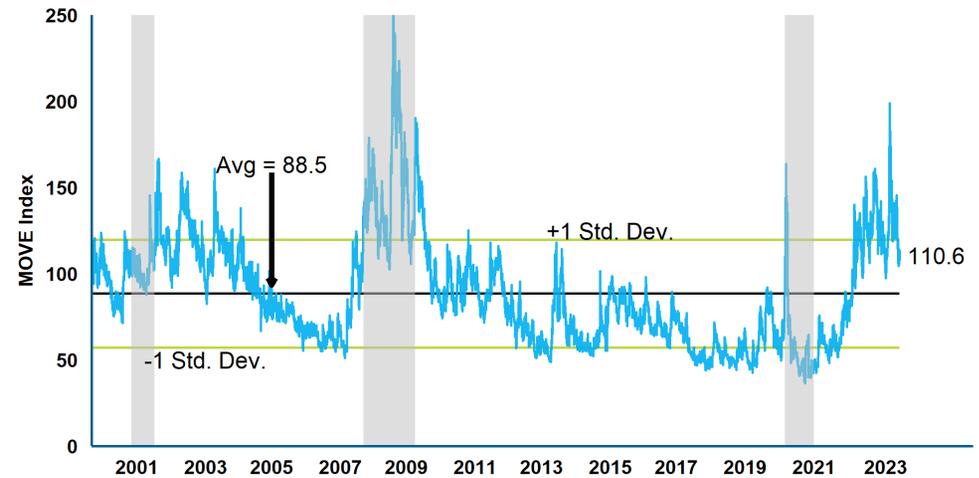
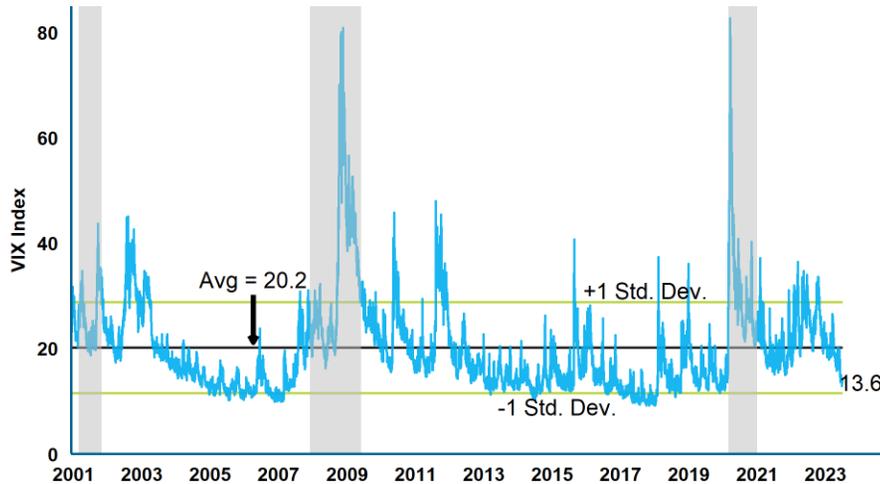
Fixed Income	June (%)	Q2 (%)	YTD (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	-0.2	-0.6	2.3	0.0	-3.4	1.0	1.8	5.2	6.3
Bloomberg Aggregate	-0.4	-0.8	2.1	-0.9	-4.0	0.8	1.5	4.8	6.5
Bloomberg US TIPS	-0.3	-1.4	1.9	-1.4	-0.1	2.5	2.1	4.6	6.8
Bloomberg Short-term TIPS	-0.2	-0.7	1.5	0.1	2.3	2.7	1.7	5.3	2.5
Bloomberg High Yield	1.7	1.7	5.4	9.1	3.1	3.4	4.4	8.5	4.1
JPM GBI-EM Global Diversified (USD)	3.3	2.5	7.8	11.4	-1.4	0.3	-0.6	6.6	5.0

Fixed Income: The Bloomberg Universal declined 0.6% in the second quarter as global sovereign debt yields generally rose. Bonds retained a positive start to the year (+2.3% YTD) though as inflation continues to decline.

- US Treasury yields generally rose over the month, with 1-year to 10-year maturity sector rising the most due to higher policy expectations.
- The TIPS index and the short-term TIPS index posted negative returns for the month as inflation concerns continued to ease.
- Continued risk appetite drove high yield bond performance (1.7%) and outperformance versus the broad US bond market (Bloomberg Aggregate). Emerging market bonds (3.3%) also performed well on investor risk sentiment.

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

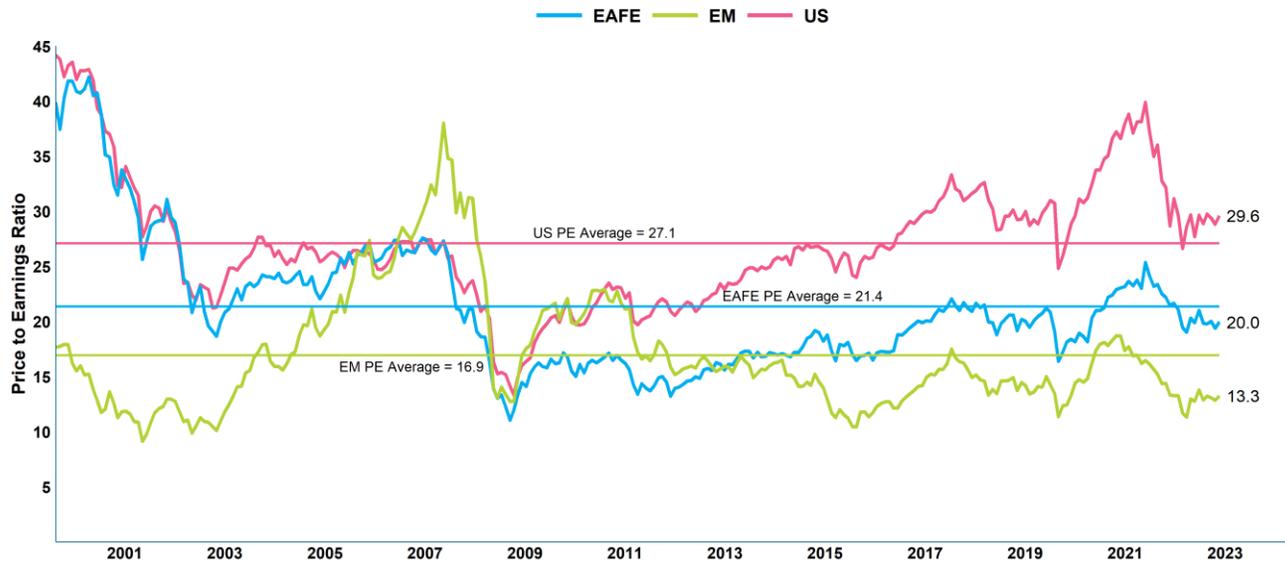
Equity and Fixed Income Volatility¹



- Volatility in equities (VIX) declined in June and remains low as investors continue to anticipate the end of the Fed's policy tightening.
- In comparison, the bond market remains on edge after last year's historic losses and continued volatility in interest rates this year due to policy uncertainty and issues in the banking sector. The MOVE (fixed income volatility) remains well above (110.6) its long-run average (88.4), but off its recent peak during the heart of the banking crisis.

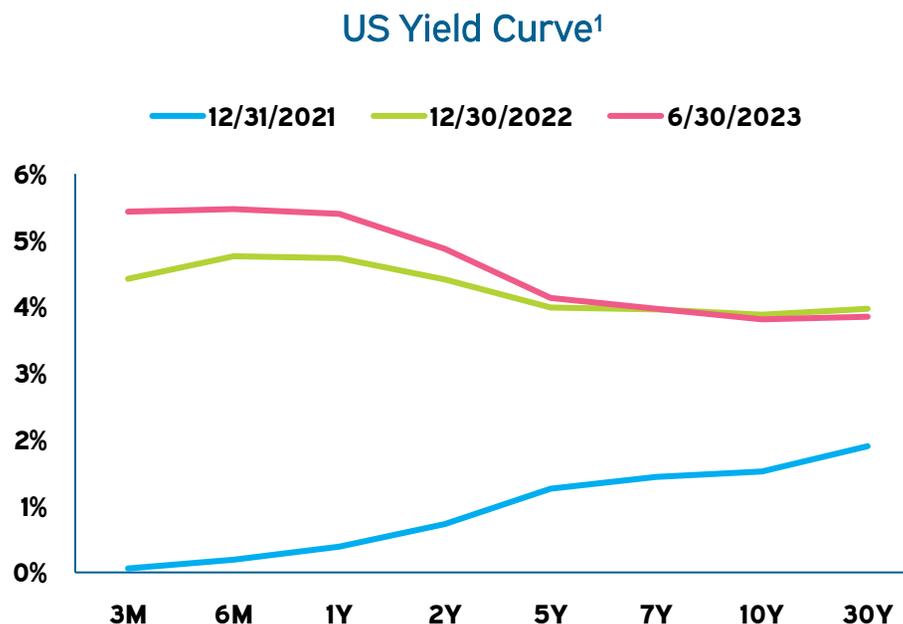
¹ Equity and Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of June 2023. The average line indicated is the average of the VIX and MOVE values between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

Equity Cyclically Adjusted P/E Ratios¹



- After its dramatic decline last year the US equity price-to-earnings ratio remains above its long-run (21st century) average.
- 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.

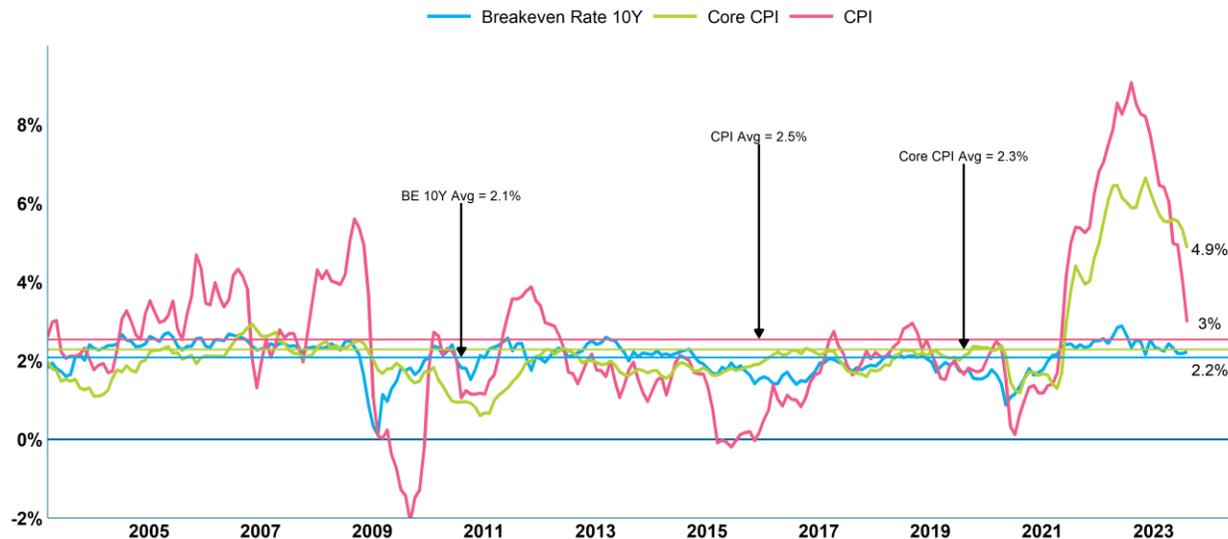
¹ US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years. Data is as of June 2023. The average line is the long-term average of the US, EM, and EAFE PE values from December 1999 to the recent month-end respectively.



- Interest rates have started rising again across the curve given policy maker guidance that policy rates are likely to rise further and potentially stay longer at the terminal rate than market participants expect. The rise in rates was particularly acute at the very front-end (< 1 year). Maturities from two years out also drifted higher as market participants considered the possibility of additional policy rate increases as economic data (mainly inflation and labor markets) remains strong.
- The yield curve remains inverted with the spread between two-year and ten-year Treasuries finishing the month at -1.06%. The more closely watched measure (by the Fed) of the three-month and ten-year Treasuries spread also remained inverted at -1.62%. Inversions in the yield curve have often preceded recessions.

¹ Source: Bloomberg. Data is as of June 30, 2023.

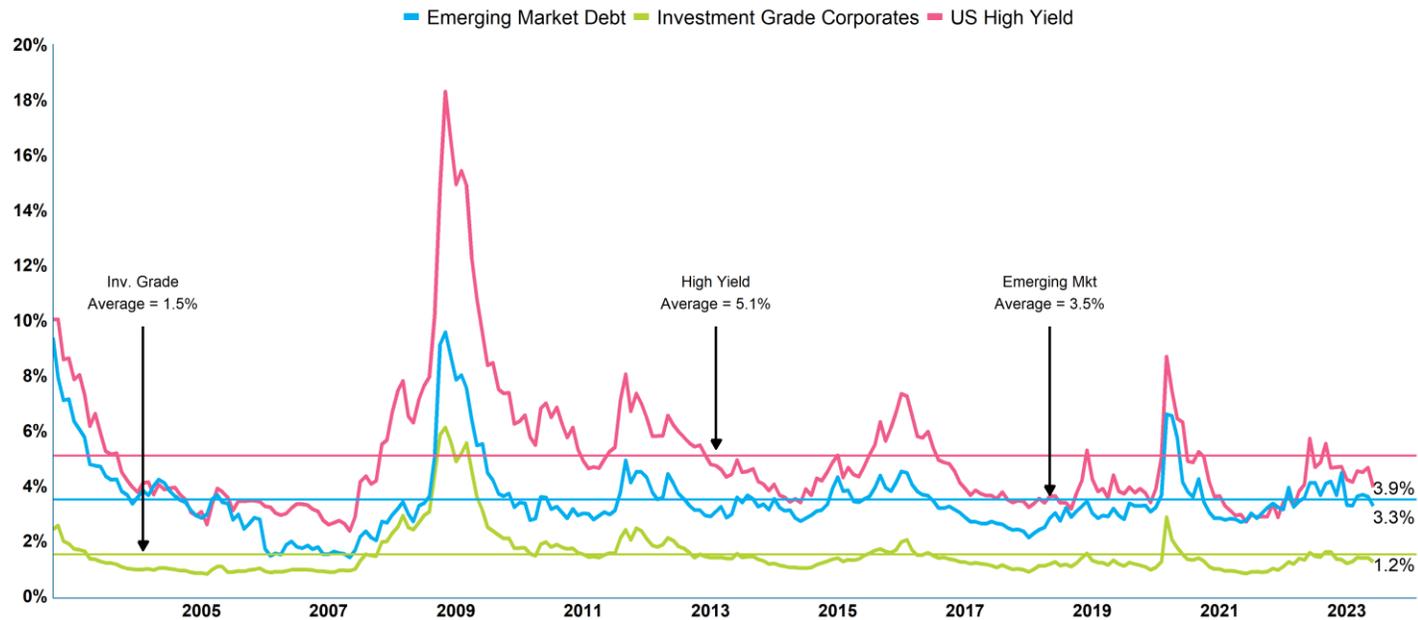
Ten-Year Breakeven Inflation and CPI¹



- Headline inflation continued to decline in June, with the year-over-year reading falling from 4.0% to 3.0% and coming in slightly below estimates. The month-over-month rate of price increases rose slightly (0.2% versus 0.1%), with food prices ticking up slightly (0.1%) and energy prices rose (0.6%).
- Core inflation – excluding food and energy - fell (5.3% to 4.9%), coming in slightly above forecasts. It remains stubbornly high driven by shelter costs.
- Inflation expectations (breakevens) remain well below current inflation as investors continue to expect inflation to track back toward the Fed’s 2% average target.

