



AGENDA REPORT

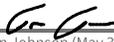
TO: Jestin D. Johnson
City Administrator

FROM: Erin Roseman
Finance Director

SUBJECT: Oakland PFRS's Investment Portfolio
as of March 31, 2024

DATE: May 13, 2024

City Administrator Approval


Jestin Johnson (May 30, 2024 23:21 PDT)

Date: May 30, 2024

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 March 31, 2024.

EXECUTIVE SUMMARY

The attached Quarterly Investment Performance report (**Attachment A**), provided by the Oakland Police and Fire Retirement System (PFRS) Investment Consultant, Meketa Investment Group (MIG), summarizes the performance of the PFRS investment portfolio for the quarter ended March 31, 2024.

During the most recent quarter, the PFRS Total Portfolio generated an absolute return of 5.0 percent, gross of fees, underperforming its policy benchmark by -0.3 percent. The portfolio also underperformed its benchmark over the latest one-year period, three-year period, and five-year period. This is discussed in more detail in the "Investment Performance" section of this report.

	Quarter	1 Year	3 Year	5 Year
Total Portfolio	5.0	14.3	4.3	7.2
Policy Benchmark	5.2	15.4	4.5	7.3
Excess Return	-0.2	-1.1	-0.2	-0.1

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 March 31, 2024, PFRS had 631 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 a variety of 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 according to 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, 2023, the System's Unfunded Actuarial Liability is approximately \$97.0 million, and the System had a Funded Ratio of 81.4 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 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, policymakers, retirees, and stakeholders. At the same time, the annual audits of the PFRS finances assures 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 March 31, 2024, the System's membership was 631, as shown in **Table 1** below.

Table 1			
PFRS Membership as of March 31, 2024			
Membership	POLICE	FIRE	TOTAL
Retiree	265	152	417
Beneficiary	127	87	214
Total Membership	392	239	631

PFRS Investment Portfolio

As of March 31, 2024, the PFRS' portfolio had an aggregate value of \$454.46 million, as shown in **Table 2**.

Table 2	
PFRS Investment Portfolio as of March 31, 2024	
Investment	Fair Value
Domestic Equities	\$195,208,695
Fixed Income	107,560,917
Covered Calls	25,275,663
International Equities	59,984,511
Crisis Risk Offset	40,716,178
Credit	9,984,458
Cash	15,725,267
Total Portfolio	\$454,455,689

As of March 31, 2024, the PFRS portfolio had an aggregate value of \$454.46 million. This represents a \$21.48 million increase 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 \$56.97 million after drawdowns of \$13.7 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 \$13.2 million for the Quarter and \$40.7 million for the fiscal year.

Table 3
 Change in PFRS Portfolio Valuation
 as of March 31, 2024

Total Plan Value	1 Quarter	1 Year
Beginning Market Value	\$ 435,955,522	\$ 411,182,049
Investment Drawdowns for Benefit Payments	-2,977,698	-13,700,230
Gain/(Loss) on Investment	21,477,865	56,973,870
Ending Market Value	\$ 454,455,689	\$ 454,455,689

PFRS Investment Performance

During the most recent quarter ending March 31, 2024, the PFRS Total Portfolio generated an absolute return of 5.0 percent, gross of fees, underperforming its policy benchmark by -0.2 percent. The portfolio also underperformed with the benchmark over the one-year, three-year, and five-year periods.

Over the most recent quarter ending March 31, 2024, the Plan's Domestic Equity allocation underperformed its benchmark by -1.7 percent. The Plan's International Equity allocation outperformed its benchmark by 1.9 percent. The Plan's Fixed Income allocation outperformed its benchmark of 0.1 percent. The Plan's Credit allocation outperformed its benchmark by 1.6 percent. The Plan's Crisis Risk Offset allocation underperformed its benchmark by -2.0 percent, while the Covered Calls allocation outperformed its benchmark by 0.3 percent. **Table 4** below shows PFRS's recent investment performance in comparison to its corresponding benchmarks.

Table 4
 PFRS Asset Class Performance
 as of March 31, 2024

Investment Type	Quarter	1 Year	3 Year	5 Year
PFRS Total Fund	5.0	14.3	4.3	7.2
PFRS Policy Benchmark	5.2	15.4	4.5	7.3
Excess Returns	-0.2	-1.1	-0.2	-0.1
PFRS Domestic Equity	8.3	23.9	8.1	12.8
Benchmark: Russell 3000	10.0	29.3	9.8	14.3
Excess Returns	-1.7	-5.4	-1.7	-1.5

Table 4				
PFRS Asset Class Performance				
As of March 31, 2024, <i>cont'd</i>				
Investment Type	Quarter	1 Year	3 Year	5 Year
PFRS International Equity	6.6	17.9	5.0	8.1
Benchmark: MSCI ACWI Ex US (Net)	4.7	13.3	1.9	6.0
Excess Returns	1.9	4.6	3.1	2.1
PFRS Fixed Income	-0.4	2.4	-1.8	0.9
Benchmark: Bloomberg US Universal	-0.5	2.7	-2.1	0.7
Excess Returns	0.1	-0.3	0.3	0.2
PFRS Credit	3.1	12.7	4.5	5.2
Benchmark: Bloomberg US Corp High Yield	1.5	11.2	2.2	4.2
Excess Returns	1.6	1.5	2.3	1.0
PFRS Crisis Risk Offset	3.4	4.5	-0.6	-7.1
Benchmark: Crisis Risk Offset Benchmark	5.4	7.8	5.5	0.8
Excess Returns	-2.0	-3.3	-6.1	-7.9
PFRS Covered Calls	6.3	20.4	9.5	11.7
Benchmark: CBOE S&P 500 Buy Write	6.0	11.9	6.2	5.9
Excess Returns	0.3	8.5	3.3	5.8
Cash	0.0	0.0	0.0	0.6
Benchmark: ICE BofA 3 Month U.S. T-Bill	1.3	5.2	2.6	2.0
Excess Returns	-1.3	-5.2	-2.6	-1.4
<p>Note: Investment returns are gross of fees. Crisis Risk Offset Benchmark is composed of 100% SG Multi Alternative Risk Premia Index through 12/31/2022; 33.34% SG Trend Index, 33.33% SG Multi Alternative Risk Premia Index, and 33.33% Bloomberg US Government Long Term Bond Index thereafter.</p>				

Table 5 compares PFRS Total Portfolio performance to other pension funds and benchmarks.

Table 5				
PFRS Total Fund Performance as of March 31, 2024				
	Quarter	1 Year	3 Year	5 Year
PFRS Fund (Gross of Fees)	5.0	14.3	4.3	7.2
Comparisons:				
PFRS Actuarial Expected Rate of Return (blend) (a) (b)	1.5	6.0	6.0	6.0
Policy Benchmark (blend) (c)	5.2	15.4	4.5	7.3
Median Fund (d)	4.6	13.6	4.4	8.1
CalSTRS Investment Returns (Gross of Fees)	---	---	---	---
East Bay MUD Investment Returns (Gross of Fees)	4.7	14.6	4.9	8.0
San Joaquin County ERA Investment Returns (Gross of Fees)	4.4	11.0	5.8	7.3
<p>a) 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 12/31/2017, and 6.0% currently.</p> <p>b) The quarterly actuarial expected rate of return is calculated based on the 6.0% annual return assumption.</p> <p>c) The Policy Benchmark currently consists of 40% Russell 3000, 12% MSCI ACWI ex US (Net), 31% Bloomberg US Universal, 2% Bloomberg US Corp. High Yield, 5% CBOE S&P 500 Buy Write Index (BXM), 10% Crisis Risk Offset Benchmark since 1/1/ 2019. Crisis Risk Offset Benchmark is composed of 100% SG Multi Alternative Risk Premia Index through 12/31/2022; 33.34% SG Trend Index, 33.33% SG Multi Alternative Risk Premia Index, and 33.33% Bloomberg US Government Long Term Bond Index thereafter.</p> <p>d) Median Fund is of Public Defined Benefits Plans with \$250 million to \$1 billion in assets.</p> <p>e) CalSTRS Investment Returns data is not available yet.</p>				

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).

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 of 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 City Council Receive an Informational Report on the Oakland Police and Fire Retirement System's ("PFRS", or "System") Investment Portfolio as of March 31, 2024.

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

Respectfully submitted,



Erin Roseman (May 30, 2024 11:05 PDT)

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 March 31, 2024

ATTACHMENT A:

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

Oakland Police and Fire Retirement System

Quarterly Performance Report
as of March 31, 2024

Agenda

1. Executive Summary
2. Economic and Market Update as of March 31, 2024
3. Quarterly Performance as of March 31, 2024
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 \$454.5 million in assets after net cash flows including monthly benefit payments. All asset classes were within their acceptable target allocation ranges¹ except for Fixed Income, which was slightly outside of its lower target limit at the end of the quarter.

Cash Flow Summary (\$ Millions)	Quarter	1 Year
Beginning Market Value	436.0	411.2
Net Cash Flows (including Benefit Payments)	-3.0	-13.7
Net Investment Change (Gain/Loss)	21.5	57.0
Ending Market Value	454.5	454.5

Investment Performance²

	QTD	FYTD	1 Year	3 Year	5 Year
Total Plan (Gross)	5.0	10.6	14.3	4.3	7.2
Total Plan (Net)	4.9	10.3	13.9	4.0	6.9
<i>Policy Benchmark</i>	<i>5.2</i>	<i>11.0</i>	<i>15.4</i>	<i>4.5</i>	<i>7.3</i>
Excess Return	-0.3	-0.7	-1.5	-0.5	-0.4
<i>Public DB (\$250M-\$1B) Median Fund</i>	<i>4.8</i>	<i>10.0</i>	<i>13.9</i>	<i>4.1</i>	<i>7.8</i>
Total Plan (Net) vs. Peer Median Fund	0.1	0.3	0.1	-0.2	-1.0
<i>Peer Group Percentile Rank</i>	<i>48</i>	<i>40</i>	<i>46</i>	<i>55</i>	<i>80</i>

¹ The allocation targets are those adopted by the board in 2017 Q4. A new asset-liability study was completed and new long-term and interim targets and ranges were adopted in 2024 Q1; these are expected to commence starting July 2024.

² Fiscal year begins on July 1. Peer group is Investment Metrics Public Defined Benefit plans with \$250 million to \$1 billion in assets. The number of peers is about 80-90 portfolios in each time period. Please see the Benchmark History section for the Policy Benchmark's current and historical compositions.

Asset Class and Manager Highlights¹

- **Total Plan** underperformed its Policy Benchmark across all time periods on a net of fee basis.
 - The underperformance during the quarter and over the trailing 1-year period was driven primarily by the Domestic Equity segment as most managers performance lagged the broad market Russell 3000 Index. International Equity and Fixed Income were positive contributors to the Total Plan's relative performance for the quarter and over the trailing 1-year period, partially offsetting Domestic Equity's underperformance.
- **Domestic Equity** underperformed the Russell 3000 Index over all trailing periods. Most active Domestic Equity managers across different styles trailed the broad market Russell 3000 Index over the 1-year period as a select group of companies ("Magnificent Seven") drove returns in 2023. For the quarter, Brown Small Cap Value outperformed its benchmark while all other active managers underperformed their respective benchmarks.
- **International Equity** and its only active manager, SGA, outperformed the MSCI ACWI ex US (Net) for all periods.
- **Fixed Income** slightly outperformed or matched its custom benchmark over most time periods except for the Fiscal YTD and the 1-year period. Among its managers, Ramirez and Wellington outperformed their respective benchmarks across all periods, while Reams underperformed its benchmark over shorter time horizons.
- The **Credit** segment, with Polen Capital as its sole manager, outperformed its underlying benchmark, the Bloomberg US Corporate High Yield Index, for all time periods with the exception of the Fiscal YTD period.
- **Covered Calls**, as well as both the passive BXM and the active DeltaShift strategies, outperformed the CBOE S&P 500 Buy Write Index across almost all periods measured.
- The **Crisis Risk Offset** segment underperformed its custom benchmark over all time periods measured. Kepos Alternative Risk Premia outperformed its benchmark during the quarter and over the 1-year period while Versor Trend Following and Vanguard Long-term Treasury ETF underperformed their respective benchmarks for the same periods.

¹ Fiscal year begins on July 1. Please see the Benchmark History section for the custom benchmarks' current and historical compositions.

Economic and Market Update

Data as of March 31, 2024

Commentary

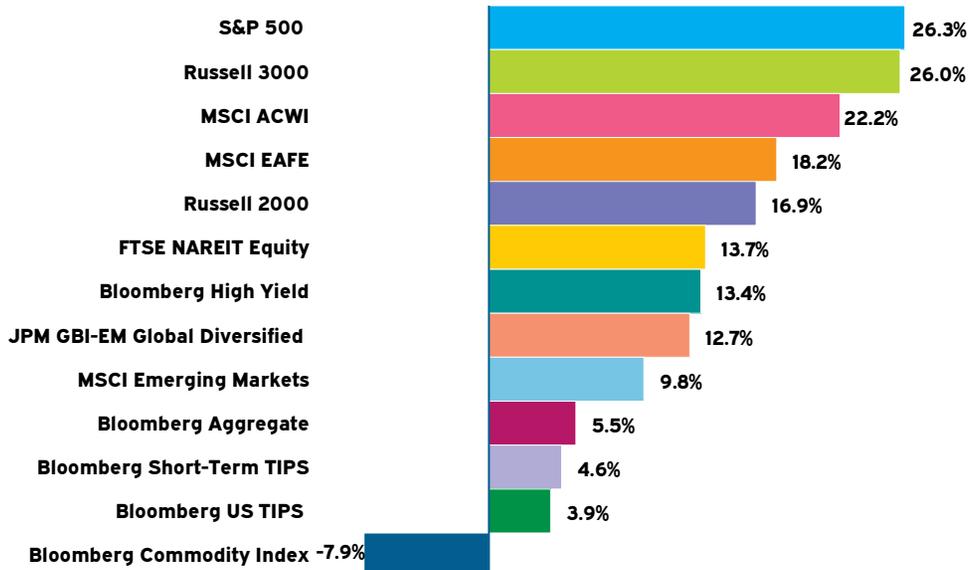
→ Resilient economic data drove global equities higher and pushed out the timing of the expected first Fed rate cut, weighing on bonds.

- Major central banks have largely paused interest rate hikes with expectations that many will still cut rates, but the uneven pace of falling inflation and economic growth could desynchronize the pace of rate cuts.
- In general, inflation pressures have eased in most countries from their pandemic peaks, but some uncertainty remains and levels are still above most central bank targets. Headline inflation in the US rose in March (3.2% to 3.5%) by more than expected, while core inflation was unchanged (3.8%) when it was predicted to decline to 3.7%. Notably, prices in China were up only slightly in March, as the impacts of the recent holiday faded.
- US equity markets (Russell 3000 index) rose 10.0% in the first quarter after a very strong 2023 (+26.0%). The technology sector continued to perform well, with energy gaining on geopolitical tensions.
- Non-US developed equity markets increased 5.8% in the quarter, helped by Japanese equities which hit multi-decade highs. A strengthening US dollar drove the weaker relative results for US investors with returns in local currency terms 4.2% higher (10.0% versus 5.8%).
- Emerging market equities (+2.4%) had the weakest equity returns, depressed by China (-2.2%). While policy efforts to support mainland stock prices helped to stabilize Chinese equities, recent efforts by the US to discourage investments in China weighed on results. The stronger dollar also hurt performance in emerging markets for US investors with returns in local currency terms 2.1% higher.
- Rising interest rates weighed on bonds with the broad US bond market declining 0.8% for the quarter.

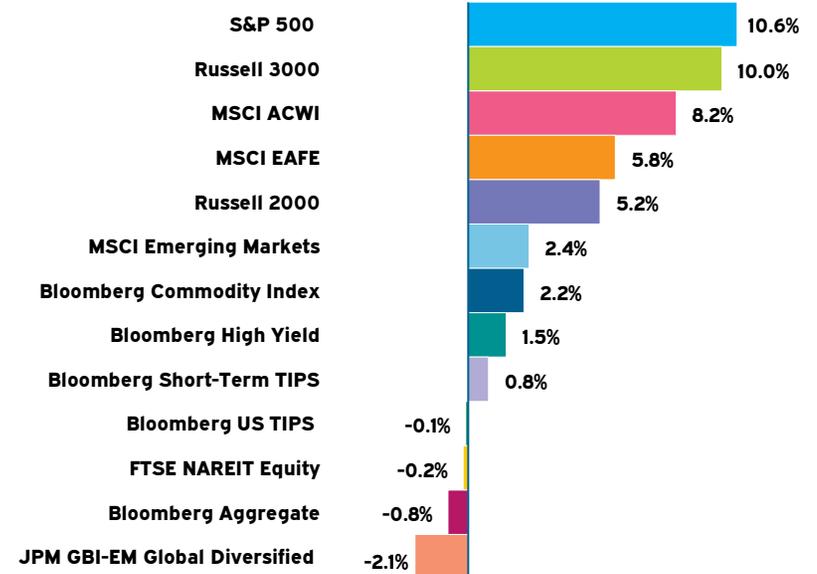
→ Looking to the rest of this year, the paths of inflation and monetary policy, China's economic disorder and slowing economic growth, the many looming elections, and the wars in Ukraine and Israel will be key.

