



AGENDA REPORT

TO: Jestin D. Johnson
City Administrator

FROM: Erin Roseman
Finance Director

SUBJECT: Oakland PFRS's Investment Portfolio
for Quarter Ending March 31, 2023

DATE: June 7, 2023

City Administrator Approval


Jestin Johnson (Jun 14, 2023 08:18 PDT)

Date: Jun 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 March 31, 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 March 31, 2023. During the most recent quarter, the PFRS Total Portfolio generated an absolute return of 4.5 percent, gross of fees, underperforming its policy benchmark by -0.6 percent. The portfolio underperformed its benchmark over the latest one-year period, outperformed for the three-year period and matched its benchmark over the 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	4.5	-5.5	9.9	5.3
Policy Benchmark	5.1	-5.4	8.6	5.3
Excess Return	-0.6	-0.1	1.3	0.0

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 a Actuarial Value of Assets (AVA) basis. This is discussed in more detail in the "PFRS Actuarial Valuation" section of this report.

BACKGROUND / LEGISLATIVE HISTORY

The Oakland Police and Fire Retirement System is a closed defined benefit plan established by the City of Oakland's (the "City") Charter. PFRS is governed by a board of seven trustees (the "PFRS Board"). PFRS covers the City's sworn police and fire employees hired prior to July 1, 1976. PFRS was closed to new members on June 30, 1976. As of March 31, 2023, PFRS had 665 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 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 2022/2023 required contribution of \$32.7 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 provides assurance of the accuracy of information contained therein.

PFRS' Membership

The City Charter establishes plan membership, contribution, and benefit provisions. The System serves the City's sworn employees hired prior to July 1, 1976, who have not transferred to the

California Public Employees' Retirement System ("CalPERS"). As of March 31, 2023, the System's membership was 665 as shown on **Table 1** below.

Table 1			
PFRS Membership as of March 31, 2023			
Membership	POLICE	FIRE	TOTAL
Retiree	286	165	451
Beneficiary	<u>124</u>	<u>90</u>	<u>214</u>
Total Membership	410	255	665

PFRS Investment Portfolio

As of March 31, 2023, the PFRS' portfolio had an aggregate value of \$411.18 million as shown in **Table 2**.

Table 2	
PFRS Investment Portfolio as of March 31, 2023	
Investment	Fair Value
Domestic Equities	\$168,069,634
Fixed Income	105,026,387
Covered Calls	22,993,243
International Equities	54,140,952
Crisis Risk Offset	39,437,113
Credit	8,909,576
Cash	12,605,144
Total Portfolio	<u>\$411,182,049</u>

As of March 31, 2023, the PFRS portfolio had an aggregate value of \$411.2 million. This represents an \$18.1 million increase in investment value after \$5.4 million in outflows for the benefit payments over the quarter. During the previous one-year period, the PFRS Total Portfolio decreased in value by \$24.8 million after drawdowns of \$13.4 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 March 31, 2023		
Total Plan Value	1 Quarter	1 Year
Beginning Market Value	\$398,501,201	\$449,373,445
Investment Drawdowns for Benefit Payments	(5,442,419)	(13,425,368)
Gain/(Loss) on Investment	18,123,266	(24,766,028)
Ending Market Value	\$411,182,049	\$411,182,049

PFRS Investment Performance

During the most recent quarter ending March 31, 2023, the PFRS Total Portfolio generated an absolute return of 4.5 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 period and kept pace with the benchmark over the five-year period.

Over the most recent quarter ending March 31, 2023, the Plan's Domestic Equity allocation underperformed its benchmark by -2.0 percent. The Plan's International Equity allocation outperformed its benchmark by 1.8 percent. The Plan's Fixed Income allocation outperformed its benchmark of 0.5 percent. The Plan's Credit allocation outperformed its benchmark by 0.1 percent. The Plan's Crisis Risk Offset allocation underperformed its benchmark by -1.1 percent, while the Covered Calls allocation outperformed its benchmark by 0.2 percent. **Table 4** shows PFRS recent investment performance in comparison to its corresponding benchmarks.

Table 4 PFRS Asset Class Performance as of March 31, 2023				
Investment Type	Quarter	1 Year	3 Year	5 Year
PFRS Total Fund	4.5	-5.5	9.9	5.3
PFRS Policy Benchmark	5.1	-5.4	8.6	5.3
Excess Returns	-0.6	-0.1	1.3	0.0
PFRS Domestic Equity	5.2	-7.2	18.6	9.5
Benchmark: Russell 3000	7.2	-8.6	18.5	0.4
Excess Returns	-2.0	1.4	0.1	-0.9

Investment Type	Quarter	1 Year	3 Year	5 Year
PFRS International Equity	8.7	-3.9	12.2	3.6
Benchmark: MSCI ACWI Ex US	6.9	-5.1	11.8	2.5
Excess Returns	1.8	1.2	0.4	1.1
PFRS Fixed Income	3.4	-4.2	-0.6	1.4
Benchmark: Bloomberg Barclays	2.9	-4.6	-2.0	1.0
Excess Returns	0.5	0.4	1.4	0.4
PFRS Credit	3.7	-3.1	10.4	3.2
Benchmark: Bloomberg US High Yield	3.6	-3.3	5.9	3.2
Excess Returns	0.1	0.2	4.5	0.0
PFRS Crisis Risk Offset	0.0	-6.5	-8.7	-8.2
Benchmark: SG Multi Alt Risk Premia	1.1	6.4	2.1	n/a
Excess Returns	-1.1	-12.9	-10.8	n/a
PFRS Covered Calls	6.2	-4.7	16.6	9.1
Benchmark: CBOE BXM	6.0	-6.9	12.3	4.4
Excess Returns	0.2	2.2	4.3	4.7
Cash	0.0	0.0	0.0	1.0
Citigroup 3 Month T-Bill Index	1.1	2.6	1.0	1.4
Excess Returns	-1.1	-2.6	-1.0	-0.4

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 fiscal year 2017/2018. The City resumed contributions to the System on July 1, 2017. The required contribution for fiscal year 2022/2023 is \$32.71 million. **Table 5** below shows a summary of 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
2023	\$32.7
2024	40.8
2025	44.0
2026	48.8

FISCAL IMPACT

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

PUBLIC OUTREACH / INTEREST

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

COORDINATION

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

SUSTAINABLE OPPORTUNITIES

Economic: Whenever possible, the PFRS Board seeks to benefit the local Oakland based economy. In 2006, the PFRS Board, 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 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 Council receive this informational report on the Oakland Police and Fire Retirement System ("PFRS") Investment Portfolio as of March 31, 2023.

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

Respectfully submitted,



[Erin Roseman \(Jun 13, 2023 17:38 PDT\)](#)

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, 2023

Oakland Police and Fire Retirement System

Quarterly Performance Report
as of March 31, 2023

Agenda

1. Executive Summary
2. Economic and Market Update as of March 31, 2023
3. Quarterly Performance as of March 31, 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 **\$411.2 million**.

→ This represents a \$18.1 million capital appreciation after \$5.4 million in net outflows over the quarter.

→ Over the past 12-months, the OPFRS Total Portfolio faced a \$24.8 million depreciation, after withdrawals totaling \$13.4 million for net outflows including benefit payments.

→ As of 03/31/2023, all the asset classes were within acceptable allocation ranges relative to policy targets.¹

Investment Performance

→ During the most recent quarter, the OPFRS portfolio generated an absolute return of 4.5%, gross of fees, underperforming its policy benchmark² by (-0.6%).

→ The portfolio underperformed the benchmark slightly over the trailing 1-year period while outperforming it over the 3-year period. Over the longer 5-year trailing period, the portfolio matched with the Policy Benchmark.

	Quarter	FYTD	1 Year	3 Year	5 Year
Total Portfolio (Gross)	4.5	5.3	(-5.5)	9.9	5.3
Policy Benchmark	5.1	6.3	(-5.4)	8.6	5.3
Excess Return	(-0.6)	(-1.0)	(-0.1)	1.3	0.0
Reference: Total Portfolio (Net) ³	4.5	5.1	(-5.7)	9.6	5.0

¹ Asset allocation as of 03/31/2023. 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% SG Multi Alternative Risk Premia Index / 2% Bloomberg US High Yield thereafter.

³ Longer-term (>1 year) Net of fee returns include estimates based on OPFRS manager fee schedule (approximately 34 bps). Fiscal year begins on July 01.

Total Portfolio Review (continued)

Peer Comparison

- In comparison to its peer group¹, the portfolio has outperformed the median fund’s return over the quarter while lagging in the trailing 1-, 3-, and 5-year periods.
- Similarly, in the most recent quarter, OPFRS ranks in the 25th percentile; over the longer periods, it falls in the third quartile in the universe of Public Defined Benefit Plans with \$250 million to \$1 billion in assets.

	Quarter	FYTD	1 Year	3 Year	5 Year
Total Portfolio (Gross)	4.5	5.3	(-5.5)	9.9	5.3
Peer Group Median Fund Return	4.1	5.5	(-4.9)	11.0	6.0
OPFRS vs. Peer Median Fund	0.4	(-0.2)	(-0.6)	(-1.1)	(-0.7)
Percentile Rank	25	63	71	73	67
<i>Reference: Total Portfolio (Net)</i> ²	4.5	5.1	(-5.7)	9.6	5.0

¹ Source: Investment Metrics peer universe, Public Defined Benefit plans with \$250 million to \$1 billion in assets as of 03/31/2023.

² Longer-term (>1 year) Net of fee returns include estimates based on OPFRS manager fee schedule (approximately 34 bps).

Asset Class & Manager Highlights

- **Domestic equity** underperformed the Russell 3000 Index over the quarter and in the 5-year period. All the active managers, except **Wellington Select Quality**, outperformed their respective benchmarks in the quarter as well as almost all other available time periods.¹
- **International equity** outperformed the MSCI ACWI ex US Index for all time periods measured. The Plan's active international equity manager, **SGA MSCI ACWI ex US**, outperformed its benchmark over the quarter and the 1-year period, while slightly underperforming in the 3-year trailing period.¹ The passive **Vanguard** posted small variation¹ from the tracked benchmark over the periods measured.
- **Fixed income** outperformed the Bloomberg Universal Index across all time periods measured. The underlying managers also outperformed their respective benchmarks in all time periods, except for **Wellington Core Bond's** underperformance over the 1-year trailing period.
- The **Credit** segment, with **Polen Capital** as its only manager, outperformed the asset class's benchmark, Bloomberg US High Yield Index, in Q1, and over the 1- and 3-year periods, while matching it over the 5-year period.
- **Covered Calls** and the active DeltaShift strategy outperformed the CBOE S&P 500 Buy-Write Index across all periods measured. The passive BXM strategy outperformed the Index in all periods except over the quarter.
- The **Crisis Risk Offset** segment trailed its benchmark SG Multi Alternative Risk Premia Index across all time periods measured. Please note that the segment's current benchmark does not accurately reflect its components; a recommendation for suitable modification is presented along with this report.

¹ Wellington Select Quality has less than 1-year of performance history and Brown Fundamental Small Cap Value has less than 3-year of performance history. SGA MSCI ACWI ex US and Vanguard Developed Markets ETF have less than 5-year of performance history. 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

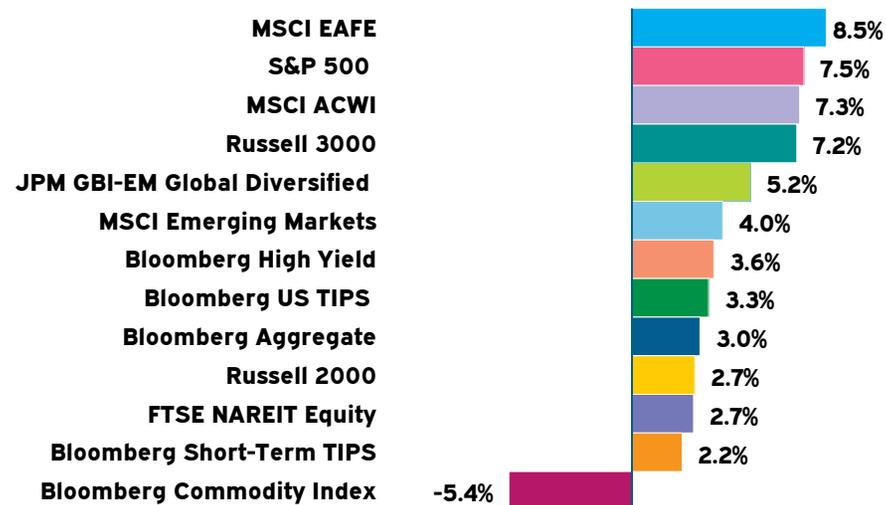
Data as of March 31, 2023

Commentary

- It was a volatile quarter for most asset classes driven by evolving monetary policy expectations and high-profile bank failures. Ultimately, investors remained focused on slowing inflation and potentially peaking rate hikes leading to positive results across most asset classes for the quarter.
- The Fed's, and others', quick responses to pressures in the banking sector brought confidence back to the markets in March with the crisis driving the terminal policy rate expectations lower.
 - US equity markets (Russell 3000) rallied in March (+2.7%) finishing the first quarter in strongly positive territory (+7.2%). Growth significantly outperformed value for the quarter, driven by the technology sector.
 - Non-US developed equity markets (MSCI EAFE +2.5%) also posted positive returns in March. They returned 8.5% for the quarter, finishing ahead of US equities.
 - Emerging market equities had positive returns for the month (+3.0%) supported by Chinese equities (+4.5%) and a weaker US dollar. They trailed developed market equities for the quarter partly due to higher US-China tensions.
 - On expectations for lower inflation and concerns over the banking sector, bonds rallied in March, with the broad US bond market (Bloomberg Aggregate) rising 2.5%. For the quarter, the broad US bond market was up 3.0%.
- This year, the path of inflation and monetary policy, slowing global growth, and the war in Ukraine, as well as recent pressures in small- and medium-sized regional banks in the US, will all be key.

Index Returns¹

Q1 2023



→ Despite volatility during the quarter, public markets, except commodities, finished the first quarter of 2023 in positive territory adding to the strong gains from the fourth quarter of last year.

¹ Source: Bloomberg and FactSet. Data is as of March 31, 2023.

Domestic Equity Returns¹

Domestic Equity	March (%)	Q1 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
S&P 500	3.7	7.5	-7.7	18.6	11.2	12.2
Russell 3000	2.7	7.2	-8.6	18.5	10.4	11.7
Russell 1000	3.2	7.5	-8.4	18.6	10.9	12.0
Russell 1000 Growth	6.8	14.4	-10.9	18.6	13.6	14.6
Russell 1000 Value	-0.5	1.0	-5.9	17.9	7.5	9.1
Russell MidCap	-1.5	4.1	-8.8	19.2	8.0	10.0
Russell MidCap Growth	1.4	9.1	-8.5	15.2	9.1	11.2
Russell MidCap Value	-3.1	1.3	-9.2	20.7	6.5	8.8
Russell 2000	-4.8	2.7	-11.6	17.5	4.7	8.0
Russell 2000 Growth	-2.5	6.1	-10.6	13.4	4.3	8.5
Russell 2000 Value	-7.2	-0.7	-13.0	21.0	4.5	7.2

US Equities: Russell 3000 Index rose 2.7% in March and 7.2% in Q1.

- US stocks rose in aggregate for the month and quarter as investors were optimistic that the Federal Reserve may end its policy tightening earlier than expected. However, turmoil in the regional banking industry weighed on segments of the market.
- The small cap and value indices were more exposed to the banking turmoil and underperformed their broad market indices by significant margins.
- Large cap stocks were driven higher by the continued strength of the technology and communication services sectors. This same dynamic contributed to the continued outperformance of growth stocks against their value counterparts across the capitalization spectrum.

¹ Source: Bloomberg. Data is as of March 31, 2023.

Foreign Equity Returns¹

Foreign Equity	March (%)	Q1 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)
MSCI ACWI ex. US	2.4	6.9	-5.1	11.8	2.5	4.2
MSCI EAFE	2.5	8.5	-1.4	13.0	3.6	5.0
MSCI EAFE (Local Currency)	0.5	7.5	3.8	14.6	6.3	7.3
MSCI EAFE Small Cap	-0.2	4.9	-9.8	12.1	0.9	5.8
MSCI Emerging Markets	3.0	4.0	-10.7	7.8	-0.9	2.0
MSCI Emerging Markets (Local Currency)	2.2	3.8	-6.6	8.8	1.9	5.0
MSCI China	4.5	4.7	-4.7	-2.6	-4.0	3.4

Foreign Equity: Developed international equities (MSCI EAFE) rose 2.5% in March and 8.5% for the quarter. Emerging market equities (MSCI EM) rose 3.0% for the month and 4.0% in the first quarter.

- Non-US equities also recovered in March with developed markets (MSCI EAFE) outpacing US equities (8.5% versus 7.2%) for the quarter and emerging markets (MSCI Emerging Markets) trailing (4.0% versus 7.2%).
- Developed market equities also benefited from expectations that monetary policy may be peaking on declining inflation. The continued weakness in the US dollar also added to the quarterly results (+1%) for US investors.
- Emerging market equities started the year with optimism over the reopening of China’s economy, but the escalation of US-China tensions and the broader banking crisis led to weaker relative results compared to developed markets.

¹ Source: Bloomberg. Data is as of March 31, 2023.

Fixed Income Returns¹

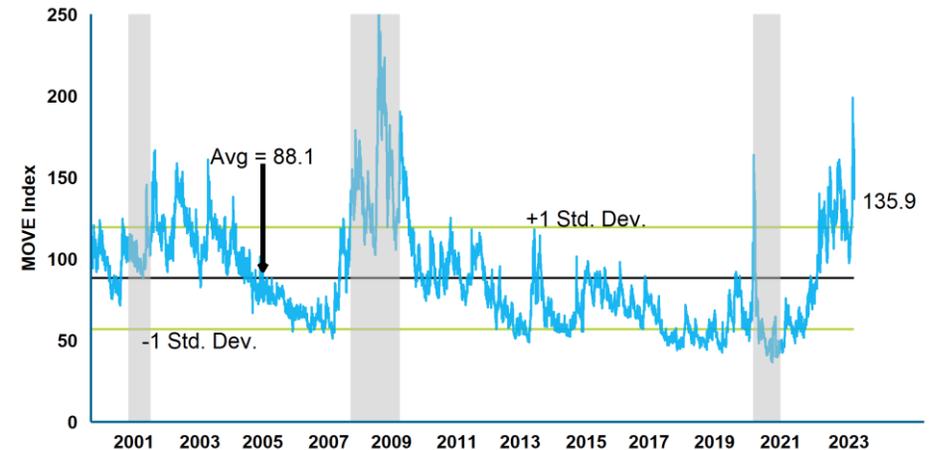
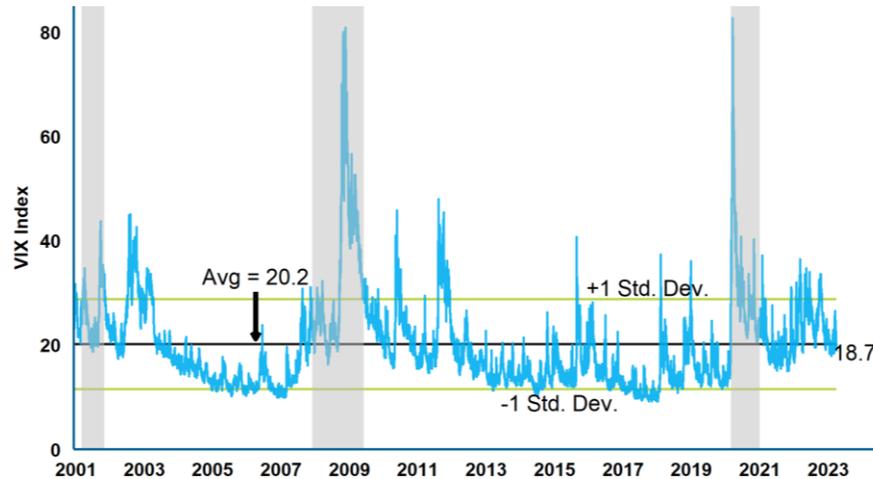
Fixed Income	March (%)	Q1 (%)	1 YR (%)	3 YR (%)	5 YR (%)	10 YR (%)	Current Yield (%)	Duration (Years)
Bloomberg Barclays Universal	2.3	2.9	-4.6	-2.0	1.0	1.6	4.8	6.3
Bloomberg Barclays Aggregate	2.5	3.0	-4.8	-2.8	0.9	1.4	4.4	6.5
Bloomberg Barclays US TIPS	2.9	3.3	-6.1	1.8	2.9	1.5	4.1	7.0
Bloomberg Short-term TIPS	1.9	2.2	-0.3	3.5	3.0	1.5	4.6	2.5
Bloomberg Barclays High Yield	1.1	3.6	-3.3	5.9	3.2	4.1	8.5	4.2
JPM GBI-EM Global Diversified (USD)	4.1	5.2	-0.7	0.9	-2.4	-1.5	7.1	5.1

Fixed Income: The Bloomberg Universal rose 2.3% in March and 2.9% in Q1 as global sovereign debt yields fell on monetary policy expectations.