¹ Source: Bloomberg. Data is as June 30, 2023. The CPI and 10 Year Breakeven average lines denote the average values from August 1998 to the present month-end, respectively. Breakeven values represent month-end values for comparative purposes.

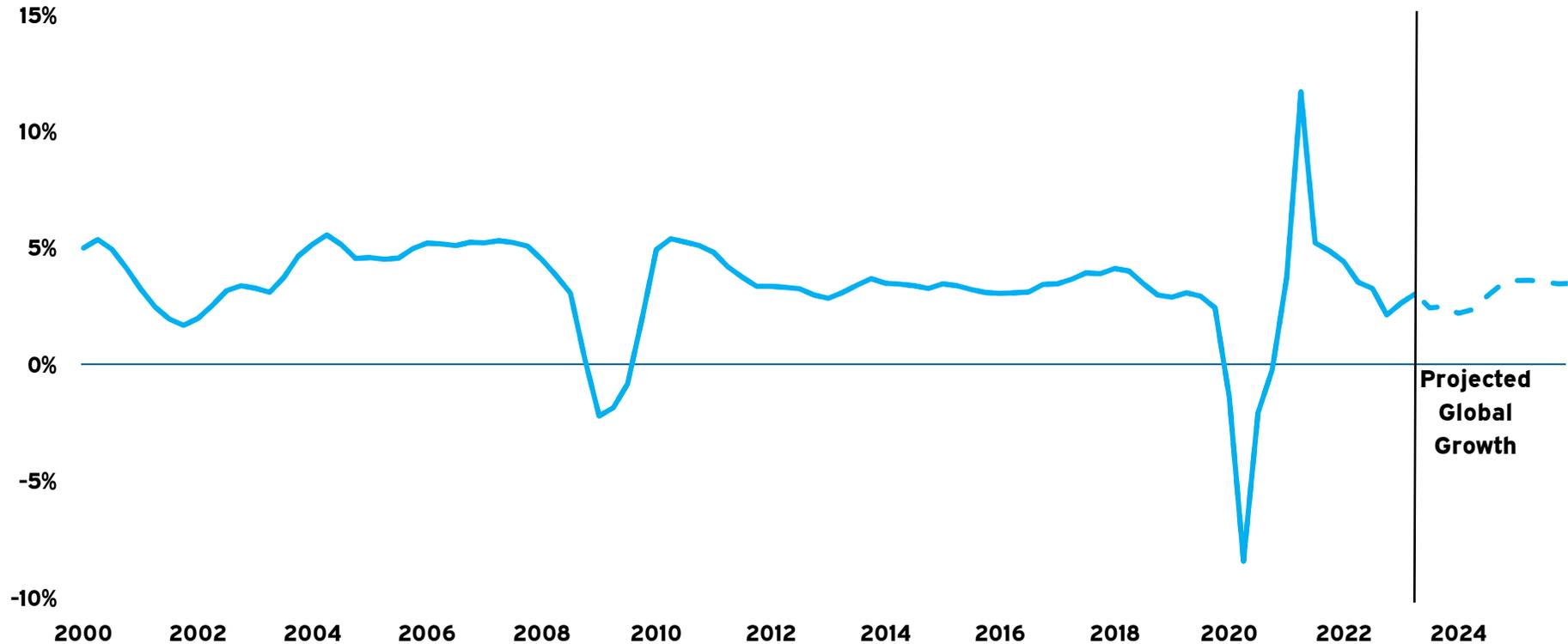
Credit Spreads vs. US Treasury Bonds¹



- Spreads (the added yield above a comparable maturity Treasury) declined in June as risk appetite remained robust for respective credit exposures.
- High yield spreads remain below their long-term average. Investment grade spreads and emerging market spreads are narrower than high yield spreads and close to their respective long-term averages.

¹ Sources: Bloomberg. Data is as of June 30, 2023. Average lines denote the average of the investment grade, high yield, and emerging market spread values from August 2000 to the recent month-end, respectively.

Global Real Gross Domestic Product (GDP) Growth¹

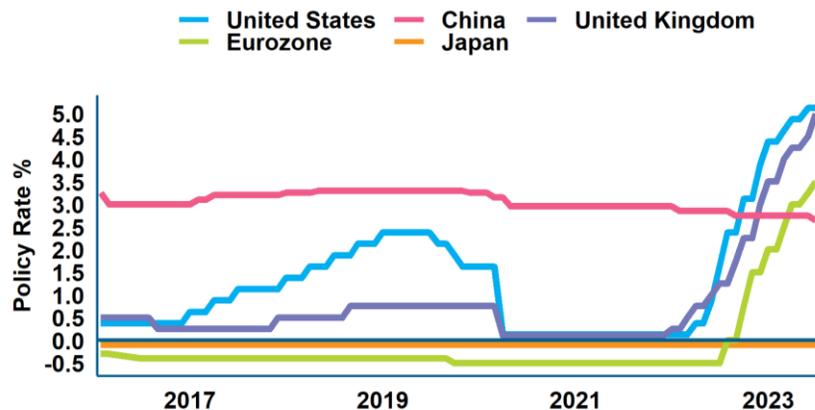


- Global economies are expected to slow this year compared to 2022, with risks of recession as the impacts of policymakers' aggressive tightening to fight inflation flow through economies.
- The delicate balancing act of central banks trying to reduce inflation without dramatically depressing growth will remain key.

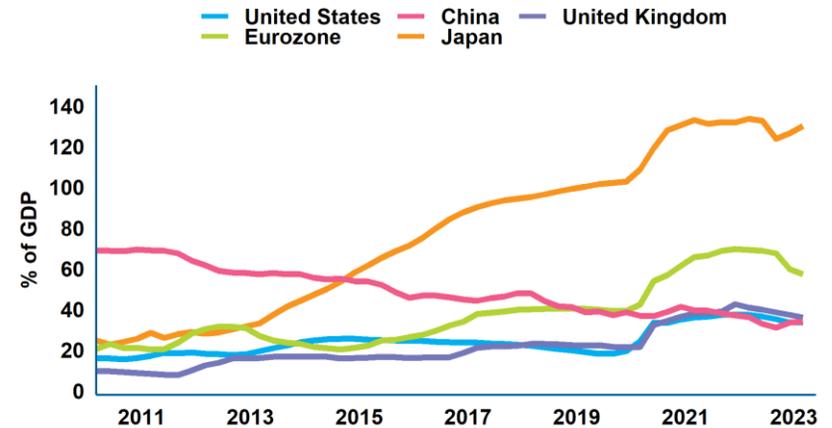
¹ Source: Oxford Economics (World GDP, US\$ prices & PPP exchange rate, real, % change YoY). Updated June 2023.

Central Bank Response¹

Policy Rates



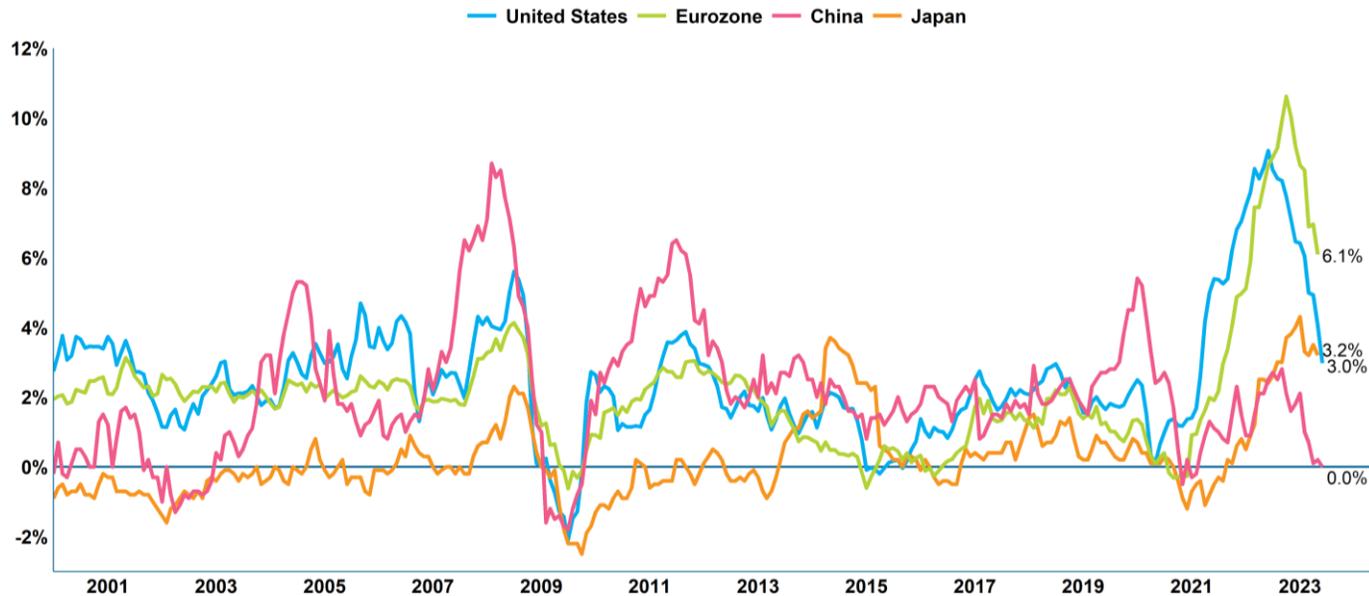
Balance Sheet as % of GDP



- In 2022, many central banks aggressively reduced pandemic-era policy support in the face of high inflation, with the US taking the most aggressive approach. Slowing inflation and growth have led to expectations for reductions in policy tightening going forward.
- In May the Fed raised rates another 25 basis points to a range of 5.0% to 5.25%. After month-end, the FOMC paused its tightening campaign but hinted that one or two additional rate hikes could come later this year.
- In China, the central bank 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.
- Looking ahead, risks remain for a policy error as central banks attempt to balance multiple goals, bringing down inflation, maintaining financial stability, and supporting growth.

¹ Source: Bloomberg. Policy rate data is as of June 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 March 31, 2023.

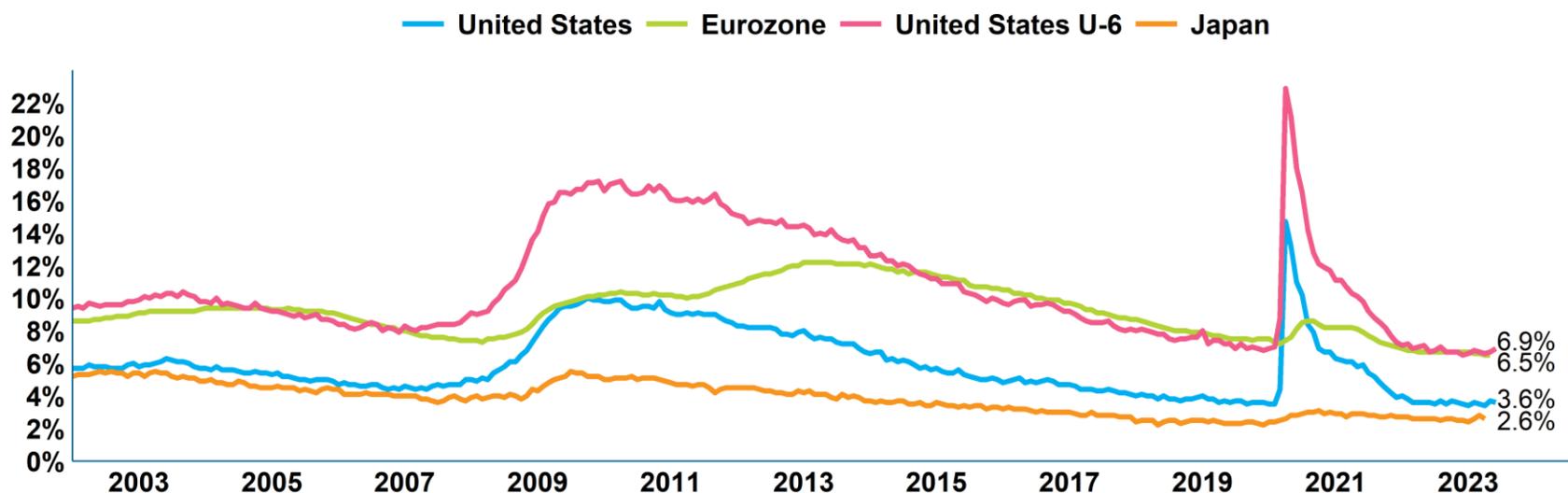
Inflation (CPI Trailing Twelve Months)¹



- Inflation pressures continued to decline globally due to the easing of supply chain issues from the pandemic, declining energy prices, and tighter monetary policy.
- In the US, inflation fell to 3.0% at month-end, while eurozone inflation also fell (6.1% from 7.0%) a level well off its peak. Despite 2023's significant declines in the US and Europe, inflation levels remain elevated compared to central bank targets.
- Inflation remains lower in China and Japan. In China, inflation levels were only slightly above 0% at month-end as the reopening of their economy has led to an uneven economic recovery.

¹ Source: Bloomberg. Data is as June 30, 2023. The most recent Japanese inflation data is as of May 2023.

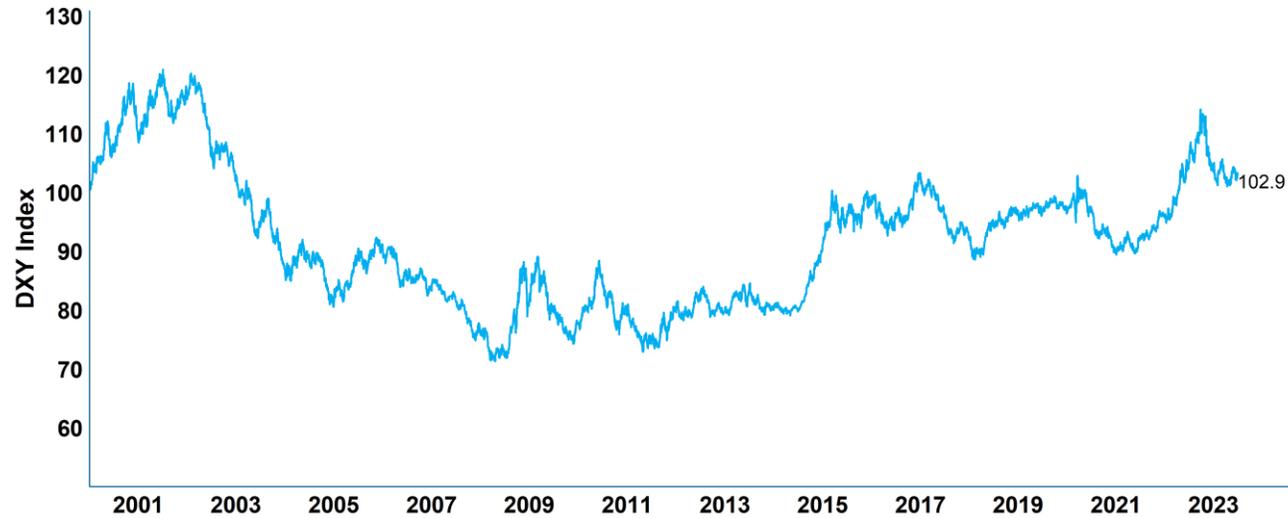
Unemployment¹



- Despite slowing growth and high inflation, the US labor market still shows signs of resiliency. Unemployment in the US, which experienced the steepest rise, recently returned to pre-pandemic levels. Broader measures of unemployment (U-6) remain higher at 6.9% but also declined dramatically from their peak.
- The strong labor market and higher wages, although beneficial for workers, motivates the Fed's efforts to fight inflation, leading to higher unemployment.
- 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.