Index Returns¹

2023



Q1 2024



→ In the first quarter, global equity markets continued their strong performance from 2023 with the US leading the way.

→ Resilient economic data weighed on bond markets domestically and dashed hopes of a near-term cut in interest rates.

¹ Source: Bloomberg. Data is as of March 31, 2024.

Domestic Equity Returns¹

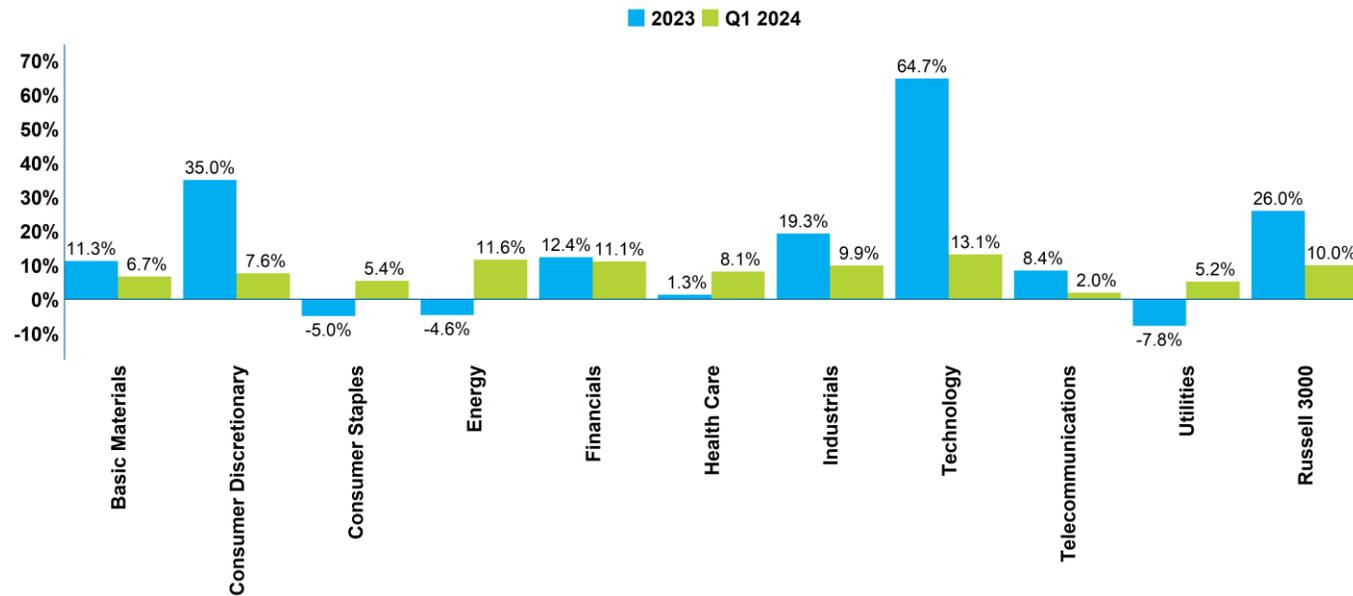
Domestic Equity	March (%)	Q1 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	3.2	10.6	29.9	11.5	15.1	13.0
Russell 3000	3.2	10.0	29.3	9.8	14.3	12.3
Russell 1000	3.2	10.3	29.9	10.5	14.8	12.7
Russell 1000 Growth	1.8	11.4	39.0	12.5	18.5	16.0
Russell 1000 Value	5.0	9.0	20.3	8.1	10.3	9.0
Russell MidCap	4.3	8.6	22.3	6.1	11.1	9.9
Russell MidCap Growth	2.4	9.5	26.3	4.6	11.8	11.4
Russell MidCap Value	5.2	8.2	20.4	6.8	9.9	8.6
Russell 2000	3.6	5.2	19.7	-0.1	8.1	7.6
Russell 2000 Growth	2.8	7.6	20.3	-2.7	7.4	7.9
Russell 2000 Value	4.4	2.9	18.8	2.2	8.2	6.9

US Equities: The Russell 3000 increased an impressive 10.0% in the first quarter of the year.

- US equities continued their ascent after a strong finish to 2023. The gains were driven by strong economic data and corporate earnings, despite signs of interest rates remaining higher for longer.
- Growth stocks outperformed value stocks across the market cap spectrum. Technology stocks continued to be a key driver of results, with NVIDIA and Microsoft alone contributing nearly 30% of the quarter’s gains.
- Large cap stocks produced almost double the return of their small cap peers during the first quarter. The underperformance of small cap financials contributed to this dynamic as fear of further turmoil for regional banks resurfaced.

¹ Source: Bloomberg. Data is as of March 31, 2024.

Russell 3000 Sector Returns¹



- All sectors posted positive returns in the first quarter. The technology sector (13.1%) continued to lead the way due to the influence of the so-called “Magnificent Seven”.
- Technology was followed by energy (11.6%) and financials (11.1%), driven respectively by increased geopolitical tensions and the strong economic environment. Traditionally defensive sectors like consumer staples (5.4%) and utilities (5.2%) joined the rally but trailed other sectors.

¹ Source: Bloomberg. Data is as of March 31, 2024.

Foreign Equity Returns¹

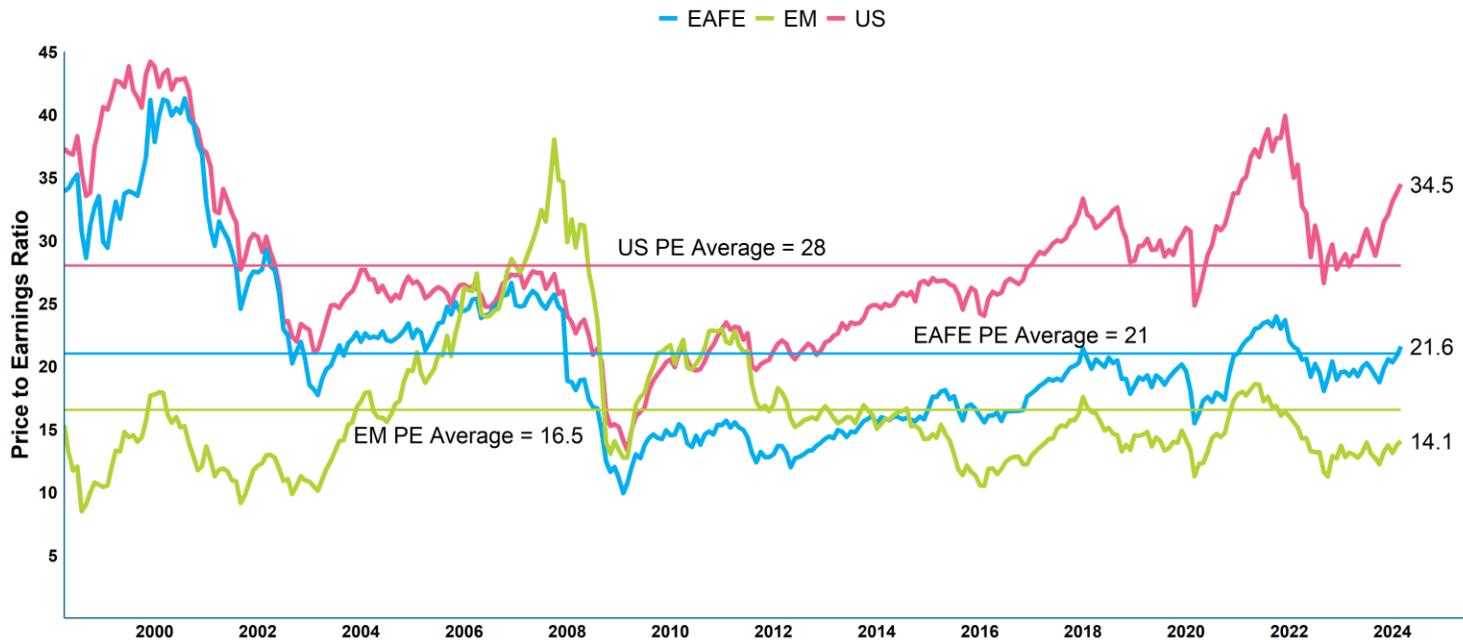
Foreign Equity	March (%)	Q1 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	3.1	4.7	13.3	1.9	6.0	4.3
MSCI EAFE	3.3	5.8	15.3	4.8	7.3	4.8
MSCI EAFE (Local Currency)	4.0	10.0	18.8	9.4	9.4	7.7
MSCI EAFE Small Cap	3.7	2.4	10.4	-1.4	4.9	4.7
MSCI Emerging Markets	2.5	2.4	8.2	-5.1	2.2	2.9
MSCI Emerging Markets (Local Currency)	3.0	4.5	10.6	-2.4	4.4	5.7
MSCI EM ex. China	3.0	4.0	20.5	2.2	6.4	4.2
MSCI China	0.9	-2.2	-17.1	-18.9	-6.3	1.2

Foreign Equity: Developed international equities (MSCI EAFE) gained 5.8% during the quarter and emerging market equities (MSCI EM) rose 2.4%.

- Developed international equity markets matched the US for the quarter in local terms but the appreciation of the dollar decreased returns for US investors by over 4.0% (5.8% versus 10.0%). Eurozone and UK equities had gains for the quarter, but Japan was the real standout performer, with the TOPIX returning 18.1% in local terms and the Nikkei breaking the 40,000 level for the first time.
- Emerging market equities again trailed developed markets largely due to China falling 2.2%. Slowing growth, issues in the property sector, and recent efforts by the US to discourage investments into China all weighed on results. Outside of China, interest rate sensitive markets like Brazil were particularly impacted by expectations of delayed interest rate cuts by the Fed. Stripping out China, emerging markets returned 4.0% in the quarter.

¹ Source: Bloomberg. Data is as of March 31, 2024.

Equity Cyclically Adjusted P/E Ratios¹



- At the end of the first quarter, the US equity price-to-earnings ratio increased further above its 21st century average, as price appreciation exceeded earnings growth.
- International market valuations also rose in the quarter and remain well below the US. In the case of developed markets, valuations are now slightly above the long-term average, while emerging market valuations remain well below its long-term average.

¹ US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years. Data is as of March 2024. The average line is the long-term average of the US, EM, and EAFE PE values from April 1998 to the recent month-end respectively.

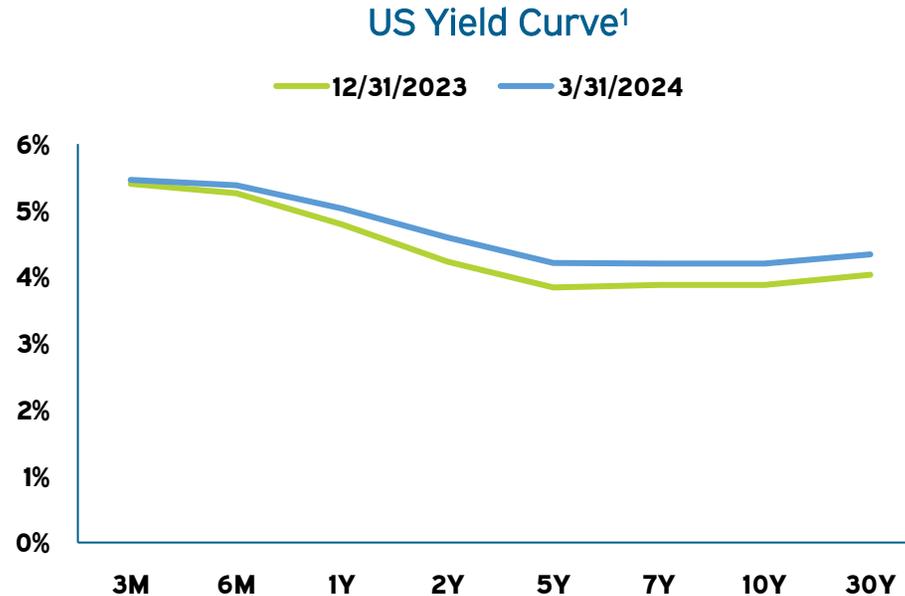
Fixed Income Returns¹

Fixed Income	March (%)	Q1 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Universal	1.0	-0.5	2.7	-2.1	0.7	1.8	5.1	6.0
Bloomberg Aggregate	0.9	-0.8	1.7	-2.5	0.4	1.5	4.8	6.2
Bloomberg US TIPS	0.8	-0.1	0.5	-0.5	2.5	2.2	4.6	6.8
Bloomberg Short-term TIPS	0.6	0.8	3.2	2.3	3.2	2.1	4.8	2.4
Bloomberg High Yield	1.2	1.5	11.2	2.2	4.2	4.4	7.7	3.7
JPM GBI-EM Global Diversified (USD)	0.0	-2.1	4.9	-1.6	0.1	-0.3	6.4	5.0

Fixed Income: The Bloomberg Universal index fell 0.5% in the first quarter.

- Strong economic growth and inflation readings above forecasts shifted interest rate expectations pushing back the anticipated start date of rate cuts as well as the number of cuts for 2024.
- In this environment the broad US bond market (Bloomberg Aggregate) fell 0.8% with TIPS declining only slightly (0.1%).
- High yield bonds (1.5%) led the way for the quarter as risk appetite continues to be robust and overall yields remain attractive despite the recent tightening of spreads to Treasury equivalents.

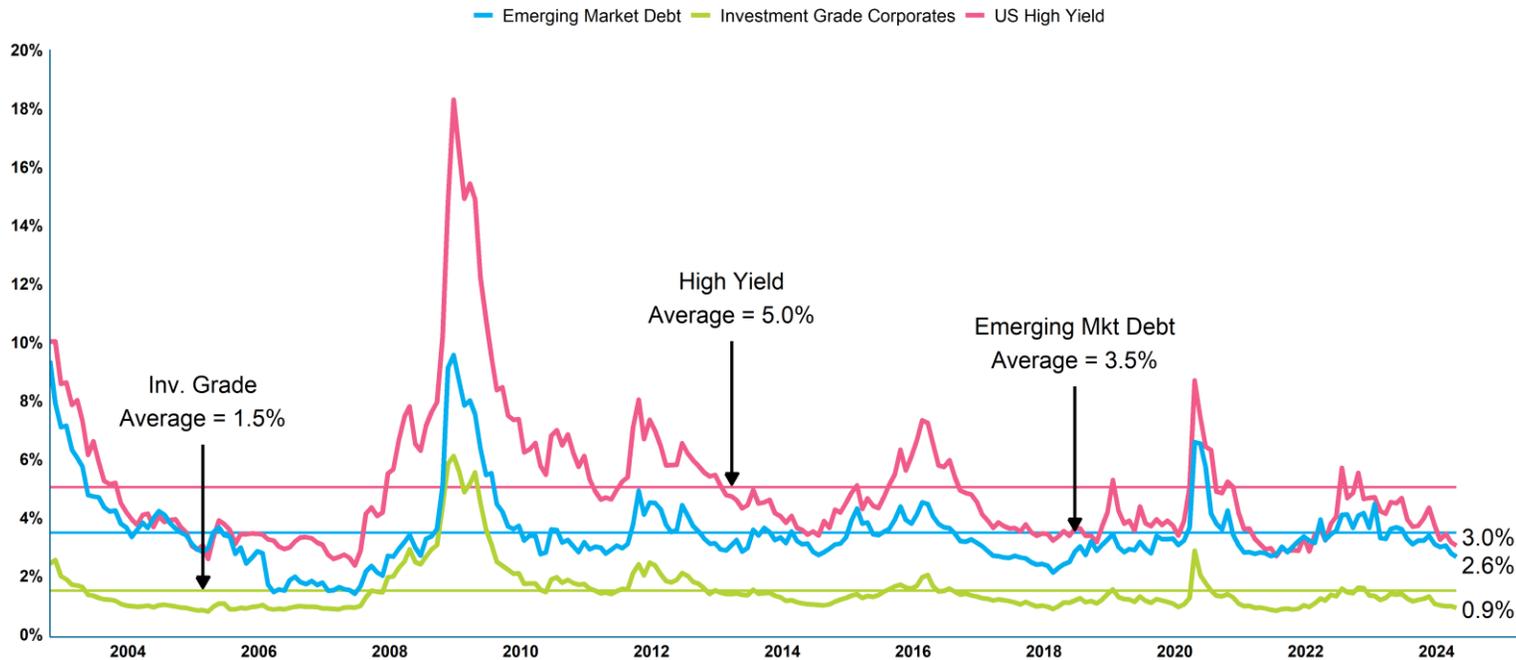
¹ Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of March 31, 2024. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration respectively.



- Overall interest rates moved higher over the quarter due to the strong economic data and the related shifts in monetary policy expectations.
- The more policy sensitive two-year Treasury yield rose from 4.3% to 4.6% in the first quarter while the ten-year Treasury yield increased from 3.9% to 4.2%.
- The yield curve remained inverted at quarter-end despite a recent flattening trend. The yield spread between the two-year and ten-year Treasury was -0.4% at the end of the quarter.

¹ Source: Bloomberg. Data is as of March 31, 2024.