- Anecdotal reports suggest bouts of flight-to-quality flows during the peak of interest rate volatility connected to the banking sector pushed sovereign debt yields lower. These concerns largely outweighed continued inflation concerns and caused investors to adjust their policy expectations.
- The broad TIPS index outperformed the broad US bond market (Bloomberg Aggregate) in March and for the quarter.
- High yield bonds had the weakest results in March driven by banking sector weakness but outperformed the broad US bond market for the quarter.

¹ Source: Bloomberg. JPM GBI-EM data is from InvestorForce. Data is as of March 31, 2023. The yield and duration data from Bloomberg is defined as the index's yield to worst and modified duration respectively.

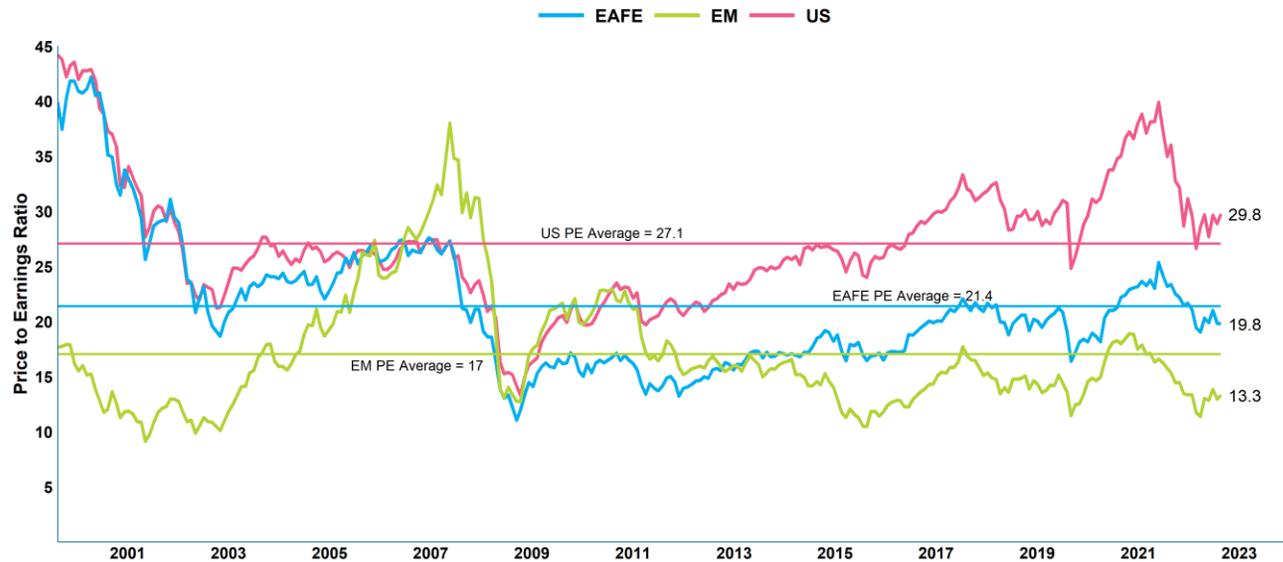
Equity and Fixed Income Volatility¹



- Volatility in equities (VIX) remained subdued through the end of March as investors continued to anticipate the end of the Fed's policy tightening.
- In comparison, the bond market remains on edge with the more policy sensitive MOVE (fixed income volatility) remaining well above its long-run average. During the quarter it hit the highest level since the Global Financial Crisis as the banking sector issues created uncertainty over how the Fed would balance fighting inflation and maintaining financial stability.

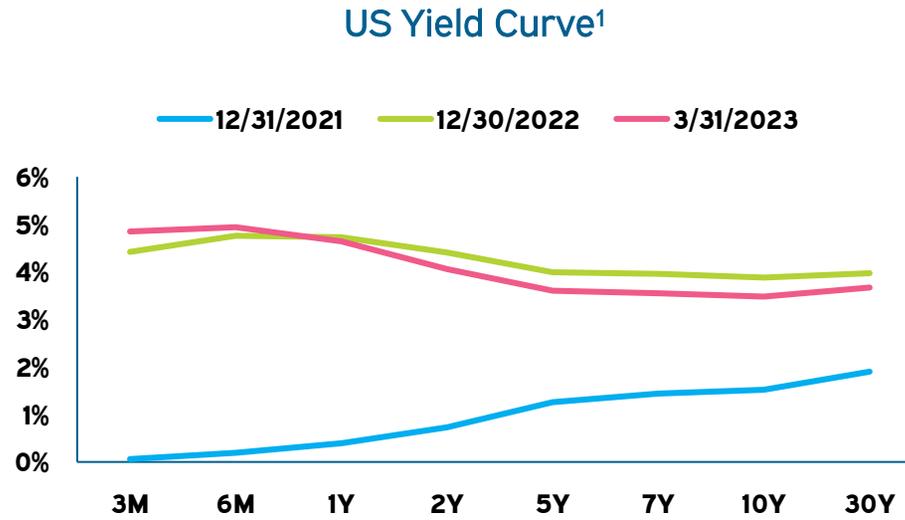
¹ Equity and Fixed Income Volatility – Source: Bloomberg. Implied volatility as measured using VIX Index for equity markets and the MOVE Index to measure interest rate volatility for fixed income markets. Data is as of March 2023. The average line indicated is the average of the VIX and MOVE values between January 2000 and March 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 slightly below their own long-term average, with those for emerging markets the lowest and well under the long-term average.

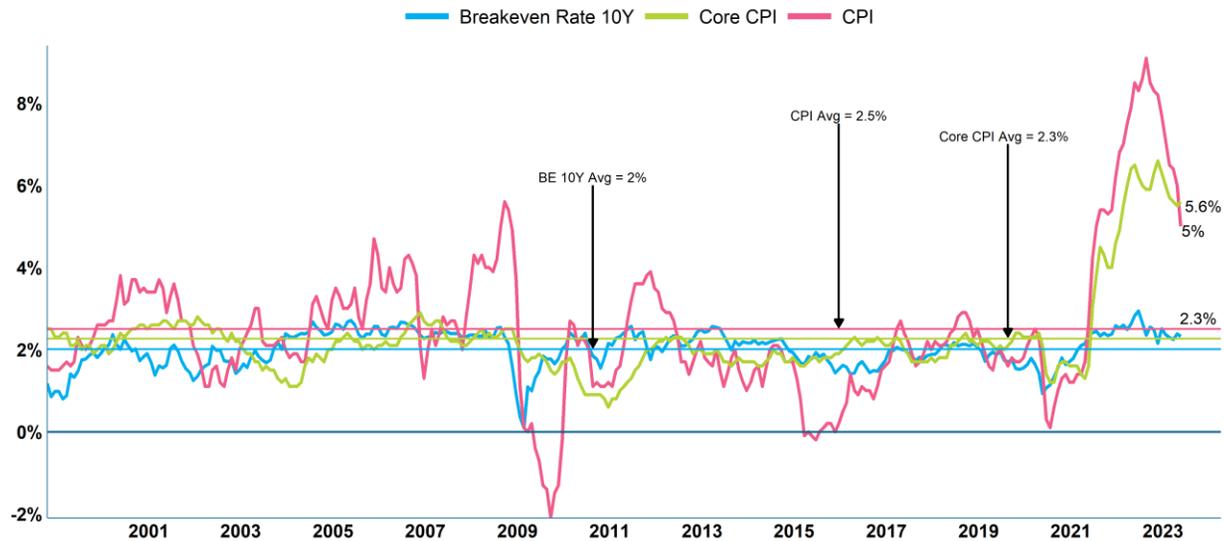
¹ US Equity Cyclically Adjusted P/E on S&P 500 Index. Source: Robert Shiller, Yale University, and Meketa Investment Group. Developed and Emerging Market Equity (MSCI EAFE and EM Index) Cyclically Adjusted P/E – Source: MSCI and Bloomberg. Earnings figures represent the average of monthly “as reported” earnings over the previous ten years. Data is as of March 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.



- It was a volatile quarter for interest rates, particularly shorter-dated maturities. Except for the shortest maturities, rates largely declined across the yield curve in the first quarter on expectations of peaking policy.
- After hitting -1.07% in early March, the yield spread between two-year and ten-year Treasuries finished the quarter at -0.55% as policy-sensitive rates at the front-end of the curve declined faster than longer maturities. The more closely watched measure by the Fed of three-month and ten-year Treasuries also remained inverted. Inversions in the yield curve have often preceded recessions.
- The Fed remained committed to fighting inflation, despite pressures in the banking sector, raising rates another 25 basis points to a range of 4.75% to 5.0% at its March meeting.

¹ Source: Bloomberg. Data is as of March 31, 2023.

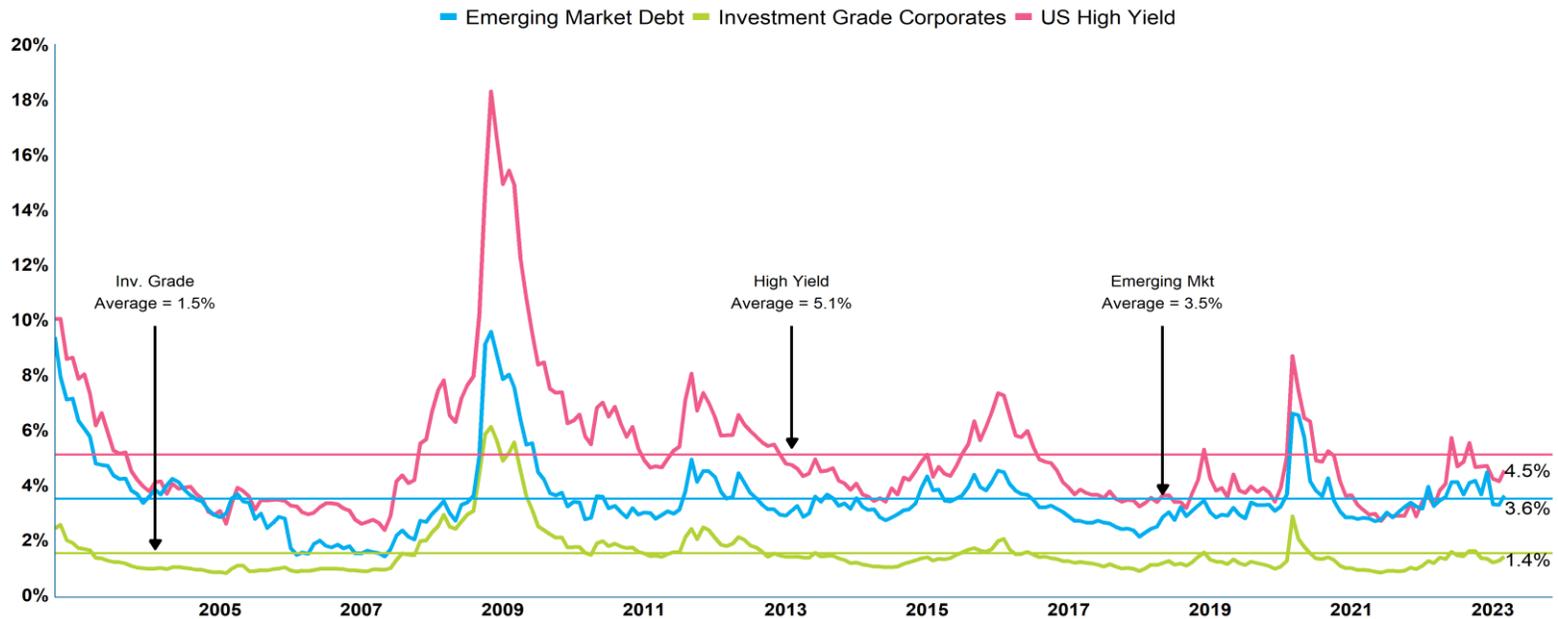
Ten-Year Breakeven Inflation and CPI¹



- Inflation continued to decline in March with the year-over-year reading falling from 6.0% to 5.0% and coming in slightly below the 5.1% expectations. The rate of price increases also slowed on a month-over-month basis (0.1% versus 0.4%), with food prices only slightly higher and energy prices declining.
- Core inflation – excluding food and energy - rose (5.6% versus 5.5%) mostly driven by transportation and housing.
- Inflation expectations (breakevens) were volatile over the month and declined on net, but nonetheless ended the month at 2.3% (roughly where it started the quarter).

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

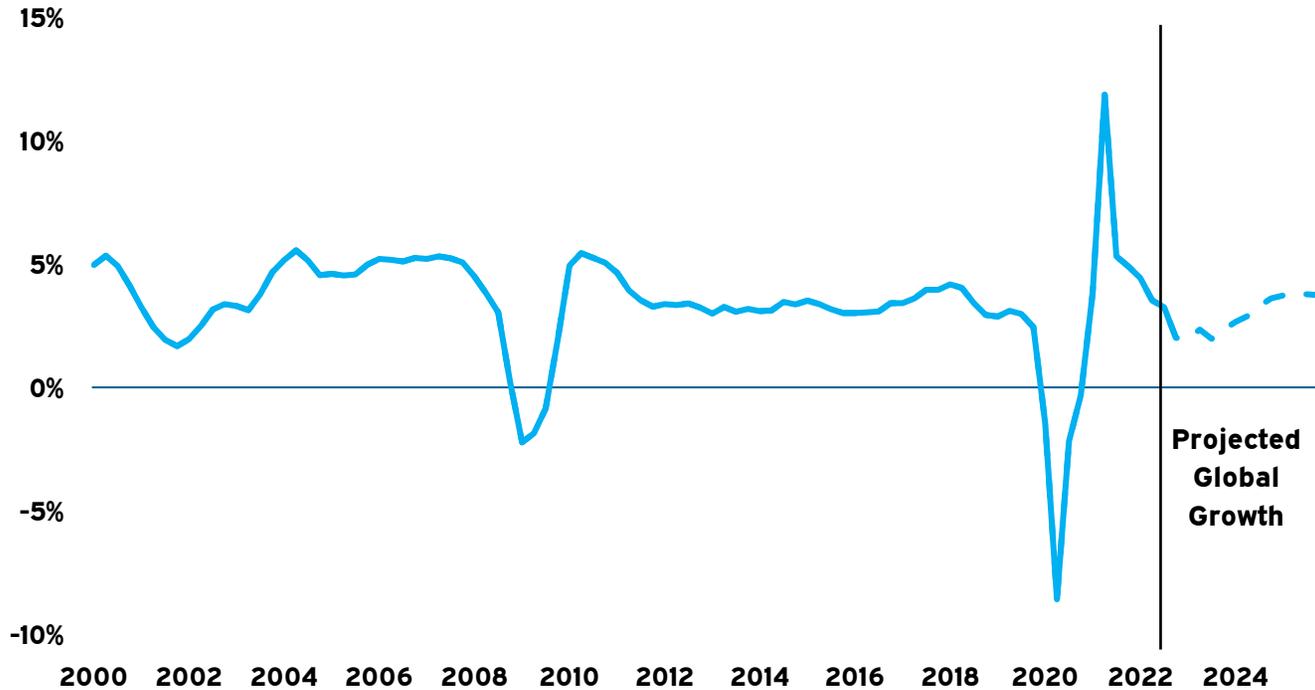
Credit Spreads vs. US Treasury Bonds¹



- Spreads (the added yield above a comparable maturity Treasury) experienced a significant spike in March during the banking crisis but subsequently declined as the Fed and others stepped in to provide support.
- High yield spreads rose from 4.1% to a peak of 5.2% in March before finishing the quarter at 4.5% (lower than the start of the quarter by 0.2%). Investment grade spreads also spiked in March (1.2% to 1.6%) but also fell from their peak to 1.4%. Emerging market spreads finished the quarter at 3.6% experiencing the largest decline (-0.9%).

¹ Sources: Bloomberg. Data is as of March 31, 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

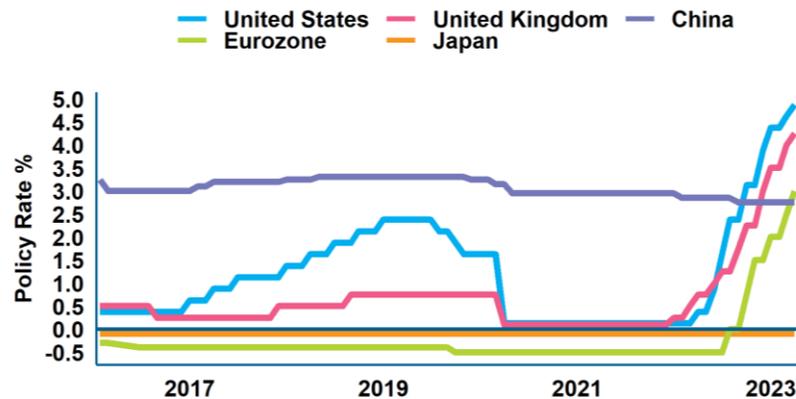


- Global economies are expected to slow in 2023 compared to 2022, with risks of recession increasing given persistently high inflation and related tighter monetary policy.
- The delicate balancing act of central banks trying to reduce inflation without dramatically impacting growth will remain key.

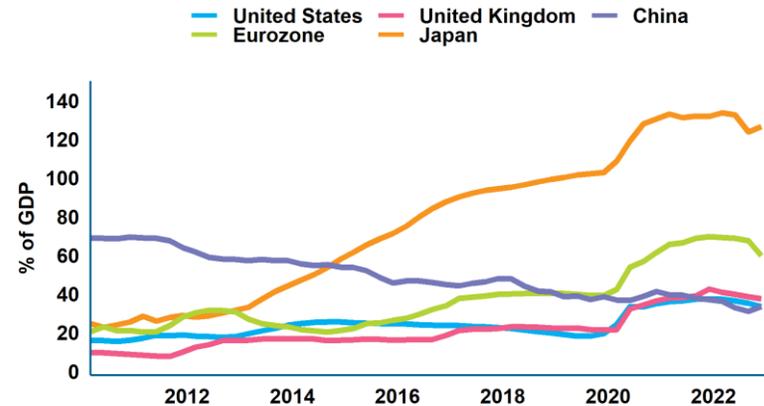
¹ Source: Oxford Economics (World GDP, US\$ prices & PPP exchange rate, real, % change YoY). Updated March 2023.

Central Bank Response¹

Policy Rates



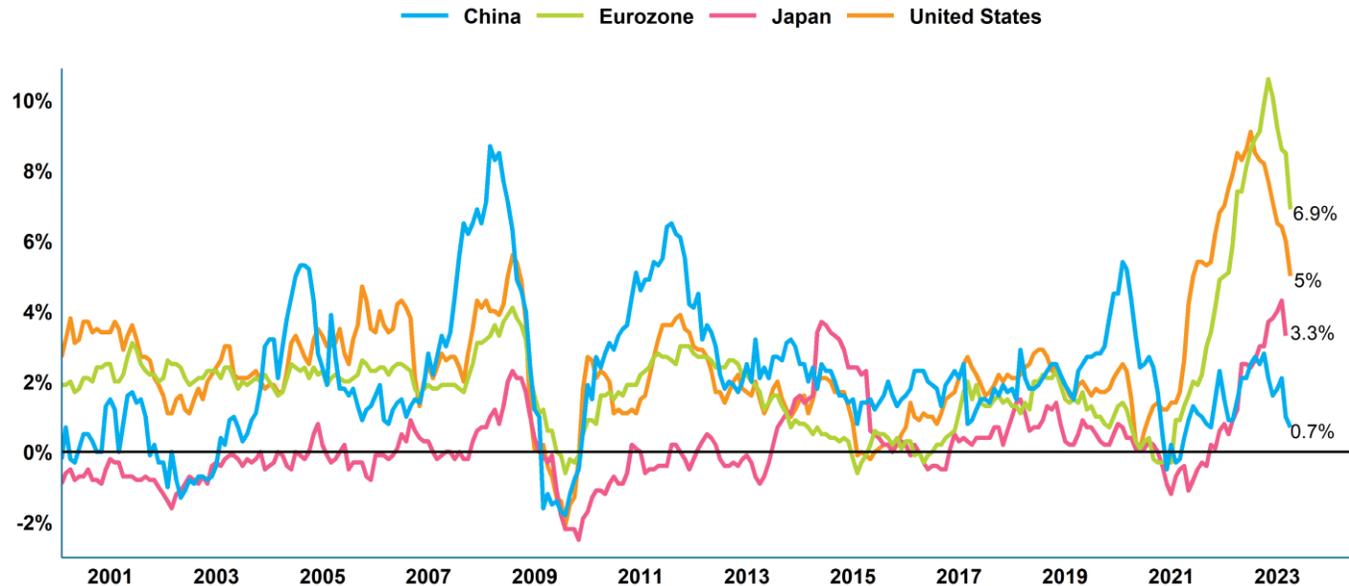
Balance Sheet as % of GDP



- 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 recent signs of instability in the banking sector have led to expectations for the slowing of policy tightening going forward.
- In March, the Fed, FDIC, and Treasury provided deposit guarantees after high profile bank failures revealed bank capital losses on US Treasuries related to higher interest rates and lax risk management.
- China's central bank is one notable exception. They are expected to maintain an accommodative monetary stance to support the economy. They cut bank reserves requirements to improve bank liquidity and banks have also securitized over \$390 billion in non-performing loans to improve loan quality ratios.
- Looking ahead the risk remains for a policy error as central banks attempt to balance bringing down inflation, maintaining financial stability, and growth.