¹ Source: Bloomberg. Data is as June 30, 2023, for the US. The most recent data for Eurozone and Japanese unemployment is as of May 2023.

US Dollar versus Broad Currencies¹



- The dollar finished 2022 much higher than it started, due to the increased pace of policy tightening, stronger relative growth, and safe-haven flows.
- Late last year and into this year, the dollar declined, as weaker economic data and lower inflation led to investors anticipating the end of Fed tightening. In June, we did see a slight decline in the dollar though.
- This year, the track of inflation across economies and the corresponding monetary policies will be key drivers of currency moves.

¹ Source: Bloomberg. Data as of June 30, 2023.

Summary

Key Trends:

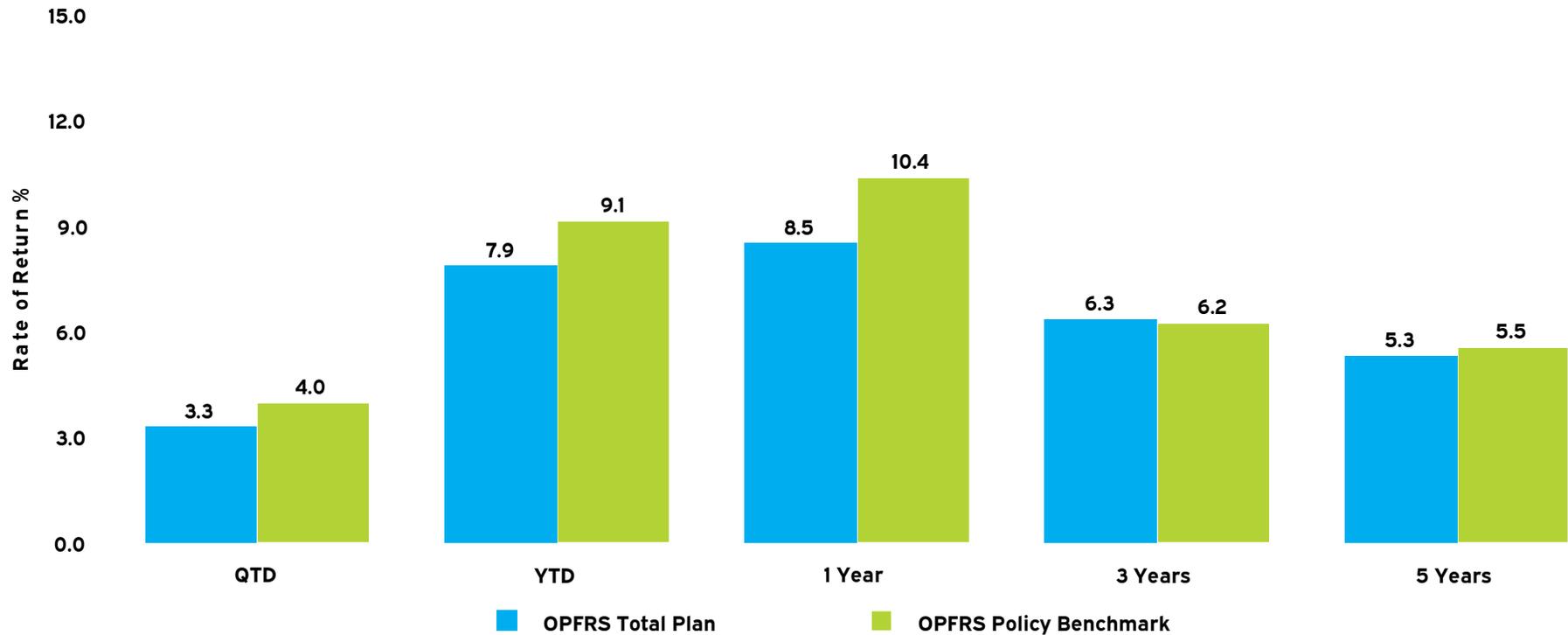
- The impacts of still relatively high inflation will remain key, with bond market volatility likely to stay high.
- Recent issues related to the banking sector seem to have subsided for now but are a reminder that there is a delicate balance for central banks to continue to fight inflation but also to try to maintain financial stability.
- Global monetary policies could diverge in 2023. 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 forecast to tip into recession. 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 cost 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.
- Equity valuations remain lower in both emerging and developed markets, but risks remain, including potential continued strength in the US dollar, higher inflation weighing particularly on Europe, and China's sluggish economic reopening and on-going weakness in the real estate sector.

2Q 2023 Performance
as of June 30, 2023

Summary of Cash Flows

	QTD	1 Year
OPFRS Total Plan		
Beginning Market Value	411,182,049	406,308,110
Net Cash Flow	-4,603,292	-20,012,998
Net Investment Change	13,591,332	33,874,977
Ending Market Value	420,170,089	420,170,089

Return Summary Ending June 30, 2023

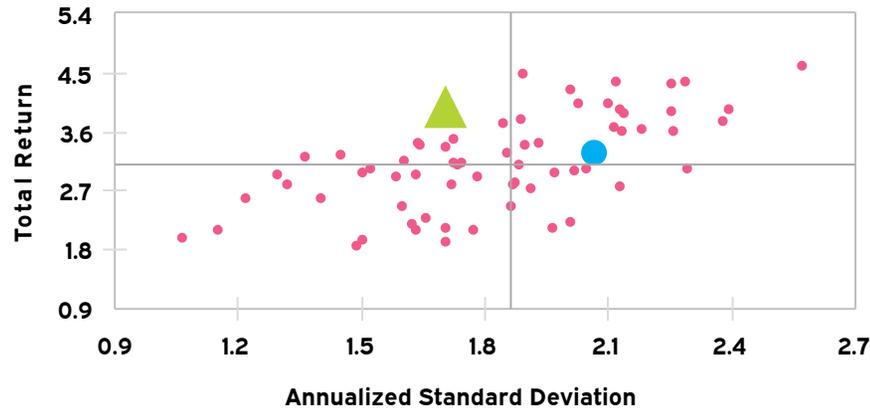


Performance shown is net of fees.

Oakland Police and Fire Retirement System

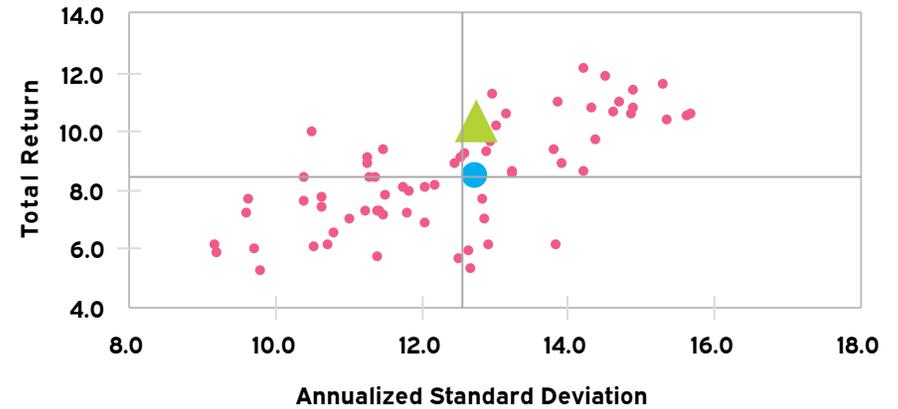
Total Plan Risk/Return Summary | As of June 30, 2023

Risk-Return Summary QTD Ending June 30, 2023



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

Risk-Return Summary 1 Yr Ending June 30, 2023



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

	Return	Standard Deviation
OPFRS Total Plan	3.3	2.1
OPFRS Policy Benchmark	4.0	1.7
Median	3.1	1.9

	Return	Standard Deviation
OPFRS Total Plan	8.5	12.7
OPFRS Policy Benchmark	10.4	12.7
Median	8.5	12.6

Performance shown is net of fees. Parentheses contain percentile rankings. Calculation based on monthly periodicity. Fiscal year begins on July 1.

Oakland Police and Fire Retirement System

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

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
OPFRS Total Plan (Gross)	420,170,089	100.0	3.4	8.0	8.8	6.6	5.6	7.3	6.6	Dec-88
<i>OPFRS Policy Benchmark</i>			<i>4.0</i>	<i>9.1</i>	<i>10.4</i>	<i>6.2</i>	<i>5.5</i>	<i>7.1</i>	<i>7.9</i>	
Excess Return			-0.6	-1.1	-1.6	0.4	0.1	0.2	-1.3	
Domestic Equity (Gross)	173,924,779	41.4	6.0	11.5	14.9	13.1	10.0	11.8	8.9	Jun-97
<i>Russell 3000 (Blend)</i>			<i>8.4</i>	<i>16.2</i>	<i>19.0</i>	<i>13.9</i>	<i>11.4</i>	<i>12.3</i>	<i>9.1</i>	
Excess Return			-2.4	-4.7	-4.1	-0.8	-1.4	-0.5	-0.2	
International Equity (Gross)	55,841,087	13.3	3.1	12.1	16.7	8.5	4.8	6.2	5.4	Jan-98
<i>MSCI ACWI ex US (Blend)</i>			<i>2.4</i>	<i>9.5</i>	<i>12.7</i>	<i>7.2</i>	<i>3.5</i>	<i>4.7</i>	<i>5.0</i>	
Excess Return			0.7	2.6	4.0	1.3	1.3	1.5	0.4	
Fixed Income (Gross)	104,462,270	24.9	-0.5	2.9	0.2	-2.7	1.3	2.1	4.7	Jan-94
<i>Bloomberg Universal (Blend)</i>			<i>-0.6</i>	<i>2.3</i>	<i>0.0</i>	<i>-3.4</i>	<i>1.0</i>	<i>1.8</i>	<i>4.5</i>	
Excess Return			0.1	0.6	0.2	0.7	0.3	0.3	0.2	
Credit (Gross)	9,200,988	2.2	3.4	7.2	8.8	7.9	4.0	--	5.2	Feb-15
<i>Blmbg. U.S. Corp: High Yield Index</i>			<i>1.7</i>	<i>5.4</i>	<i>9.1</i>	<i>3.1</i>	<i>3.4</i>	<i>4.4</i>	<i>4.2</i>	
Excess Return			1.7	1.8	-0.3	4.8	0.6	--	1.0	
Covered Calls (Gross)	22,548,100	5.4	7.4	14.0	16.6	13.7	9.9	--	9.2	Apr-14
<i>CBOE S&P 500 Buy Write Index</i>			<i>4.3</i>	<i>10.5</i>	<i>9.0</i>	<i>10.6</i>	<i>4.6</i>	<i>6.3</i>	<i>5.7</i>	
Excess Return			3.1	3.5	7.6	3.1	5.3	--	3.5	
Crisis Risk Offset (Gross)	40,159,887	9.6	2.0	2.0	-2.8	-7.3	--	--	-8.0	Aug-18
<i>Crisis Risk Offset Benchmark</i>			<i>2.7</i>	<i>2.7</i>	<i>5.2</i>	<i>4.1</i>	<i>--</i>	<i>--</i>	<i>0.1</i>	
Excess Return			-0.7	-0.7	-8.0	-11.4	--	--	-8.1	
Cash (Gross)	14,032,977	3.3	0.0	0.0	0.0	0.0	0.9	0.7	0.6	Mar-11
<i>FTSE 3 Month T-Bill</i>			<i>1.3</i>	<i>2.4</i>	<i>3.7</i>	<i>1.3</i>	<i>1.6</i>	<i>1.0</i>	<i>0.8</i>	
Excess Return			-1.3	-2.4	-3.7	-1.3	-0.7	-0.3	-0.2	

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.

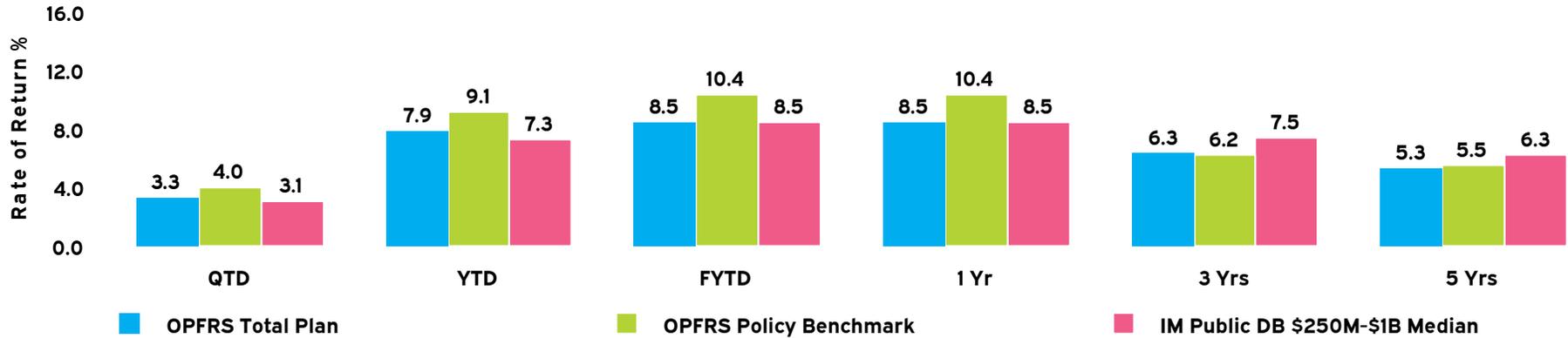
Oakland Police and Fire Retirement System