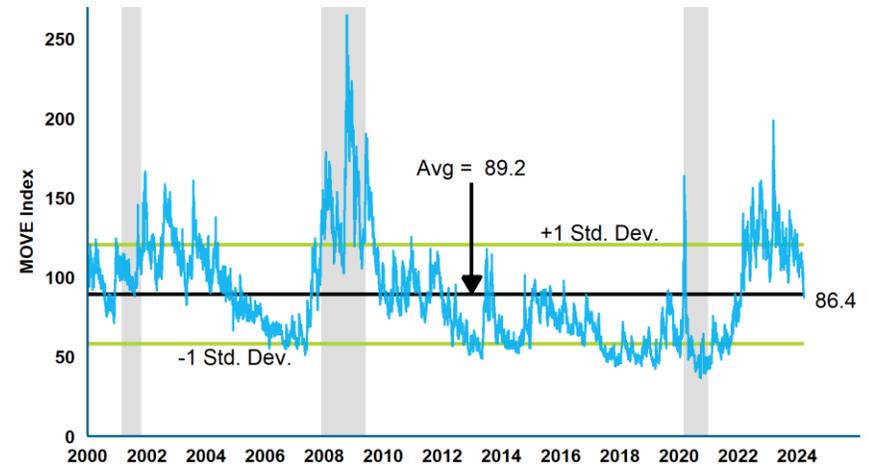
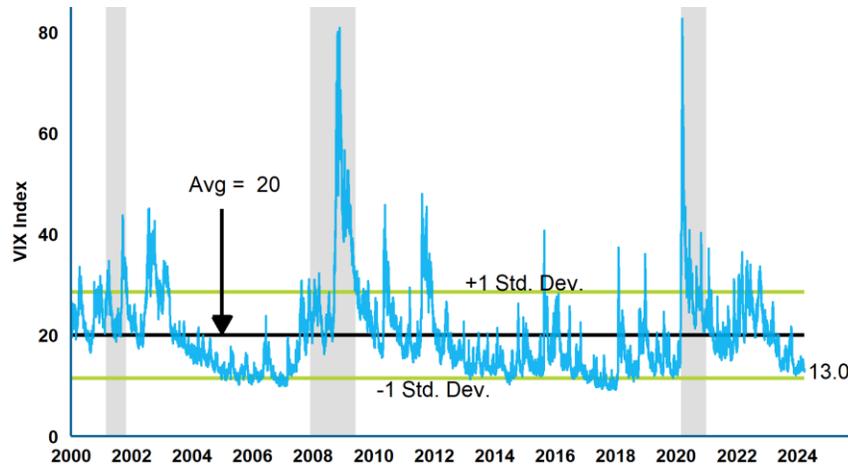
Credit Spreads vs. US Treasury Bonds¹



- A positive economic outlook along with expectations of lower interest rates has led to an increased risk appetite. This has benefited credit, with spreads (the added yield above a comparable maturity Treasury) narrowing.
- This trend continued in the first quarter particularly for riskier bonds. High yield spreads fell from 3.2% to 3.0% and emerging market spreads dropped from 3.0% to 2.6%. Spreads for investment grade corporate bonds fell only slightly over the quarter (1.0% to 0.9%).
- All spreads remain below their respective long-run averages, particularly within high yield.

¹ Source: Bloomberg. Data is as of March 31, 2024. Average lines denote the average of the investment grade, high yield, and emerging market spread values from September 2002 to the recent month-end, respectively.

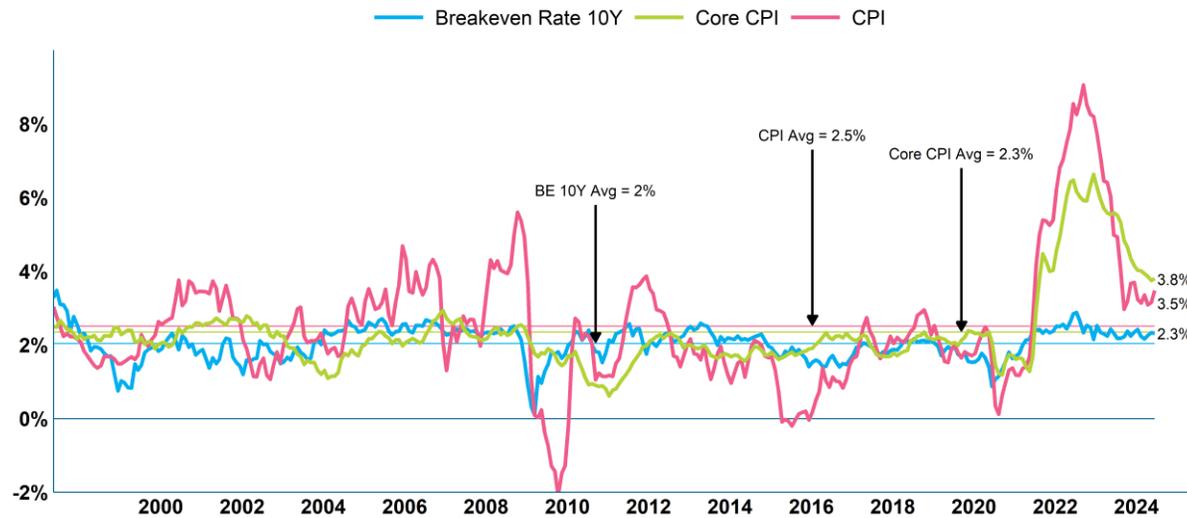
Equity and Fixed Income Volatility¹



- Volatility in equities (VIX) finished the quarter close to one standard deviation below the long-term average as the focus shifted late last year to peaking policy rates and the potential for a soft landing.
- Volatility in the bond market (MOVE) fell significantly over the quarter to a level below the long run average (86.4 versus 89.2). Declining volatility surrounding policy expectations and the more positive growth outlook both contributed to lower volatility in the bond market.

¹ Equity Volatility – Source: FRED. Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of March 2024. The average line indicated is the average of the VIX and MOVE values between January 2000 and March 2024.

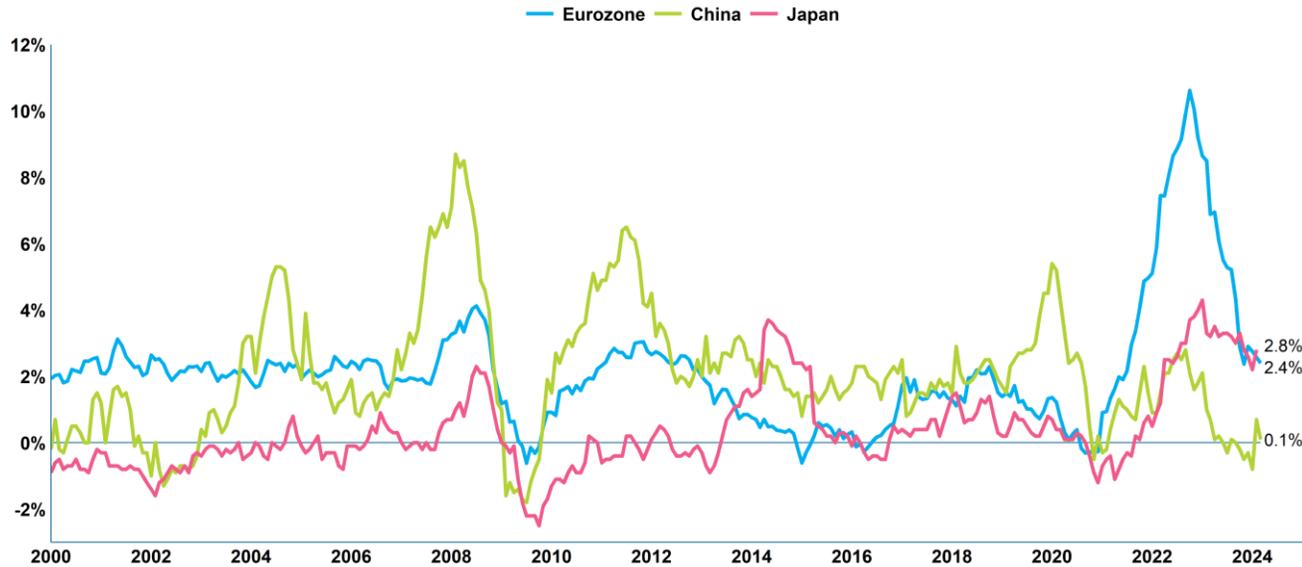
US Ten-Year Breakeven Inflation and CPI¹



- Year-over-year headline inflation rose in March (3.2% to 3.5%) and came in slightly above expectations. Prices in service sectors, particularly shelter, remain a key driver of inflation staying above the Fed’s 2% average target, with a recent rise in energy prices contributing too.
- Month-over-month inflation rose 0.4% which was the same as February, but above expectations of a 0.3% reading.
- Core inflation (excluding food and energy) remained at 3.8% but also came in above expectations. Core goods prices dropped, while core services including shelter and transportation prices continued to show persistence.
- Inflation expectations (breakevens) have remained relatively stable despite the significant volatility in inflation.

¹ Source: FRED. Data is as March 2024. The CPI and 10 Year Breakeven average lines denote the average values from February 1997 to the present month-end, respectively. Breakeven values represent month-end values for comparative purposes.

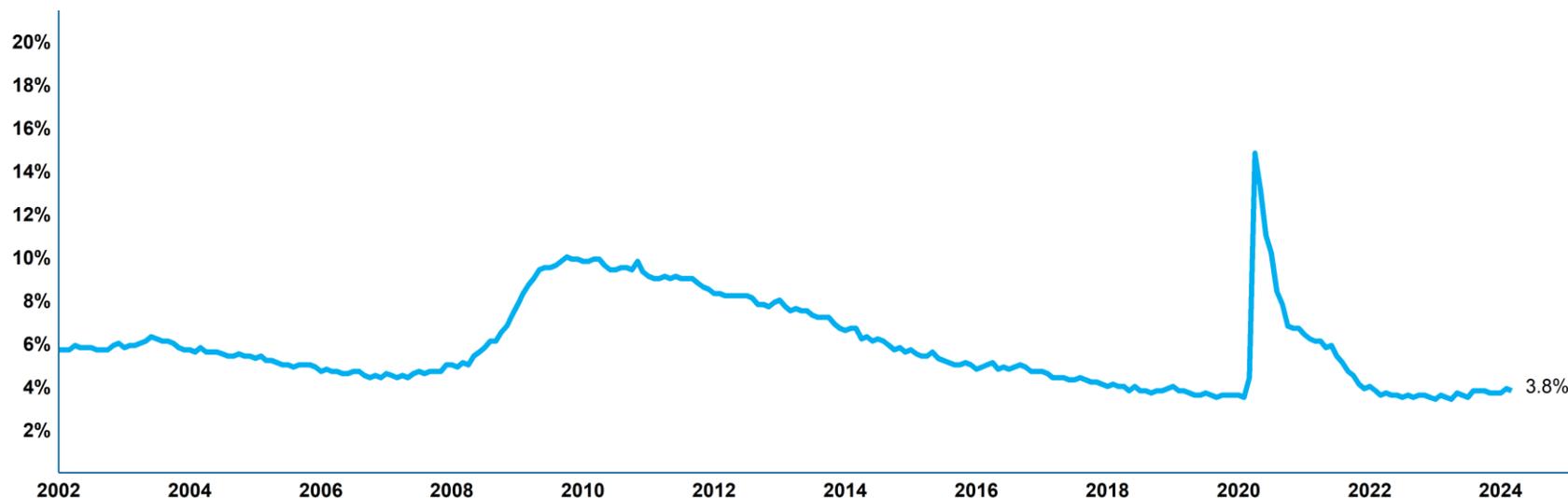
Global Inflation (CPI Trailing Twelve Months)¹



- Outside the US, inflation is also easing across major economies from the recent peaks.
- In the eurozone, prices experienced a dramatic decline last year but remain above the central bank’s 2% target. In March, inflation fell further (2.6% to 2.4%), a level below the 3.5% year-over-year reading in the US.
- Inflation in Japan has slowly declined from the early 2023 peak of 4.3%, but it remains near levels not seen in a decade. In the most recent reading, inflation rose from 2.4% to 2.8% largely due to the falling impact of government energy subsidies introduced at the same time last year.
- The impacts from spending during the Lunar New Year holiday in China waned in March with inflation falling to just about 0%.

¹ Source: Bloomberg. Data is March 31, 2024, except Japan which is as of February 28, 2024.

US Unemployment¹

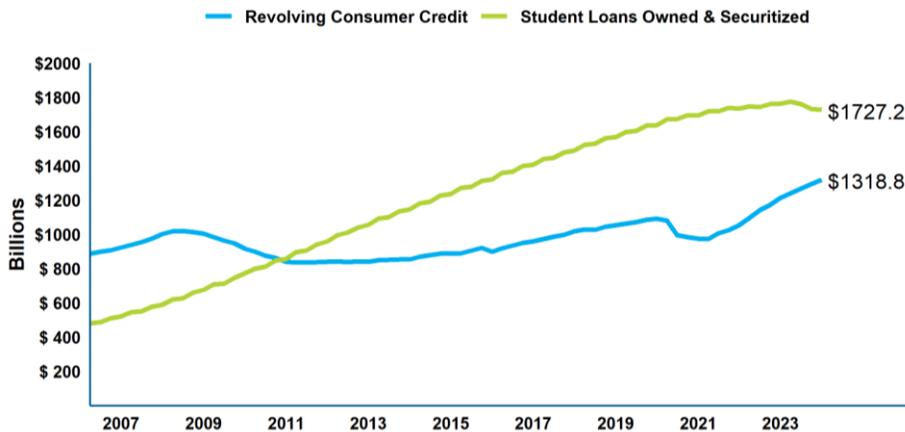


- Overall, the US labor market remains healthy, with the unemployment rate low, wage growth now positive in real terms, and initial claims for unemployment staying subdued.
- Each of the payroll readings over the quarter exceeded expectations. In March, the number of jobs added in the US was 303,000 compared to a 214,000 forecast. The healthcare (72,000), government (71,000), and construction (39,000) sectors added the most jobs.
- The unemployment rate fell from 3.9% to 3.8%, while wage growth dropped slightly from 4.3% to 4.1% compared to a year prior, a level well off the 6.0% peak but above inflation levels.
- Quit rates have declined, and layoffs are stable, with 1.4 job openings per unemployed worker.

¹ Source: FRED. Data is as March 31, 2024.

US Consumer Under Stress?¹

Revolving Consumer Credit & Student Loans (\$B)



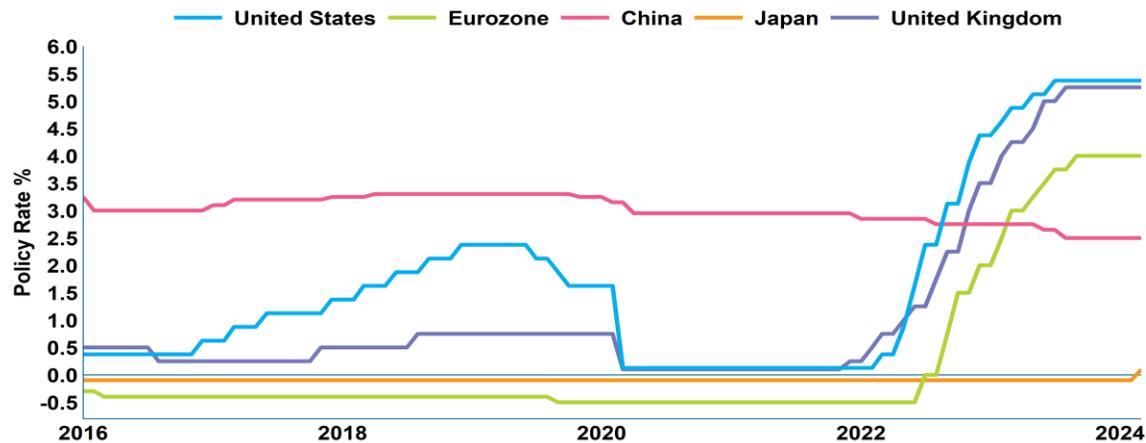
Consumer Credit Card Interest Rates (%)



- 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 a key 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). Recently, we have also seen payment delinquencies on credit cards and auto loans start to increase, particularly for younger people.
- The return of student loan repayments after a three-year pandemic-related reprieve could add to pressures on consumers' budgets. This might be partially mitigated by recently initiated repayment and forgiveness programs.
- As we look ahead, the strength of the US consumer will remain key as this sector makes up most of the domestic economy (GDP).

¹ Source: FRED. Data is as of December 31, 2023. Revolving Consumer Credit data is seasonally adjusted to remove distortions during the holiday season.

Policy Rates¹



- The Fed has been on hold since July 2023 when it raised rates to a range of 5.25%-5.50%. Markets are now pricing in fewer than two rate cuts this year down from close to seven late last year, as economic data has come in better than expectations and inflation persists. Market pricing for the first rate cut has also dramatically changed from an original expectation of a March cut to the probability priced below 50% for a rate cut at all remaining Fed meetings in 2024.
- The European and UK central banks also recently paused their rate increases on slowing inflation. It appears that the ECB could be one of the first central banks to cut rates with expectations close to 90% for a June cut.
- Given the return of inflation driven by wage growth the Bank of Japan (BOJ) recently ended the final negative interest rate policy, stopped purchasing ETFs, and moved away from its yield curve control.
- The central bank in China has maintained interest rates at record low levels and continues to inject liquidity into the banking system, as weaker-than-expected economic data appears to indicate a widespread slowdown.

¹ Source: Bloomberg. Data is as of March 31, 2024.