¹ Source: Bloomberg. Policy rate data is as of March 31, 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 December 31, 2022.

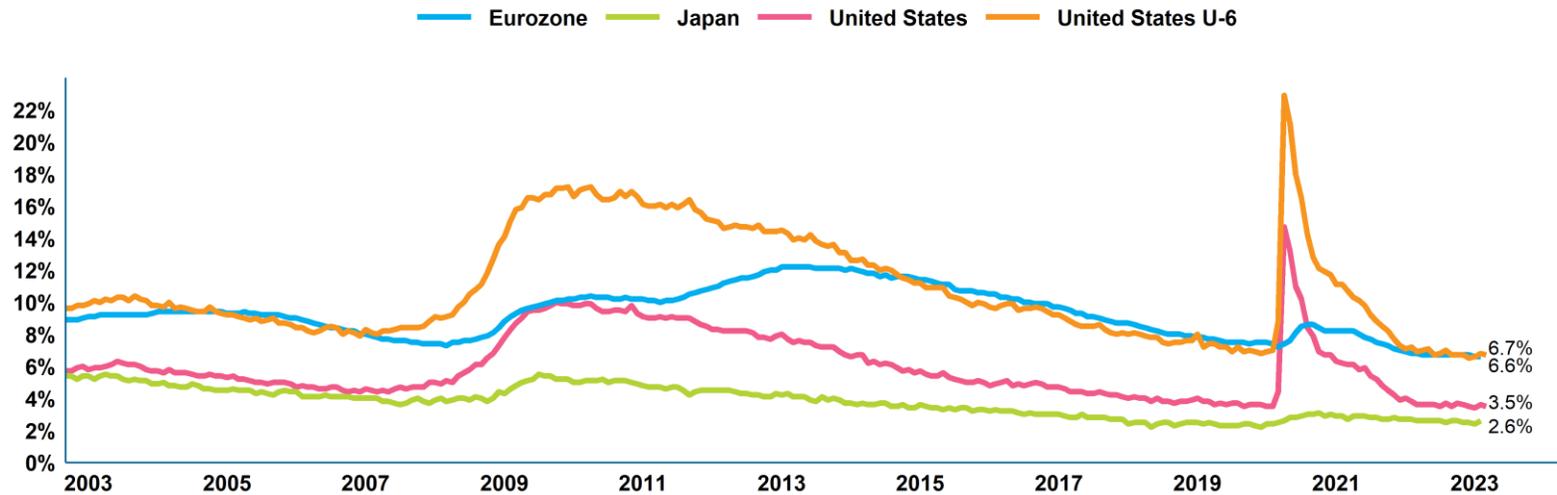
Inflation (CPI Trailing Twelve Months)¹



- Inflation increased dramatically from the lows of the pandemic, particularly in the US and Eurozone where it reached levels not seen in many decades.
- Inflation pressures are slowly declining in the US as supply issues ease, but they remain elevated, while in Europe they have also started to fall as energy prices have eased.
- Lingering supply issues related to the pandemic, record monetary and fiscal stimulus, strict COVID-19 restrictions in China, and higher commodity prices driven by the war in Ukraine have been key global drivers of inflation.

¹ Source: Bloomberg. Data is as March 31, 2023. The most recent Japanese inflation data is as of February 2023.

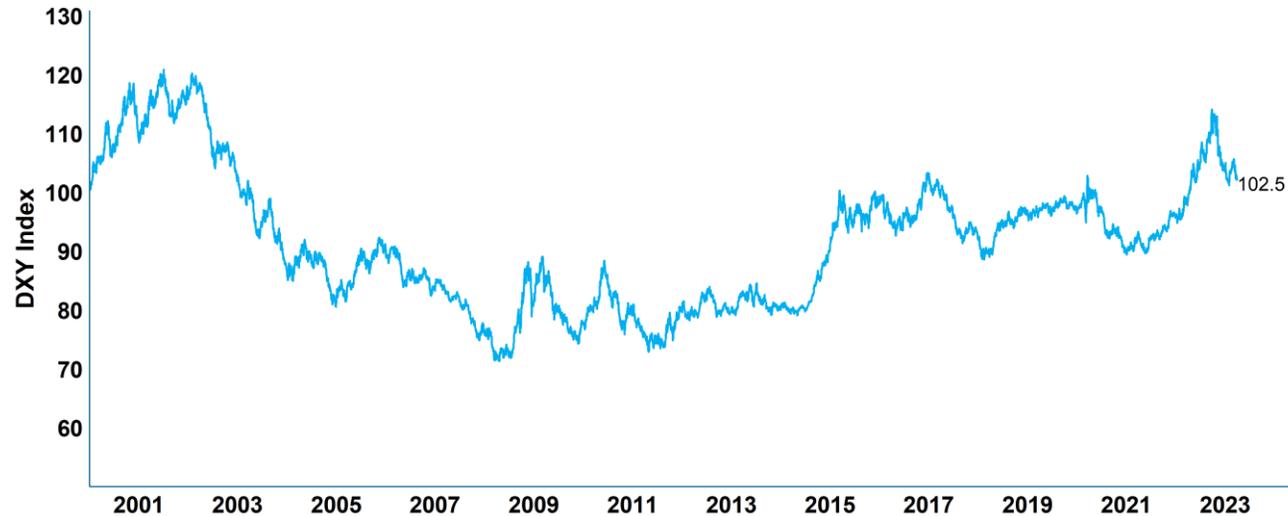
Unemployment¹



- Labor markets have significantly improved from the pandemic as economies have largely reopened.
- Despite slowing growth and high inflation, the US labor market remains a particular bright spot. Unemployment in the US, which experienced the steepest rise, recently has returned to pre-pandemic levels. Broader measures of unemployment (U-6) remain higher at 6.7% but have 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, likely leading to higher unemployment.

¹ Source: Bloomberg. Data is as March 31, 2023, for the US. The most recent data for Eurozone and Japanese unemployment is as of February 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 early this year, the dollar experienced some weakness though as investors anticipated the end of Fed tightening.
- Overall, the US dollar depreciated in March and finished the quarter slightly lower than where it started as weaker economic data and bank turmoil drove interest rates lower in the US.
- This year, the track of inflation across economies and the corresponding monetary policies will likely be key drivers of currency moves.

¹ Source: Bloomberg. Data as of March 31, 2023.

Summary

Key Trends:

- The impacts of record high inflation will remain key, with market volatility likely to stay high.
- Recent issues related to the banking sector have created a delicate balance for central banks to continue to fight inflation but also try to maintain financial stability.
- Global monetary policies could diverge in 2023 with the Fed pausing and others continuing to tighten. The risk of policy errors remains elevated given persistent inflation pressures and a strong US labor market.
- 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, the end of many fiscal programs is expected to put the burden of continued growth on consumers. Costs for shelter, medical care, and education could continue to rise, keeping 'sticky price' inflation at elevated levels.
- The key for US equities going forward will be whether earnings can remain resilient if growth continues to slow.
- Outside the US, equity valuations remain lower in both emerging and developed markets, but risks remain, including potential continued strength in the US dollar, higher inflation particularly weighing on Europe, and China's rushed exit from COVID-19 restrictions and on-going weakness in the real estate sector.

1Q 2023 Performance
as of March 31, 2023

OPFRS Total Plan | As of March 31, 2023

Return Summary Ending March 31, 2023



Summary of Cash Flows

	Quarter-To-Date	One Year
Beginning Market Value	\$398,501,201	\$449,373,445
Net Cash Flow	-\$5,442,419	-\$13,425,368
Capital Appreciation	\$18,123,266	-\$24,766,028
Ending Market Value	\$411,182,049	\$411,182,049

YTD Ending March 31, 2023

	Total Return	Anlzd Standard Deviation
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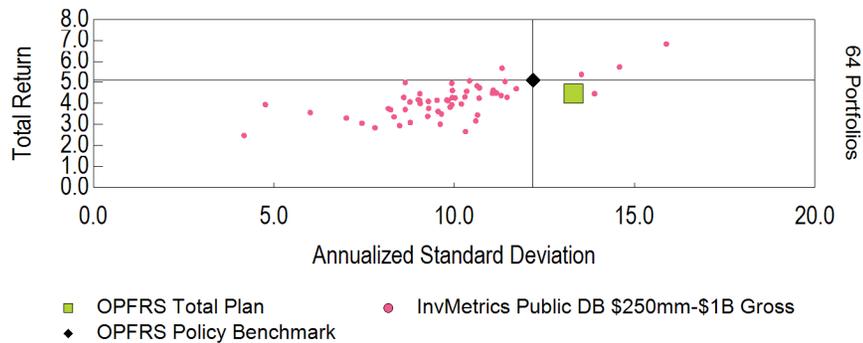
OPFRS Total Plan	4.5%	13.3%
OPFRS Policy Benchmark	5.1%	12.2%

1 Year Ending March 31, 2023

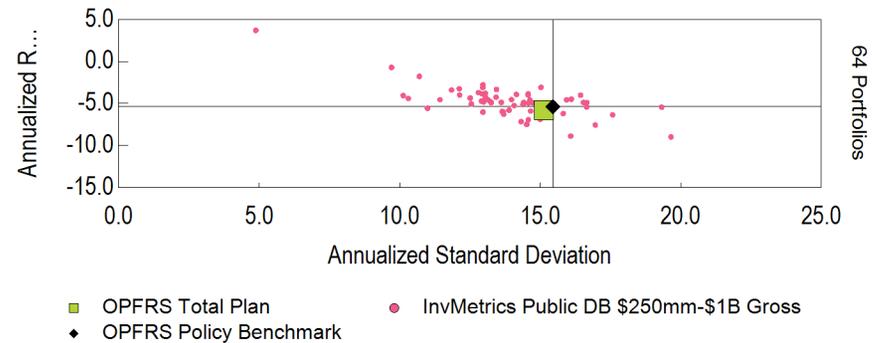
	Anlzd Return	Anlzd Standard Deviation
--	--------------	--------------------------

OPFRS Total Plan	-5.5%	15.1%
OPFRS Policy Benchmark	-5.4%	15.4%

Total Return vs. Annualized Standard Deviation 3 Months Ending March 31, 2023



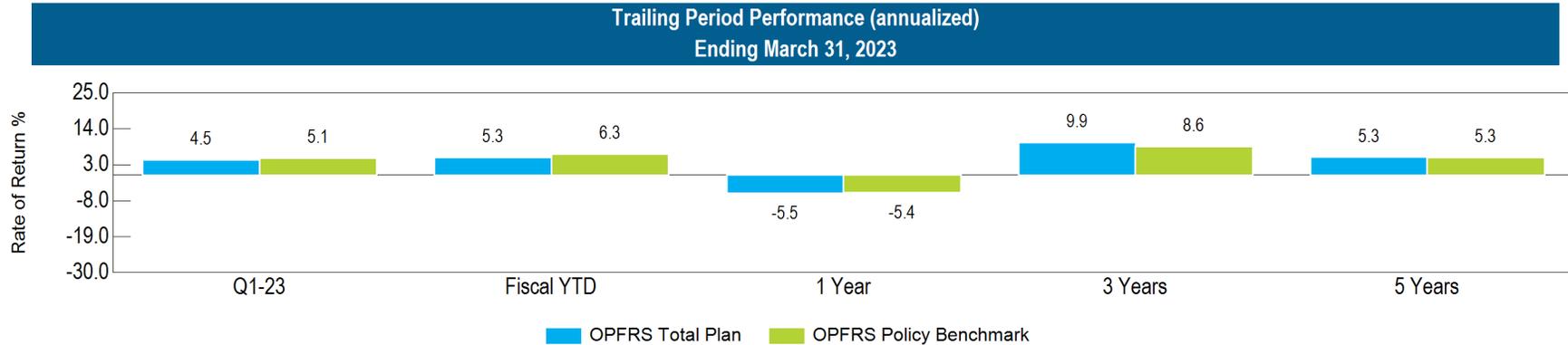
Annualized Return vs. Annualized Standard Deviation 1 Year Ending March 31, 2023



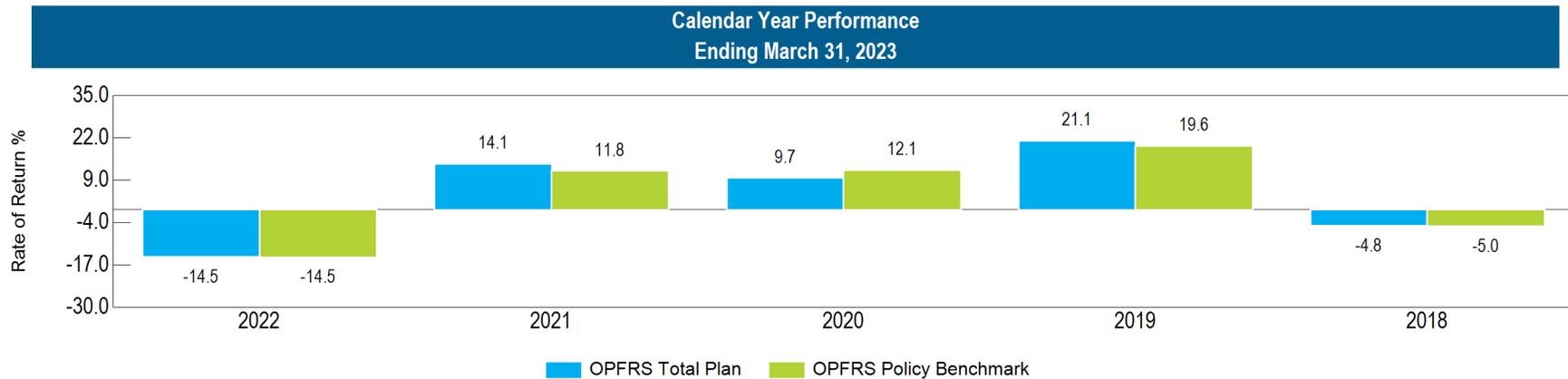
Performance shown is Gross-of-Fees.

	Market Value (\$)	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	7 Yrs (%)	10 Yrs (%)
OPFRS Total Plan	411,182,049	4.5	5.3	-5.5	9.9	5.3	7.5	7.0
<i>OPFRS Policy Benchmark</i>		<u>5.1</u>	<u>6.3</u>	<u>-5.4</u>	<u>8.6</u>	<u>5.3</u>	<u>7.1</u>	<u>6.7</u>
Excess Return		-0.6	-1.0	-0.1	1.3	0.0	0.4	0.3
<i>InvMetrics Public DB \$250mm-\$1B Gross Median</i>		4.1	5.5	-4.9	11.0	6.0	7.6	7.1
Domestic Equity	168,069,634	5.2	8.4	-7.2	18.6	9.5	11.7	11.5
<i>Russell 3000 (Blend)</i>		<u>7.2</u>	<u>9.7</u>	<u>-8.6</u>	<u>18.5</u>	<u>10.4</u>	<u>12.0</u>	<u>11.7</u>
Excess Return		-2.0	-1.3	1.4	0.1	-0.9	-0.3	-0.2
International Equity	54,140,952	8.7	13.2	-3.9	12.2	3.6	7.2	5.7
<i>MSCI ACWI ex US (Blend)</i>		<u>6.9</u>	<u>10.0</u>	<u>-5.1</u>	<u>11.8</u>	<u>2.5</u>	<u>5.9</u>	<u>4.2</u>
Excess Return		1.8	3.2	1.2	0.4	1.1	1.3	1.5
Fixed Income	105,026,387	3.4	0.7	-4.2	-0.6	1.4	1.8	1.9
<i>Bloomberg Universal (Blend)</i>		<u>2.9</u>	<u>0.5</u>	<u>-4.6</u>	<u>-2.0</u>	<u>1.0</u>	<u>1.2</u>	<u>1.6</u>
Excess Return		0.5	0.2	0.4	1.4	0.4	0.6	0.3
Credit	8,909,576	3.7	5.2	-3.1	10.4	3.2	6.3	--
<i>Bloomberg US High Yield TR</i>		<u>3.6</u>	<u>7.2</u>	<u>-3.3</u>	<u>5.9</u>	<u>3.2</u>	<u>5.1</u>	<u>--</u>
Excess Return		0.1	-2.0	0.2	4.5	0.0	1.2	--
Covered Calls	22,993,243	6.2	8.5	-4.7	16.6	9.1	9.7	--
<i>CBOE S&P 500 BuyWrite USD</i>		<u>6.0</u>	<u>4.6</u>	<u>-6.9</u>	<u>12.3</u>	<u>4.4</u>	<u>5.9</u>	<u>--</u>
Excess Return		0.2	3.9	2.2	4.3	4.7	3.8	--
Crisis Risk Offset	39,437,113	0.0	-4.7	-6.5	-8.7	-8.2	--	--
<i>SG Multi Alternative Risk Premia Index</i>		<u>1.1</u>	<u>3.6</u>	<u>6.4</u>	<u>2.1</u>	<u>--</u>	<u>--</u>	<u>--</u>
Excess Return		-1.1	-8.3	-12.9	-10.8	--	--	--
Cash	12,605,144	0.0	0.0	0.0	0.0	1.0	1.0	0.7
<i>FTSE T-Bill 3 Months TR</i>		<u>1.1</u>	<u>2.5</u>	<u>2.6</u>	<u>1.0</u>	<u>1.4</u>	<u>1.2</u>	<u>0.9</u>
Excess Return		-1.1	-2.5	-2.6	-1.0	-0.4	-0.2	-0.2

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



	QTD (%)	Fiscal YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)
OPFRS Total Plan	4.5	5.3	-5.5	9.9	5.3	-4.8	21.1	9.7	14.1	-14.5
<i>OPFRS Policy Benchmark</i>	<i>5.1</i>	<i>6.3</i>	<i>-5.4</i>	<i>8.6</i>	<i>5.3</i>	<i>-5.0</i>	<i>19.6</i>	<i>12.1</i>	<i>11.8</i>	<i>-14.5</i>
<i>InvMetrics Public DB \$250mm-\$1B Gross Median</i>	<i>4.1</i>	<i>5.5</i>	<i>-4.9</i>	<i>11.0</i>	<i>6.0</i>	<i>-4.1</i>	<i>18.6</i>	<i>13.1</i>	<i>13.6</i>	<i>-13.4</i>

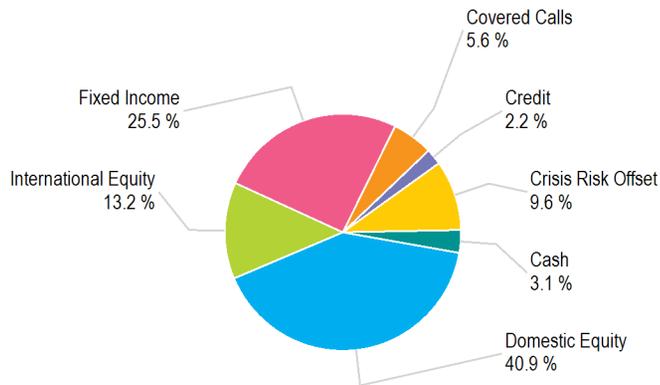


Fiscal year begins on July 1.

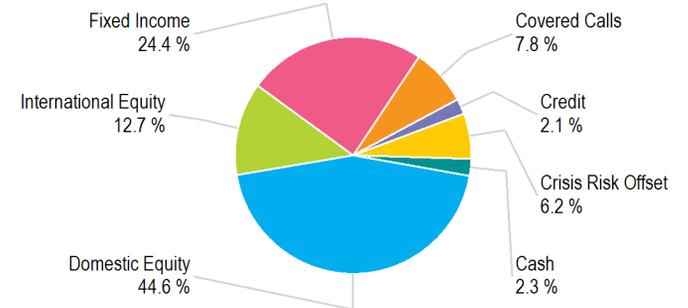
Asset Allocation vs. Target As Of March 31, 2023

	Current	%	Policy	Difference*
Domestic Equity	\$168,069,634	40.9%	40.0%	0.9%
International Equity	\$54,140,952	13.2%	12.0%	1.2%
Fixed Income	\$105,026,387	25.5%	31.0%	-5.5%
Covered Calls	\$22,993,243	5.6%	5.0%	0.6%
Credit	\$8,909,576	2.2%	2.0%	0.2%
Crisis Risk Offset	\$39,437,113	9.6%	10.0%	-0.4%
Cash	\$12,605,144	3.1%	0.0%	3.1%
Total	\$411,182,049	100.0%	100.0%	

March 31, 2023: \$382,458,040



March 31, 2022: \$449,834,415



Cash account market value includes cash balances held in ETF accounts at the custodian and residuals from terminated managers.