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

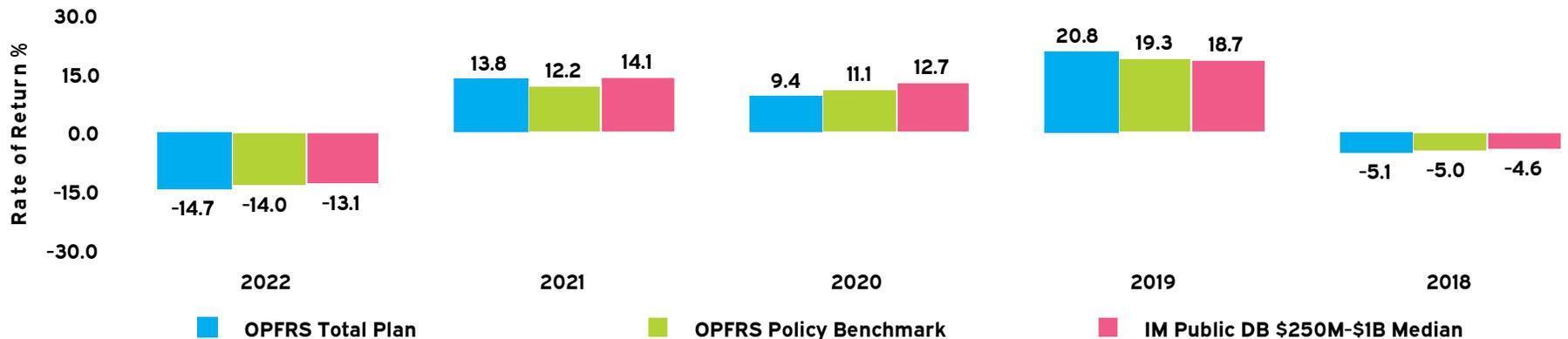
	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
OPFRS Total Plan (Net)	420,170,089	100.0	3.3	7.9	8.5	6.3	5.3	7.1	6.6	Dec-88
<i>OPFRS Policy Benchmark</i>			4.0	9.1	10.4	6.2	5.5	7.1	7.9	
Excess Return			-0.7	-1.2	-1.9	0.1	-0.2	0.0	-1.3	
<i>IM Public DB \$250M-\$1B Median (Net)</i>			3.1	7.4	8.5	7.5	6.3	7.0	8.2	
Domestic Equity (Net)	173,924,779	41.4	5.9	11.4	14.5	12.8	9.7	11.6	8.8	Jun-97
<i>Russell 3000 (Blend)</i>			8.4	16.2	19.0	13.9	11.4	12.3	9.1	
Excess Return			-2.5	-4.8	-4.5	-1.1	-1.7	-0.7	-0.3	
International Equity (Net)	55,841,087	13.3	3.0	11.8	16.0	7.9	4.2	5.8	5.2	Jan-98
<i>MSCI ACWI ex US (Blend)</i>			2.4	9.5	12.7	7.2	3.5	4.7	5.0	
Excess Return			0.6	2.3	3.3	0.7	0.7	1.1	0.2	
Fixed Income (Net)	104,462,270	24.9	-0.6	2.8	0.0	-2.8	1.1	1.9	4.5	Jan-94
<i>Bloomberg Universal (Blend)</i>			-0.6	2.3	0.0	-3.4	1.0	1.8	4.5	
Excess Return			0.0	0.5	0.0	0.6	0.1	0.1	0.0	
Credit (Net)	9,200,988	2.2	3.3	6.9	8.2	7.2	3.3	--	4.6	Feb-15
<i>Blmbg. U.S. Corp: High Yield Index</i>			1.7	5.4	9.1	3.1	3.4	4.4	4.2	
Excess Return			1.6	1.5	-0.9	4.1	-0.1	--	0.4	
Covered Calls (Net)	22,548,100	5.4	7.3	13.9	16.3	13.4	9.6	--	8.9	Apr-14
<i>CBOE S&P 500 Buy Write Index</i>			4.3	10.5	9.0	10.6	4.6	6.3	5.7	
Excess Return			3.0	3.4	7.3	2.8	5.0	--	3.2	
Crisis Risk Offset (Net)	40,159,887	9.6	1.9	1.9	-3.0	-7.4	--	--	-8.2	Aug-18
<i>Crisis Risk Offset Benchmark</i>			2.7	2.7	5.2	4.1	--	--	0.1	
Excess Return			-0.8	-0.8	-8.2	-11.5	--	--	-8.3	
Cash (Net)	14,032,977	3.3	0.0	0.0	0.0	0.0	0.9	0.7	0.6	Mar-11
<i>FTSE 3 Month T-Bill</i>			1.3	2.4	3.7	1.3	1.6	1.0	0.8	
Excess Return			-1.3	-2.4	-3.7	-1.3	-0.7	-0.3	-0.2	

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 June 30, 2023



Calendar Year Performance Ending December 31, 2022



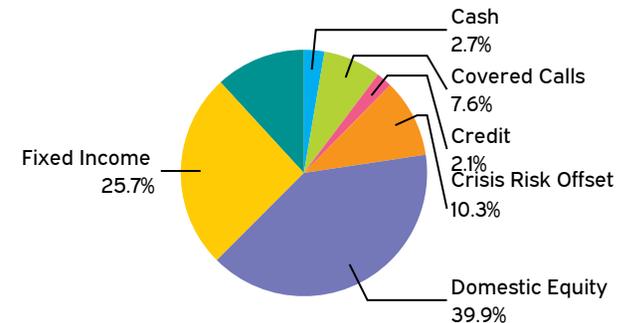
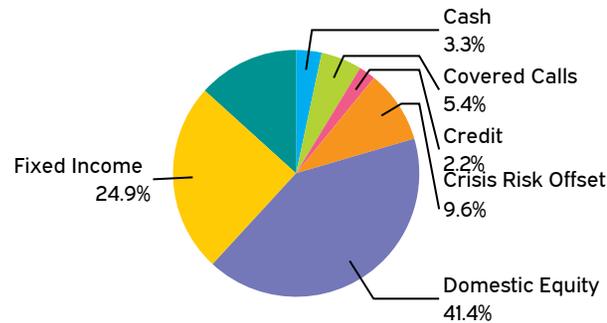
Performance shown is net of fees. Fiscal year begins on July 1.

Asset Allocation | As of June 30, 2023

	Current Balance (\$)	Current Allocation (%)	Policy (%)	Difference (%)	Policy Range (%)	Within IPS Range?
Domestic Equity	173,924,779	41.4	40.0	1.4	30.0 - 50.0	Yes
International Equity	55,841,087	13.3	12.0	1.3	8.0 - 14.0	Yes
Fixed Income	104,462,270	24.9	31.0	-6.1	25.0 - 40.0	No
Credit	9,200,988	2.2	2.0	0.2	1.0 - 3.0	Yes
Covered Calls	22,548,100	5.4	5.0	0.4	5.0 - 10.0	Yes
Crisis Risk Offset	40,159,887	9.6	10.0	-0.4	5.0 - 15.0	Yes
Cash	14,032,977	3.3	0.0	3.3	0.0 - 5.0	Yes
Total	420,170,089	100.0	100.0	0.0		

June 30, 2023: \$420,170,089.1

June 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 June 30, 2023

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Domestic Equity	173,924,779	100.0	5.9	11.4	14.5	12.8	9.7	11.6	8.8	Jun-97
<i>Russell 3000 (Blend)</i>			8.4	16.2	19.0	13.9	11.4	12.3	9.1	
Excess Return			-2.5	-4.8	-4.5	-1.1	-1.7	-0.7	-0.3	
Northern Trust Russell 1000	81,367,541	46.8	8.6	16.7	19.3	13.9	11.8	12.5	13.3	Jun-10
<i>Russell 1000 Index</i>			8.6	16.7	19.4	14.1	11.9	12.6	13.4	
Excess Return			0.0	0.0	-0.1	-0.2	-0.1	-0.1	-0.1	
EARNEST Partners	43,238,606	24.9	3.8	8.5	9.9	13.3	10.5	12.2	9.2	Apr-06
<i>Russell Midcap Index</i>			4.8	9.0	14.9	12.5	8.5	10.3	8.6	
Excess Return			-1.0	-0.5	-5.0	0.8	2.0	1.9	0.6	
eV US Mid Cap Core Equity Rank			84	72	88	61	20	18	28	
Wellington Select Quality Equity	23,373,498	13.4	4.5	5.3	12.7	--	--	--	5.3	May-22
<i>Russell 1000 Index</i>			8.6	16.7	19.4	14.1	11.9	12.6	7.8	
Excess Return			-4.1	-11.4	-6.7	--	--	--	-2.5	
eV US Large Cap Core Equity Rank			82	91	76	--	--	--	67	
Brown Fundamental Small Cap Value	11,278,982	6.5	3.8	3.2	13.8	--	--	--	2.2	Apr-21
<i>Russell 2000 Value Index</i>			3.2	2.5	6.0	15.4	3.5	7.3	-3.3	
Excess Return			0.6	0.7	7.8	--	--	--	5.5	
eV US Small Cap Value Equity Rank			48	76	37	--	--	--	34	
Rice Hall James	14,666,153	8.4	2.7	9.7	8.0	6.7	2.4	--	6.5	Aug-17
<i>Russell 2000 Growth Index</i>			7.1	13.6	18.5	6.1	4.2	8.8	6.9	
Excess Return			-4.4	-3.9	-10.5	0.6	-1.8	--	-0.4	
eV US Small Cap Growth Equity Rank			87	76	94	59	96	--	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 June 30, 2023

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
International Equity	55,841,087	100.0	3.0	11.8	16.0	7.9	4.2	5.8	5.2	Jan-98
<i>MSCI ACWI ex US (Blend)</i>			<i>2.4</i>	<i>9.5</i>	<i>12.7</i>	<i>7.2</i>	<i>3.5</i>	<i>4.7</i>	<i>5.0</i>	
Excess Return			0.6	2.3	3.3	0.7	0.7	1.1	0.2	
Vanguard Developed Markets ETF	15,464,066	27.7	2.2	10.4	15.3	8.8	--	--	6.7	Sep-19
<i>FTSE Developed All Cap ex-U.S. Index</i>			<i>3.1</i>	<i>11.1</i>	<i>16.9</i>	<i>9.3</i>	<i>4.6</i>	<i>5.9</i>	<i>7.1</i>	
Excess Return			-0.9	-0.7	-1.6	-0.5	--	--	-0.4	
SGA ACWI ex-U.S. Equity	40,377,022	72.3	3.3	12.3	16.3	7.5	--	--	3.0	Dec-19
<i>MSCI AC World ex USA (Net)</i>			<i>2.4</i>	<i>9.5</i>	<i>12.7</i>	<i>7.2</i>	<i>3.5</i>	<i>4.7</i>	<i>3.8</i>	
Excess Return			0.9	2.8	3.6	0.3	--	--	-0.8	
eV ACWI ex-US All Cap Core Eq Rank			36	24	33	62	--	--	90	

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 June 30, 2023

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Fixed Income	104,462,270	100.0	-0.6	2.8	0.0	-2.8	1.1	1.9	4.5	Jan-94
<i>Bloomberg Universal (Blend)</i>			-0.6	2.3	0.0	-3.4	1.0	1.8	4.5	
Excess Return			0.0	0.5	0.0	0.6	0.1	0.1	0.0	
Ramirez	70,891,932	67.9	-0.6	2.6	-0.4	-2.8	1.0	--	1.2	Feb-17
<i>Blmbg. U.S. Aggregate Index</i>			-0.8	2.1	-0.9	-4.0	0.8	1.5	0.9	
Excess Return			0.2	0.5	0.5	1.2	0.2	--	0.3	
eV US Core Fixed Inc Rank			37	22	40	14	51	--	30	
Wellington Core Bond	6,726,320	6.4	-0.6	3.0	-0.2	--	--	--	-4.7	Apr-21
<i>Blmbg. U.S. Aggregate Index</i>			-0.8	2.1	-0.9	-4.0	0.8	1.5	-4.3	
Excess Return			0.2	0.9	0.7	--	--	--	-0.4	
eV US Core Fixed Inc Rank			28	4	33	--	--	--	90	
Reams	26,844,017	25.7	-0.5	3.1	1.1	-2.5	3.4	2.8	4.9	Feb-98
<i>Bloomberg Universal (Blend)</i>			-0.6	2.3	0.0	-3.4	1.0	1.8	4.1	
Excess Return			0.1	0.8	1.1	0.9	2.4	1.0	0.8	
eV US Core Plus Fixed Inc Rank			41	11	21	35	1	8	19	

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 June 30, 2023

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Credit	9,200,988	100.0	3.3	6.9	8.2	7.2	3.3	--	4.6	Feb-15
<i>Blmbg. U.S. Corp: High Yield Index</i>			<i>1.7</i>	<i>5.4</i>	<i>9.1</i>	<i>3.1</i>	<i>3.4</i>	<i>4.4</i>	<i>4.2</i>	
Excess Return			1.6	1.5	-0.9	4.1	-0.1	--	0.4	
Polen Capital	9,200,988	100.0	3.3	6.9	8.2	7.2	3.3	--	4.6	Feb-15
<i>ICE BofA High Yield Master II</i>			<i>1.6</i>	<i>5.4</i>	<i>8.9</i>	<i>3.2</i>	<i>3.2</i>	<i>4.3</i>	<i>4.1</i>	
Excess Return			1.7	1.5	-0.7	4.0	0.1	--	0.5	
eV US High Yield Fixed Inc Rank			3	4	52	4	45	--	17	

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 June 30, 2023

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Covered Calls	22,548,100	100.0	7.3	13.9	16.3	13.4	9.6	--	8.9	Apr-14
<i>CBOE S&P 500 Buy Write Index</i>			<i>4.3</i>	<i>10.5</i>	<i>9.0</i>	<i>10.6</i>	<i>4.6</i>	<i>6.3</i>	<i>5.7</i>	
Excess Return			3.0	3.4	7.3	2.8	5.0	--	3.2	
Parametric BXM	11,207,891	49.7	6.0	11.4	12.6	11.1	7.1	--	7.1	Apr-14
<i>CBOE S&P 500 Buy Write Index</i>			<i>4.3</i>	<i>10.5</i>	<i>9.0</i>	<i>10.6</i>	<i>4.6</i>	<i>6.3</i>	<i>5.7</i>	
Excess Return			1.7	0.9	3.6	0.5	2.5	--	1.4	
Parametric DeltaShift	11,340,209	50.3	8.7	16.5	20.2	15.4	11.9	--	10.9	Apr-14
<i>CBOE S&P 500 Buy Write Index</i>			<i>4.3</i>	<i>10.5</i>	<i>9.0</i>	<i>10.6</i>	<i>4.6</i>	<i>6.3</i>	<i>5.7</i>	
Excess Return			4.4	6.0	11.2	4.8	7.3	--	5.2	