US Dollar vs. Broad Currencies¹



- The dollar increased by close to 3% over the quarter versus a basket of major trading partners.
- Strong economic data in the US may delay policy rate cuts this year, which could contribute to continued upward pressure on the dollar as other countries pivot to rate cuts.

¹ Source: Bloomberg. Data as of March 31, 2024.

Summary

Key Trends:

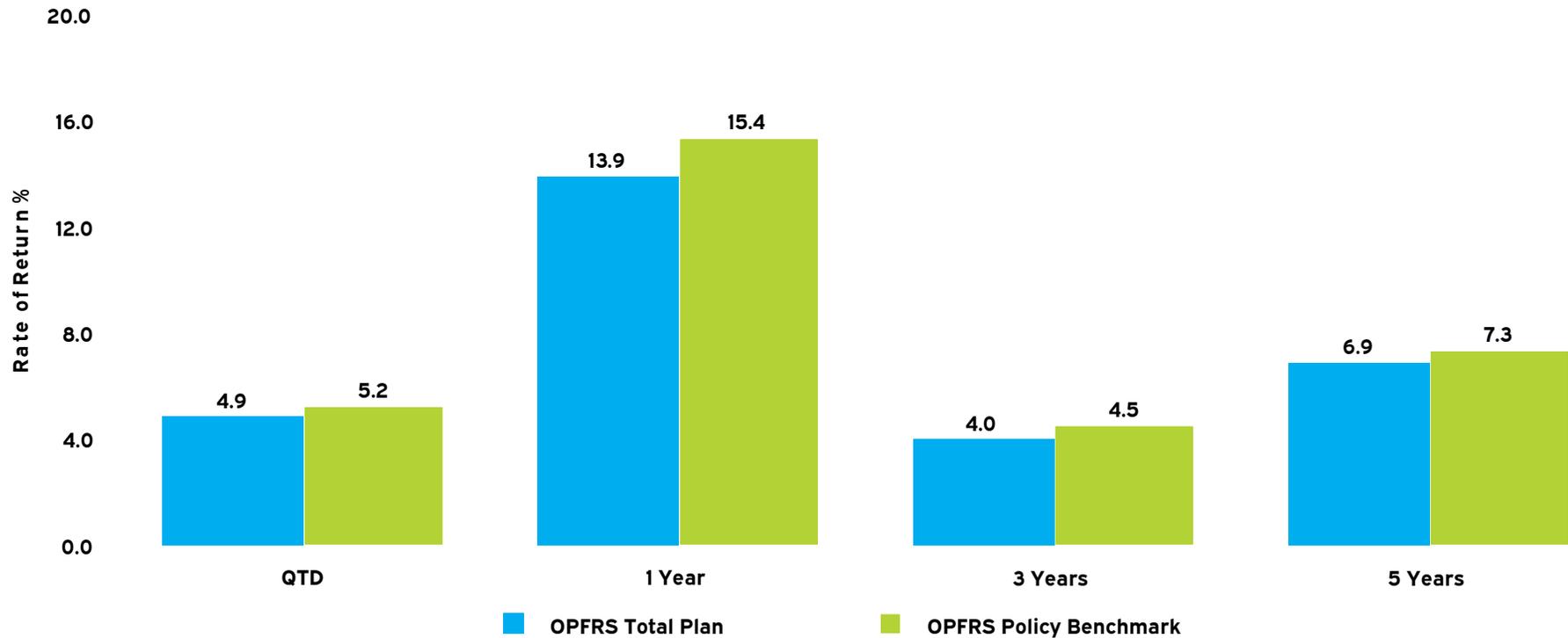
- According to the IMF, global growth this year is expected to match the 2023 estimate at around 3.1% with most major economies predicted to avoid a recession. Continued strong economic growth does run the risk of inflation and interest rates staying higher for longer.
- Key economic data in the US is still coming in above forecasts with expectations dramatically evolving for the timing and pace of interest rate cuts. If data remains strong the Federal Reserve may keep rates elevated increasing the risk of an economic slowdown.
- Outside the US we could see other central banks start cutting rates ahead of the Fed, with the ECB particularly in focus. The risk of policy errors remains elevated as central banks try to further reduce inflation toward targets while not tipping their economies into recession.
- US consumers could feel pressure as certain components of inflation (e.g., shelter) remain high, borrowing costs are elevated, and the job market may weaken.
- A focus for US equities going forward will be whether earnings can remain resilient if growth slows. Also, the future paths of the large technology companies that have driven market gains will be important.
- Equity valuations remain lower in emerging and developed markets, but risks remain, including China's economic uncertainty and on-going weakness in the real estate sector which could spill over into key trading partners' economies. Japan's recent tightening of monetary policy along with changes in corporate governance in the country could influence relative results.

Quarterly Performance as of March 31, 2024

Summary of Cash Flows

	QTD (\$)	1 Year (\$)
OPFRS Total Plan		
Beginning Market Value	435,955,522	411,182,049
Net Cash Flow	-2,977,698	-13,700,230
Net Investment Change	21,477,865	56,973,870
Ending Market Value	454,455,689	454,455,689

Return Summary Ending March 31, 2024

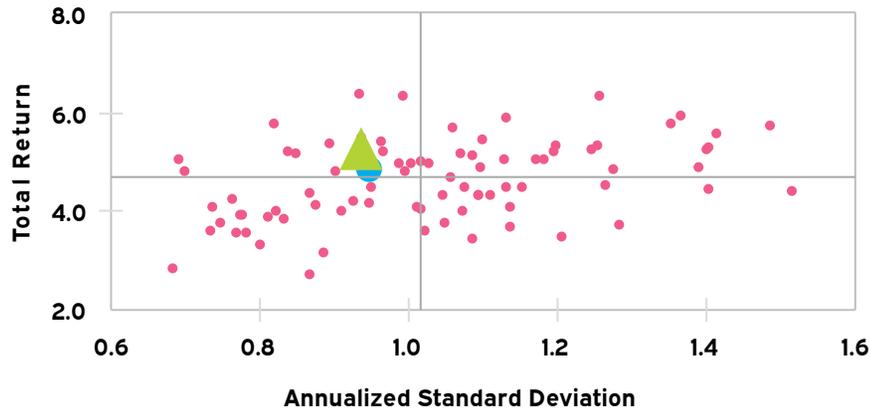


Total Plan performance shown is net of fees.

Oakland Police and Fire Retirement System

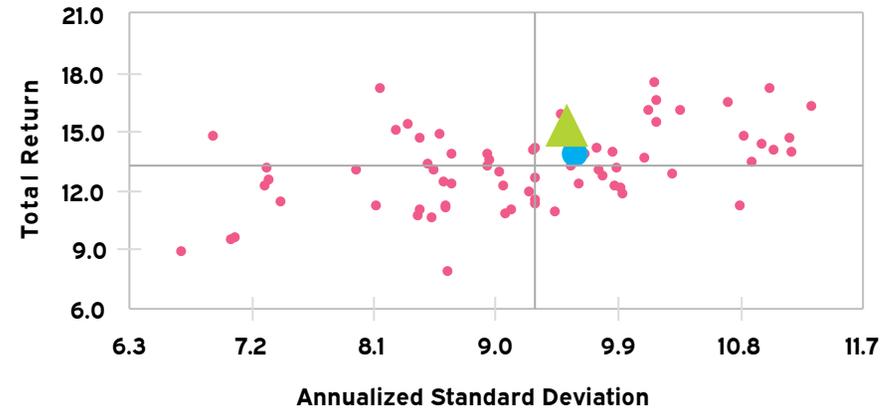
Total Plan Risk/Return Summary | As of March 31, 2024

Risk-Return Summary QTD Ending March 31, 2024



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

Risk-Return Summary 1 Yr Ending March 31, 2024



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

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

OPFRS Total Plan	4.9	0.9
OPFRS Policy Benchmark	5.2	0.9
Median	4.7	1.0

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

OPFRS Total Plan	13.9	9.6
OPFRS Policy Benchmark	15.4	9.5
Median	13.3	9.3

Performance shown is net of fees. Calculation is 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 March 31, 2024

	Market Value (\$)	% of Portfolio	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
OPFRS Total Plan (Gross)	454,455,689	100.0	5.0	10.6	14.3	4.3	7.2	7.1	6.8	Dec-88
<i>OPFRS Policy Benchmark</i>			<i>5.2</i>	<i>11.0</i>	<i>15.4</i>	<i>4.5</i>	<i>7.3</i>	<i>7.1</i>	<i>8.0</i>	
Excess Return			-0.2	-0.4	-1.1	-0.2	-0.1	0.0	-1.2	
Domestic Equity (Gross)	195,208,695	43.0	8.3	16.8	23.9	8.1	12.8	11.5	9.3	Jun-97
<i>Russell 3000 (Blend)</i>			<i>10.0</i>	<i>19.3</i>	<i>29.3</i>	<i>9.8</i>	<i>14.3</i>	<i>12.3</i>	<i>9.6</i>	
Excess Return			-1.7	-2.5	-5.4	-1.7	-1.5	-0.8	-0.3	
International Equity (Gross)	59,984,511	13.2	6.6	14.3	17.9	5.0	8.1	6.0	5.7	Jan-98
<i>MSCI ACWI ex US (Blend)</i>			<i>4.7</i>	<i>10.6</i>	<i>13.3</i>	<i>1.9</i>	<i>6.0</i>	<i>4.3</i>	<i>5.3</i>	
Excess Return			1.9	3.7	4.6	3.1	2.1	1.7	0.4	
Fixed Income (Gross)	107,560,917	23.7	-0.4	3.0	2.4	-1.8	0.9	2.2	4.7	Jan-94
<i>Bloomberg Universal (Blend)</i>			<i>-0.5</i>	<i>3.3</i>	<i>2.7</i>	<i>-2.1</i>	<i>0.7</i>	<i>1.8</i>	<i>4.5</i>	
Excess Return			0.1	-0.3	-0.3	0.3	0.2	0.4	0.2	
Credit (Gross)	9,984,458	2.2	3.1	9.0	12.7	4.5	5.2	--	5.8	Feb-15
<i>Blmbg. U.S. Corp: High Yield Index</i>			<i>1.5</i>	<i>9.2</i>	<i>11.2</i>	<i>2.2</i>	<i>4.2</i>	<i>4.4</i>	<i>4.8</i>	
Excess Return			1.6	-0.2	1.5	2.3	1.0	--	1.0	
Covered Calls (Gross)	25,275,663	5.6	6.3	12.1	20.4	9.5	11.7	9.7	9.7	Apr-14
<i>Cboe S&P 500 Buy Write Index</i>			<i>6.0</i>	<i>7.3</i>	<i>11.9</i>	<i>6.2</i>	<i>5.9</i>	<i>5.9</i>	<i>5.9</i>	
Excess Return			0.3	4.8	8.5	3.3	5.8	3.8	3.8	
Crisis Risk Offset (Gross)	40,716,178	9.0	3.4	2.4	4.5	-0.6	-7.1	--	-6.5	Aug-18
<i>Crisis Risk Offset Benchmark</i>			<i>5.4</i>	<i>5.1</i>	<i>7.8</i>	<i>5.5</i>	<i>0.8</i>	<i>--</i>	<i>1.0</i>	
Excess Return			-2.0	-2.7	-3.3	-6.1	-7.9	--	-7.5	
Cash (Gross)	15,725,267	3.5	0.0	0.0	0.0	0.0	0.6	0.7	0.5	Mar-11

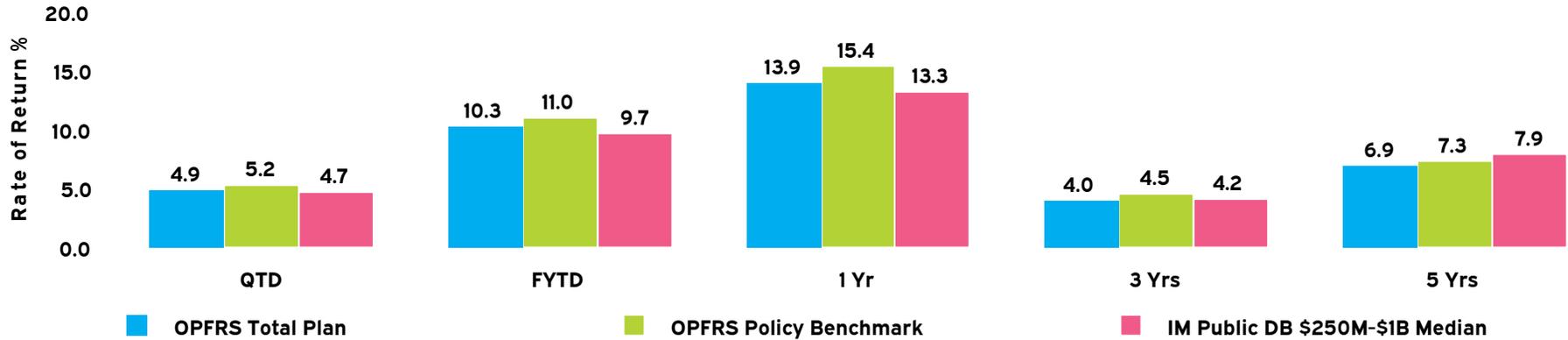
Performance shown is gross of fees. Since inception date and performance begin in the month following an investments initial funding. Fiscal year begins on July 1. Please see Benchmark History section for custom benchmark compositions.

Asset Class Performance: Net of Fees | As of March 31, 2024

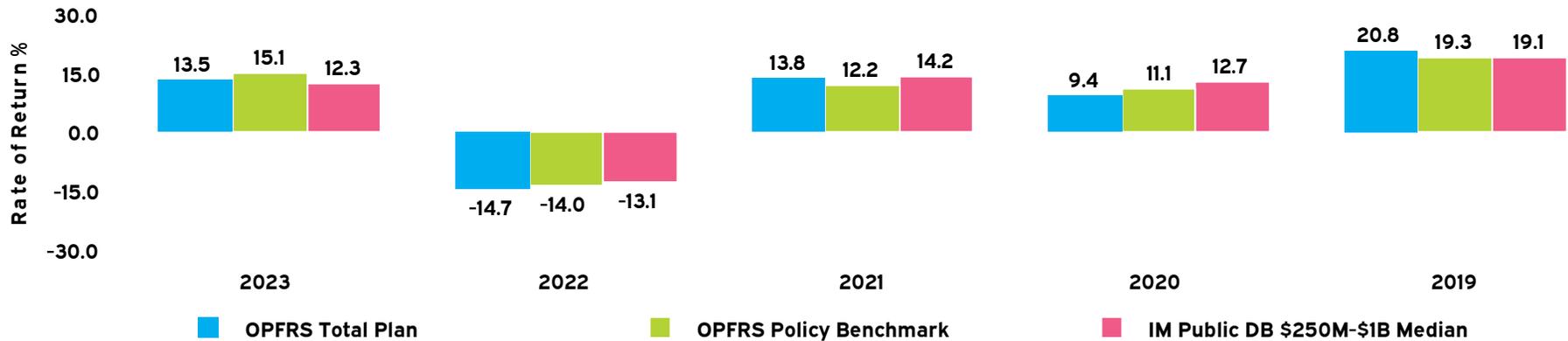
	Market Value (\$)	% of Portfolio	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
OPFRS Total Plan (Net)	454,455,689	100.0	4.9	10.3	13.9	4.0	6.9	6.9	6.7	Dec-88
<i>OPFRS Policy Benchmark</i>			5.2	11.0	15.4	4.5	7.3	7.1	8.0	
Excess Return			-0.3	-0.7	-1.5	-0.5	-0.4	-0.2	-1.3	
<i>IM Public DB \$250M-\$1B Median (Net)</i>			4.7	9.7	13.3	4.2	7.9	6.8	--	
Peer Group Rank			43	32	40	57	80	48	--	
Domestic Equity (Net)	195,208,695	43.0	8.2	16.6	23.5	7.8	12.5	11.2	9.2	Jun-97
<i>Russell 3000 (Blend)</i>			10.0	19.3	29.3	9.8	14.3	12.3	9.6	
Excess Return			-1.8	-2.7	-5.8	-2.0	-1.8	-1.1	-0.4	
International Equity (Net)	59,984,511	13.2	6.5	13.8	17.2	4.3	7.5	5.6	5.6	Jan-98
<i>MSCI ACWI ex US (Blend)</i>			4.7	10.6	13.3	1.9	6.0	4.3	5.3	
Excess Return			1.8	3.2	3.9	2.4	1.5	1.3	0.3	
Fixed Income (Net)	107,560,917	23.7	-0.4	2.8	2.2	-2.0	0.7	2.0	4.5	Jan-94
<i>Bloomberg Universal (Blend)</i>			-0.5	3.3	2.7	-2.1	0.7	1.8	4.5	
Excess Return			0.1	-0.5	-0.5	0.1	0.0	0.2	0.0	
Credit (Net)	9,984,458	2.2	3.0	8.5	12.1	3.9	4.6	--	5.1	Feb-15
<i>Blmbg. U.S. Corp: High Yield Index</i>			1.5	9.2	11.2	2.2	4.2	4.4	4.8	
Excess Return			1.5	-0.7	0.9	1.7	0.4	--	0.3	
Covered Calls (Net)	25,275,663	5.6	6.2	11.9	20.1	9.3	11.4	9.5	9.5	Apr-14
<i>Cboe S&P 500 Buy Write Index</i>			6.0	7.3	11.9	6.2	5.9	5.9	5.9	
Excess Return			0.2	4.6	8.2	3.1	5.5	3.6	3.6	
Crisis Risk Offset (Net)	40,716,178	9.0	3.4	2.3	4.3	-0.8	-7.3	--	-6.8	Aug-18
<i>Crisis Risk Offset Benchmark</i>			5.4	5.1	7.8	5.5	0.8	--	1.0	
Excess Return			-2.0	-2.8	-3.5	-6.3	-8.1	--	-7.8	
Cash (Net)	15,725,267	3.5	0.0	0.0	0.0	0.0	0.6	0.7	0.5	Mar-11

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 March 31, 2024



Calendar Year Performance Ending December 31, 2023



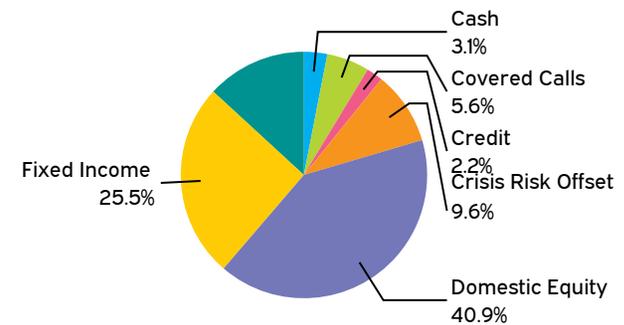
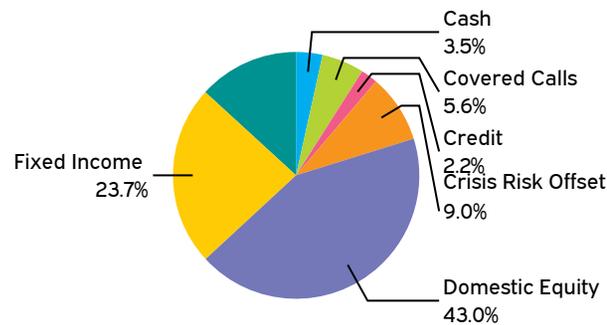
Total Plan performance is a mix of gross and net of fees; performance is gross of fees prior to January 2016 and thereafter. Fiscal year begins on July 1.