Target weightings reflect the Plan's evolving asset allocation (effective 5/31/2017.)

Oakland Police and Fire Retirement System Total Plan

Manager Performance - Gross of Fees | As of March 31, 2023

	Market Value	% of Portfolio	QTD	1 Yr	3 Yrs	5 Yrs	S.I.	S.I. Date
Domestic Equity	168,069,634	100.0	5.2	-7.2	18.6	9.5	8.7	Jun-97
<i>Russell 3000 (Blend)</i>			<i>7.2</i>	<i>-8.6</i>	<i>18.5</i>	<i>10.4</i>	<i>8.9</i>	<i>Jun-97</i>
Excess Return			-2.0	1.4	0.1	-0.9	-0.2	
Northern Trust Russell 1000	74,942,881	44.6	7.5	-8.7	18.4	10.8	12.9	Jun-10
<i>Russell 1000</i>			<i>7.5</i>	<i>-8.4</i>	<i>18.6</i>	<i>10.9</i>	<i>13.0</i>	<i>Jun-10</i>
Excess Return			0.0	-0.3	-0.2	-0.1	-0.1	
EARNEST Partners	45,658,799	27.2	4.7	-6.0	20.9	11.0	10.1	Apr-06
<i>Russell MidCap</i>			<i>4.1</i>	<i>-8.8</i>	<i>19.2</i>	<i>8.1</i>	<i>8.4</i>	<i>Apr-06</i>
Excess Return			0.6	2.8	1.7	2.9	1.7	
<i>eV US Mid Cap Core Equity Gross Rank</i>			<i>50</i>	<i>62</i>	<i>39</i>	<i>17</i>	<i>34</i>	<i>Apr-06</i>
Wellington Select Quality Equity	22,362,811	13.3	0.7	--	--	--	1.6	May-22
<i>Russell 1000</i>			<i>7.5</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>0.6</i>	<i>May-22</i>
Excess Return			-6.8				1.0	
<i>eV US Large Cap Core Equity Gross Rank</i>			<i>94</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>46</i>	<i>May-22</i>
Brown Fundamental Small Cap Value	10,865,239	6.5	-0.3	-2.3	--	--	1.4	Apr-21
<i>Russell 2000 Value</i>			<i>-0.7</i>	<i>-13.0</i>	<i>--</i>	<i>--</i>	<i>-5.2</i>	<i>Apr-21</i>
Excess Return			0.4	10.7			6.6	
<i>eV US Small Cap Value Equity Gross Rank</i>			<i>86</i>	<i>24</i>	<i>--</i>	<i>--</i>	<i>32</i>	<i>Apr-21</i>
Rice Hall James	14,239,905	8.5	7.1	-7.7	18.6	4.2	7.1	Jul-17
<i>Russell 2000 Growth</i>			<i>6.1</i>	<i>-10.6</i>	<i>13.4</i>	<i>4.3</i>	<i>6.0</i>	<i>Jul-17</i>
Excess Return			1.0	2.9	5.2	-0.1	1.1	
<i>eV US Small Cap Growth Equity Gross Rank</i>			<i>51</i>	<i>28</i>	<i>38</i>	<i>95</i>	<i>90</i>	<i>Jul-17</i>

Performance shown is gross-of-fees.

	Market Value	% of Portfolio	QTD	1 Yr	3 Yrs	5 Yrs	S.I.	S.I. Date
International Equity	54,140,952	100.0	8.7	-3.9	12.2	3.6	5.3	Jan-98
<i>MSCI ACWI ex US (Blend)</i>			<i>6.9</i>	<i>-5.1</i>	<i>11.8</i>	<i>2.5</i>	<i>5.0</i>	<i>Jan-98</i>
Excess Return			1.8	1.2	0.4	1.1	0.3	
Vanguard Developed Markets ETF	15,125,852	27.9	8.0	-3.0	13.8	--	6.5	Sep-19
<i>FTSE Developed All Cap Ex US TR USD</i>			<i>7.7</i>	<i>-3.8</i>	<i>13.9</i>	--	<i>6.6</i>	<i>Sep-19</i>
Excess Return			0.3	0.8	-0.1		-0.1	
SGA ACWI ex-U.S. Equity	39,015,100	72.1	9.0	-4.3	11.7	--	3.0	Dec-19
<i>MSCI ACWI ex USA</i>			<i>6.9</i>	<i>-5.1</i>	<i>11.8</i>	--	<i>3.4</i>	<i>Dec-19</i>
Excess Return			2.1	0.8	-0.1		-0.4	
<i>eV ACWI ex-US All Cap Core Eq Gross Rank</i>			<i>22</i>	<i>57</i>	<i>80</i>	--	<i>92</i>	<i>Dec-19</i>

Performance shown is gross-of-fees.

	Market Value	% of Portfolio	QTD	1 Yr	3 Yrs	5 Yrs	S.I.	S.I. Date
Fixed Income	105,026,387	100.0	3.4	-4.2	-0.6	1.4	4.8	Dec-93
<i>Bloomberg Universal (Blend)</i>			<u>2.9</u>	<u>-4.6</u>	<u>-2.0</u>	<u>1.0</u>	<u>4.6</u>	<u>Dec-93</u>
Excess Return			0.5	0.4	1.4	0.4	0.2	
Ramirez	71,307,125	67.9	3.3	-4.3	-0.6	1.3	1.7	Jan-17
<i>Bloomberg US Aggregate TR</i>			<u>3.0</u>	<u>-4.8</u>	<u>-2.8</u>	<u>0.9</u>	<u>1.0</u>	<u>Jan-17</u>
Excess Return			0.3	0.5	2.2	0.4	0.7	
<i>eV US Core Fixed Inc Gross Rank</i>			24	36	12	67	34	Jan-17
Wellington Core Bond	6,763,874	6.4	3.6	-5.3	--	--	-4.9	Apr-21
<i>Bloomberg US Aggregate TR</i>			<u>3.0</u>	<u>-4.8</u>	--	--	<u>-4.5</u>	<u>Apr-21</u>
Excess Return			0.6	-0.5			-0.4	
<i>eV US Core Fixed Inc Gross Rank</i>			5	89	--	--	98	Apr-21
Reams	26,955,387	25.7	3.7	-3.5	0.6	3.7	5.2	Feb-98
<i>Bloomberg Universal (Blend)</i>			<u>2.9</u>	<u>-4.6</u>	<u>-2.0</u>	<u>1.0</u>	<u>4.2</u>	<u>Feb-98</u>
Excess Return			0.8	1.1	2.6	2.7	1.0	
<i>eV US Core Plus Fixed Inc Gross Rank</i>			15	15	25	2	39	Feb-98

Performance shown is gross-of-fees.

Oakland Police and Fire Retirement System Total Plan

Manager Performance - Gross of Fees | As of March 31, 2023

	Market Value	% of Portfolio	QTD	1 Yr	3 Yrs	5 Yrs	S.I.	S.I. Date
Credit	8,909,576	100.0	3.7	-3.1	10.4	3.2	5.0	Feb-15
<i>Bloomberg US High Yield TR</i>			<i>3.6</i>	<i>-3.3</i>	<i>5.9</i>	<i>3.2</i>	<i>4.1</i>	<i>Feb-15</i>
Excess Return			0.1	0.2	4.5	0.0	0.9	
Polen Capital	8,909,576	100.0	3.7	-3.1	10.4	3.2	5.0	Feb-15
<i>ICE BofA High Yield Master TR</i>			<i>3.7</i>	<i>-3.6</i>	<i>5.8</i>	<i>3.1</i>	<i>4.0</i>	<i>Feb-15</i>
Excess Return			0.0	0.5	4.6	0.1	1.0	
<i>eV US High Yield Fixed Inc Gross Rank</i>			<i>32</i>	<i>65</i>	<i>4</i>	<i>75</i>	<i>14</i>	<i>Feb-15</i>

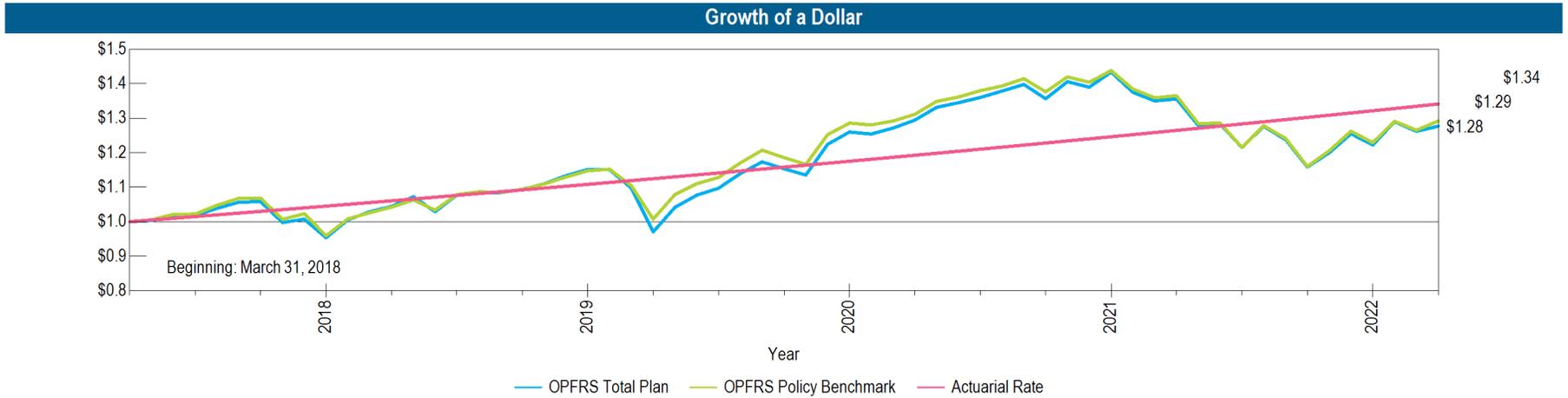
Performance shown is gross-of-fees.

	Market Value	% of Portfolio	QTD	1 Yr	3 Yrs	5 Yrs	S.I.	S.I. Date
Covered Calls	22,993,243	100.0	6.2	-4.7	16.6	9.1	8.6	Apr-14
<i>CBOE S&P 500 BuyWrite USD</i>			<i>6.0</i>	<i>-6.9</i>	<i>12.3</i>	<i>4.4</i>	<i>5.4</i>	<i>Apr-14</i>
Excess Return			0.2	2.2	4.3	4.7	3.2	
Parametric BXM	11,572,026	50.3	5.2	-3.4	13.4	6.8	6.8	Apr-14
<i>CBOE S&P 500 BuyWrite USD</i>			<i>6.0</i>	<i>-6.9</i>	<i>12.3</i>	<i>4.4</i>	<i>5.4</i>	<i>Apr-14</i>
Excess Return			-0.8	3.5	1.1	2.4	1.4	
Parametric DeltaShift	11,421,217	49.7	7.2	-5.9	19.3	11.1	10.6	Apr-14
<i>CBOE S&P 500 BuyWrite USD</i>			<i>6.0</i>	<i>-6.9</i>	<i>12.3</i>	<i>4.4</i>	<i>5.4</i>	<i>Apr-14</i>
Excess Return			1.2	1.0	7.0	6.7	5.2	
<i>eV US Large Cap Core Equity Gross Rank</i>			<i>28</i>	<i>44</i>	<i>29</i>	<i>40</i>	<i>61</i>	<i>Apr-14</i>

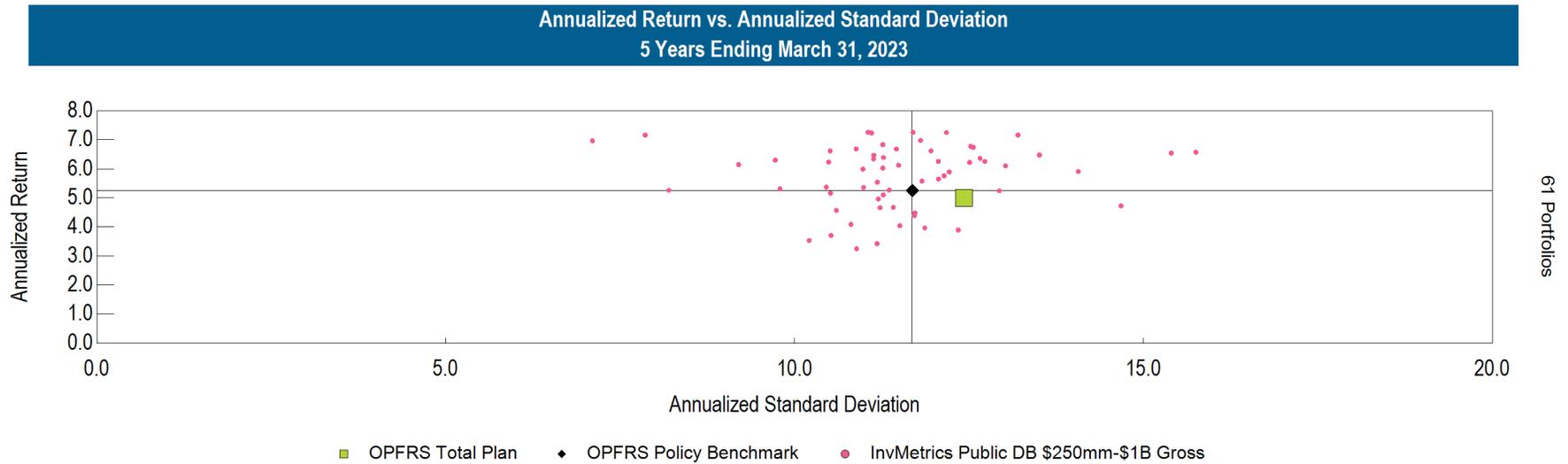
Performance shown is gross-of-fees.

	Market Value	% of Portfolio	QTD	1 Yr	3 Yrs	5 Yrs	S.I.	S.I. Date
Crisis Risk Offset	39,437,113	100.0	0.0	-6.5	-8.7	-8.2	-8.8	Aug-18
<i>SG Multi Alternative Risk Premia Index</i>			<i>1.1</i>	<i>6.4</i>	<i>2.1</i>	<i>--</i>	<i>-0.2</i>	<i>Aug-18</i>
Excess Return			-1.1	-12.9	-10.8		-8.6	
Versor Trend Following	14,592,261	37.0	-8.7	-2.7	--	--	-2.7	Apr-22
<i>SG Trend Index</i>			<i>-7.3</i>	<i>7.2</i>	<i>--</i>	<i>--</i>	<i>7.2</i>	<i>Apr-22</i>
Excess Return			-1.4	-9.9			-9.9	
Vanguard Long-Term Treasury ETF	14,571,848	36.9	6.8	-16.3	-11.5	--	-3.6	Jul-19
<i>Bloomberg US Govt Long TR</i>			<i>6.2</i>	<i>-15.9</i>	<i>-11.3</i>	<i>--</i>	<i>-3.6</i>	<i>Jul-19</i>
Excess Return			0.6	-0.4	-0.2		0.0	
Kepos Alternative Risk Premia	10,273,004	26.0	4.6	5.8	--	--	3.1	Feb-22
<i>SG Multi Alternative Risk Premia Index</i>			<i>1.1</i>	<i>6.4</i>	<i>--</i>	<i>--</i>	<i>4.3</i>	<i>Feb-22</i>
Excess Return			3.5	-0.6			-1.2	

Performance shown is gross-of-fees.

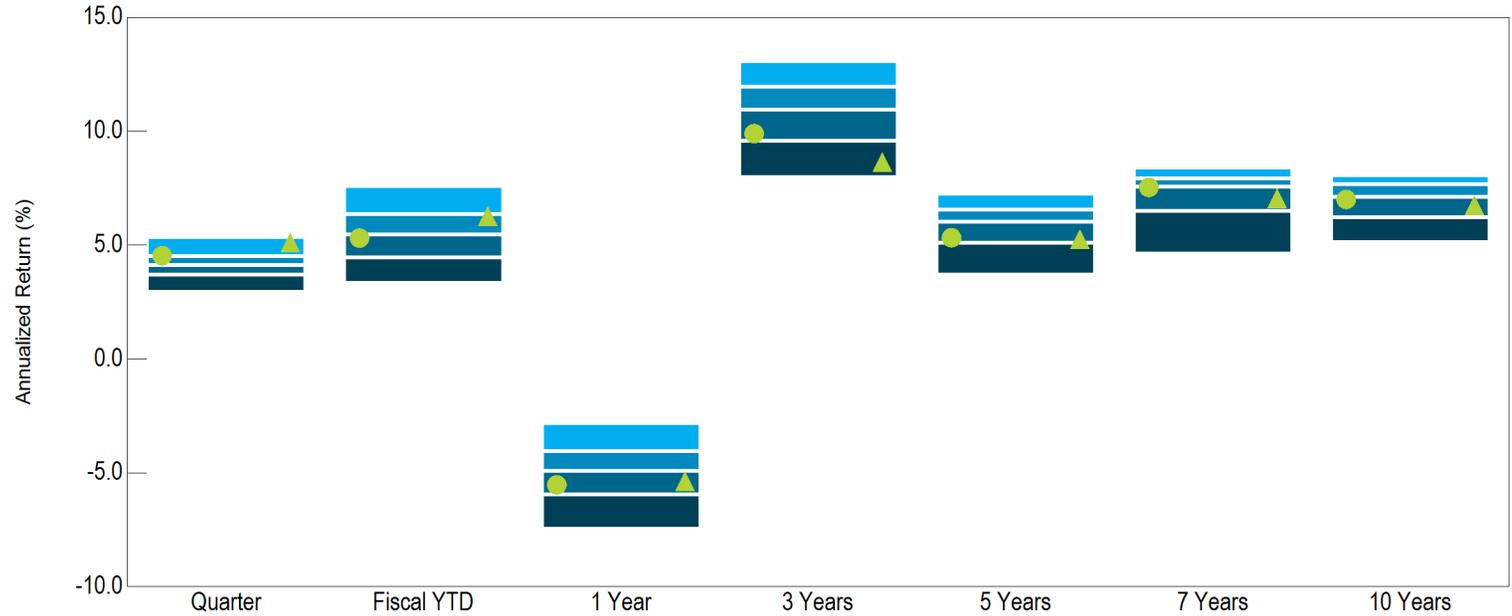


The actuarial expected rate of return was 8% through 6/30/2009, 7.5% through 6/30/2010, 7% through 6/30/2011, 6.75% through 6/30/2014, 6.5% through 2/31/2017 and 6.0% currently



Performance shown is gross-of-fees.

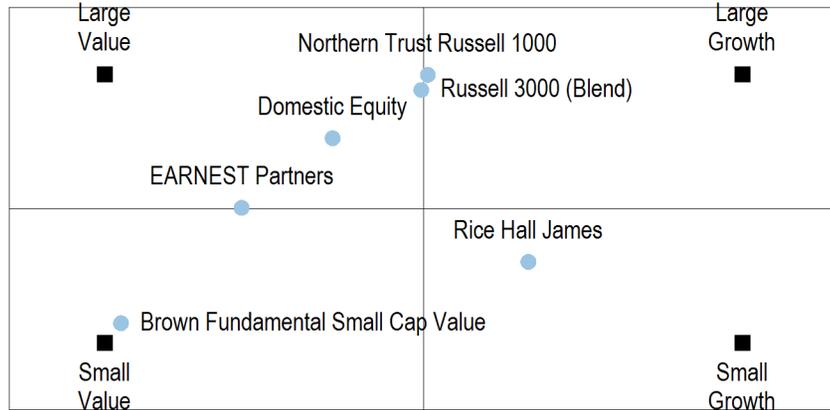
InvMetrics Public DB \$250mm-\$1B Gross Return Comparison



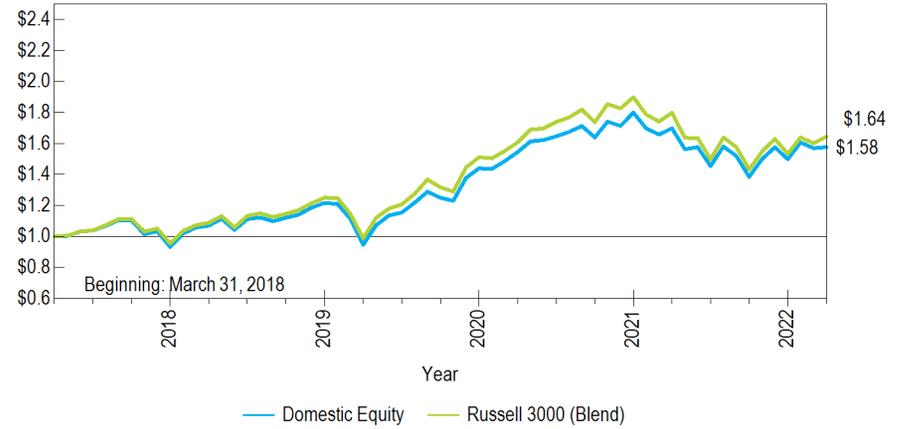
	Quarter		Fiscal YTD		1 Year		3 Years		5 Years		7 Years		10 Years	
Return (Rank)	5.3	7.6	-2.8	13.0	7.2	8.4	8.0							
5th Percentile	4.5	6.4	-4.0	12.0	6.6	7.9	7.7							
25th Percentile	4.1	5.5	-4.9	11.0	6.0	7.6	7.1							
Median	3.7	4.5	-5.9	9.6	5.1	6.5	6.2							
75th Percentile	2.9	3.3	-7.4	8.0	3.7	4.6	5.1							
95th Percentile	64	64	64	63	61	59	56							
# of Portfolios														
OPFRS Total Plan	4.5 (25)	5.3 (63)	-5.5 (71)	9.9 (73)	5.3 (67)	7.5 (51)	7.0 (56)							
OPFRS Policy Benchmark	5.1 (7)	6.3 (28)	-5.4 (68)	8.6 (91)	5.3 (71)	7.1 (62)	6.7 (68)							

Fiscal year begins on July 1.