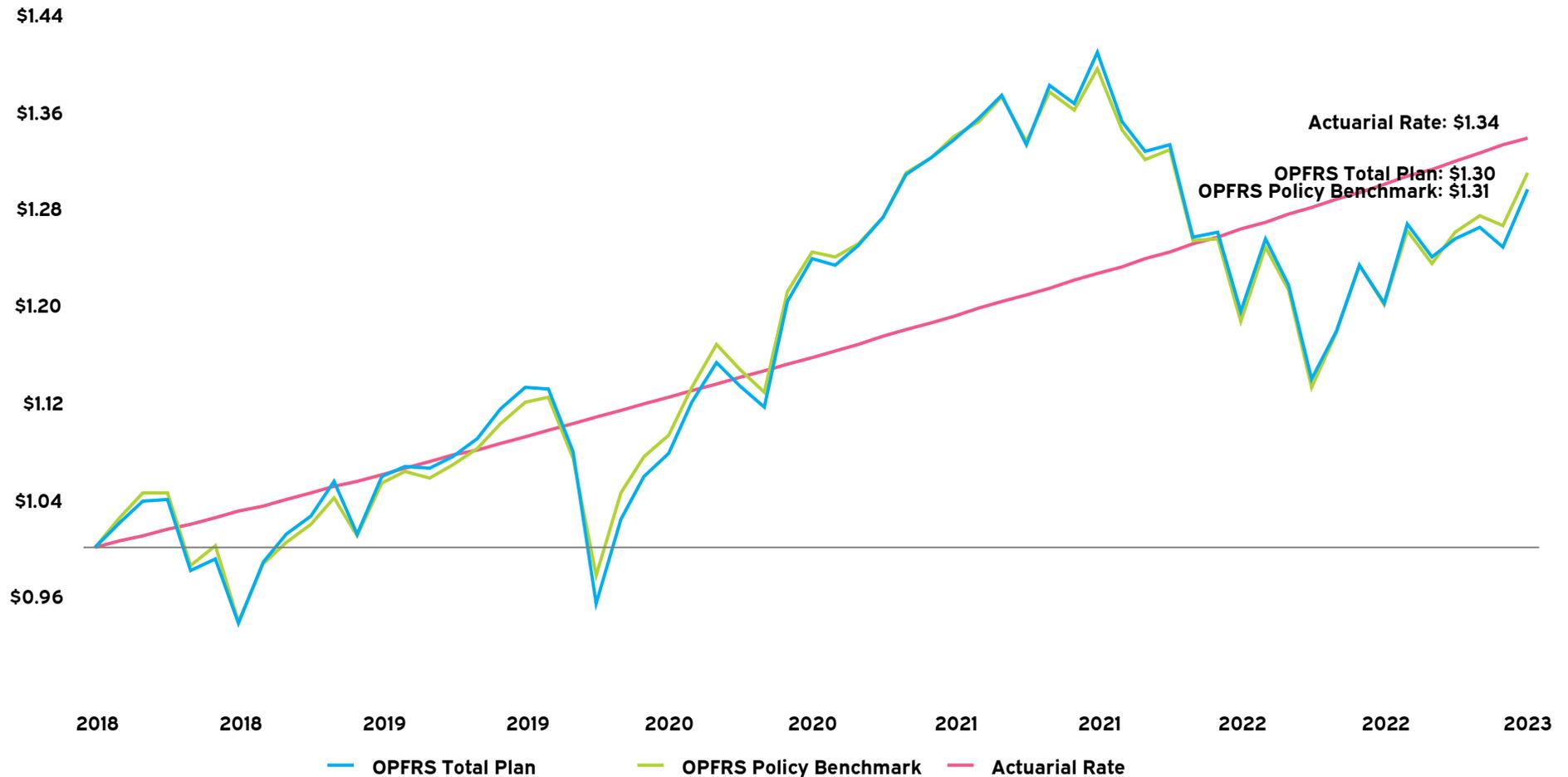
Performance shown is net of fees. Since inception date and performance begin in the month following an investment's initial funding. Fiscal year begins on July 1. Please see Benchmark History section for custom benchmark compositions.

Manager Performance - Net of Fees | As of June 30, 2023

	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Crisis Risk Offset	40,159,887	100.0	1.9	1.9	-3.0	-7.4	--	--	-8.2	Aug-18
<i>Crisis Risk Offset Benchmark</i>			<i>2.7</i>	<i>2.8</i>	<i>5.3</i>	<i>4.1</i>	<i>--</i>	<i>--</i>	<i>0.1</i>	
Over/Under			<i>-0.8</i>	<i>-0.9</i>	<i>-8.3</i>	<i>-11.5</i>	<i>--</i>	<i>--</i>	<i>-8.3</i>	
Kepos Alternative Risk Premia	10,476,679	26.1	2.0	6.5	9.8	--	--	--	3.3	Feb-22
<i>SG Multi Alternative Risk Premia Index</i>			<i>2.5</i>	<i>3.6</i>	<i>6.1</i>	<i>4.4</i>	<i>--</i>	<i>--</i>	<i>5.3</i>	
Over/Under			<i>-0.5</i>	<i>2.9</i>	<i>3.7</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>-2.0</i>	
Versor Trend Following	15,551,785	38.7	6.6	-2.6	-6.4	--	--	--	2.9	Apr-22
<i>SG Trend Index</i>			<i>8.0</i>	<i>0.1</i>	<i>-1.1</i>	<i>14.3</i>	<i>9.4</i>	<i>5.7</i>	<i>6.6</i>	
Over/Under			<i>-1.4</i>	<i>-2.7</i>	<i>-5.3</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>-3.7</i>	
Vanguard Long-Term Treasury ETF	14,131,423	35.2	-2.8	3.9	-7.3	-12.2	--	--	-4.1	Jul-19
<i>Blmbg. U.S. Government: Long Term Bond Index</i>			<i>-2.3</i>	<i>3.7</i>	<i>-6.8</i>	<i>-12.0</i>	<i>-0.9</i>	<i>1.8</i>	<i>-3.9</i>	
Over/Under			<i>-0.5</i>	<i>0.2</i>	<i>-0.5</i>	<i>-0.2</i>	<i>--</i>	<i>--</i>	<i>-0.2</i>	

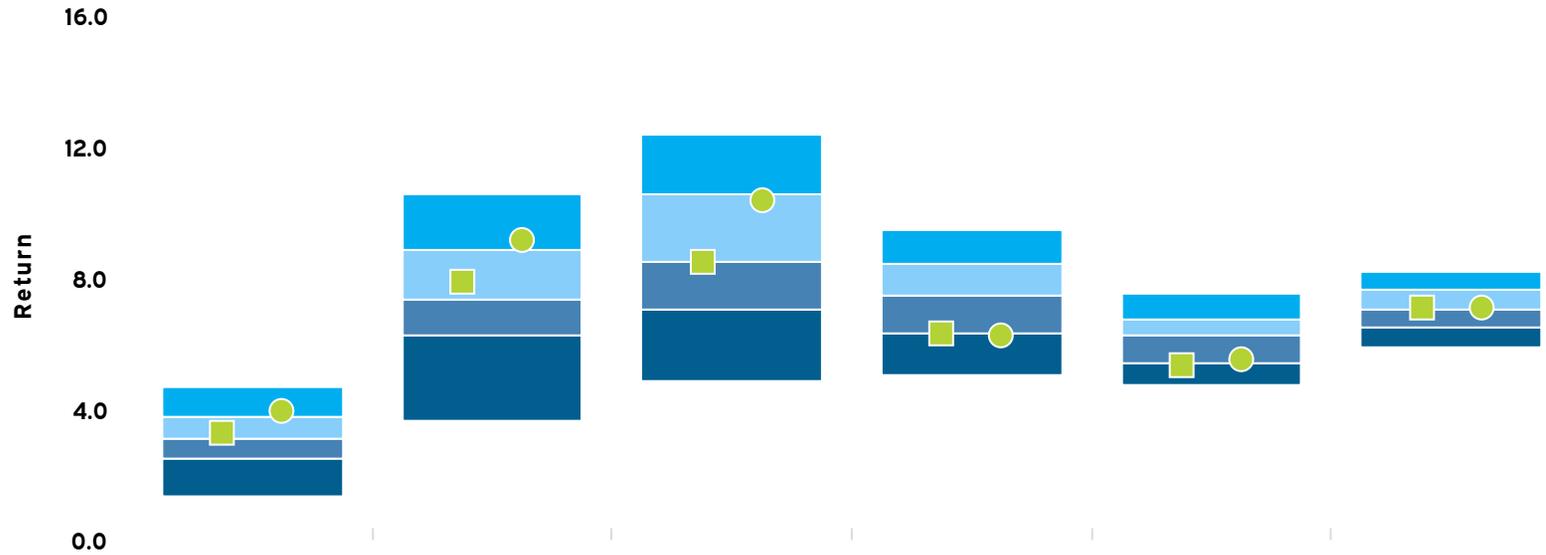
Performance shown is net of fees. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see Benchmark History section for custom benchmark compositions.

Growth of a Dollar 5 Years ending June 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



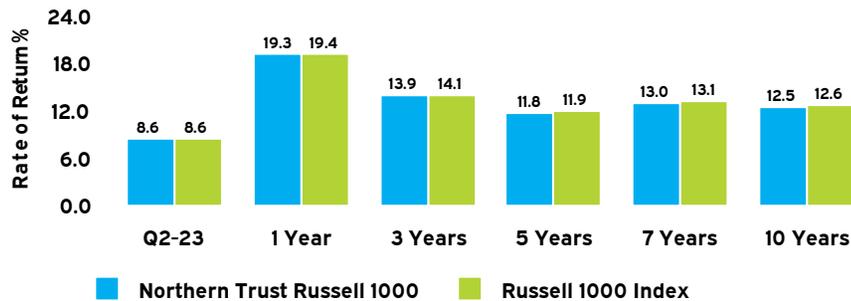
	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
■ OPFRS Total Plan	3.3 (44)	7.9 (39)	8.5 (49)	6.3 (73)	5.3 (78)	7.1 (49)
● OPFRS Policy Benchmark	4.0 (18)	9.1 (21)	10.4 (27)	6.2 (77)	5.5 (73)	7.1 (49)
5th Percentile	4.7	10.5	12.4	9.4	7.5	8.2
1st Quartile	3.7	8.8	10.5	8.4	6.7	7.6
Median	3.1	7.3	8.5	7.5	6.3	7.0
3rd Quartile	2.5	6.3	7.0	6.3	5.4	6.5
95th Percentile	1.3	3.6	4.8	5.0	4.7	5.9
Population	82	82	82	82	80	71

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.

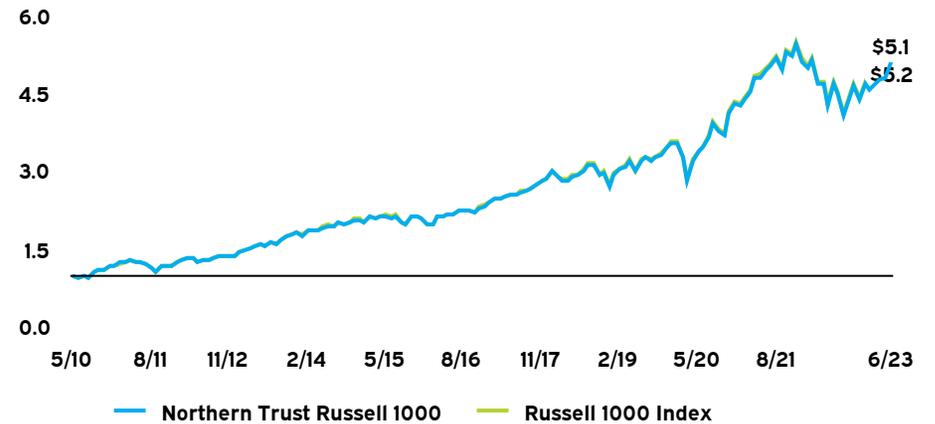
Portfolio Characteristics & Manager Profiles

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
Northern Trust Russell 1000	0.00	1.00	-0.65	0.88	0.01	1.00	99.85	-
Russell 1000 Index	0.00	1.00	-	0.88	0.00	1.00	100.00	-

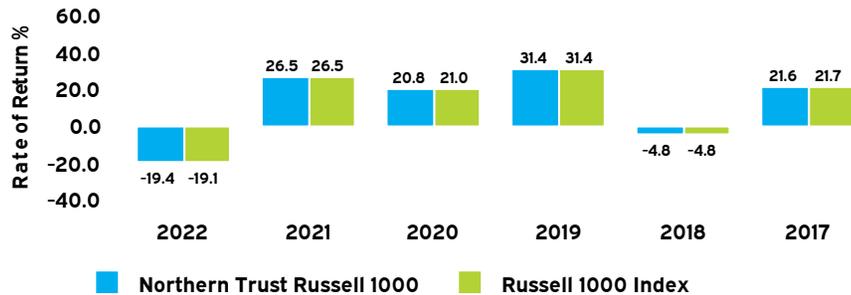
Trailing Performance (Net of Fees)



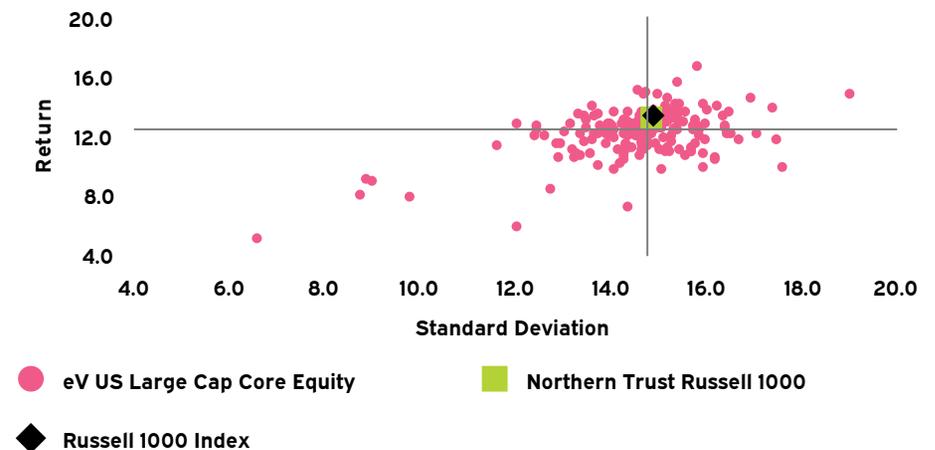
Growth of \$1 - Since Inception



Calendar Year Returns (Net of Fees)



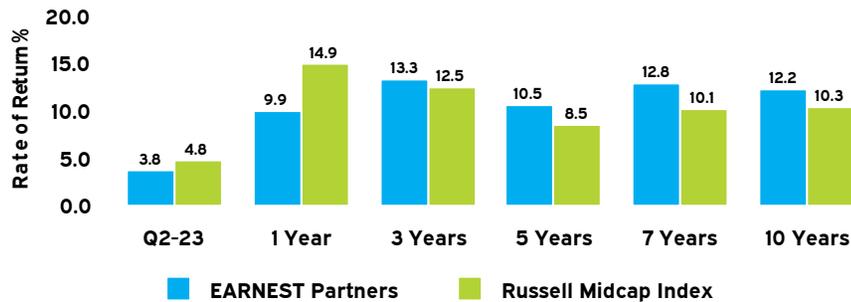
Risk/Return - Since Inception



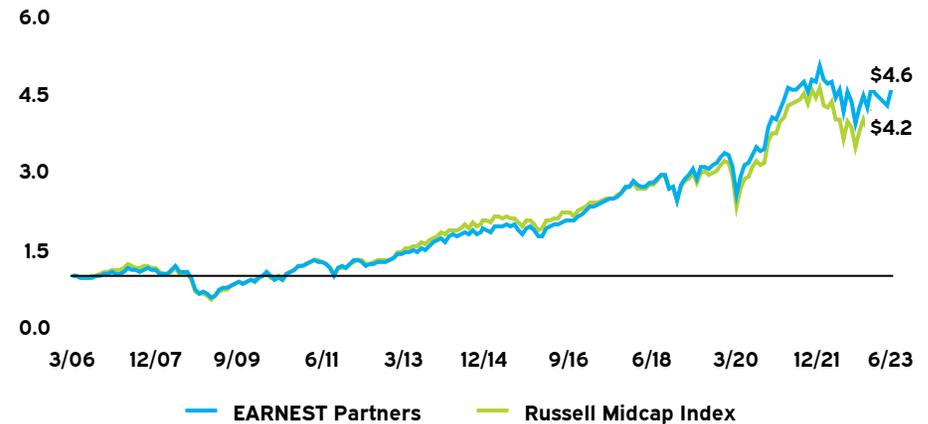
	Anlzd Return	Anlzd Standard Deviation
Northern Trust Russell 1000	8.57	2.79
Russell 1000 Index	8.58	2.80