Asset Allocation | As of As of March 31, 2024

	Current Balance (\$)	Current Allocation (%)	Policy (%)	Difference (%)	Policy Range (%)	Within IPS Range?
Domestic Equity	195,208,695	43.0	40.0	3.0	30.0 - 50.0	Yes
International Equity	59,984,511	13.2	12.0	1.2	8.0 - 14.0	Yes
Fixed Income	107,560,917	23.7	31.0	-7.3	25.0 - 40.0	No
Credit	9,984,458	2.2	2.0	0.2	1.0 - 3.0	Yes
Covered Calls	25,275,663	5.6	5.0	0.6	5.0 - 10.0	Yes
Crisis Risk Offset	40,716,178	9.0	10.0	-1.0	5.0 - 15.0	Yes
Cash	15,725,267	3.5	0.0	3.5	0.0 - 5.0	Yes
Total	454,455,689	100.0	100.0	0.0		

March 31, 2024: \$454,455,688.7

March 31, 2023: \$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 March 31, 2024

	Market Value (\$)	% of Portfolio	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Domestic Equity	195,208,695	100.0	8.2	16.6	23.5	7.8	12.5	11.2	9.2	Jun-97
<i>Russell 3000 (Blend)</i>			10.0	19.3	29.3	9.8	14.3	12.3	9.6	
Excess Return			-1.8	-2.7	-5.8	-2.0	-1.8	-1.1	-0.4	
Northern Trust Russell 1000	97,326,458	49.9	10.3	19.6	29.8	10.3	14.6	12.6	14.0	Jun-10
<i>Russell 1000 Index</i>			10.3	19.6	29.9	10.5	14.8	12.7	14.1	
Excess Return			0.0	0.0	-0.1	-0.2	-0.2	-0.1	-0.1	
EARNEST Partners	42,502,989	21.8	7.9	16.1	20.6	6.5	12.7	11.6	9.7	Apr-06
<i>Russell Midcap Index</i>			8.6	16.8	22.3	6.1	11.1	9.9	9.2	
Excess Return			-0.7	-0.7	-1.7	0.4	1.6	1.7	0.5	
eV US Mid Cap Core Equity Rank			81	62	69	70	37	28	36	
Wellington Select Quality Equity	25,703,596	13.2	5.1	10.0	14.9	--	--	--	8.4	May-22
<i>Russell 1000 Index</i>			10.3	19.6	29.9	10.5	14.8	12.7	14.9	
Excess Return			-5.2	-9.6	-15.0	--	--	--	-6.5	
eV US Large Cap Core Equity Rank			97	97	96	--	--	--	93	
Brown Fundamental Small Cap Value	13,481,386	6.9	5.0	19.5	24.1	7.8	--	--	7.8	Apr-21
<i>Russell 2000 Value Index</i>			2.9	15.1	18.8	2.2	8.2	6.9	2.2	
Excess Return			2.1	4.4	5.3	5.6	--	--	5.6	
eV US Small Cap Value Equity Rank			48	17	22	22	--	--	22	
Rice Hall James	16,194,267	8.3	5.4	9.6	12.6	-1.1	6.7	--	7.2	Aug-17
<i>Russell 2000 Growth Index</i>			7.6	12.4	20.3	-2.7	7.4	7.9	8.0	
Excess Return			-2.2	-2.8	-7.7	1.6	-0.7	--	-0.8	
eV US Small Cap Growth Equity Rank			74	71	78	50	87	--	92	

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 March 31, 2024

	Market Value (\$)	% of Portfolio	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
International Equity	59,984,511	100.0	6.5	13.8	17.2	4.3	7.5	5.6	5.6	Jan-98
<i>MSCI ACWI ex US (Blend)</i>			4.7	10.6	13.3	1.9	6.0	4.3	5.3	
Excess Return			1.8	3.2	3.9	2.4	1.5	1.3	0.3	
Vanguard Developed Markets ETF	16,800,177	28.0	5.3	11.5	15.0	4.0	7.4	5.0	8.3	Sep-19
<i>FTSE Developed All Cap ex-U.S. Index</i>			5.2	12.1	15.6	4.2	7.7	5.2	8.5	
Excess Return			0.1	-0.6	-0.6	-0.2	-0.3	-0.2	-0.2	
SGA ACWI ex-U.S. Equity	43,184,334	72.0	6.9	14.7	18.5	4.5	--	--	5.8	Dec-19
<i>MSCI AC World ex USA (Net)</i>			4.7	10.6	13.3	1.9	6.0	4.3	5.6	
Excess Return			2.2	4.1	5.2	2.6	--	--	0.2	
eV ACWI ex-US All Cap Core Eq Rank			17	11	14	18	--	--	61	

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 March 31, 2024

	Market Value (\$)	% of Portfolio	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Fixed Income	107,560,917	100.0	-0.4	2.8	2.2	-2.0	0.7	2.0	4.5	Jan-94
<i>Bloomberg Universal (Blend)</i>			-0.5	3.3	2.7	-2.1	0.7	1.8	4.5	
Excess Return			0.1	-0.5	-0.5	0.1	0.0	0.2	0.0	
Ramirez	72,950,679	67.8	-0.5	2.8	2.1	-2.1	0.6	--	1.6	Jan-17
<i>Blmbg. U.S. Aggregate Index</i>			-0.8	2.6	1.7	-2.5	0.4	1.5	1.1	
Excess Return			0.3	0.2	0.4	0.4	0.2	--	0.5	
eV US Core Fixed Inc Rank			48	67	63	33	66	--	31	
Wellington Core Bond	6,980,801	6.5	-0.2	3.8	3.2	-2.4	--	--	-2.4	Apr-21
<i>Blmbg. U.S. Aggregate Index</i>			-0.8	2.6	1.7	-2.5	0.4	1.5	-2.5	
Excess Return			0.6	1.2	1.5	0.1	--	--	0.1	
eV US Core Fixed Inc Rank			20	14	16	64	--	--	65	
Reams	27,629,437	25.7	-0.5	2.8	2.3	-1.6	3.0	2.9	4.9	Feb-98
<i>Bloomberg Universal (Blend)</i>			-0.5	3.3	2.7	-2.1	0.7	1.8	4.1	
Excess Return			0.0	-0.5	-0.4	0.5	2.3	1.1	0.8	
eV US Core Plus Fixed Inc Rank			74	82	76	30	2	8	24	

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 March 31, 2024

	Market Value (\$)	% of Portfolio	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Credit	9,984,458	100.0	3.0	8.5	12.1	3.9	4.6	--	5.1	Feb-15
<i>Blmbg. U.S. Corp: High Yield Index</i>			1.5	9.2	11.2	2.2	4.2	4.4	4.8	
Excess Return			1.5	-0.7	0.9	1.7	0.4	--	0.3	
Polen Capital	9,984,458	100.0	3.0	8.5	12.1	3.9	4.6	--	5.1	Feb-15
<i>ICE BofA U.S. High Yield Index</i>			1.5	9.3	11.0	2.2	4.0	4.4	4.7	
Excess Return			1.5	-0.8	1.1	1.7	0.6	--	0.4	
eV US High Yield Fixed Inc Rank			7	58	15	11	25	--	18	

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 March 31, 2024

	Market Value (\$)	% of Portfolio	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Since Inception	Inception Date
Covered Calls	25,275,663	100.0	6.2	11.9	20.1	9.3	11.4	9.5	9.5	Apr-14
<i>Cboe S&P 500 Buy Write Index</i>			6.0	7.3	11.9	6.2	5.9	5.9	5.9	
Excess Return			0.2	4.6	8.2	3.1	5.5	3.6	3.6	
Parametric BXM	12,339,462	48.8	5.8	10.0	16.5	7.6	8.5	7.5	7.5	Apr-14
<i>Cboe S&P 500 Buy Write Index</i>			6.0	7.3	11.9	6.2	5.9	5.9	5.9	
Excess Return			-0.2	2.7	4.6	1.4	2.6	1.6	1.6	
Parametric DeltaShift	12,936,202	51.2	6.7	13.9	23.8	10.7	14.0	11.5	11.5	Apr-14
<i>Cboe S&P 500 Buy Write Index</i>			6.0	7.3	11.9	6.2	5.9	5.9	5.9	
Excess Return			0.7	6.6	11.9	4.5	8.1	5.6	5.6	

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 March 31, 2024

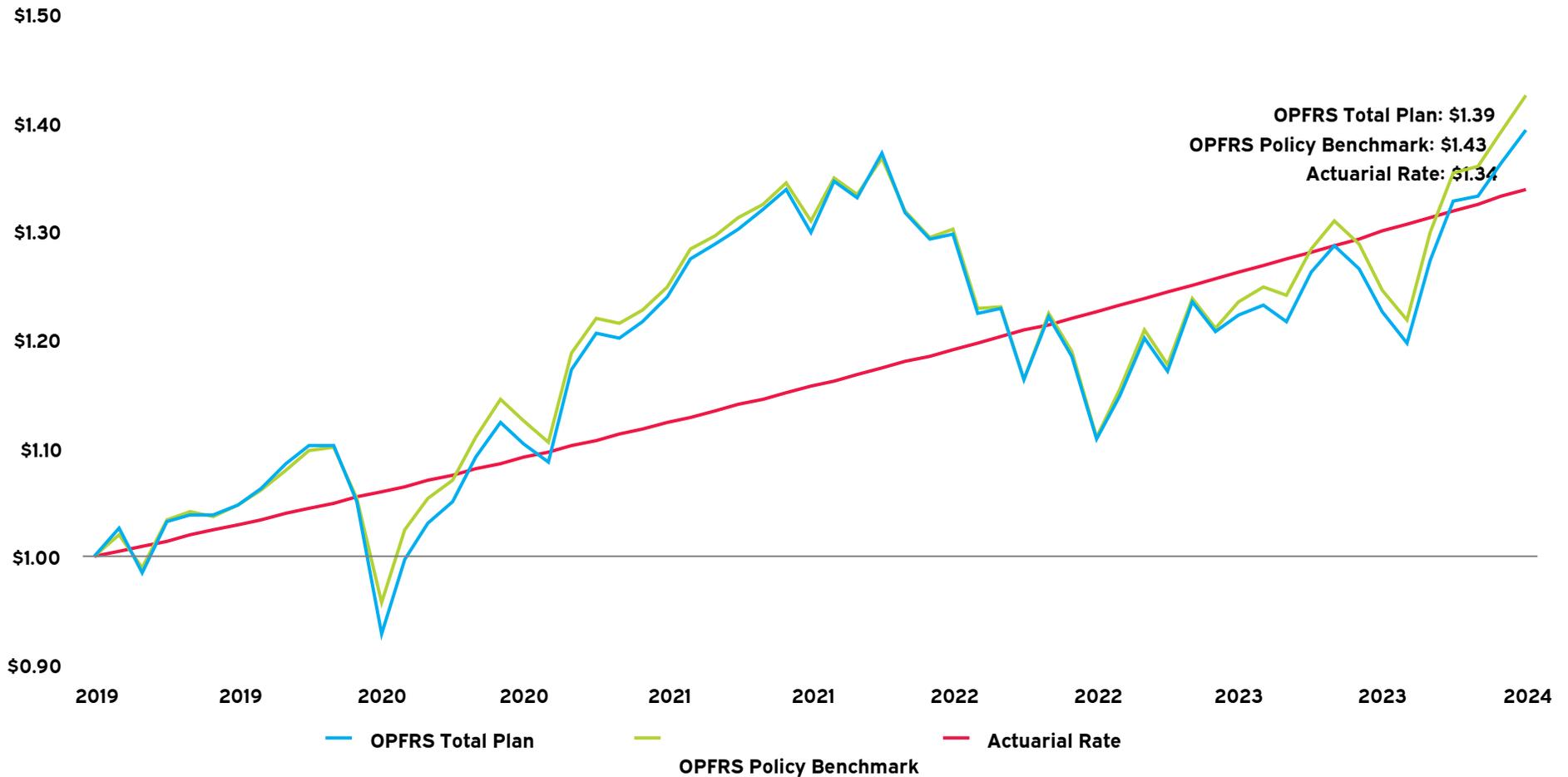
	Market Value (\$)	% of Portfolio	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Crisis Risk Offset	40,716,178	100.0	3.4	2.3	4.3	-0.8	-7.3	--	-6.8	Aug-18
<i>Crisis Risk Offset Benchmark</i>			<i>5.4</i>	<i>5.1</i>	<i>7.8</i>	<i>5.5</i>	<i>0.8</i>	<i>--</i>	<i>1.0</i>	
Over/Under			<i>-2.0</i>	<i>-2.8</i>	<i>-3.5</i>	<i>-6.3</i>	<i>-8.1</i>	<i>--</i>	<i>-7.8</i>	
Kepos Alternative Risk Premia	12,080,647	29.7	11.0	15.3	17.6	--	--	--	9.1	Feb-22
<i>SG Multi Alternative Risk Premia Index</i>			<i>7.4</i>	<i>10.4</i>	<i>13.0</i>	<i>7.5</i>	<i>2.0</i>	<i>--</i>	<i>8.2</i>	
Over/Under			<i>3.6</i>	<i>4.9</i>	<i>4.6</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>0.9</i>	
Versor Trend Following	15,458,363	38.0	3.8	-0.6	5.9	--	--	--	1.5	Apr-22
<i>SG Trend Index</i>			<i>12.3</i>	<i>7.5</i>	<i>16.1</i>	<i>12.9</i>	<i>11.0</i>	<i>6.9</i>	<i>7.9</i>	
Over/Under			<i>-8.5</i>	<i>-8.1</i>	<i>-10.2</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>-6.4</i>	
Vanguard Long-Term Treasury ETF	13,177,168	32.4	-3.1	-4.2	-6.4	-8.1	-2.9	1.2	-4.2	Jul-19
<i>Blmbg. U.S. Government: Long Term Bond Index</i>			<i>-3.2</i>	<i>-3.8</i>	<i>-6.0</i>	<i>-8.0</i>	<i>-2.8</i>	<i>1.2</i>	<i>-4.1</i>	
Over/Under			<i>0.1</i>	<i>-0.4</i>	<i>-0.4</i>	<i>-0.1</i>	<i>-0.1</i>	<i>0.0</i>	<i>-0.1</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.