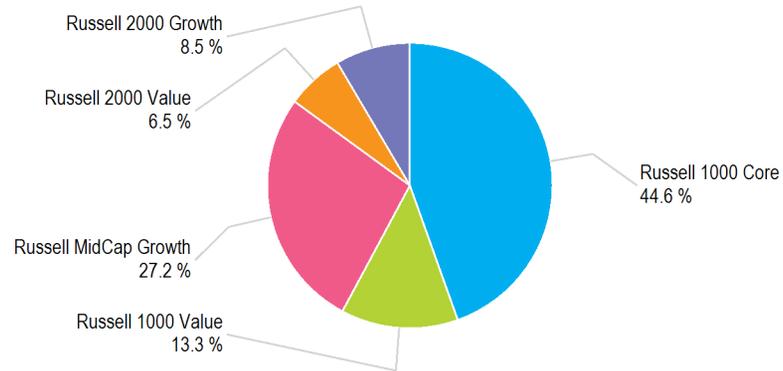
U.S. Effective Style Map



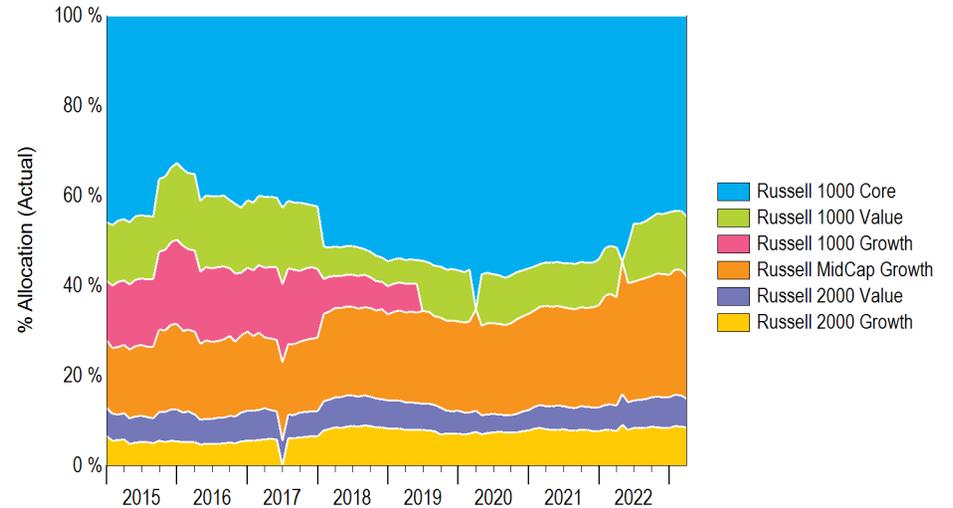
Growth of a Dollar



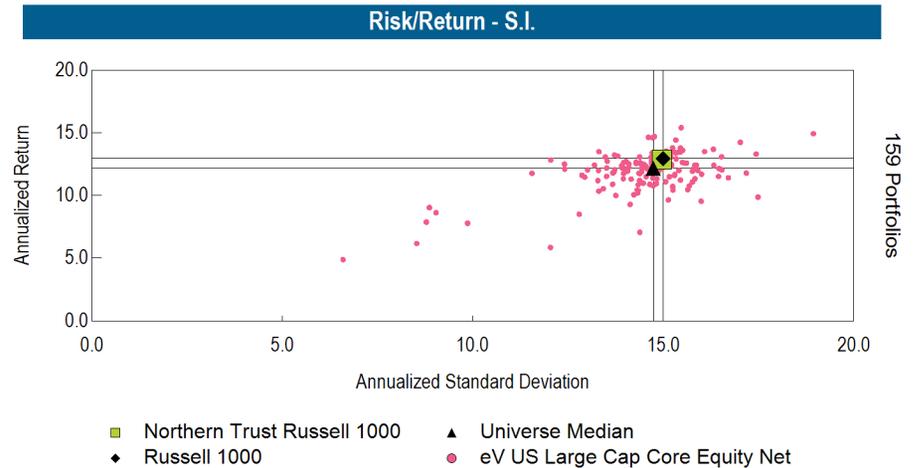
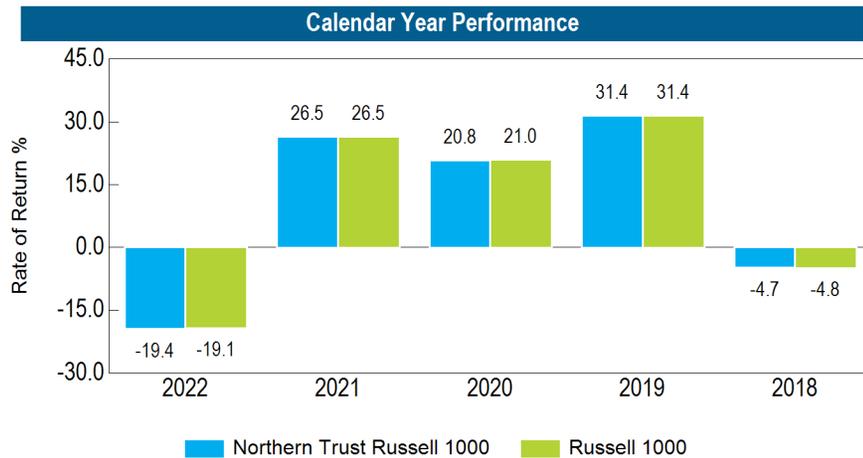
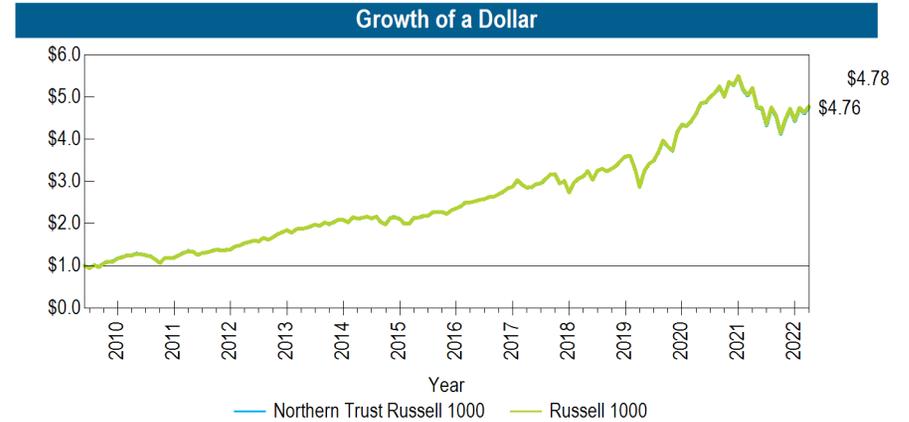
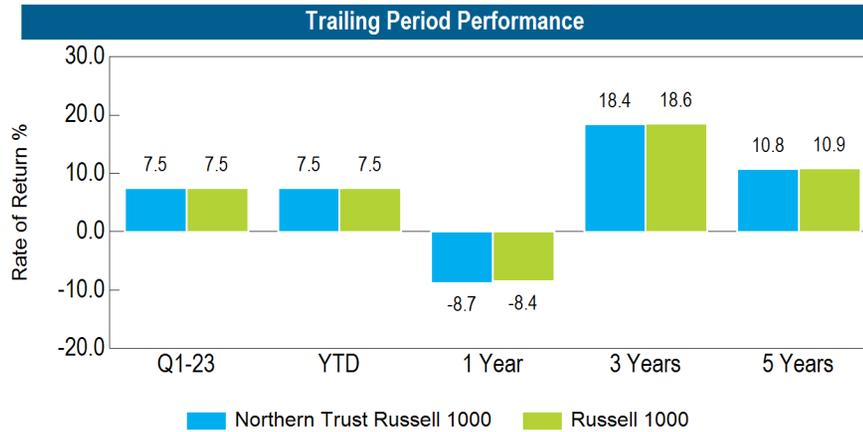
Style Exposure



Style History (5-Year)

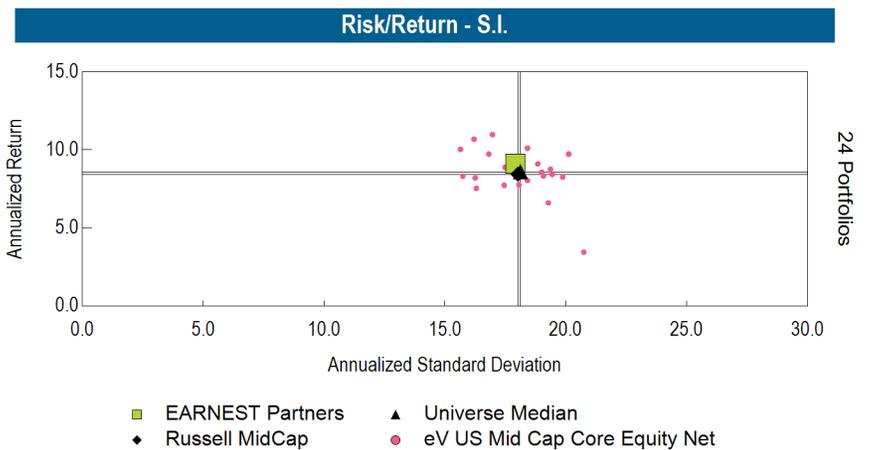
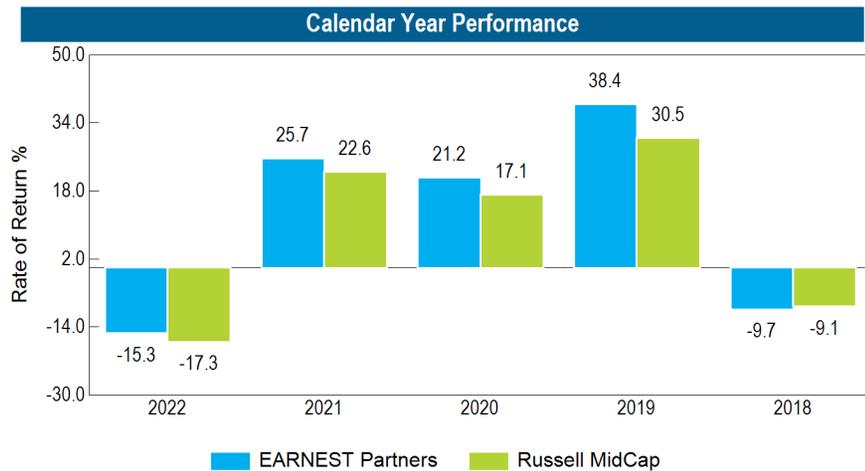
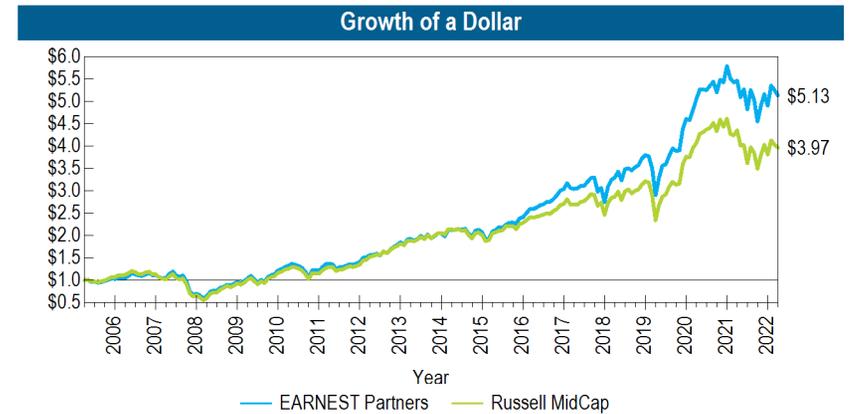
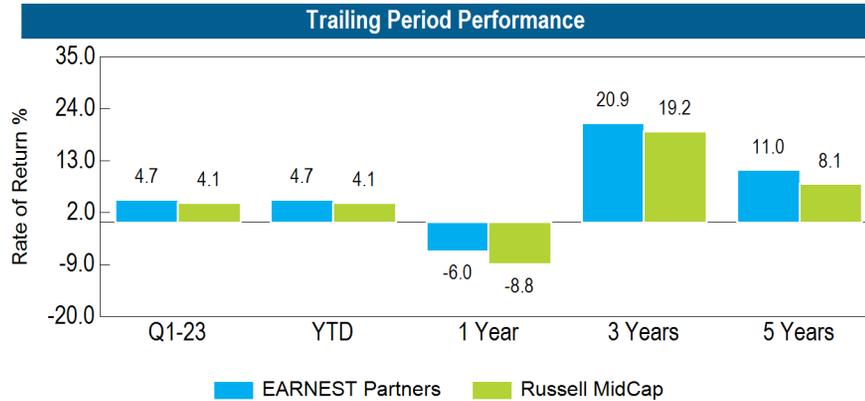


	Anlzd Return	Anlzd Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Northern Trust Russell 1000	12.9%	15.0%	0.0%	1.0	-0.6	0.2%	98.5%	100.0%
Russell 1000	13.0%	15.0%	0.0%	1.0	--	0.0%	100.0%	100.0%



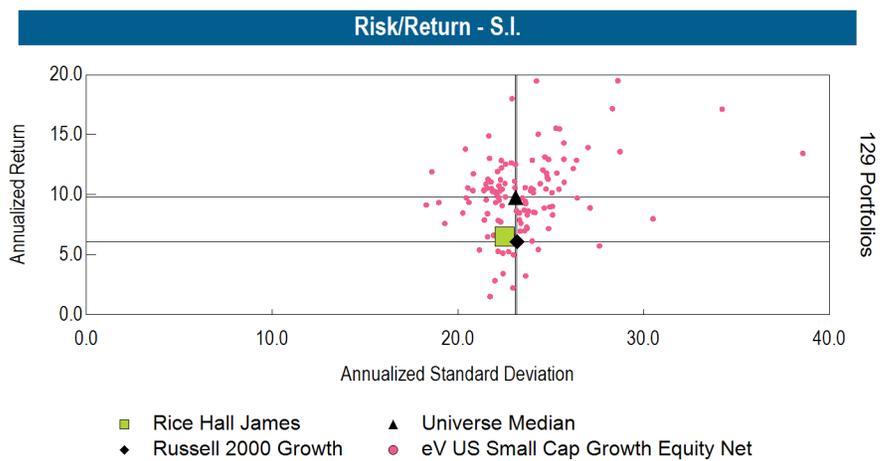
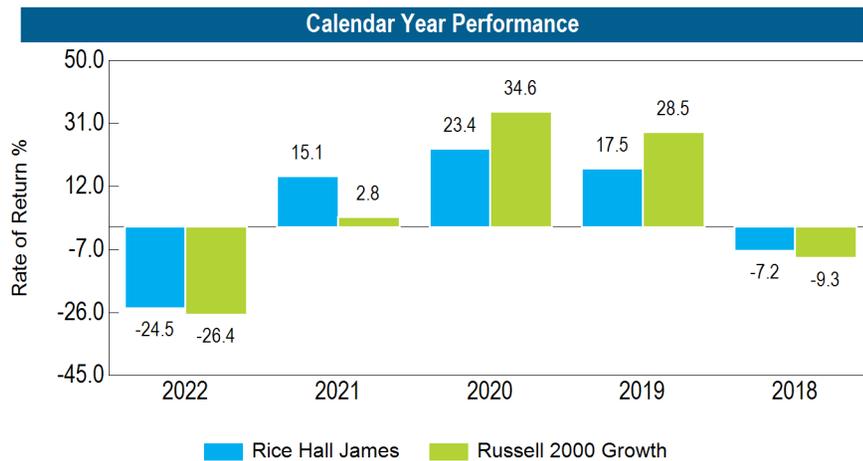
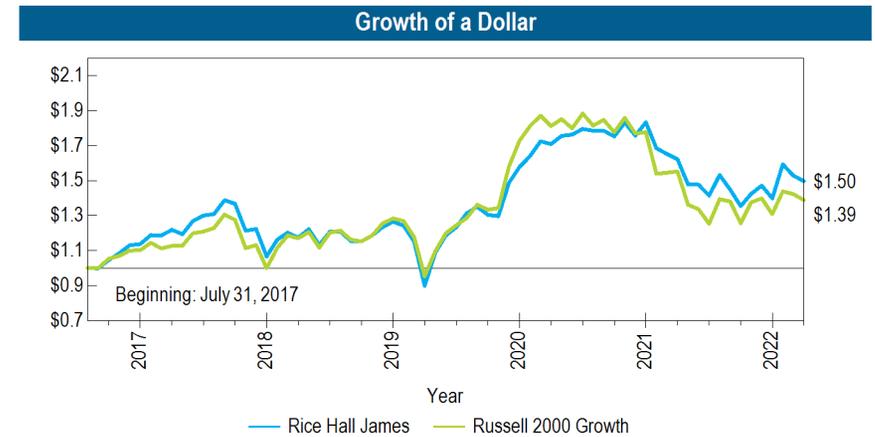
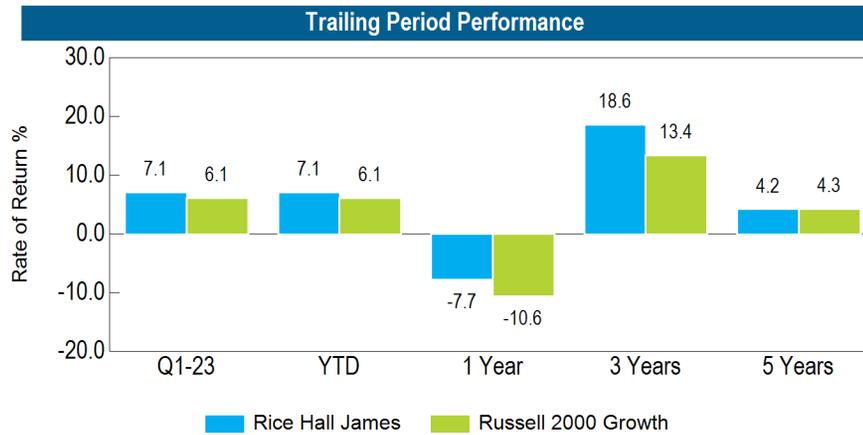
Performance shown is net-of-fees and since inception.

	Anlzd Return	Anlzd Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Mkt Capture Ratio	Down Mkt Capture Ratio
EARNEST Partners	9.1%	17.9%	0.1%	1.0	0.2	3.6%	94.2%	99.3%
Russell MidCap	8.4%	18.0%	0.0%	1.0	--	0.0%	100.0%	100.0%



Performance shown is net-of-fees and since inception.