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
EARNEST Partners	-0.15	0.90	-0.39	0.22	0.81	0.98	90.12	103.92
Russell Midcap Index	0.00	1.00	-	0.27	0.00	1.00	100.00	100.00

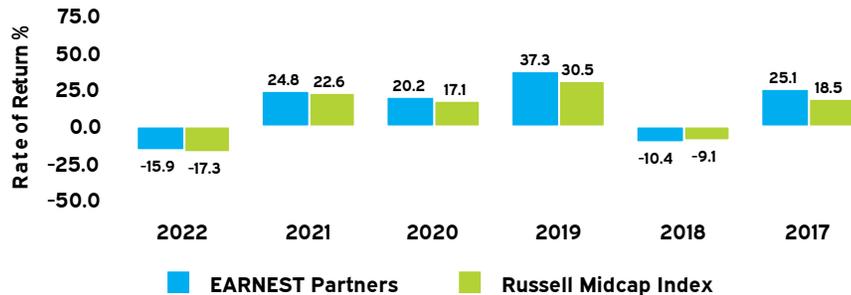
Trailing Performance (Net of Fees)



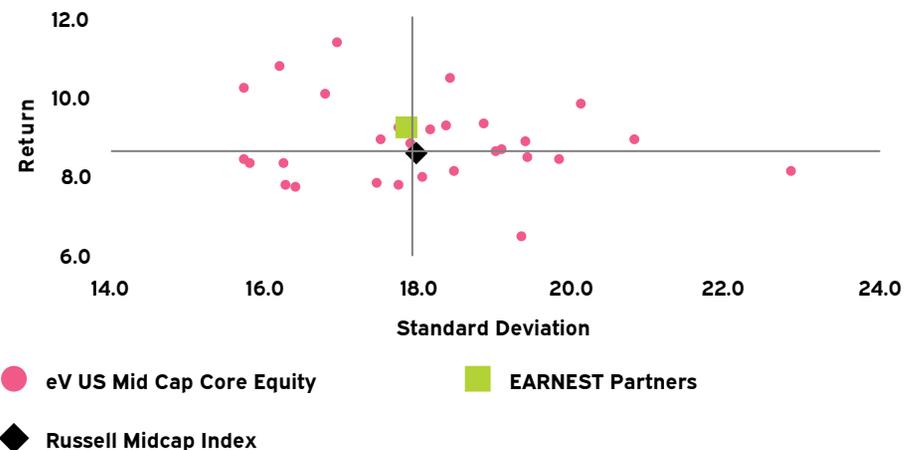
Growth of \$1 - Since Inception



Calendar Year Returns (Net of Fees)



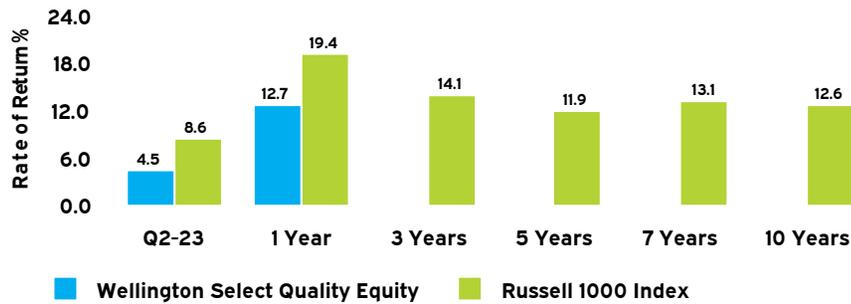
Risk/Return - Since Inception



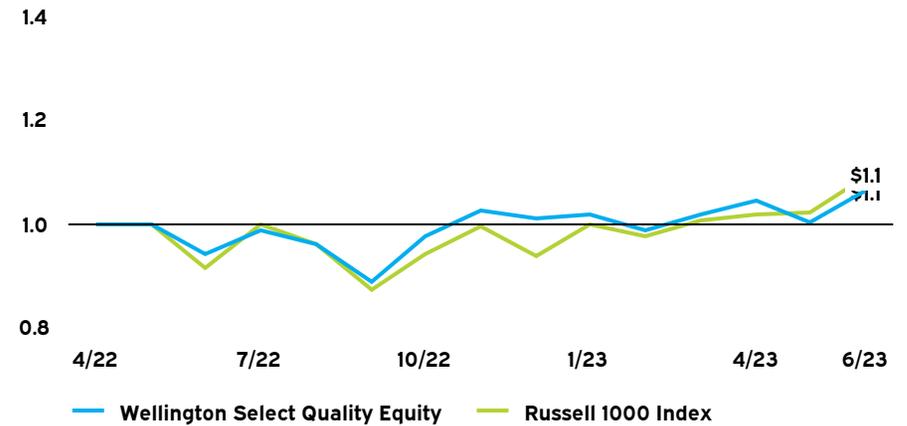
	Anlzd Return	Anlzd Standard Deviation
EARNEST Partners	3.84	4.36
Russell Midcap Index	4.76	4.81

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
Wellington Select Quality Equity	-1.78	1.19	-0.52	0.29	2.41	0.67	55.57	-
Russell 1000 Index	0.00	1.00	-	0.88	0.00	1.00	100.00	-

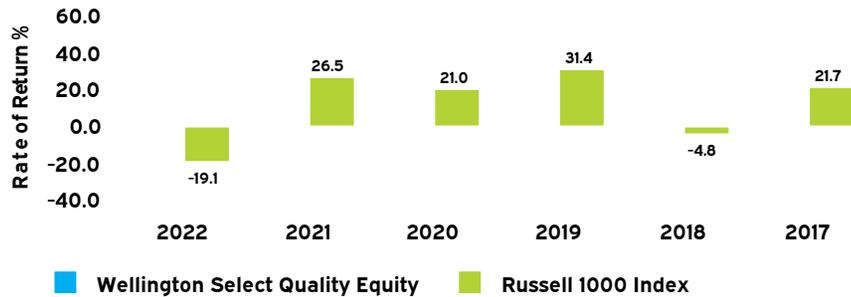
Trailing Performance (Net of Fees)



Growth of \$1 - Since Inception



Calendar Year Returns (Net of Fees)



Risk/Return - Since Inception

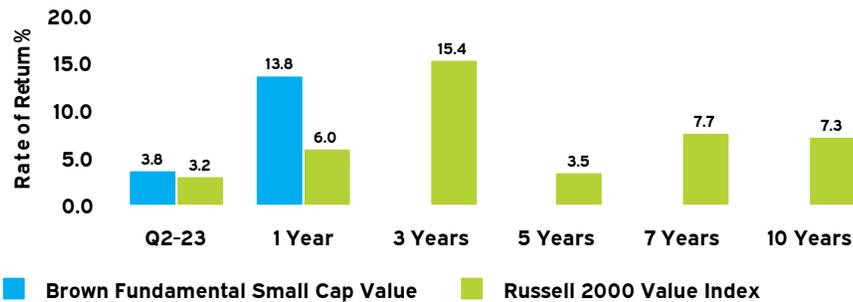


	Anlzd Return	Anlzd Standard Deviation
Wellington Select Quality Equity	4.52	4.07
Russell 1000 Index	8.58	2.80

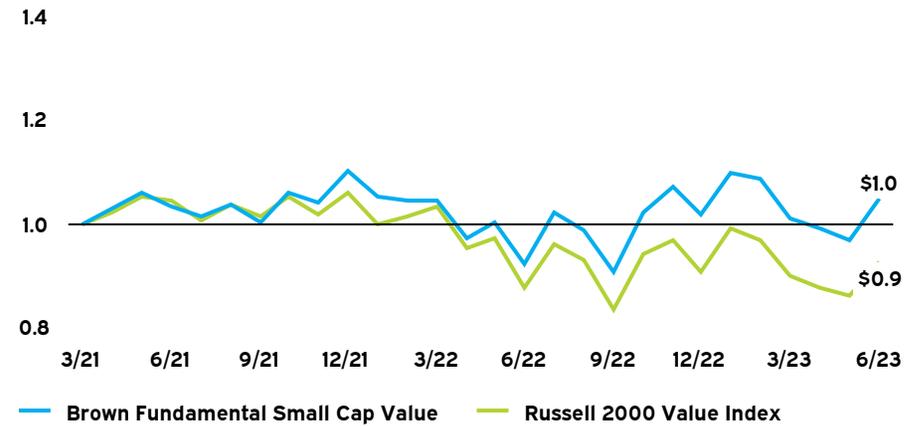
Brown Fundamental Small Cap Value | As of June 30, 2023

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
Brown Fundamental Small Cap Value	0.15	1.06	0.36	0.20	0.61	0.99	108.19	99.89
Russell 2000 Value Index	0.00	1.00	-	0.16	0.00	1.00	100.00	100.00

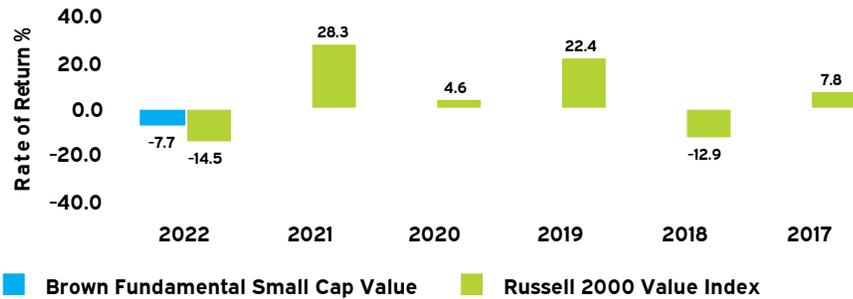
Trailing Performance (Net of Fees)



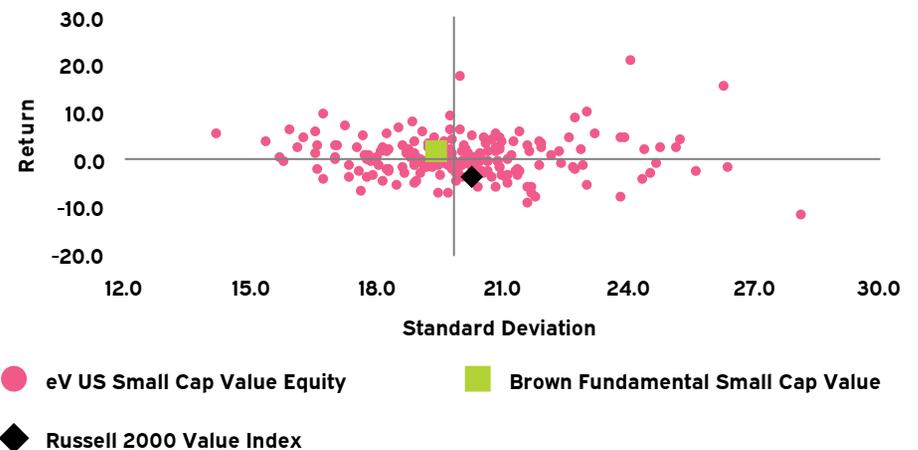
Growth of \$1 - Since Inception



Calendar Year Returns (Net of Fees)



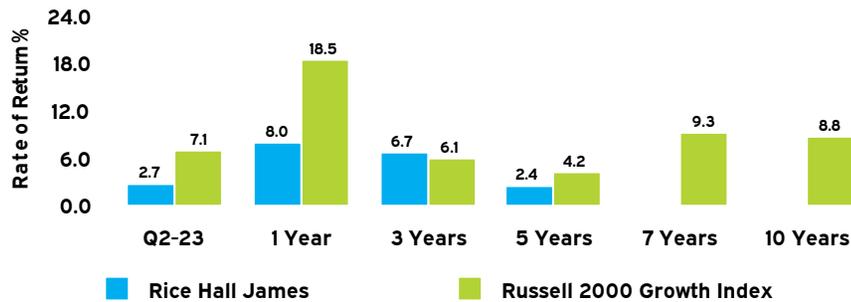
Risk/Return - Since Inception



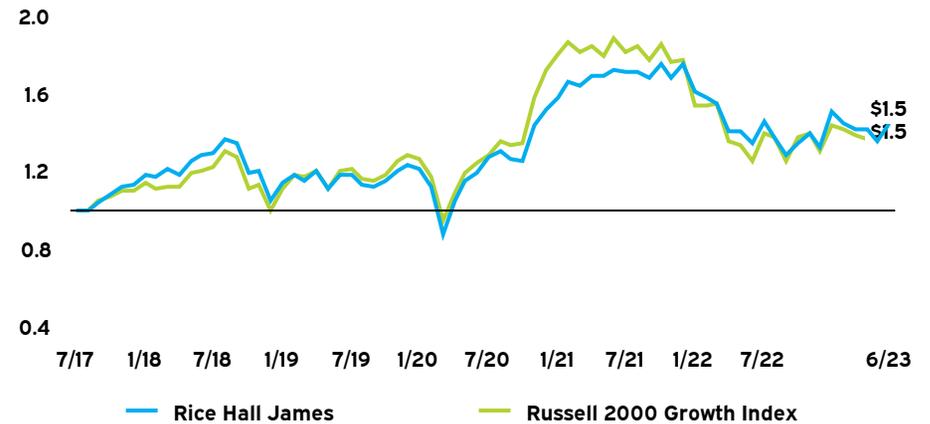
	Anlzd Return	Anlzd Standard Deviation
Brown Fundamental Small Cap Value	3.81	5.11
Russell 2000 Value Index	3.18	4.80

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
Rice Hall James	-1.19	0.92	-0.54	0.14	2.53	0.71	29.38	-50.63
Russell 2000 Growth Index	0.00	1.00	-	0.48	0.00	1.00	100.00	100.00

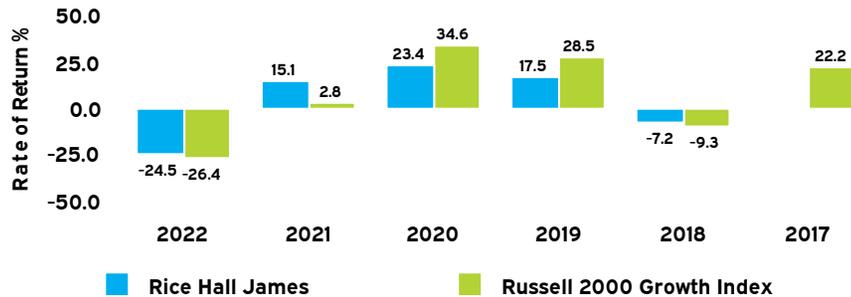
Trailing Performance (Net of Fees)



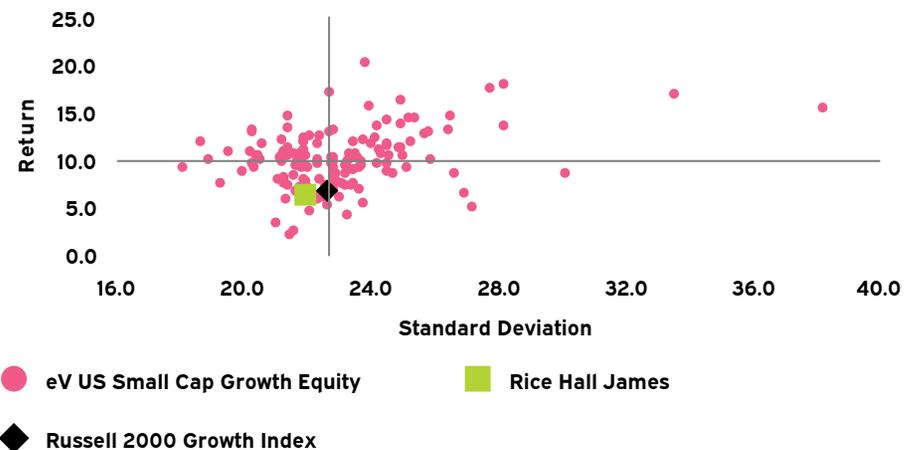
Growth of \$1 - Since Inception



Calendar Year Returns (Net of Fees)