**Cash Flow Summary
Quarter To Date**

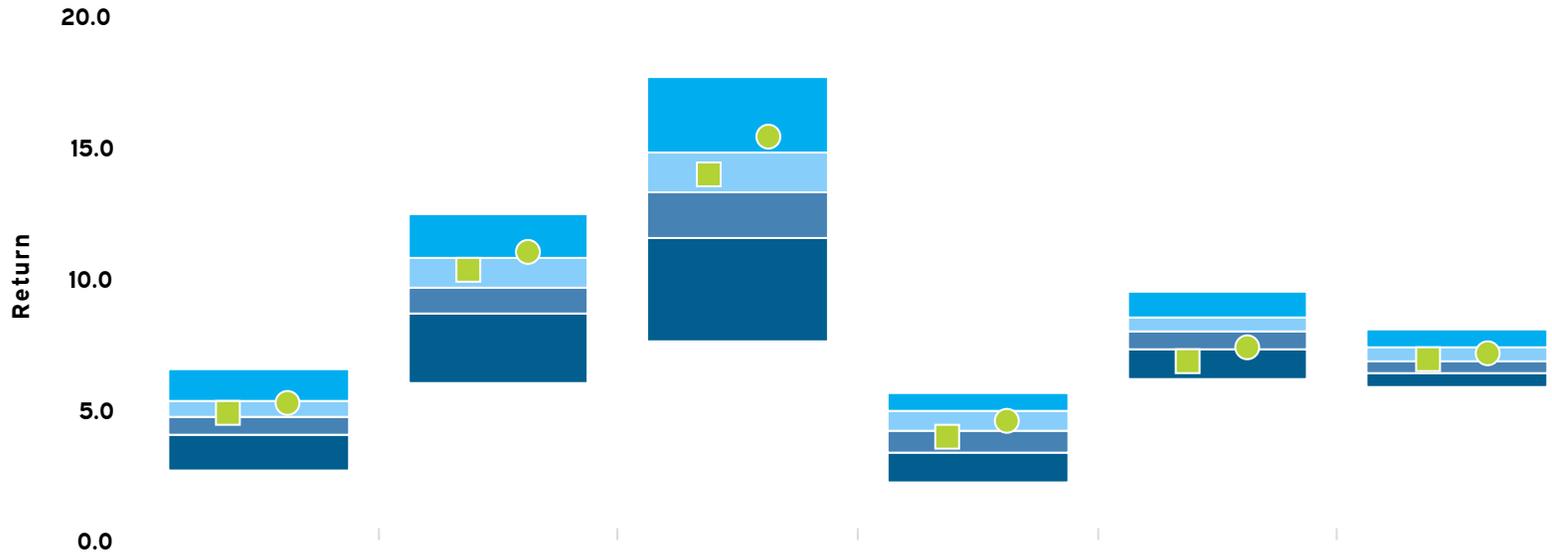
	Beginning Market Value	Net Cash Flow	Net Investment Change	Ending Market Value
Northern Trust Russell 1000	88,252,834	-	9,073,623	97,326,458
EARNEST Partners	42,300,855	-3,000,000	3,202,134	42,502,989
Wellington Select Quality Equity	24,458,953	-	1,244,643	25,703,596
Brown Fundamental Small Cap Value	12,835,326	-	646,060	13,481,386
Rice Hall James	15,327,009	-	867,257	16,194,267
Vanguard Developed Markets ETF	16,040,034	-95,939	856,082	16,800,177
SGA ACWI ex-U.S. Equity	40,307,575	-	2,876,760	43,184,334
Ramirez	73,247,942	-	-297,263	72,950,679
Wellington Core Bond	6,993,592	-	-12,791	6,980,801
Reams	27,742,062	-	-112,625	27,629,437
Polen Capital	9,697,822	-	286,635	9,984,458
Parametric BXM	11,662,453	-	677,009	12,339,462
Parametric DeltaShift	12,121,242	-	814,960	12,936,202
Kepos Alternative Risk Premia	10,884,494	-	1,196,153	12,080,647
Versor Trend Following	14,897,129	-	561,234	15,458,363
Vanguard Long-Term Treasury ETF	13,686,549	-64,778	-444,603	13,177,168
Cash - Money Market	5,092,650	309,616	-	5,402,267
Cash - Treasury	10,407,000	-84,000	-	10,323,000
Securities Lending Northern Trust	-	-42,598	42,598	-
OPFRS Total Plan	435,955,522	-2,977,698	21,477,865	454,455,689

Growth of a Dollar 5 Years ending March 31, 2024



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



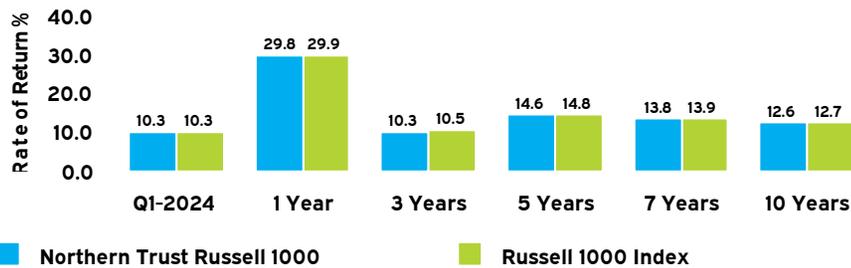
	QTD (%)	FYTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)
■ OPFRS Total Plan	4.9 (43)	10.3 (32)	13.9 (40)	4.0 (57)	6.9 (80)	6.9 (48)
● OPFRS Policy Benchmark	5.2 (26)	11.0 (22)	15.4 (20)	4.5 (42)	7.3 (71)	7.1 (35)
5th Percentile	6.5	12.4	17.6	5.6	9.5	8.0
1st Quartile	5.3	10.8	14.7	4.9	8.5	7.3
Median	4.7	9.7	13.3	4.2	7.9	6.8
3rd Quartile	4.0	8.6	11.5	3.3	7.3	6.4
95th Percentile	2.6	6.0	7.6	2.2	6.1	5.9
Population	97	86	84	75	75	64

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.

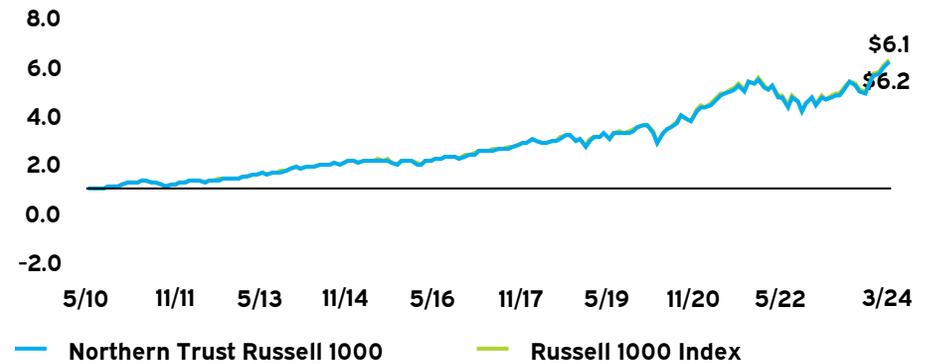
Portfolio Characteristics & Manager Profiles

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
Northern Trust Russell 1000	0.00	1.00	-2.66	1.76	0.00	1.00	99.81	-
Russell 1000 Index	0.00	1.00	-	1.77	0.00	1.00	100.00	-

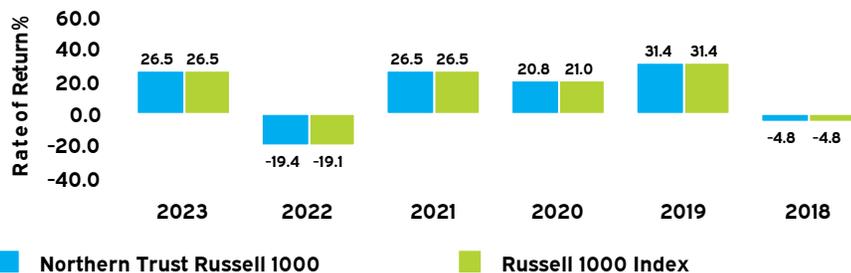
Trailing Performance



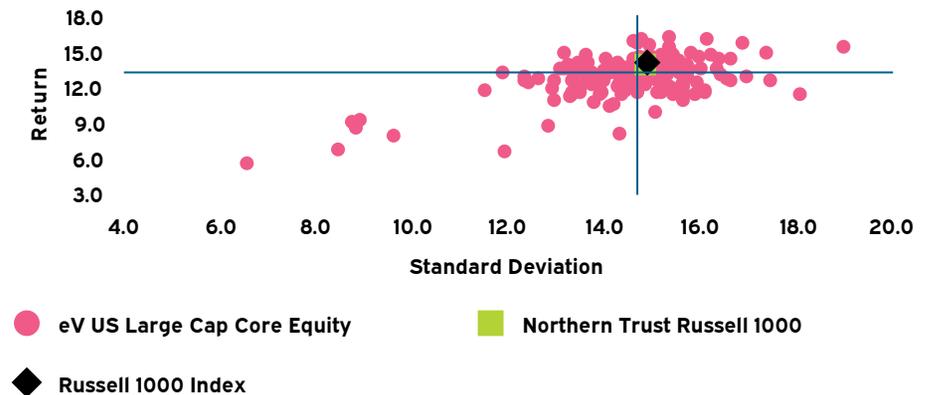
Growth of \$1 - Since Inception



Calendar Year Returns



Risk/Return - Since Inception

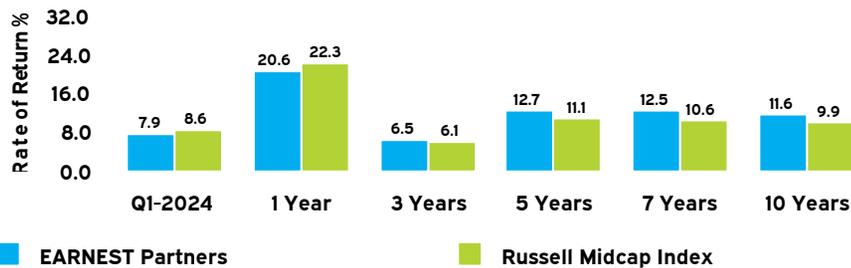


	QTD Return	QTD Risk
Northern Trust Russell 1000	10.28	1.64
Russell 1000 Index	10.30	1.64

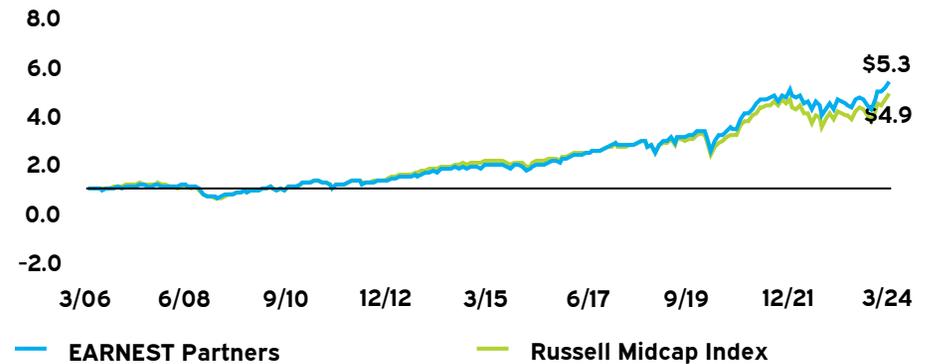
Performance shown is net of fees. Risk is measured as Standard Deviation.

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
EARNEST Partners	0.42	0.77	-0.24	0.89	1.00	0.92	86.71	58.61
Russell Midcap Index	0.00	1.00	-	0.79	0.00	1.00	100.00	100.00

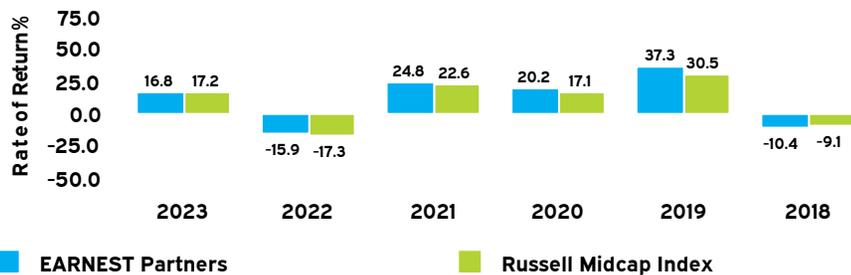
Trailing Performance



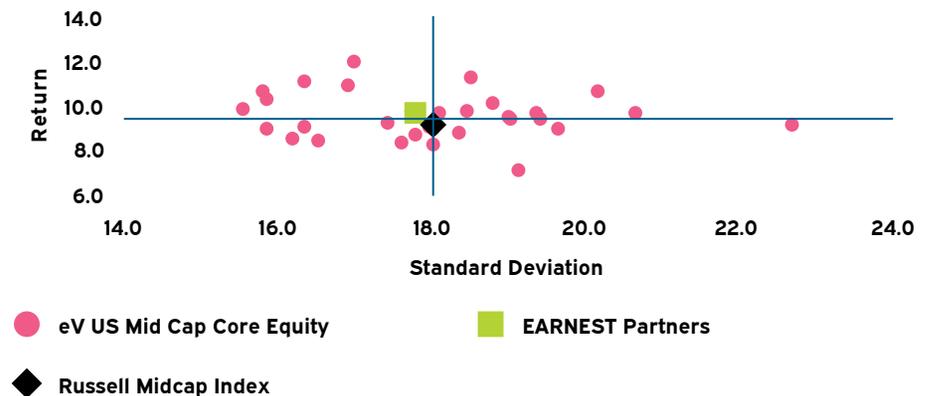
Growth of \$1 - Since Inception



Calendar Year Returns



Risk/Return - Since Inception



	QTD Return	QTD Risk
EARNEST Partners	7.88	2.44
Russell Midcap Index	8.60	3.05

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

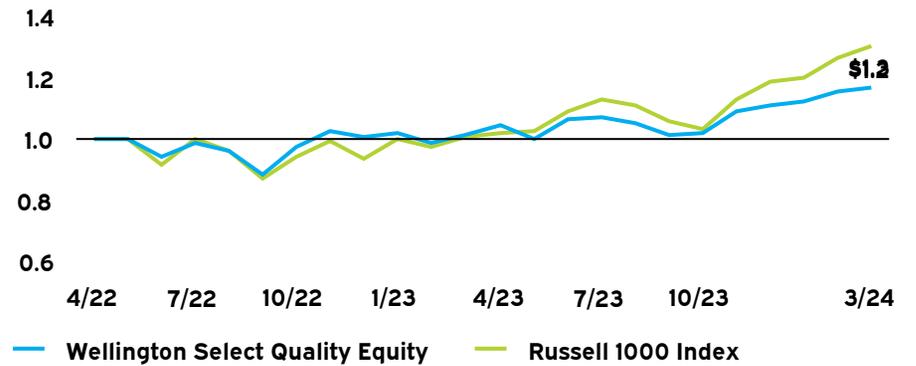
Wellington Select Quality Equity | As of March 31, 2024

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
Wellington Select Quality Equity	0.29	0.41	-1.65	1.64	1.01	0.83	50.13	-
Russell 1000 Index	0.00	1.00	-	1.77	0.00	1.00	100.00	-

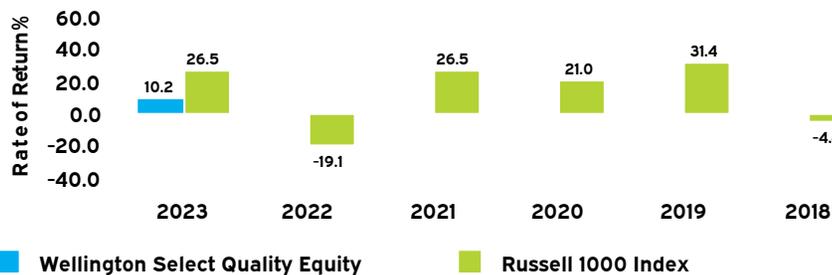
Trailing Performance



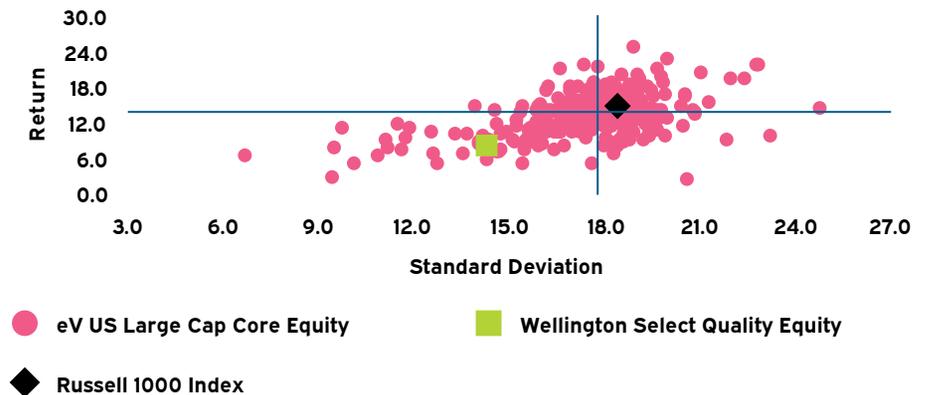
Growth of \$1 - Since Inception



Calendar Year Returns



Risk/Return - Since Inception



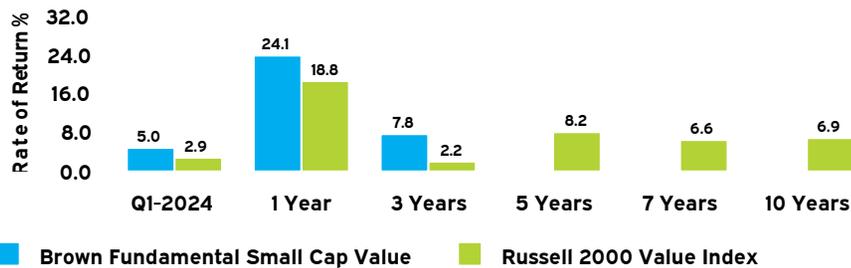
	QTD Return	QTD Risk
Wellington Select Quality Equity	5.09	0.74
Russell 1000 Index	10.30	1.64