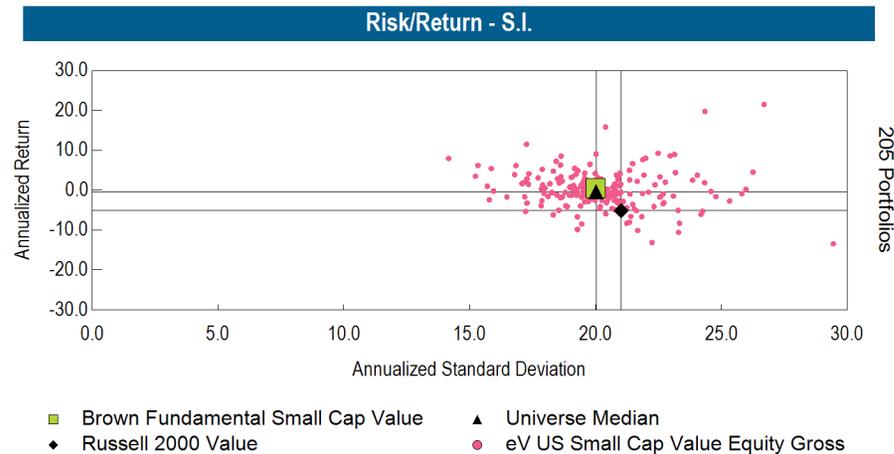
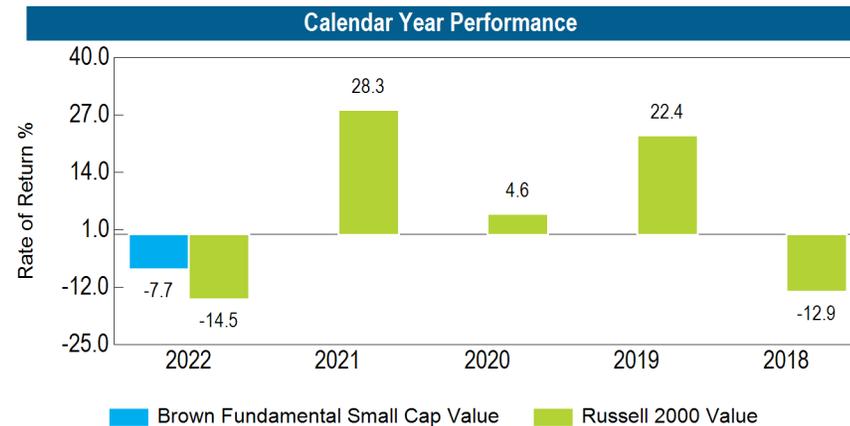
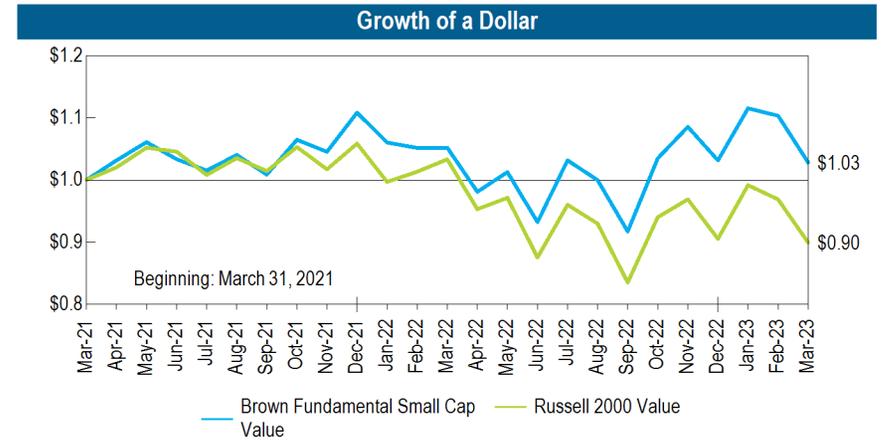
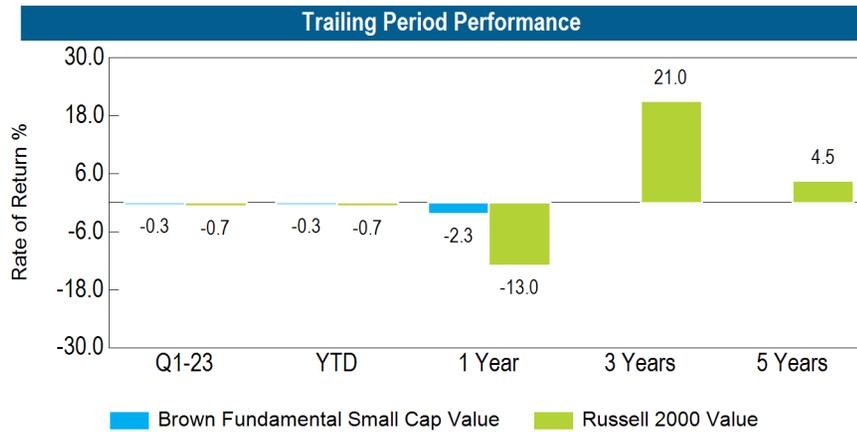
	Anlzd Return	Anlzd Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Rice Hall James	6.3%	22.3%	0.1%	0.9	0.0	7.8%	83.3%	94.8%
Russell 2000 Growth	6.0%	23.0%	0.0%	1.0	--	0.0%	100.0%	100.0%



Performance shown is net-of-fees and since inception.

Brown Fundamental Small Cap Value | As of March 31, 2023

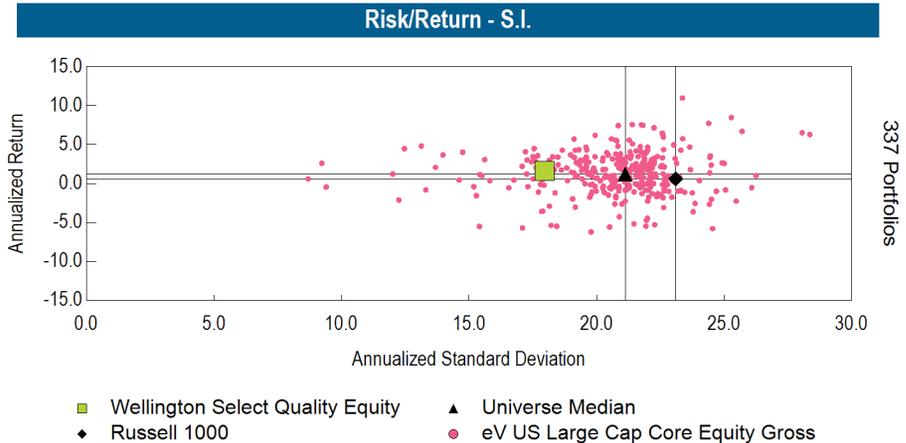
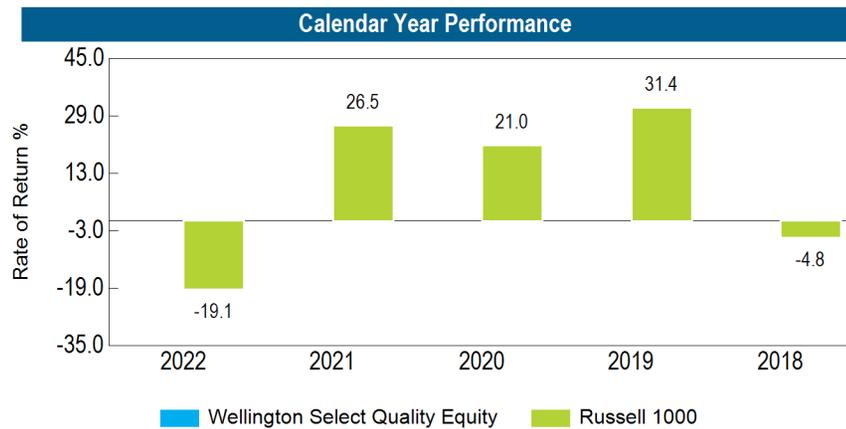
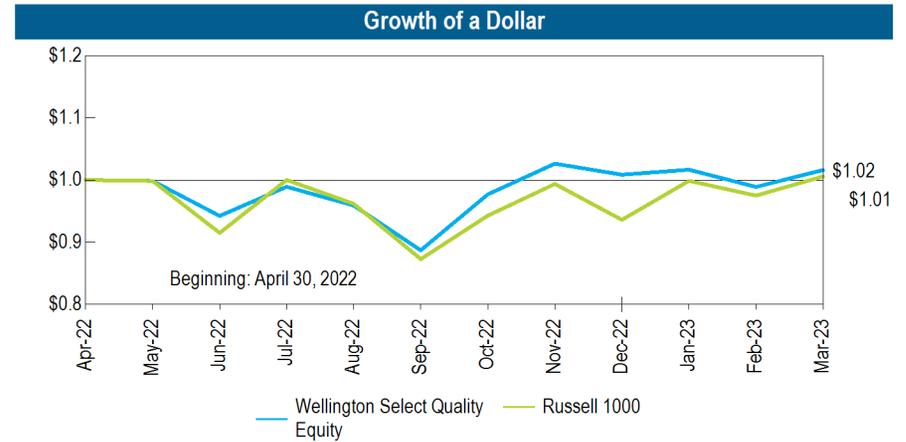
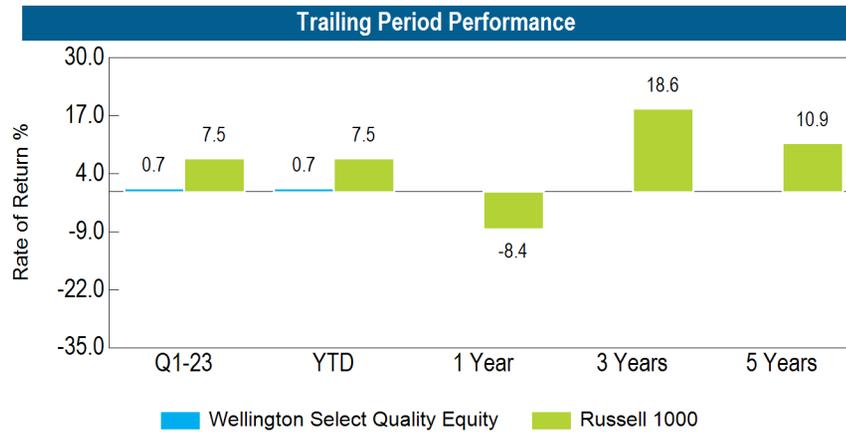
	Anlzd Return	Anlzd Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Brown Fundamental Small Cap Value	0.5%	20.0%	0.4%	0.9	1.2	4.8%	104.3%	88.6%
Russell 2000 Value	-5.2%	21.0%	0.0%	1.0	--	0.0%	100.0%	100.0%



Performance shown is net-of-fees and since inception.

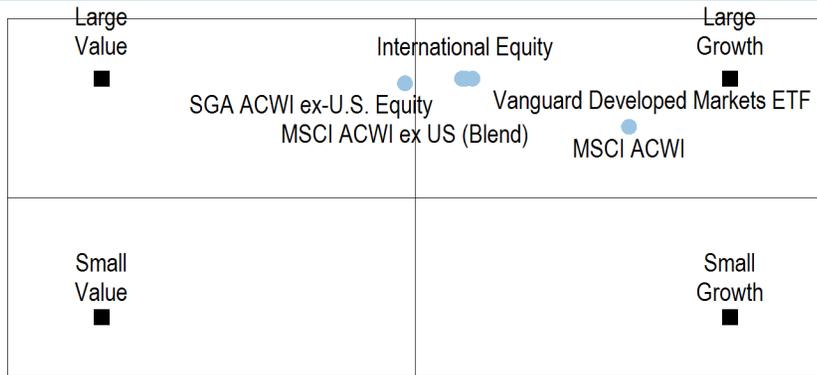
Wellington Select Quality Equity | As of March 31, 2023

	Anlzd Return	Anlzd Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Wellington Select Quality Equity	1.6%	18.0%	0.1%	0.7	0.1	10.2%	69.7%	72.4%
Russell 1000	0.6%	23.1%	0.0%	1.0	--	0.0%	100.0%	100.0%

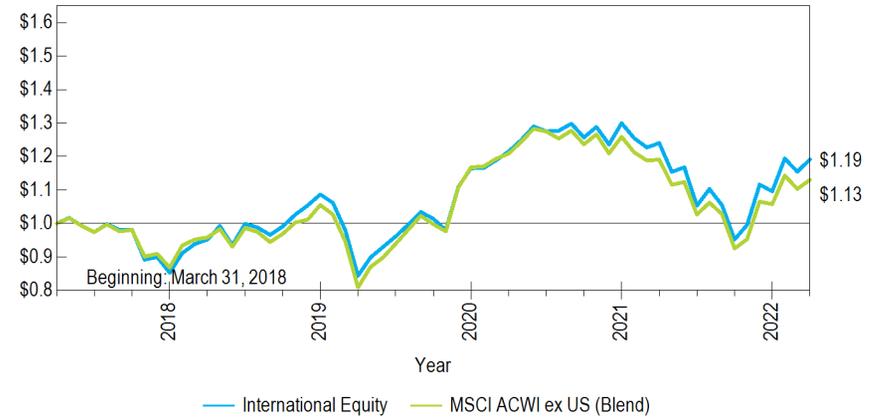


Performance shown is net-of-fees and since inception. Annualized Return is not available for managers without a history longer than one year.

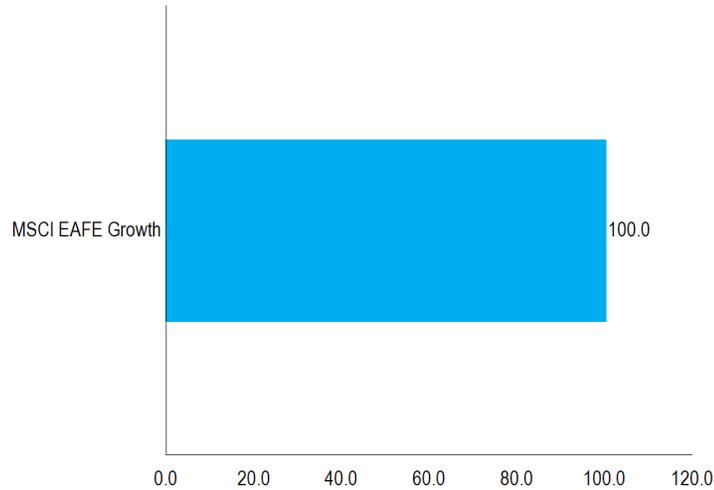
Non U.S. Effective Style Map vs. EAFE



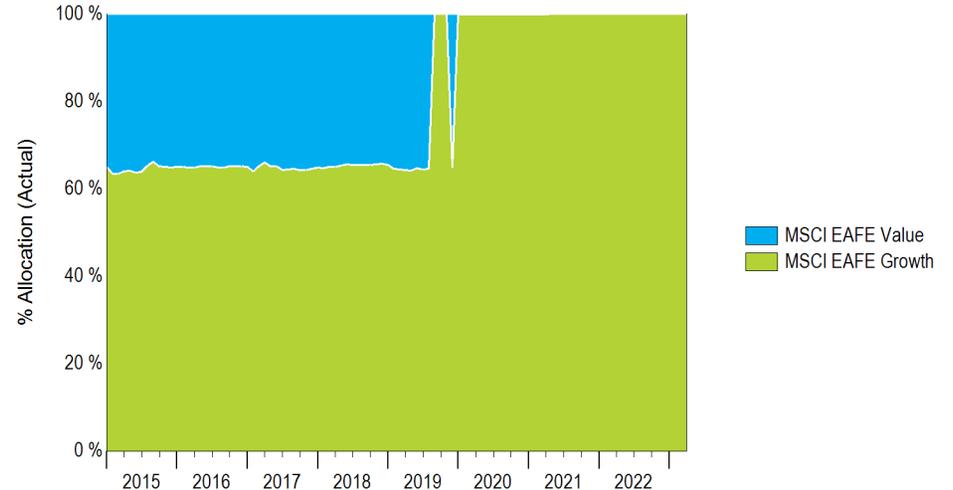
Growth of a Dollar
5 Years Ending March 31, 2023



Style Exposure

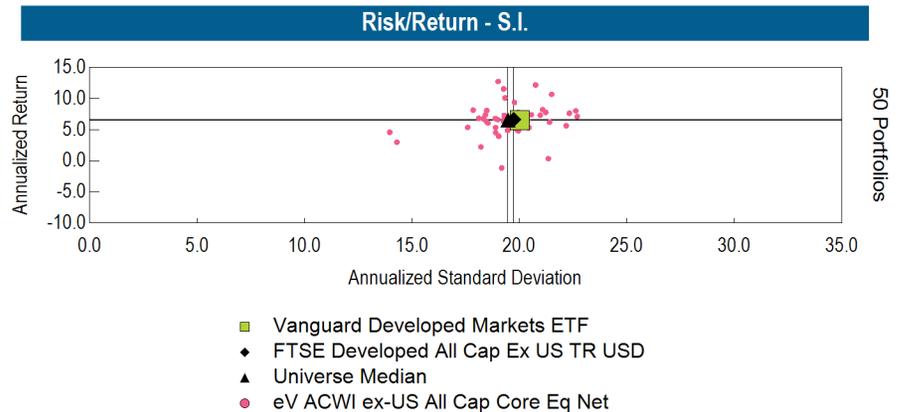
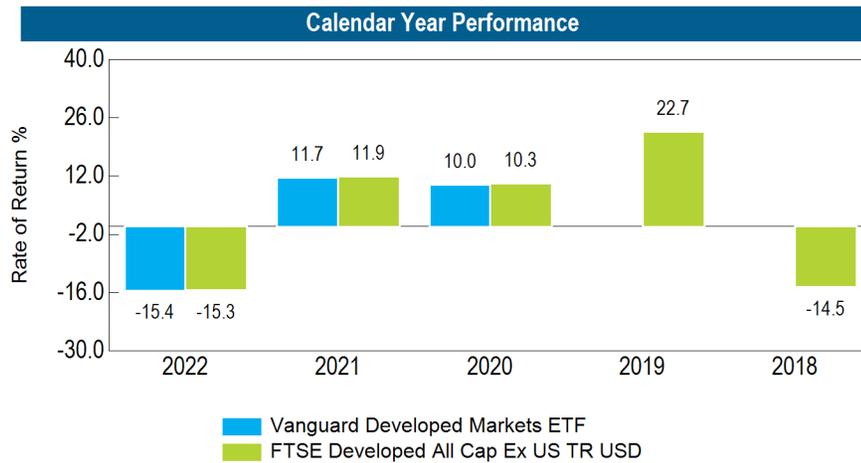
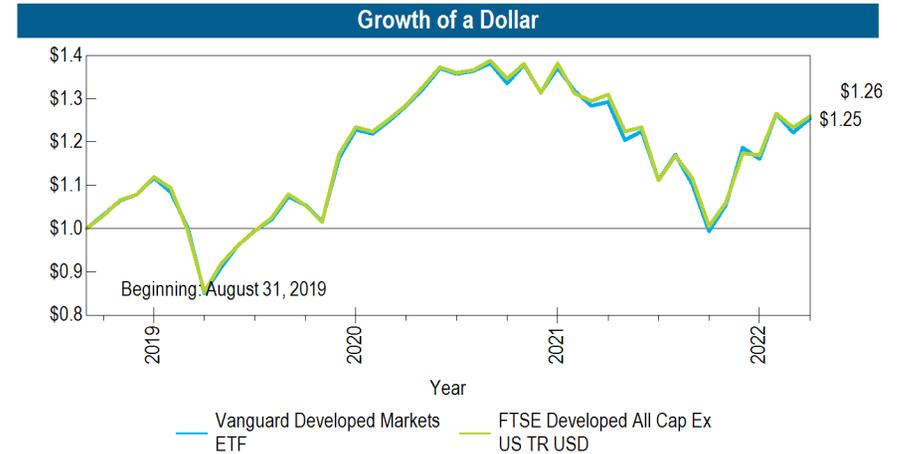
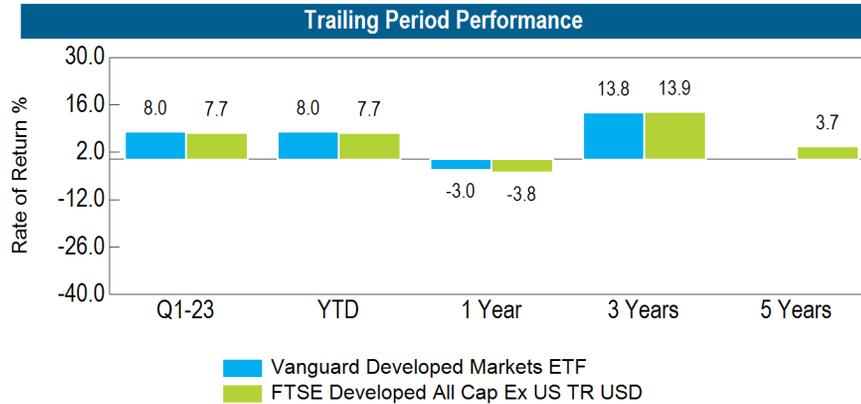


Style History (5-Year)