Risk/Return - Since Inception



	Anlzd Return	Anlzd Standard Deviation
Rice Hall James	2.74	4.63
Russell 2000 Growth Index	7.05	4.21

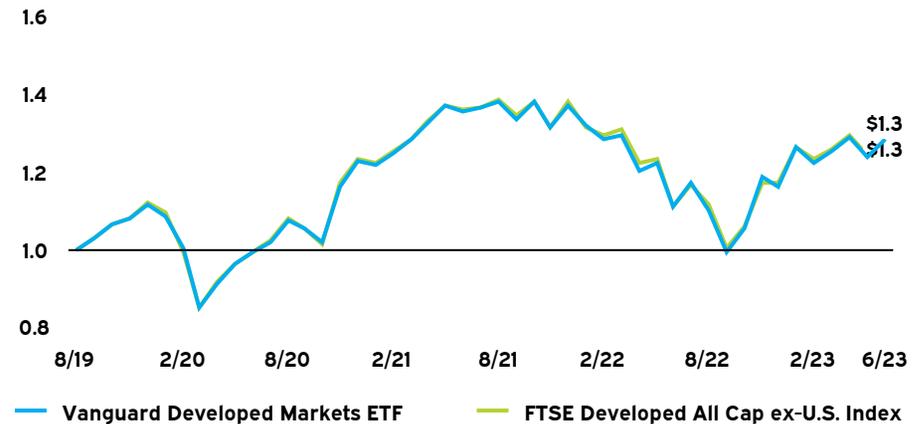
Vanguard Developed Markets ETF | As of June 30, 2023

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
Vanguard Developed Markets ETF	-0.21	0.91	-0.66	0.13	0.47	0.99	86.29	98.79
FTSE Developed All Cap ex-U.S. Index	0.00	1.00	-	0.20	0.00	1.00	100.00	100.00

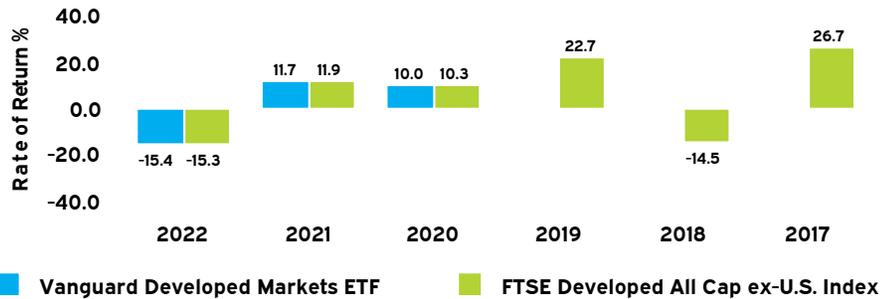
Trailing Performance (Net of Fees)



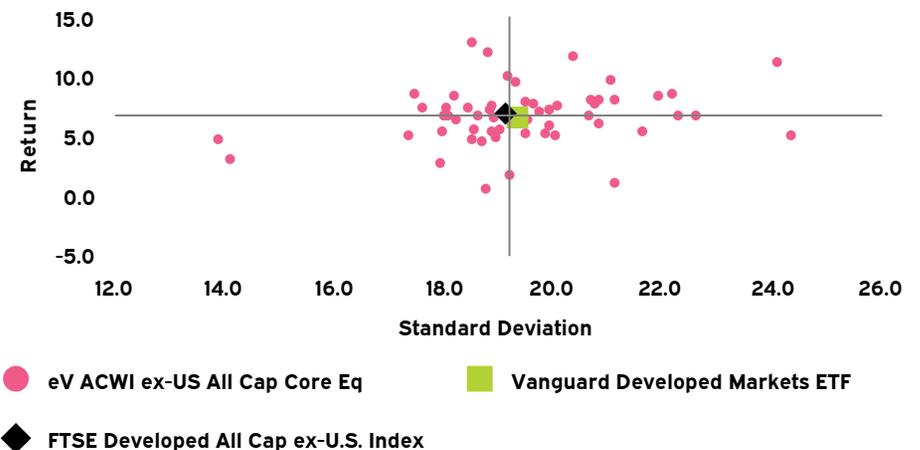
Growth of \$1 - Since Inception



Calendar Year Returns (Net of Fees)



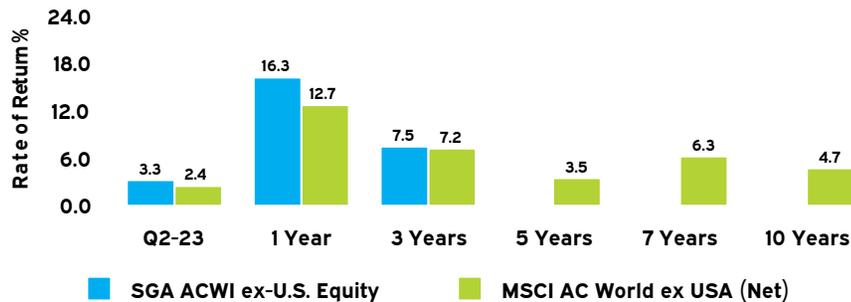
Risk/Return - Since Inception



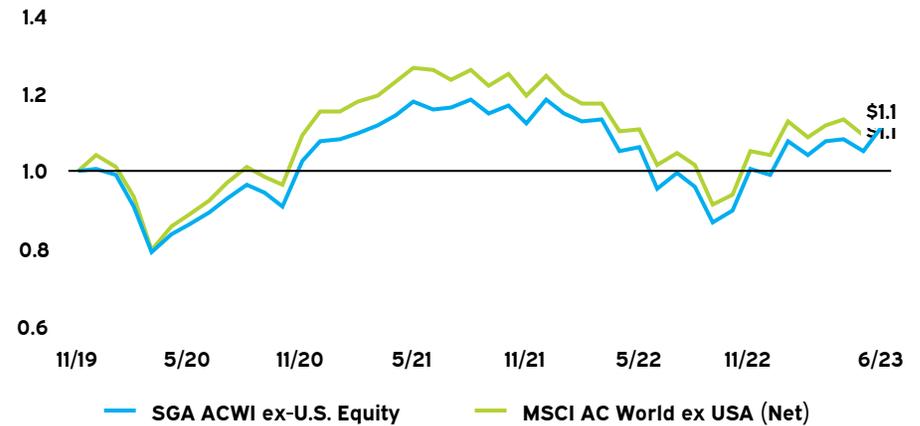
	Anlzd Return	Anlzd Standard Deviation
Vanguard Developed Markets ETF	2.24	3.22
FTSE Developed All Cap ex-U.S. Index	3.15	3.53

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
SGA ACWI ex-U.S. Equity	0.24	1.05	0.29	0.21	0.96	0.93	105.81	86.58
MSCI AC World ex USA (Net)	0.00	1.00	-	0.14	0.00	1.00	100.00	100.00

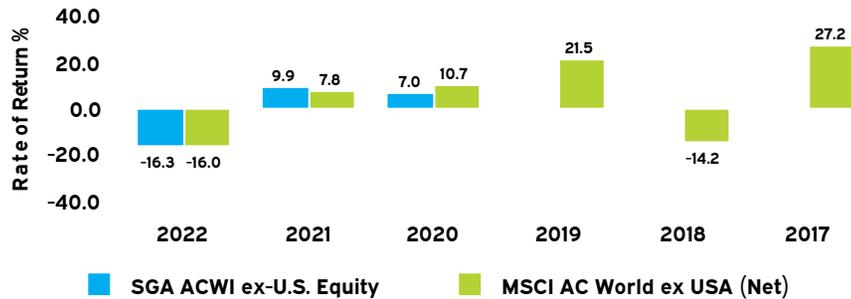
Trailing Performance (Net of Fees)



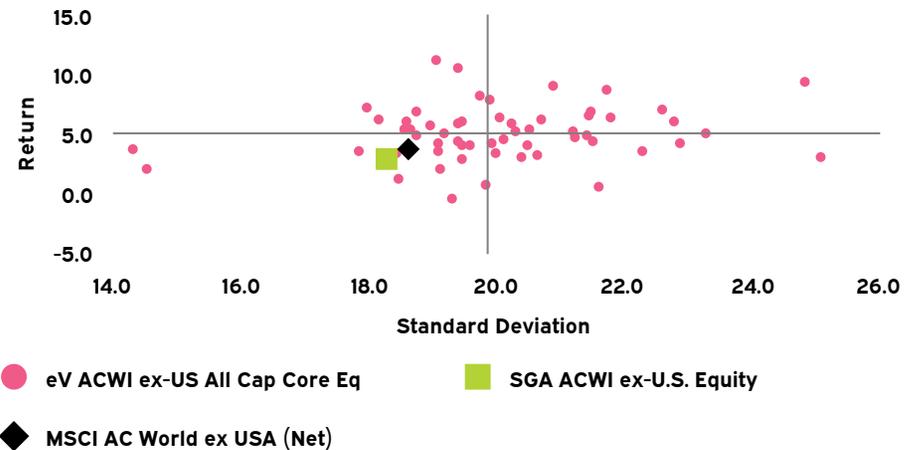
Growth of \$1 - Since Inception



Calendar Year Returns (Net of Fees)



Risk/Return - Since Inception



	Anlzd Return	Anlzd Standard Deviation
SGA ACWI ex-U.S. Equity	3.27	3.68
MSCI AC World ex USA (Net)	2.44	3.37

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

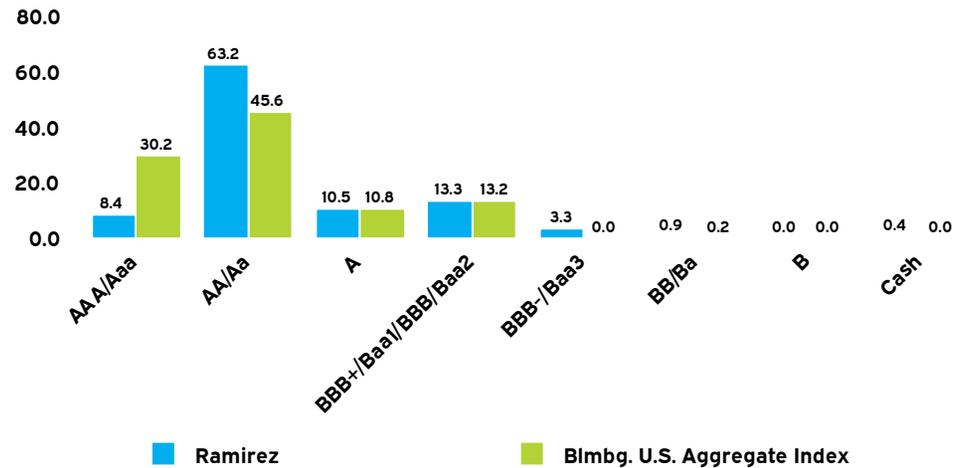
Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Ramirez	-0.6	2.6	-0.4	-2.8	1.0
Blmbg. U.S. Aggregate Index	-0.8	2.1	-0.9	-4.0	0.8

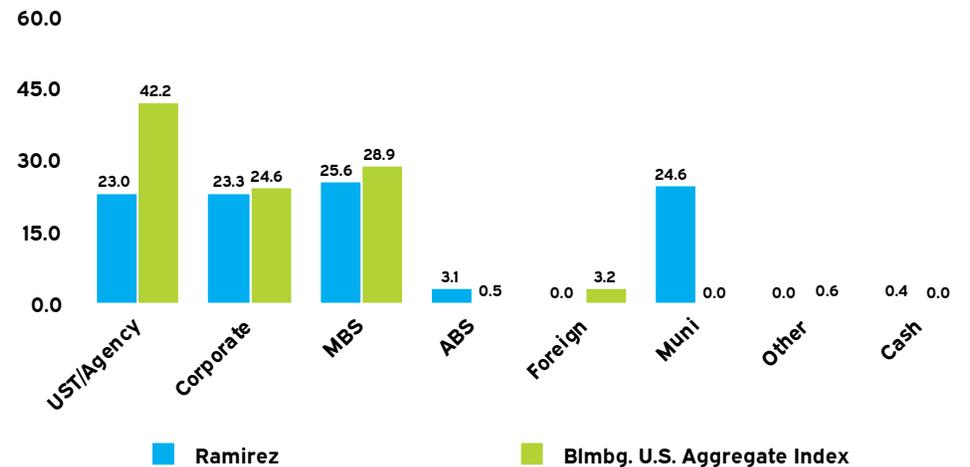
Portfolio Fixed Income Characteristics

	Q2-23 Portfolio	Q1-23 Portfolio
Yield To Maturity	5.1	4.8
Average Duration	6.1	6.0
Average Quality	AA	AA/Aa
Weighted Average Maturity	9.2	9.2

Credit Quality Allocation



Sector Allocation



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

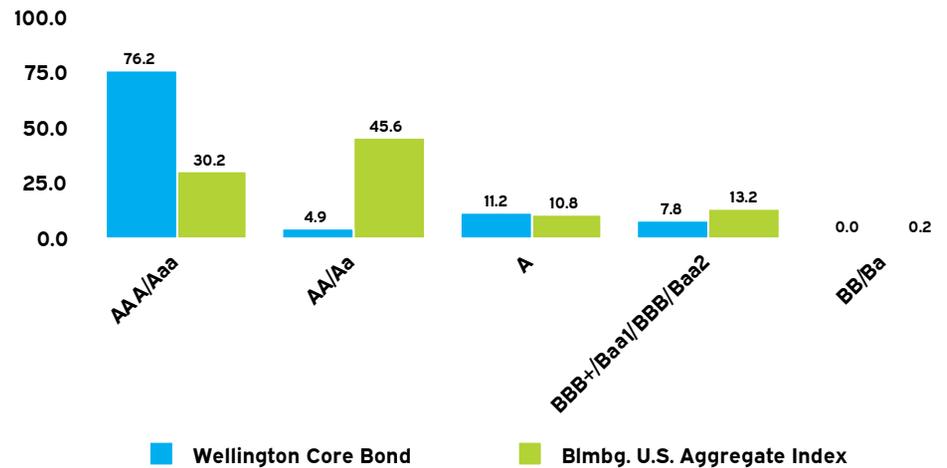
Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Wellington Core Bond	-0.6	3.0	-0.2	-	-
Blmbg. U.S. Aggregate Index	-0.8	2.1	-0.9	-4.0	0.8