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

Brown Fundamental Small Cap Value | As of March 31, 2024

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
Brown Fundamental Small Cap Value	1.11	0.54	0.35	0.58	1.82	1.00	83.34	29.90
Russell 2000 Value Index	0.00	1.00	-	0.15	0.00	1.00	100.00	100.00

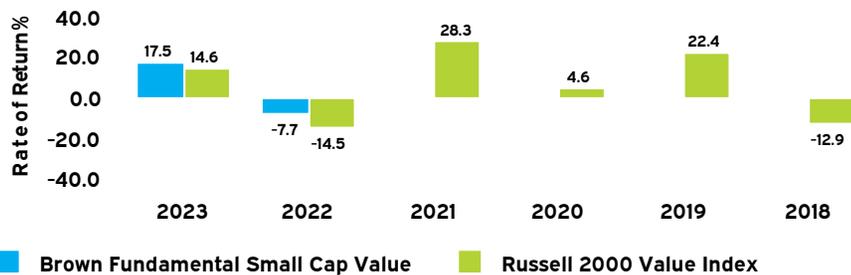
Trailing Performance



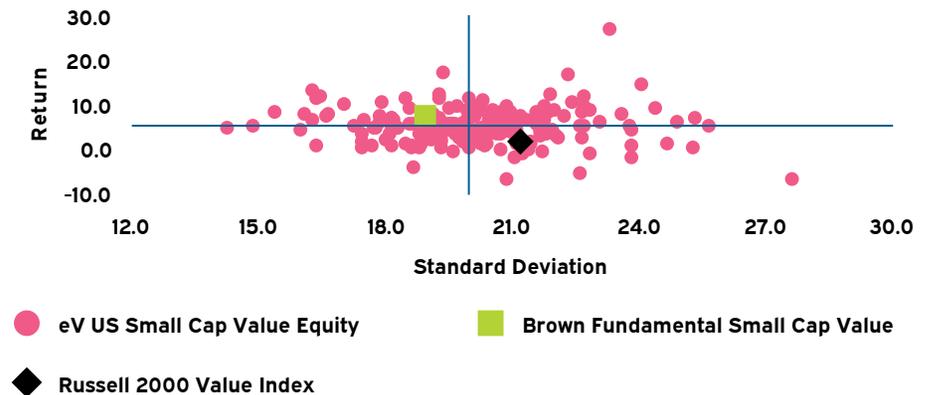
Growth of \$1 - Since Inception



Calendar Year Returns



Risk/Return - Since Inception



	QTD Return	QTD Risk
Brown Fundamental Small Cap Value	5.03	2.15
Russell 2000 Value Index	2.90	3.97

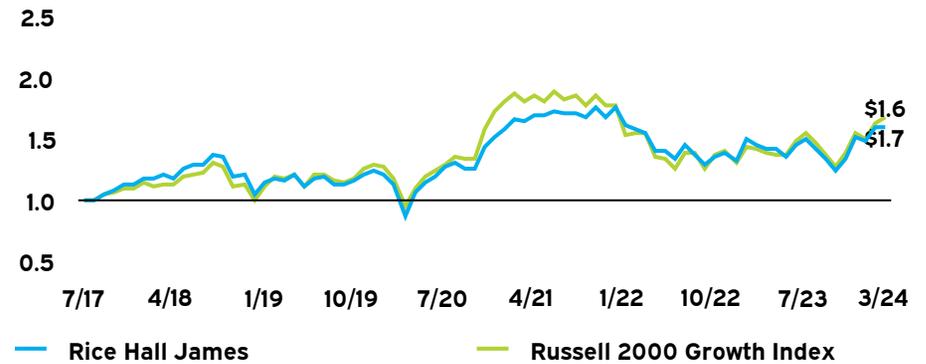
Performance shown is net of fees. Risk is measured as Standard Deviation.

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
Rice Hall James	-0.06	0.74	-0.41	0.38	1.78	0.87	64.62	48.57
Russell 2000 Growth Index	0.00	1.00	-	0.46	0.00	1.00	100.00	100.00

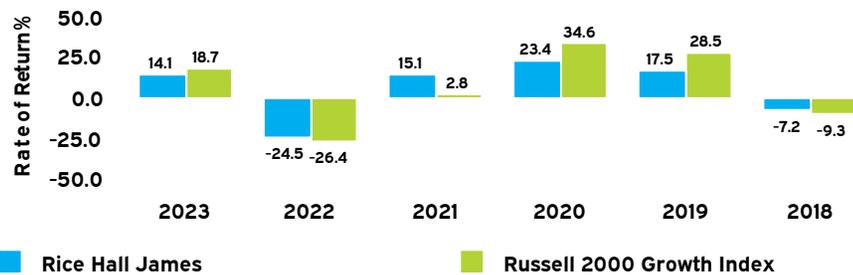
Trailing Performance



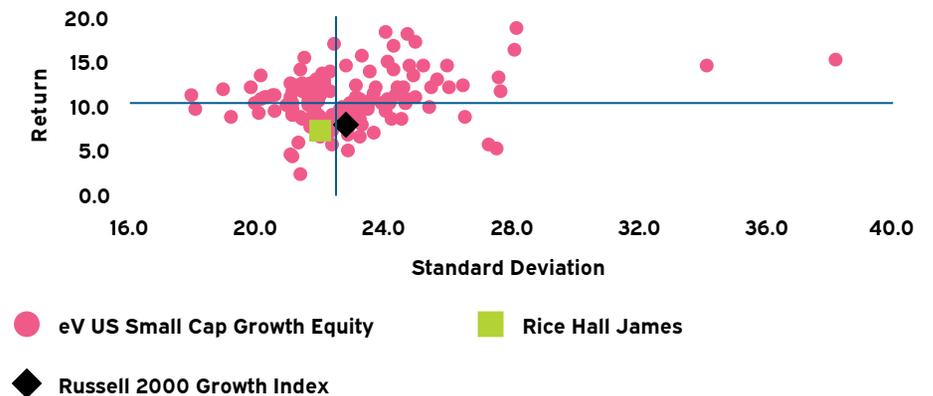
Growth of \$1 - Since Inception



Calendar Year Returns



Risk/Return - Since Inception



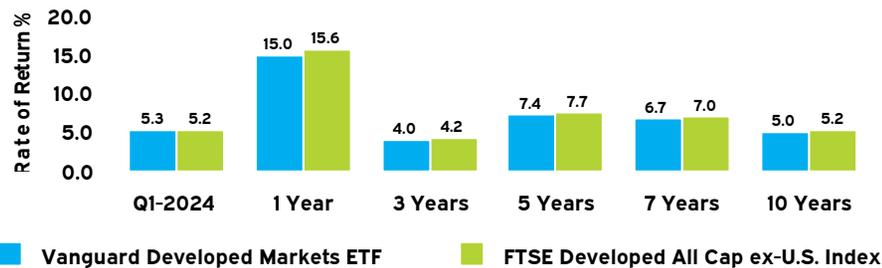
	QTD Return	QTD Risk
Rice Hall James	5.40	3.65
Russell 2000 Growth Index	7.58	4.63

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

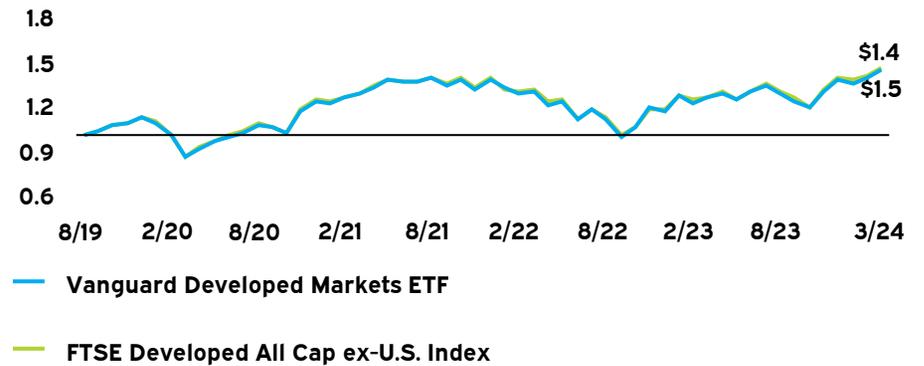
Vanguard Developed Markets ETF | As of March 31, 2024

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
Vanguard Developed Markets ETF	-0.26	1.19	0.08	0.66	0.68	0.91	116.42	305.54
FTSE Developed All Cap ex-U.S. Index	0.00	1.00	-	0.78	0.00	1.00	100.00	100.00

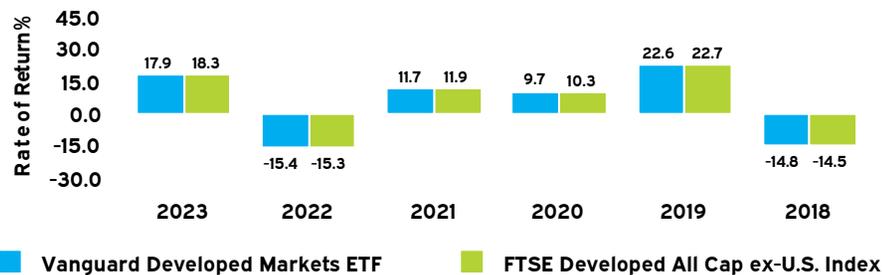
Trailing Performance



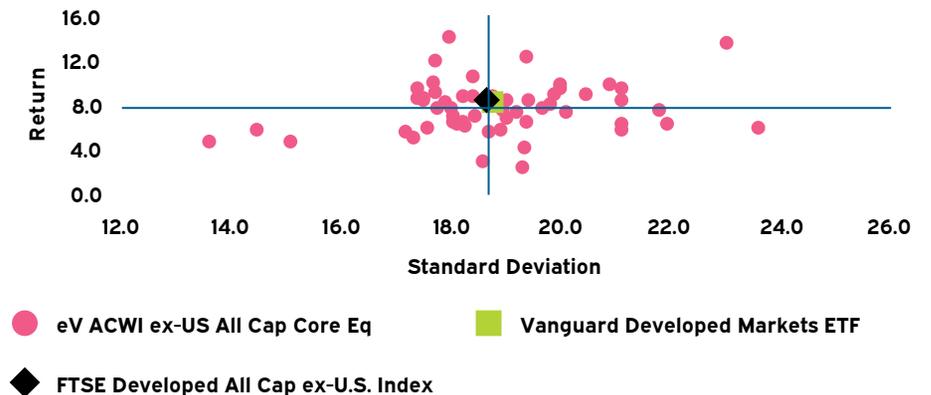
Growth of \$1 - Since Inception



Calendar Year Returns



Risk/Return - Since Inception



	QTD Return	QTD Risk
Vanguard Developed Markets ETF	5.35	2.05
FTSE Developed All Cap ex-U.S. Index	5.19	1.65

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

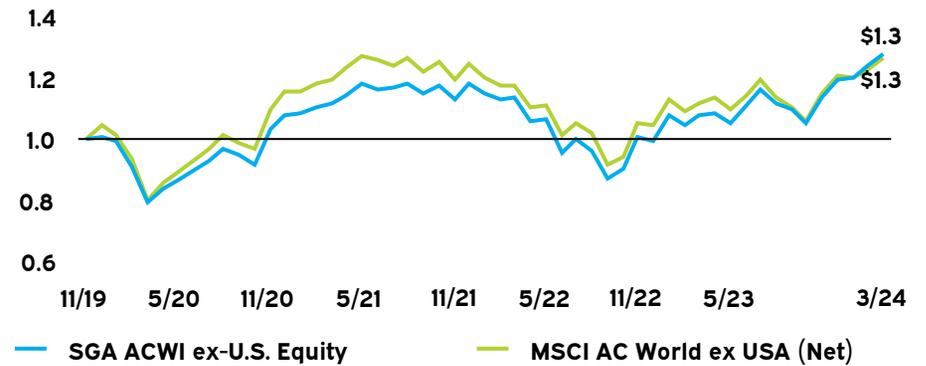
SGA ACWI ex-U.S. Equity | As of March 31, 2024

	Alpha	Beta	Information Ratio	Sharpe Ratio	Tracking Error	R-Squared	Up Capture	Down Capture
SGA ACWI ex-U.S. Equity	1.11	0.74	1.04	1.27	0.68	0.88	115.14	-27.96
MSCI AC World ex USA (Net)	0.00	1.00	-	0.62	0.00	1.00	100.00	100.00

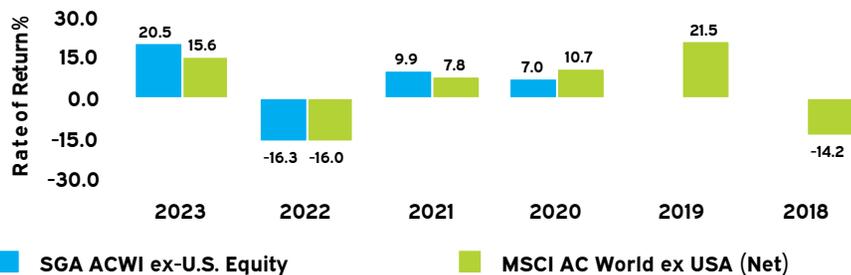
Trailing Performance



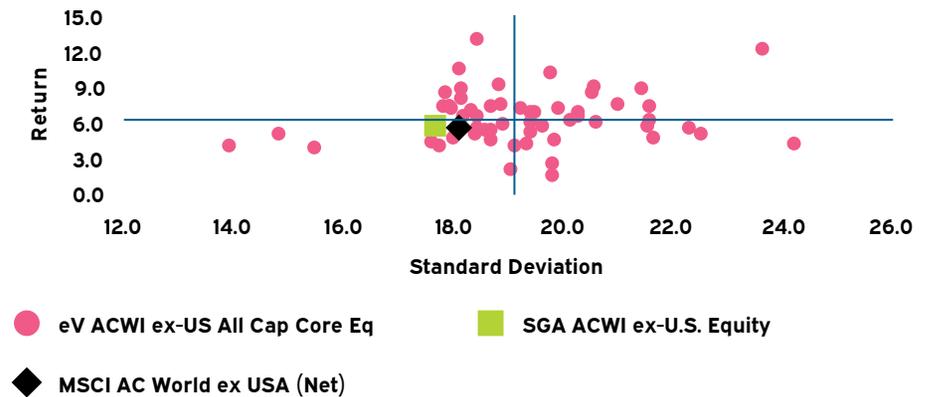
Growth of \$1 - Since Inception



Calendar Year Returns



Risk/Return - Since Inception



	QTD Return	QTD Risk
SGA ACWI ex-U.S. Equity	6.91	1.44
MSCI AC World ex USA (Net)	4.69	1.82

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

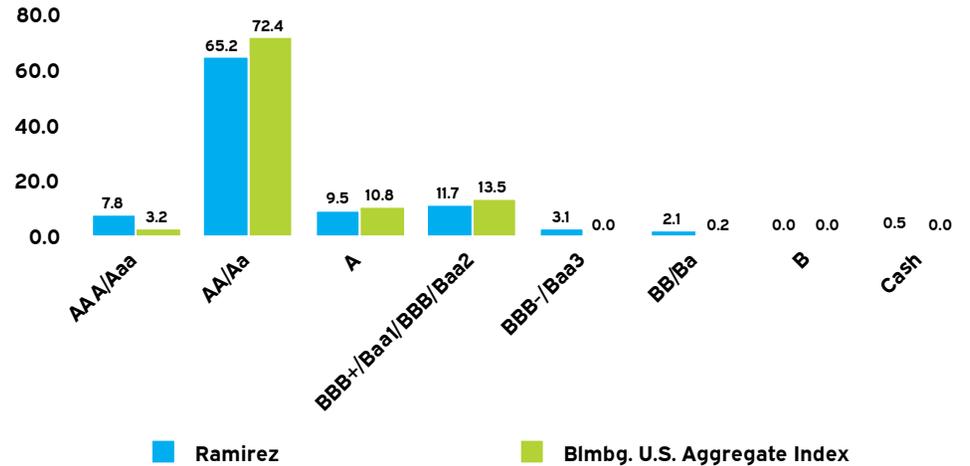
Portfolio Performance Summary

	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Ramirez	-0.5	2.1	-2.1	0.6
Blmbg. U.S. Aggregate Index	-0.8	1.7	-2.5	0.4

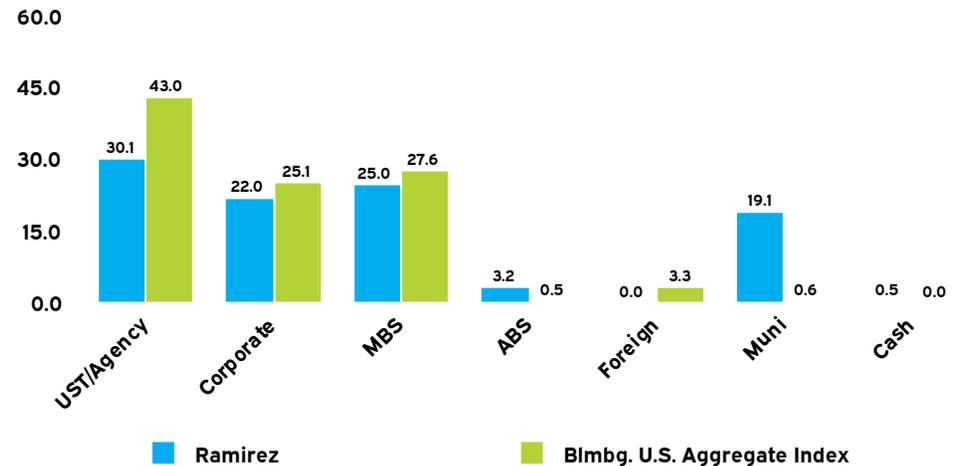
Portfolio Fixed Income Characteristics

	Q1-24 Portfolio	Q4-23 Portfolio
Yield To Maturity	5.0	4.9
Average Duration	6.1	5.8
Average Quality	AA	AA
Weighted Average Maturity	8.9	8.6