Vanguard Developed Markets ETF | As of March 31, 2023

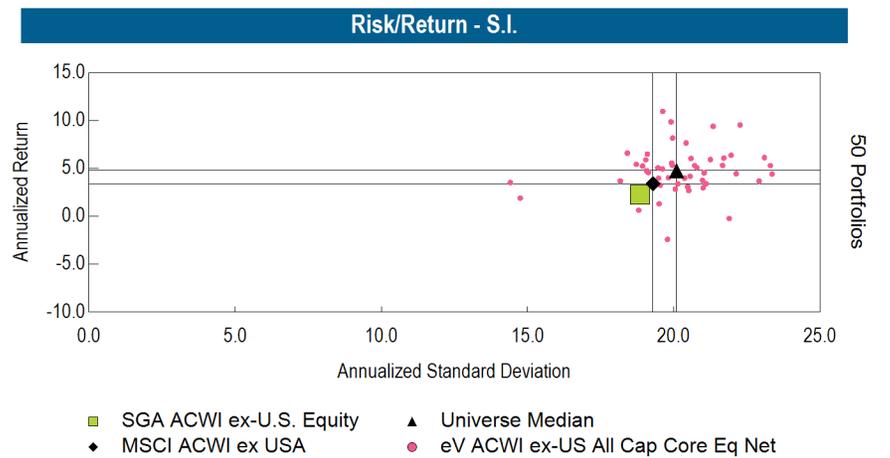
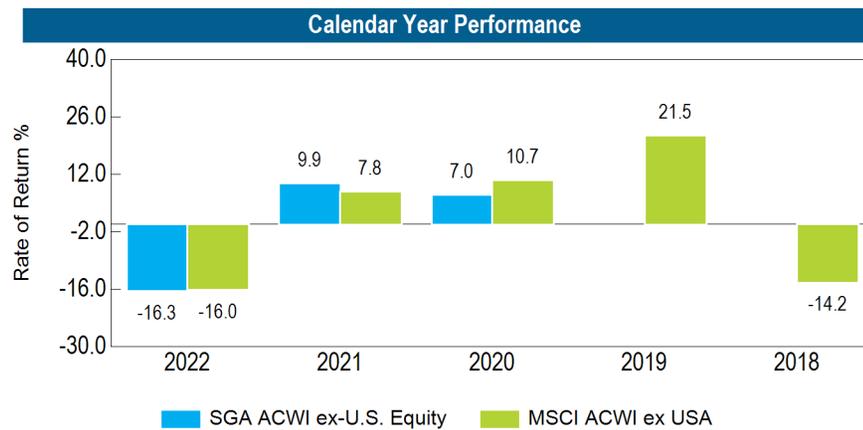
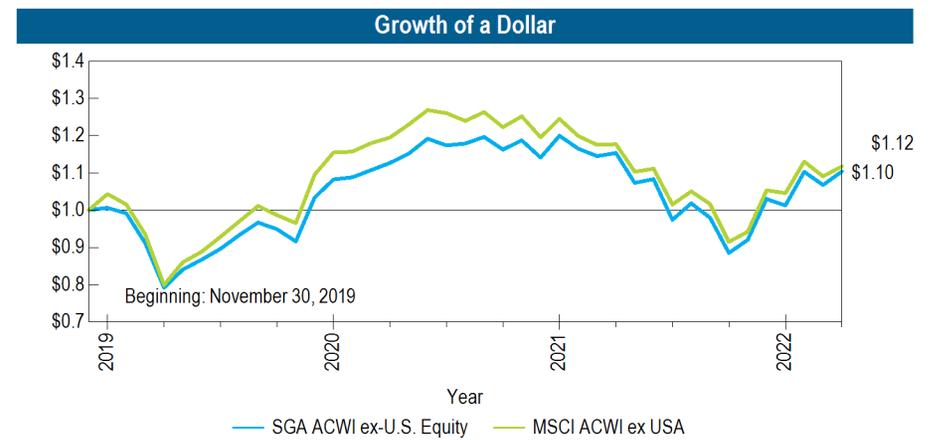
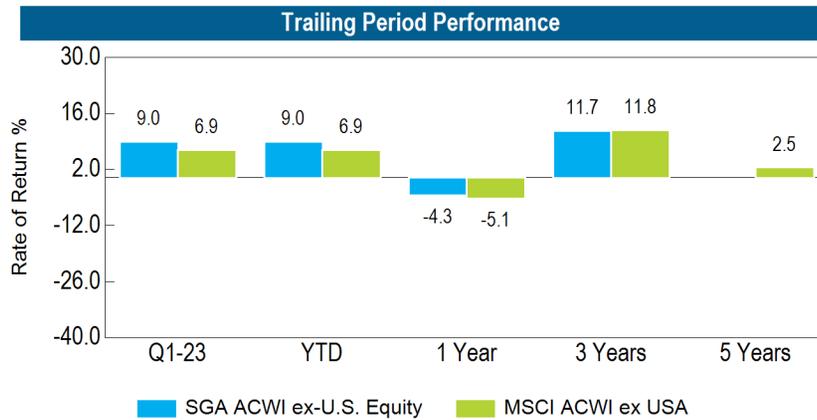
	Anlzd Return	Anlzd Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Vanguard Developed Markets ETF	6.5%	20.0%	0.0%	1.0	-0.1	2.6%	104.2%	102.3%
FTSE Developed All Cap Ex US TR USD	6.6%	19.7%	0.0%	1.0	--	0.0%	100.0%	100.0%



Performance shown is net-of-fees and since inception.

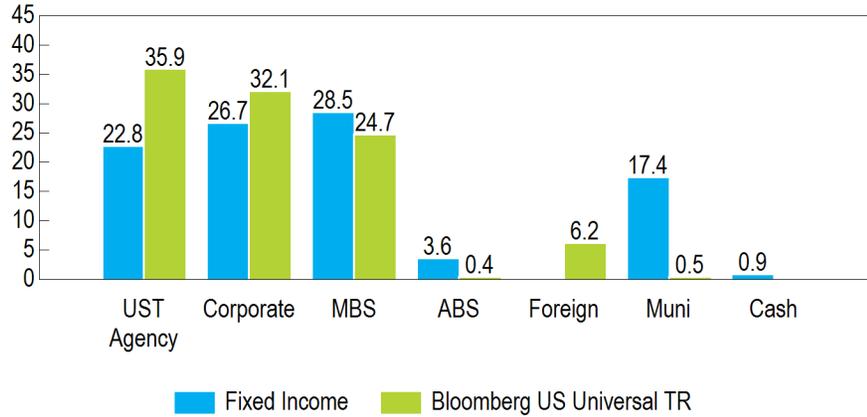
SGA ACWI ex-U.S. Equity | As of March 31, 2023

	Anlzd Return	Anlzd Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Mkt Capture Ratio	Down Mkt Capture Ratio
SGA ACWI ex-U.S. Equity	2.3%	18.8%	-0.1%	1.0	-0.3	3.5%	92.2%	99.1%
MSCI ACWI ex USA	3.4%	19.3%	0.0%	1.0	--	0.0%	100.0%	100.0%

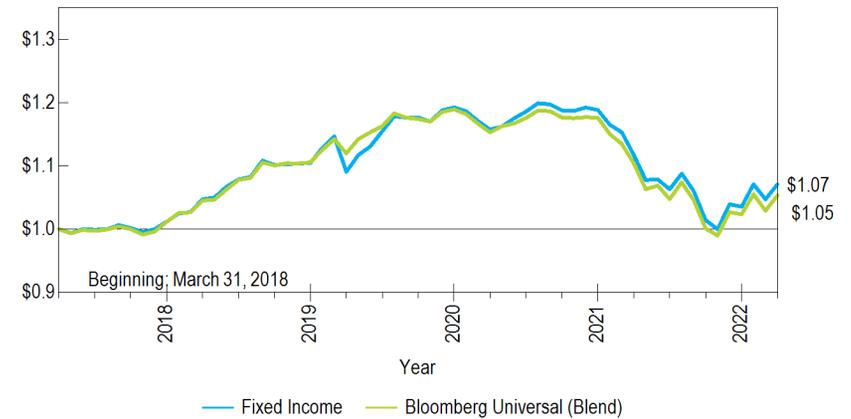


Performance shown is net-of-fees and since inception.

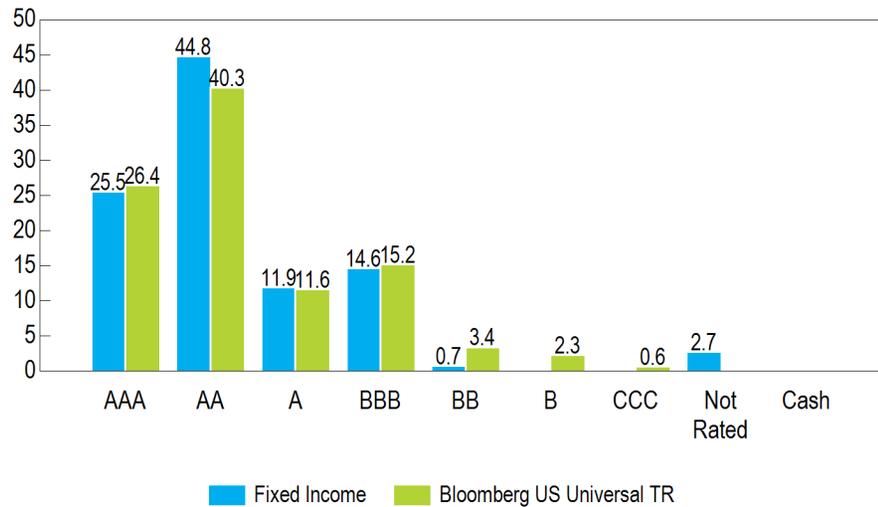
US Sector Allocation



Growth of a Dollar 5 Years Ending March 31, 2023



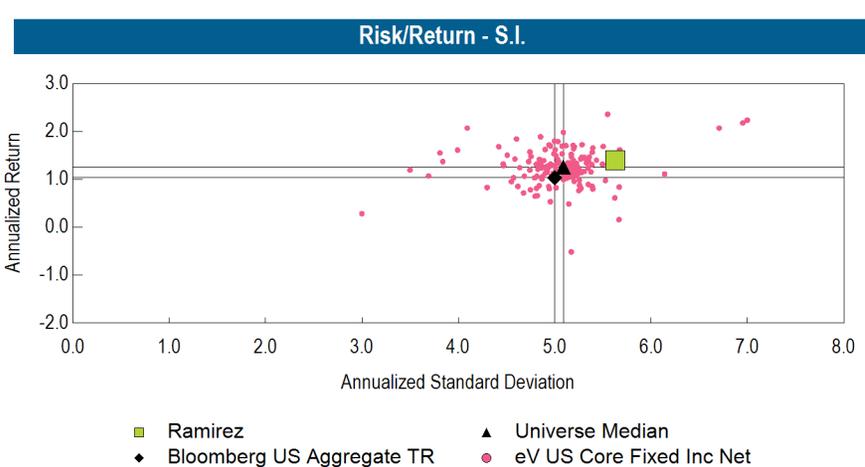
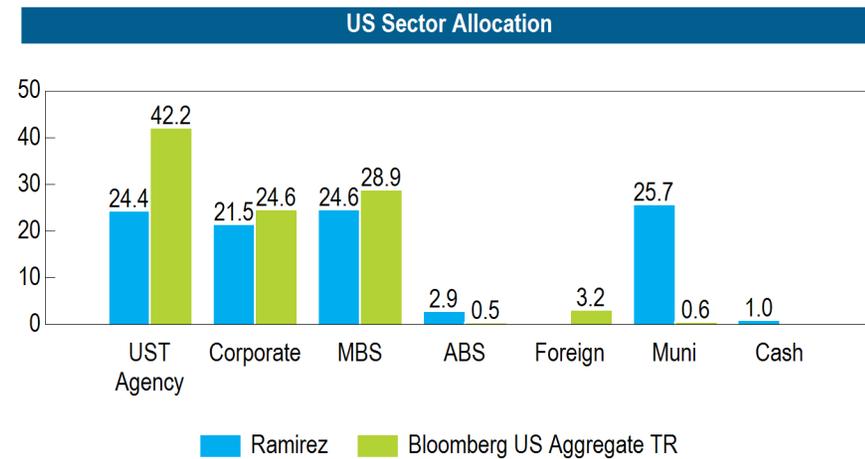
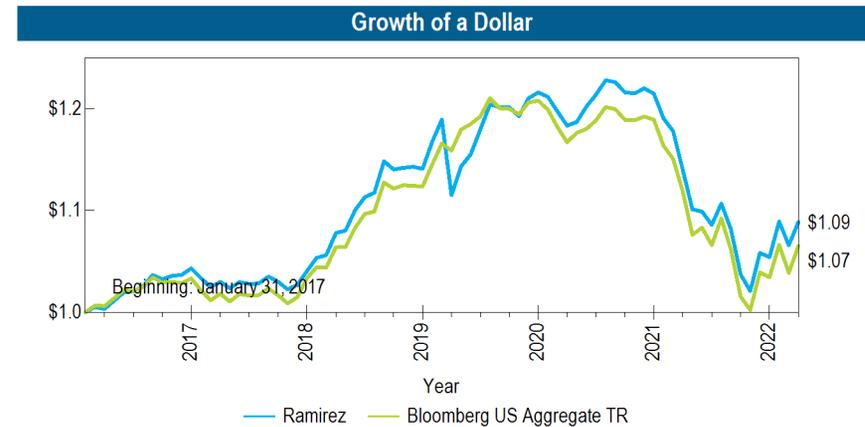
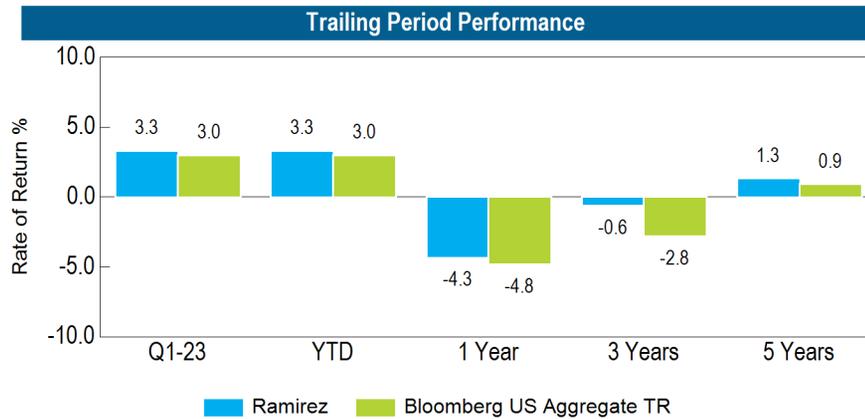
Credit Quality Allocation



Fixed Income Fixed Income Characteristics vs. Bloomberg US Universal TR

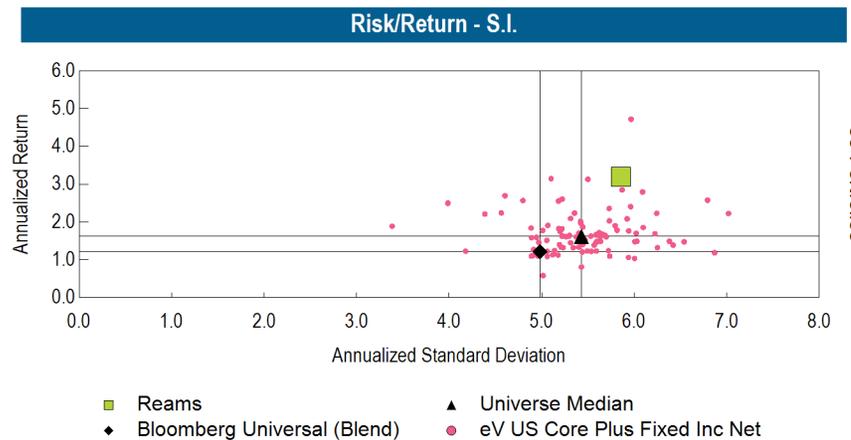
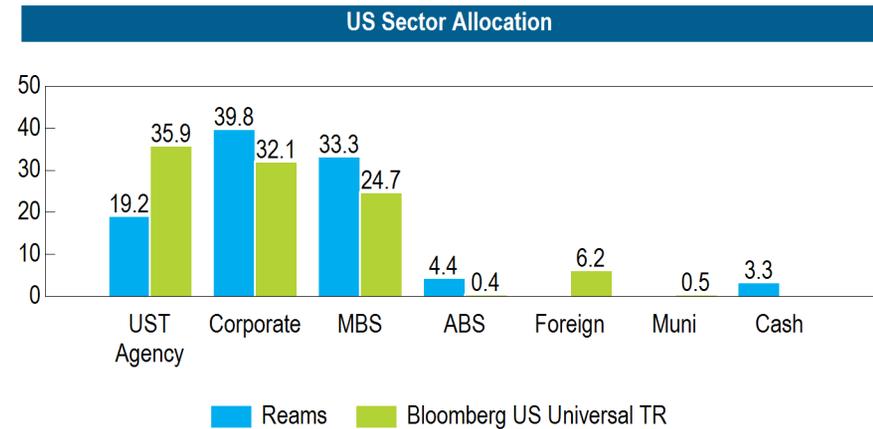
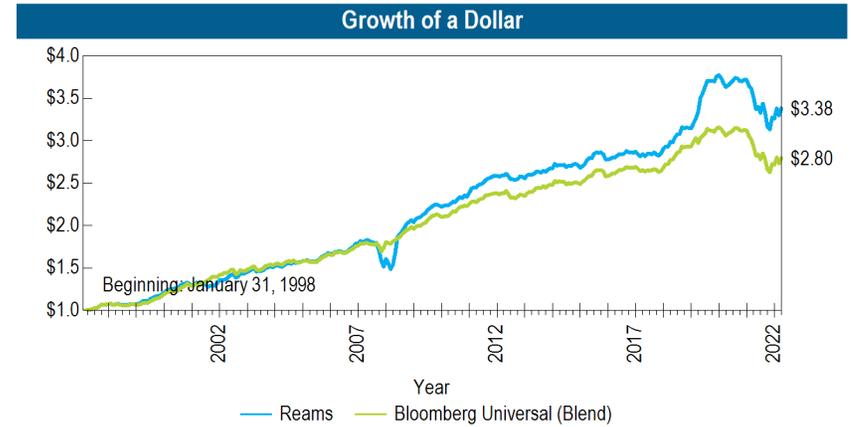
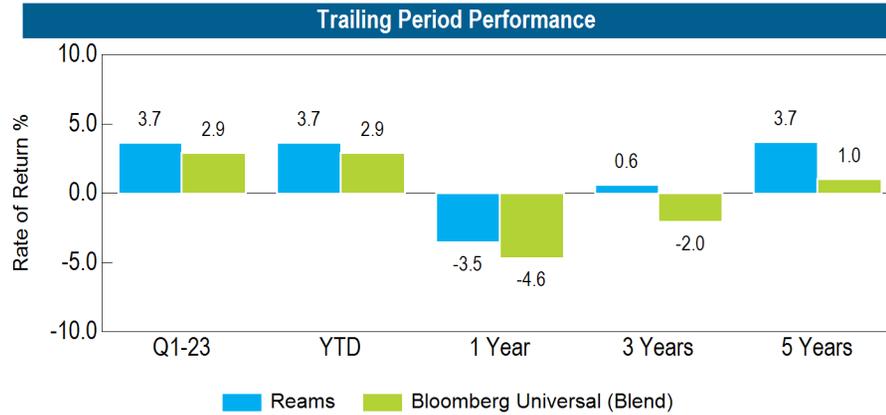
	Portfolio Q1-23	Index Q1-23
Fixed Income Characteristics		
Yield to Maturity	4.94	5.10
Average Duration	6.18	6.25
Average Quality	AA	AA
Weighted Average Maturity	9.19	12.25

	Anlzd Return	Anlzd Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Ramirez	1.4%	5.6%	0.0%	1.0	0.1	2.6%	113.1%	105.1%
Bloomberg US Aggregate TR	1.0%	5.0%	0.0%	1.0	--	0.0%	100.0%	100.0%



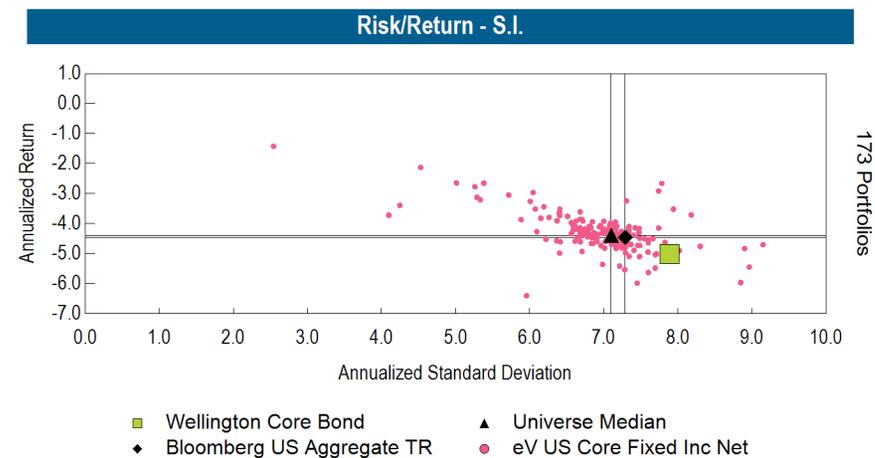
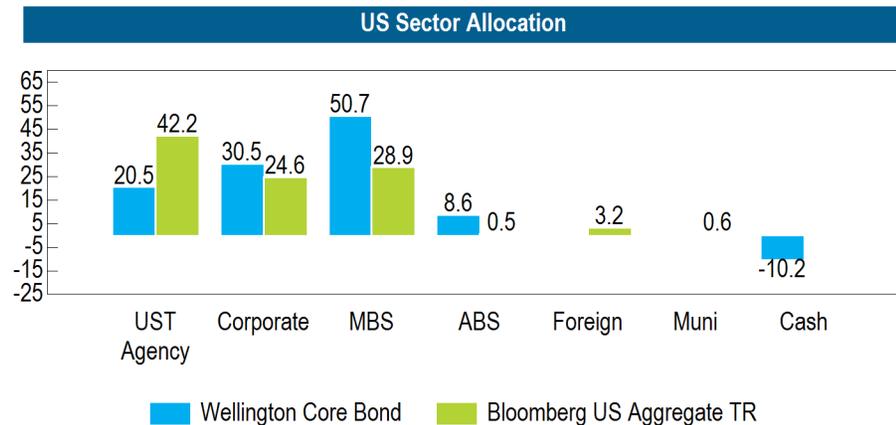
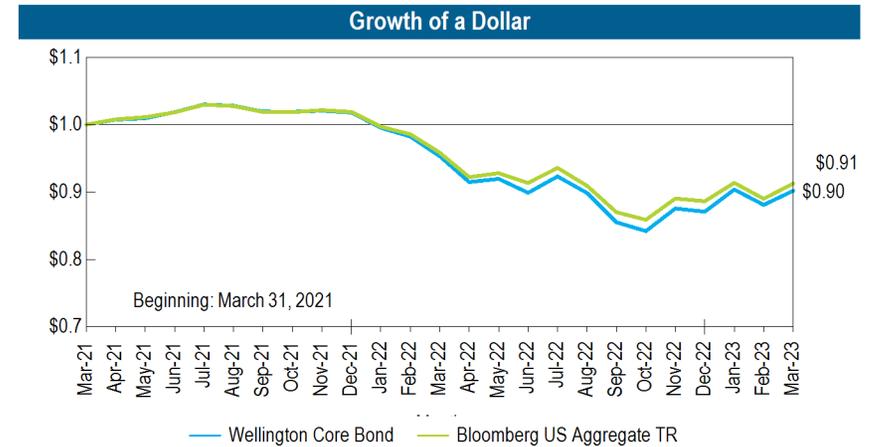
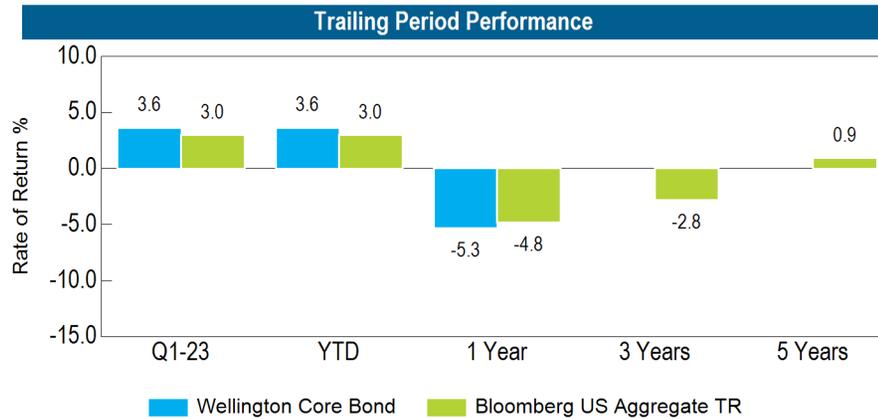
Performance shown is net-of-fees and since inception.