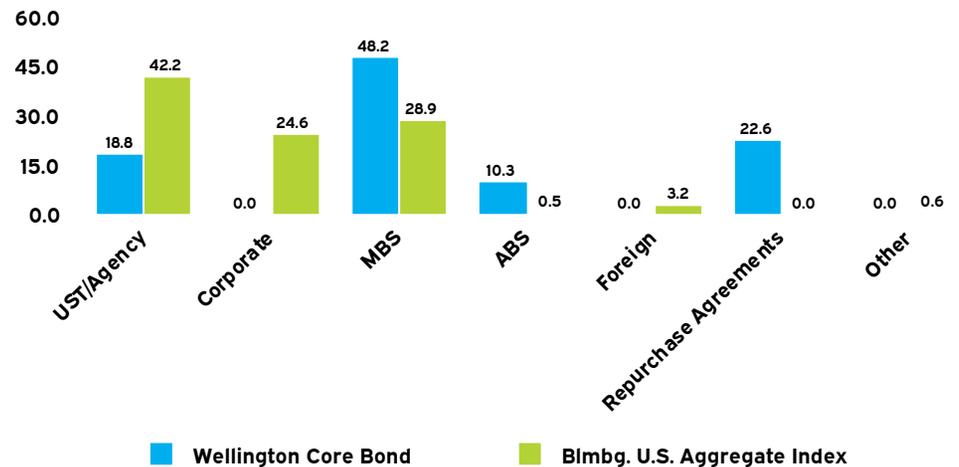
Portfolio Fixed Income Characteristics

	Q2-23 Portfolio	Q1-23 Portfolio
Yield To Maturity	5.3	4.8
Average Duration	6.8	6.9
Average Quality	AA	AA/Aa
Weighted Average Maturity	7.1	-

Credit Quality Allocation



Sector Allocation



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

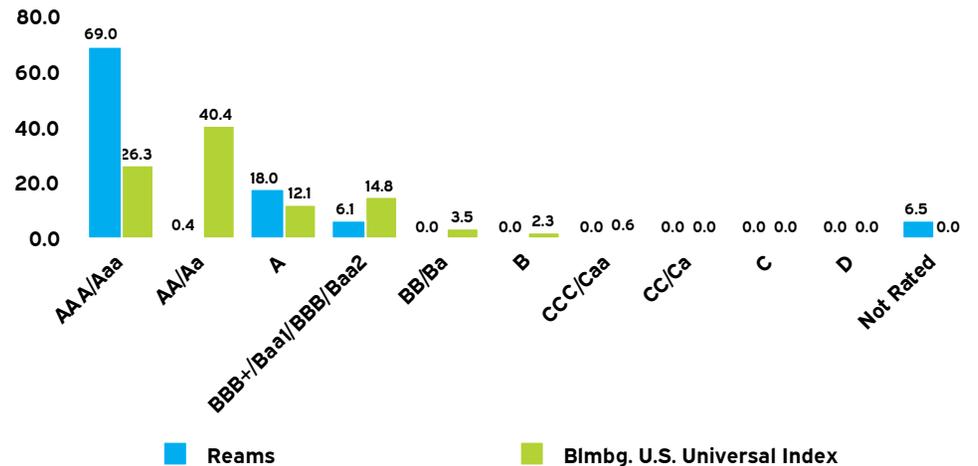
Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Reams	-0.5	3.1	1.1	-2.5	3.4
Bloomberg U.S. Universal Index	-0.6	2.3	0.0	-3.4	1.0

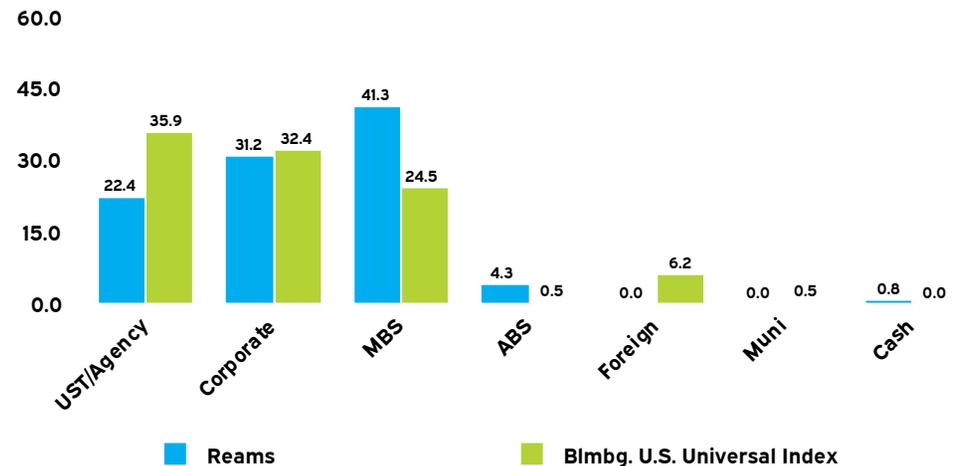
Portfolio Fixed Income Characteristics

	Q2-23 Portfolio	Q1-23 Portfolio
Yield To Maturity	5.5	5.4
Average Duration	6.7	6.4
Average Quality	AA	AA/Aa
Weighted Average Maturity	-	-

Credit Quality Allocation



Sector Allocation



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

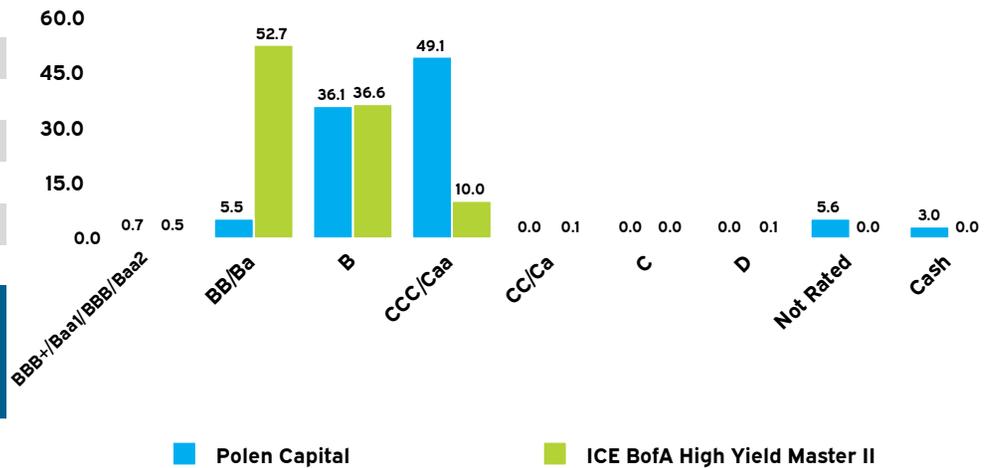
Portfolio Performance Summary

	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Polen Capital	3.3	6.9	8.2	7.2	3.3
ICE BofA High Yield Master II	1.6	5.4	8.9	3.2	3.2

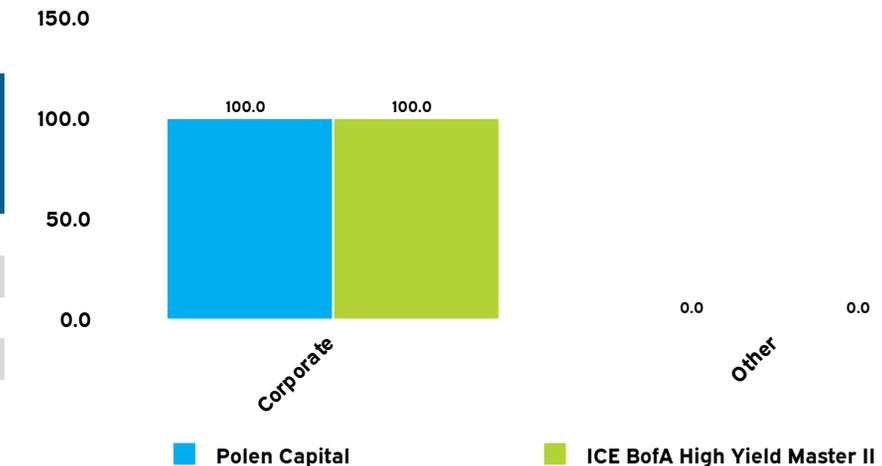
Portfolio Fixed Income Characteristics

	Q2-23 Portfolio	Q1-23 Portfolio
Yield To Maturity	11.0	11.8
Average Duration	1.8	1.8
Average Quality	BBB	CCC/Caa
Weighted Average Maturity	-	-

Credit Quality Allocation



Sector Allocation



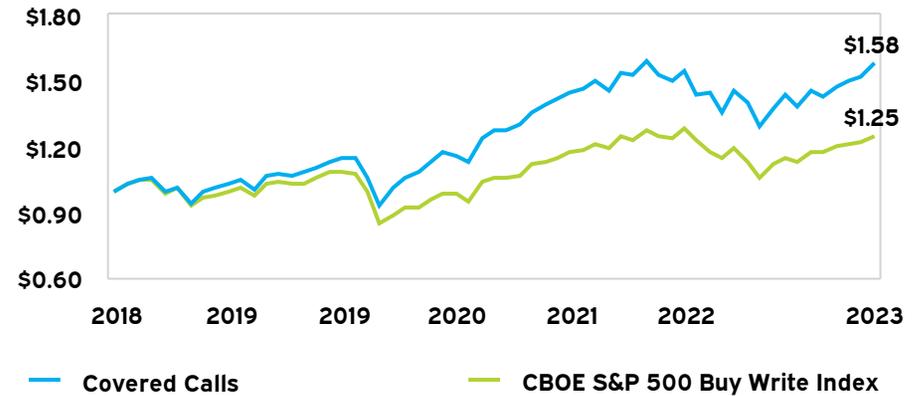
Covered Calls | As of June 30, 2023

	Return	Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Capture	Down Capture	Inception Date
Covered Calls	8.9	11.6	3.0	1.0	0.8	4.0	122.6	105.4	04/01/2014
CBOE S&P 500 Buy Write Index	5.7	10.6	0.0	1.0	-	0.0	100.0	100.0	
Parametric BXM	7.1	9.5	2.1	0.9	0.4	3.2	99.0	87.0	04/01/2014
CBOE S&P 500 Buy Write Index	5.7	10.6	0.0	1.0	-	0.0	100.0	100.0	
Parametric DeltaShift	10.9	13.9	4.2	1.2	0.8	6.2	145.3	121.0	04/01/2014
CBOE S&P 500 Buy Write Index	5.7	10.6	0.0	1.0	-	0.0	100.0	100.0	

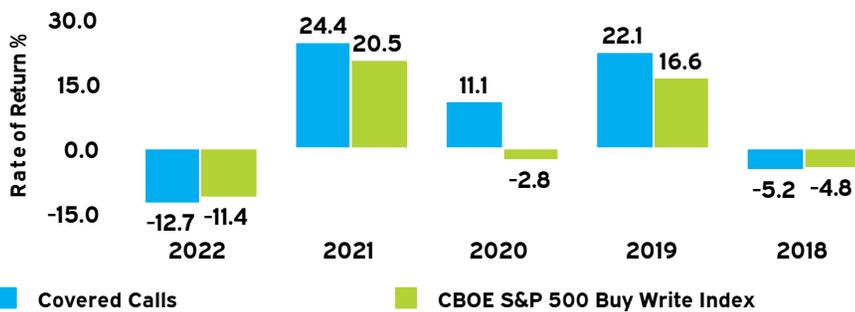
Trailing Period Performance



Growth of a Dollar



Calendar Year Performance



Crisis Risk Offset | As of June 30, 2023

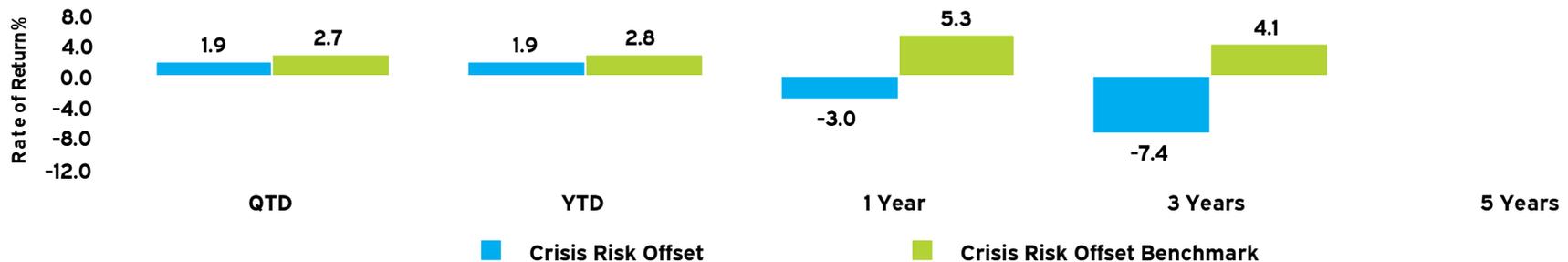
	Return	Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Capture	Down Capture	Inception Date
Crisis Risk Offset	-8.2	11.5	-7.7	0.8	-0.8	10.7	24.3	134.5	08/01/2018
Crisis Risk Offset Benchmark	0.1	5.4	0.0	1.0	-	0.0	100.0	100.0	
Kepos Alternative Risk Premia	3.3	6.0	-0.3	0.7	-0.4	5.0	73.9	82.6	02/01/2022
SG Multi Alternative Risk Premia Index	5.3	5.2	0.0	1.0	-	0.0	100.0	100.0	
Versor Trend Following	2.9	17.4	-4.1	1.2	-0.4	7.0	98.3	116.4	04/01/2022
SG Trend Index	6.6	13.9	0.0	1.0	-	0.0	100.0	100.0	
Vanguard Long-Term Treasury ETF	-4.1	14.6	-0.1	1.0	-0.1	1.2	101.9	102.3	07/01/2019
Blmbg. U.S. Government: Long Term Bond Index	-3.9	14.3	0.0	1.0	-	0.0	100.0	100.0	

Correlation Matrix

3 Months Ending June 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	1.00	1.00		
S&P 500 Index	0.93	0.89	1.00	
Blmbg. Global Aggregate	0.78	0.83	0.50	1.00

Trailing Period Performance



Benchmark History		
From Date	To Date	Benchmark
OPFRS Total Plan		
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
Domestic Equity		
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
International Equity		
01/01/2005	Present	100.0% MSCI AC World ex USA (Net)
01/01/1998	01/01/2005	100.0% MSCI EAFE Index
Fixed Income		
04/01/2006	Present	100.0% Blmbg. U.S. Universal Index
01/01/1976	04/01/2006	100.0% Blmbg. U.S. Aggregate Index
Covered Calls		
03/01/2014	Present	CBOE S&P 500 Buy Write Index
Crisis Risk Offset		
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
Cash		
03/01/2011	Present	FTSE 3 Month T-Bill

Manager Monitoring / Probation Status

Manager Monitoring / Probation Status

Managers on Watch

- The following managers have breached the short-term investment performance criteria as of June 30, 2023.

Manager	Asset Class	Short-term Criteria	Medium-term Criteria	Long-term Criteria	Recommend Probation?
EARNEST Partners	Active Domestic Equity	Breached	Passed	Passed	No
Wellington Select Quality Equity	Active Domestic Equity	Breached	Not enough history	Not enough history	No
Rice Hall James	Active Domestic Equity	Breached	Passed	Passed	No

Managers on Probation Status

There are no managers currently on probation.

Investment Performance Criteria for Manager Monitoring / Probation Status

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 ¹ < 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

¹ VRR (Value Relative Ratio) is calculated as manager cumulative return/ benchmark cumulative return.

Additional Information

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

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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.