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

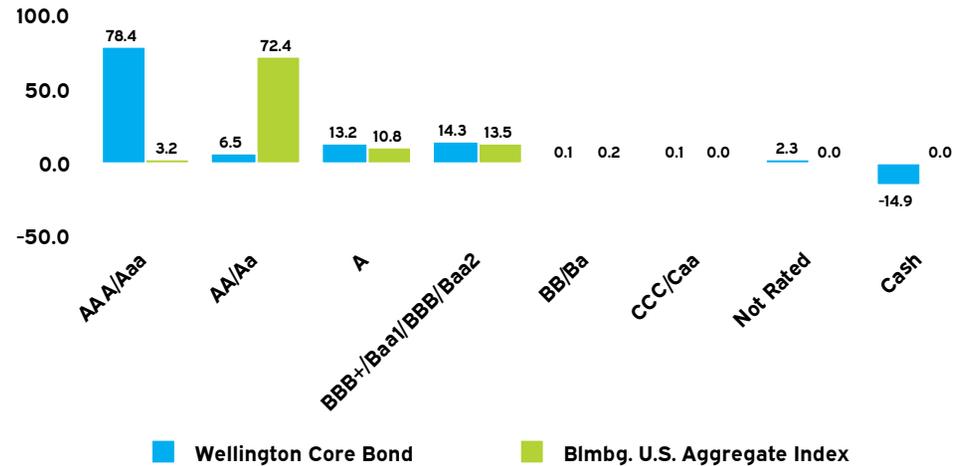
Portfolio Performance Summary

	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Wellington Core Bond	-0.2	3.2	-2.4	-
Blmbg. U.S. Aggregate Index	-0.8	1.7	-2.5	0.4

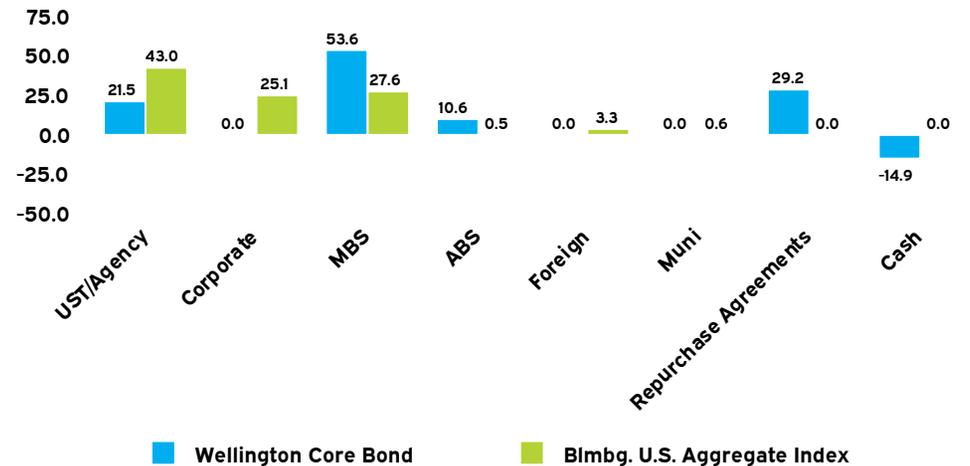
Portfolio Fixed Income Characteristics

	Q1-24 Portfolio	Q4-23 Portfolio
Yield To Maturity	5.3	4.9
Average Duration	6.5	6.5
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

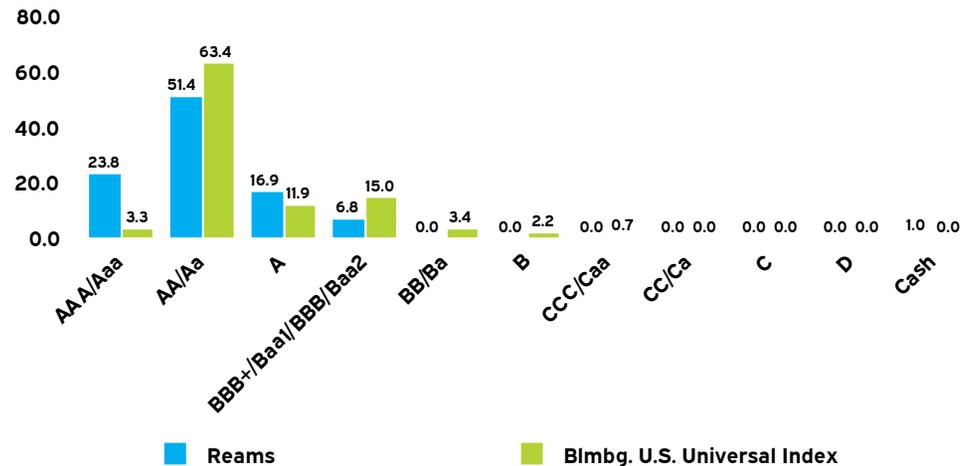
Portfolio Performance Summary

	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Reams	-0.5	2.3	-1.6	3.0
Bimbg. U.S. Universal Index	-0.5	2.7	-2.1	0.7

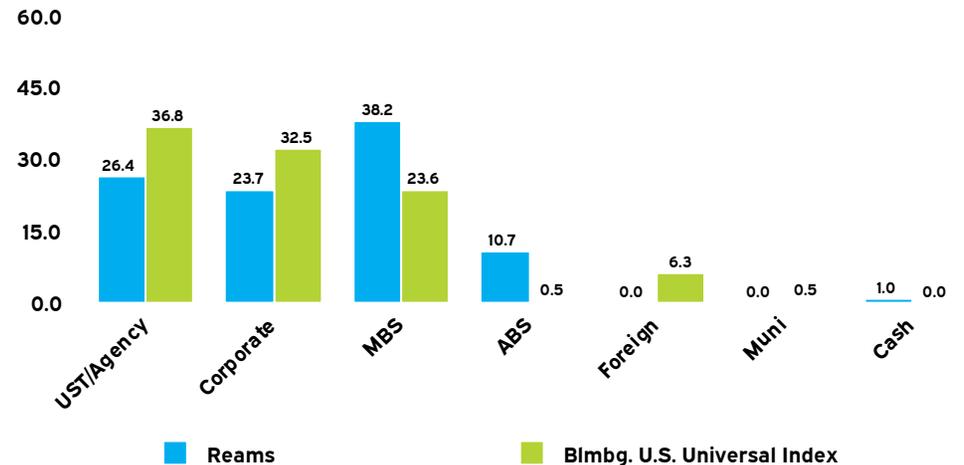
Portfolio Fixed Income Characteristics

	Q1-24 Portfolio	Q4-23 Portfolio
Yield To Maturity	5.1	5.1
Average Duration	6.5	6.2
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 U.S. High Yield Index
Peer Group	eV US High Yield Fixed Inc

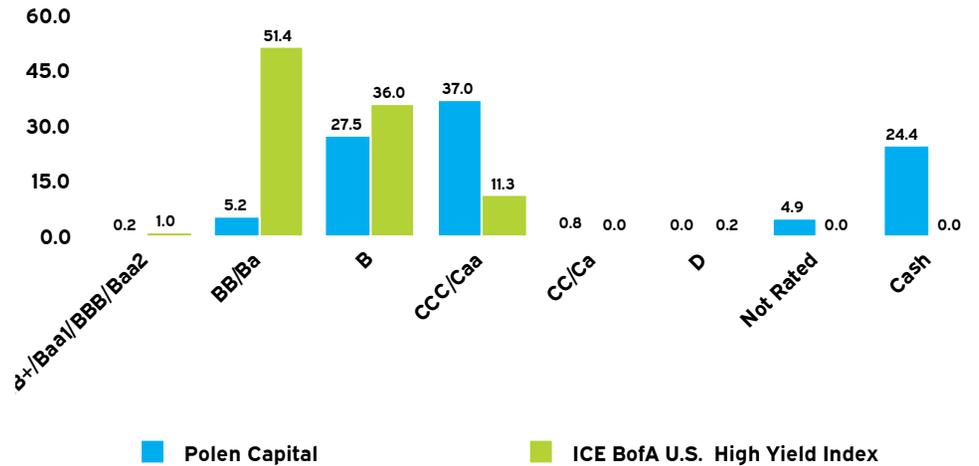
Portfolio Performance Summary

	QTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)
Polen Capital	3.0	12.1	3.9	4.6
ICE BofA U.S. High Yield Index	1.5	11.0	2.2	4.0

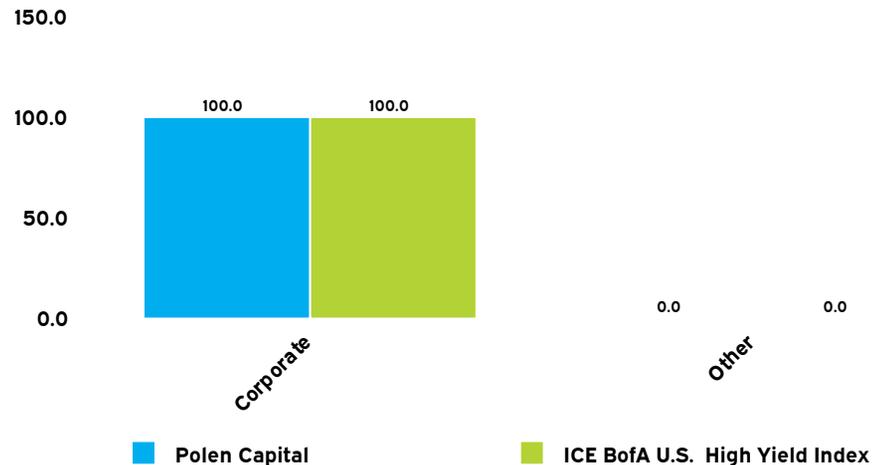
Portfolio Fixed Income Characteristics

	Q1-24 Portfolio	Q4-23 Portfolio
Yield To Maturity	9.2	9.7
Average Duration	2.2	1.5
Average Quality	B	CCC
Weighted Average Maturity	-	-

Credit Quality Allocation



Sector Allocation

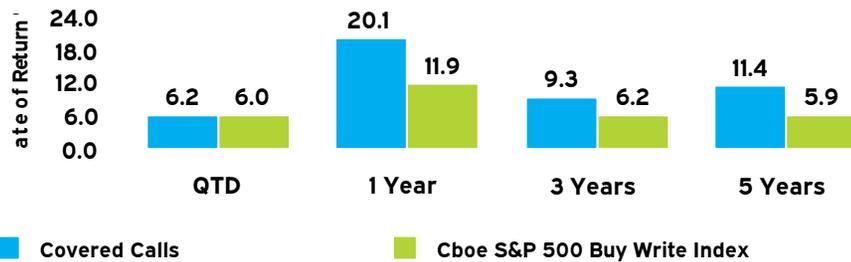


Performance shown is net of fees.

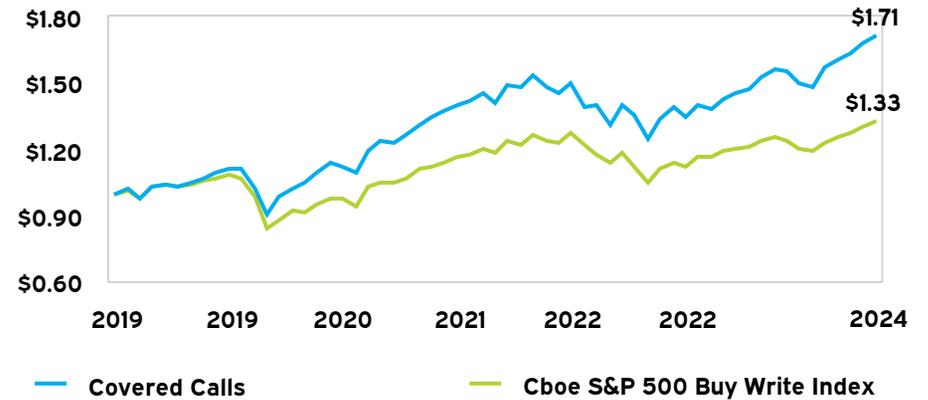
Covered Calls | As of March 31, 2024

	Return	Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Capture	Down Capture	Inception Date
Covered Calls	9.5	11.4	3.2	1.0	0.9	4.0	124.0	105.0	04/01/2014
Cboe S&P 500 Buy Write Index	5.9	10.4	0.0	1.0	-	0.0	100.0	100.0	
Parametric BXM	7.5	9.3	2.3	0.9	0.4	3.1	99.7	85.4	04/01/2014
Cboe S&P 500 Buy Write Index	5.9	10.4	0.0	1.0	-	0.0	100.0	100.0	
Parametric DeltaShift	11.5	13.8	4.4	1.2	0.9	6.3	147.7	121.8	04/01/2014
Cboe S&P 500 Buy Write Index	5.9	10.4	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 March 31, 2024

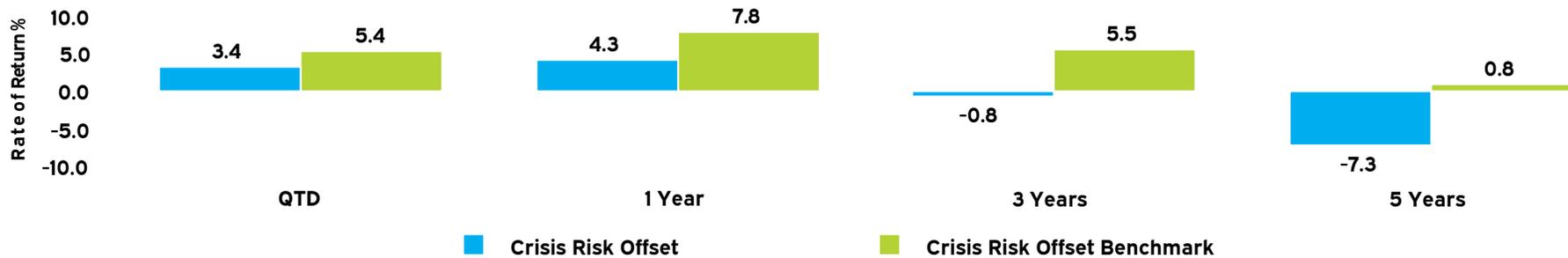
	Return	Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Capture	Down Capture	Inception Date
Crisis Risk Offset	-6.8	10.9	-7.0	0.8	-0.7	10.1	32.2	129.9	08/01/2018
Crisis Risk Offset Benchmark	1.0	5.4	0.0	1.0	-	0.0	100.0	100.0	
Kepos Alternative Risk Premia	9.1	6.8	2.2	0.8	0.2	5.1	93.5	62.3	02/01/2022
SG Multi Alternative Risk Premia Index	8.2	5.4	0.0	1.0	-	0.0	100.0	100.0	
Versor Trend Following	1.5	15.0	-5.8	1.0	-0.8	7.1	80.8	111.6	04/01/2022
SG Trend Index	7.9	13.0	0.0	1.0	-	0.0	100.0	100.0	
Vanguard Long-Term Treasury ETF	-4.2	15.2	0.0	1.0	-0.1	1.1	101.1	101.2	07/01/2019
Blmbg. U.S. Government: Long Term Bond Index	-4.1	15.0	0.0	1.0	-	0.0	100.0	100.0	

Correlation Matrix

3 Months Ending March 31, 2024

	Crisis Risk Offset	MSCI AC World Index Value	S&P 500 Index	Blmbg. Global Aggregate Index
Crisis Risk Offset	1.00			
MSCI AC World Index Value	1.00	1.00		
S&P 500 Index	0.59	0.53	1.00	
Blmbg. Global Aggregate Index	0.78	0.83	-0.04	1.00

Trailing Period Performance



Performance shown is net of fees.

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		
04/01/2014	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

Managers on Watch / Probation Status

Manager & Strategy	Concern Triggering Watch Status	Date of Corrective Action ¹	Months Since Placement	Performance ² Since Placement	Peer Group Rank Since Placement
Versor Trend Following	Organization / Performance	9/27/2023	6	-4.4	N/A
<i>Benchmark: SG Trend Index</i>	--	--	--	6.6	--

Investment Manager Monitoring Criteria³

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 ⁴ < 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 Date when the Board voted to either monitor a manager at a heightened level or place it on probation.

² Performance Since Placement starts at the beginning of the full month following the date of corrective action. Performance shown is net of fees and annualized after one year mark.

³ Per Investment Policy Statement and Manager Guidelines ("IPS"), Revised 5/31/2023, section H. Currently, only Domestic Equity, International Equity, and Fixed Income have stated quantitative monitoring criteria in the IPS.

⁴ 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

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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.