	Anlzd Return	Anlzd Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Reams	5.0%	5.6%	0.0%	1.1	0.2	3.8%	124.9%	100.1%
Bloomberg Universal (Blend)	4.2%	3.9%	0.0%	1.0	--	0.0%	100.0%	100.0%



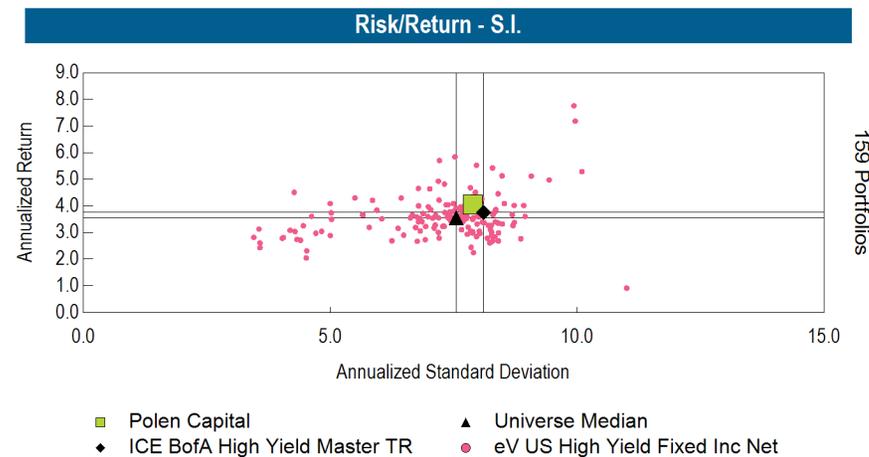
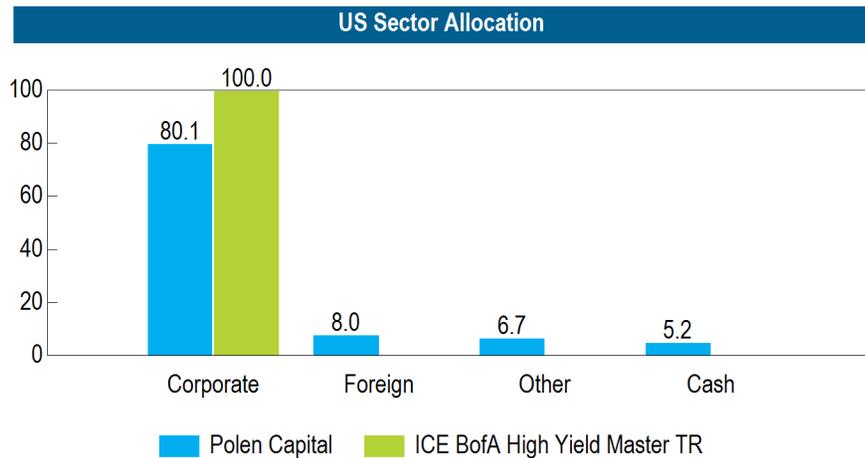
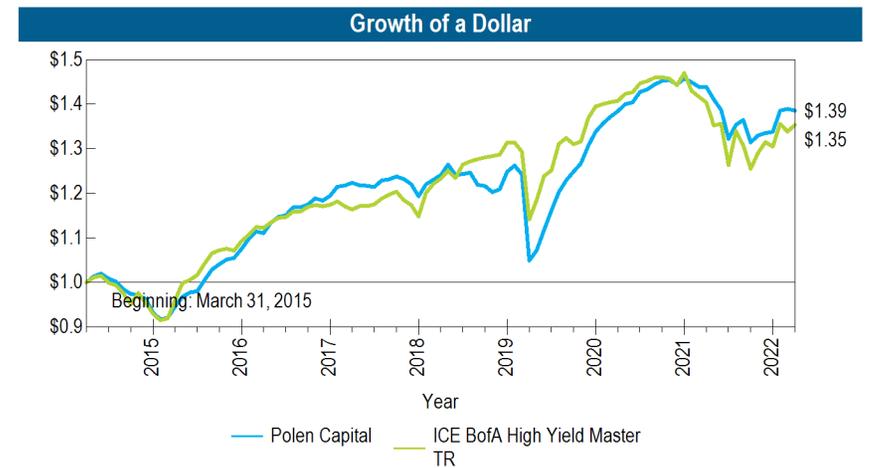
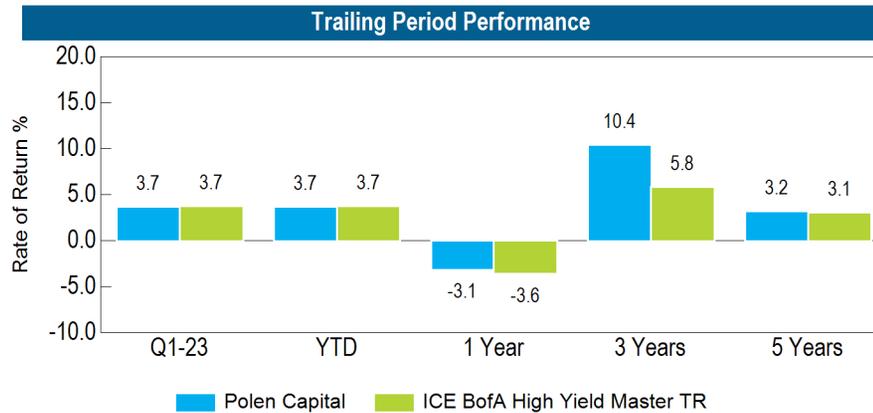
Performance shown is net-of-fees and since inception.

	Anlzd Return	Anlzd Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Wellington Core Bond	-5.0%	7.9%	0.0%	1.1	-0.6	0.9%	105.7%	107.1%
Bloomberg US Aggregate TR	-4.5%	7.3%	0.0%	1.0	--	0.0%	100.0%	100.0%



Performance shown is net-of-fees and since inception.

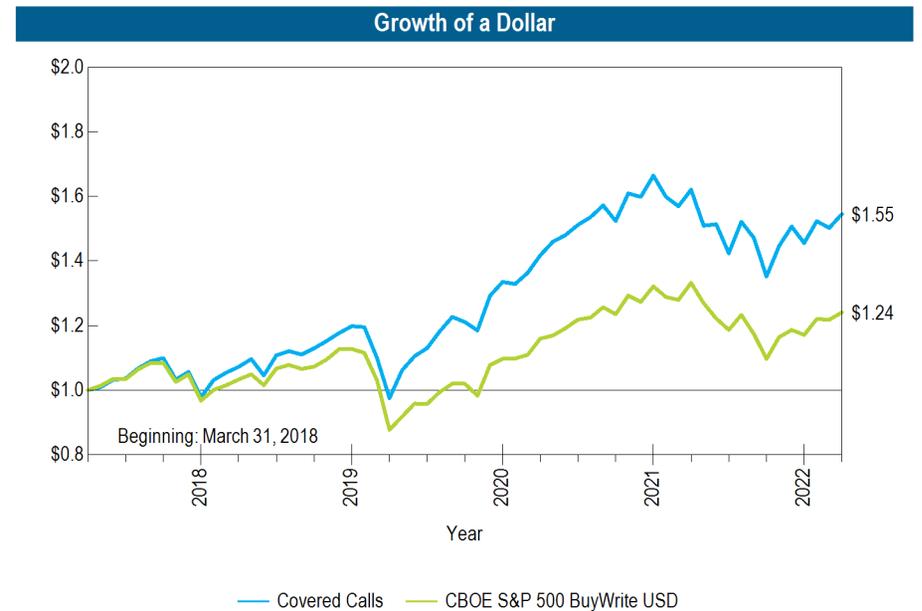
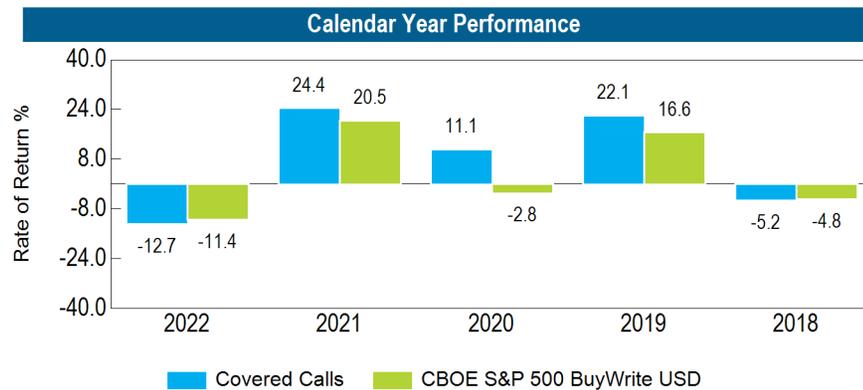
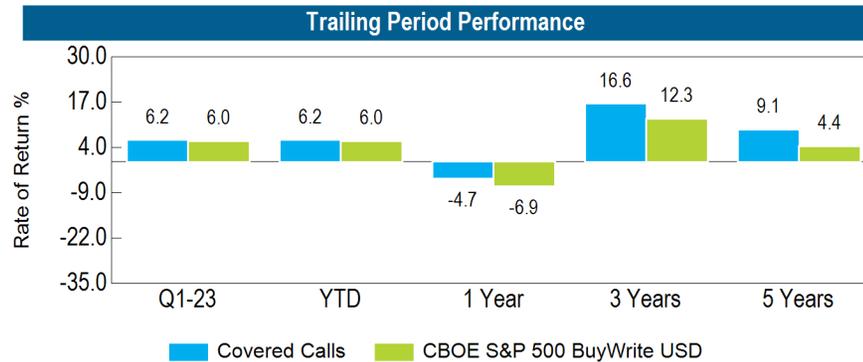
	Anlzd Return	Anlzd Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Polen Capital	4.3%	7.9%	0.1%	0.8	0.1	4.3%	76.0%	77.1%
ICE BofA High Yield Master TR	4.0%	8.1%	0.0%	1.0	--	0.0%	100.0%	100.0%



Performance shown is net-of-fees and since inception.

Covered Calls | As of March 31, 2023

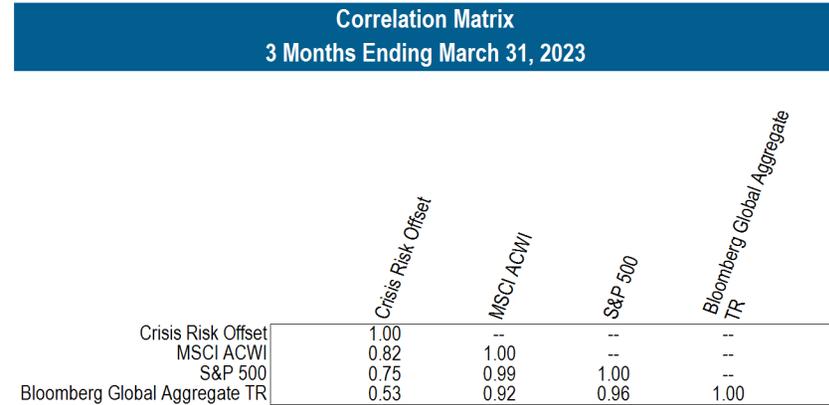
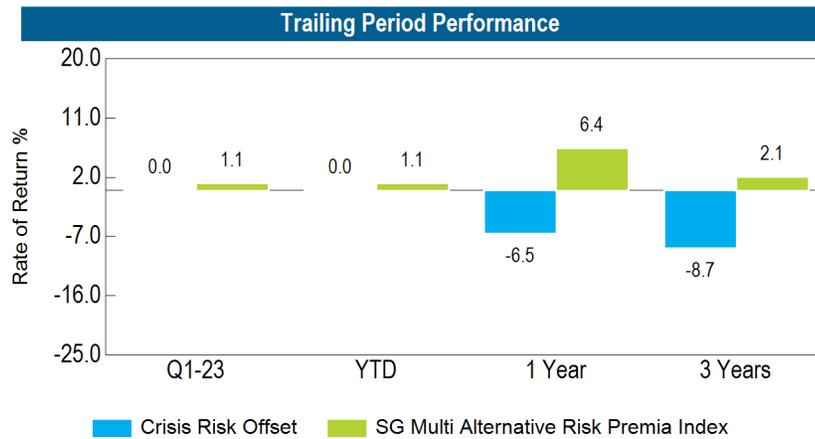
	Anlzd Return	Anlzd Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Covered Calls	8.3%	11.8%	0.2%	1.0	0.7	4.1%	145.8%	103.0%
CBOE S&P 500 BuyWrite USD	5.4%	10.8%	0.0%	1.0	--	0.0%	100.0%	100.0%
Parametric BXM	6.6%	9.7%	0.2%	0.9	0.4	3.3%	96.3%	91.6%
CBOE S&P 500 BuyWrite USD	5.4%	10.8%	0.0%	1.0	--	0.0%	100.0%	100.0%
Parametric DeltaShift	10.2%	14.1%	0.3%	1.2	0.8	6.2%	210.3%	111.4%
CBOE S&P 500 BuyWrite USD	5.4%	10.8%	0.0%	1.0	--	0.0%	100.0%	100.0%



Performance shown is net-of-fees and since inception.

Crisis Risk Offset | As of March 31, 2023

	Anlzd Return	Anlzd Standard Deviation	Alpha	Beta	Information Ratio	Tracking Error	Up Mkt Capture Ratio	Down Mkt Capture Ratio
Crisis Risk Offset	-10.20%	11.26%	-0.82%	0.56	-0.88	11.07%	-30.22%	98.01%
SG Multi Alternative Risk Premia Index	-0.49%	5.93%	0.00%	1.00	--	0.00%	100.00%	100.00%
Kepos Alternative Risk Premia	--	--	--	--	--	--	--	--
SG Multi Alternative Risk Premia Index	-0.49%	5.93%	0.00%	1.00	--	0.00%	100.00%	100.00%
Versor Trend Following	--	--	--	--	--	--	--	--
SG Trend Index	11.16%	13.27%	0.00%	1.00	--	0.00%	100.00%	100.00%
Vanguard Long-Term Treasury ETF	-3.63%	15.13%	0.00%	1.02	-0.04	1.19%	102.56%	101.12%
Bloomberg US Govt Long TR	-3.58%	14.86%	0.00%	1.00	--	0.00%	100.00%	100.00%



Performance shown is net-of-fees and since inception.

Benchmark History

As of March 31, 2023

OPFRS Total Plan

6/1/2022	Present	40% Russell 3000 / 12% MSCI ACWI ex USA / 31% Bloomberg US Universal TR / 5% CBOE BXM / 10% SG Multi Alternative Risk Premia Index / 2% Bloomberg US High Yield TR
1/1/2019	5/31/2022	40% Russell 3000 / 12% MSCI ACWI ex USA Gross / 33% Bloomberg US Universal TR / 5% CBOE BXM / 6.7% SG Multi Alternative Risk Premia Index / 3.3% Bloomberg US Treasury Long TR
5/1/2016	12/31/2018	48% Russell 3000 / 12% MSCI ACWI ex USA Gross / 20% Bloomberg US Universal TR / 20% CBOE BXM
10/1/2015	4/30/2016	43% Russell 3000 / 12% MSCI ACWI ex USA Gross / 20% Bloomberg US Universal TR / 15% CBOE BXM / 10% CPI - All Urban Consumers (unadjusted) +3%
1/1/2014	9/30/2015	48% Russell 3000 / 12% MSCI ACWI ex USA Gross / 20% Bloomberg US Universal TR / 10% CBOE BXM / 10% CPI - All Urban Consumers (unadjusted) +3%
3/1/2013	12/31/2013	40% Russell 3000 / 10% MSCI ACWI ex USA Gross / 17% Bloomberg US Universal TR / 33% ICE BofA 3M US Treasury TR USD
8/1/2012	2/28/2013	20% Russell 3000 / 7% MSCI ACWI ex USA Gross / 18% Bloomberg US Universal TR / 55% ICE BofA 3M US Treasury TR USD
10/1/2007	7/31/2012	53% Russell 3000 / 17% MSCI ACWI ex USA Gross / 30% Bloomberg US Universal TR
4/1/2006	9/30/2007	35% Russell 3000 / 15% MSCI ACWI ex USA Gross / 50% Bloomberg US Universal TR
1/1/2005	3/31/2006	35% Russell 3000 / 15% MSCI ACWI ex USA Gross / 50% Bloomberg US Aggregate TR
4/1/1998	12/31/2004	50% Bloomberg US Aggregate TR / 10% Russell 1000 / 20% Russell 1000 Value / 5% Russell MidCap / 15% MSCI EAFE
12/1/1988	3/31/1998	40% S&P 500 / 55% Bloomberg US Aggregate TR / 5% FTSE T-Bill 3 Months TR

Benchmark History As of March 31, 2023

Domestic Equity

1/1/2005	Present	Russell 3000
4/1/1998	12/31/2004	28.57% Russell 1000 / 57.14% Russell 1000 Value / 14.29% Russell MidCap
6/1/1997	3/31/1998	S&P 500

International Equity

1/1/2005	Present	MSCI ACWI ex USA
1/1/1998	12/31/2004	MSCI EAFE Gross

Fixed Income

4/1/2006	Present	Bloomberg US Universal TR
12/31/1993	3/31/2006	Bloomberg US Aggregate TR

Covered Calls

4/1/2014	Present	CBOE S&P 500 BuyWrite USD
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Crisis Risk Offset

8/1/2018	Present	SG Multi Alternative Risk Premia Index
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Cash

3/1/2011	Present	FTSE T-Bill 3 Months TR
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Manager Monitoring / Probation Status

Manager Monitoring/Probation Status

Return vs. Benchmark since Corrective Action

Portfolio	Status	Concern Triggering the Watch Status	Months Since Corrective Action	Performance ¹ Since Corrective Action	Peer Group Percentile Rank	Date of Corrective Action ²
Rice Hall James	On Watch	Performance/ Organization	45	7.6	70	5/29/2019
Russell 2000 Growth				5.9		

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 ³ < 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 Annualized performance if over one year. Performance shown is gross-of-fees.

² Approximate date based on when the Board voted to either monitor a manager at a heightened level or place it on probation.

³ VRR (Value Relative Ratio) is calculated as manager cumulative return/ benchmark return.

Disclaimer, Glossary, and Notes

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Sources: Investment Terminology, International Foundation of Employee Benefit Plans, 1999.
The Handbook of Fixed Income Securities, Fabozzi, Frank J., 1991

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

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

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