

PUBLIC SCHOOL FUND INVESTMENT BOARD
MEETING AGENDA, MAY 15, 2023

VIDEO CONFERENCE VIA ZOOM LINK:

<https://us02web.zoom.us/j/87802750464?pwd=VmRlRkxwYmYwVUVWZGZidGtPU2VwQT09>

Meeting ID: 878 0275 0464

Passcode: Rmt0CM

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Public School Fund Investment Board Members

Dave Young	- Colorado State Treasurer – Board Chair
Peter Calamari	- Platte River Equity
Jerome DeHerrera, Esq.	- Achieve Law Group
Wendy Dominguez	- Innovest Portfolio Solutions
Christine Scanlan	- State Land Board Commissioners

- | | | |
|-------|--|-----------------------------|
| I. | Call to Order | D. Young Noon |
| II. | Roll Call | D. Young |
| III. | Approval of Minutes from February, 27 2023 Board Meeting | D. Young 12:03 |
| IV. | Short Duration and Core Bond Portfolio RFP Update | S. Zimbelman 12:05 (10 min) |
| | a. Janus contract end date – October 11, 2023 | |
| V. | Vote on 1 year extension: MacKay Shields | Callan 12:15 (5 min) |
| | a. Current year end September 9, 2023; total contract end 2025 | |
| VI. | Annual IPS Review | S. Zimbelman 12:20 (10 min) |
| VII. | Market Update (Qtr. 1 – Ending March 31, 2022) | Callan 12:30 (10 min) |
| VIII. | Performance Report (FY Qtr. 3 – Ending March 31, 2022) | Callan 12:40 (15 min) |
| IX. | Cash deployment Update | Callan 12:55 (5 min) |
| X. | Review of unrealized gains/losses | S. Zimbelman 1:00 (5 min) |
| XI. | OML education and review of Communication and Open Records Act | K. Colburn 1:05 (15 min) |
| XII. | Fund Manager Presentation: Janus | Janus 1:20 (20 min) |
| XIII. | Other Business | 1:40 (5 min) |
| | a. Legislative Update | |
| XIV. | Public Comment | 1:45 (10 min) |
| XV. | Board Adjournment | 2:00 |

Future Meeting Dates:

August 14, 2023	Noon
November 13, 2023	Noon



Public School Fund Investment Board Meeting
Meeting Minutes February 27, 2023
Held Via Zoom

Board Members in Attendance:

Dave Young
Peter Calamari
Wendy Dominguez
Christine Scanlan
Jerome DeHerrera

12:04 – 12:05 PM Welcome, roll call

12:05 – 12:06 PM Meeting minutes from the November 14, 2022 Board Meeting

Mr. DeHerrera made a motion to approve the November 14, 2022 meeting minutes. Ms. Scanlan seconded the motion. The motion passed at 12:06 pm.

- Dave Young – Yes
- Peter Calamari – Yes
- Jerome DeHerrera – Yes
- Wendy Dominguez – Yes
- Christine Scanlan – Yes

12:06 – 12:12 PM House Bill 1146 Update

Treasurer Young gave an update on the 1146 Study Group. The study group is in the final stages of editing and reviewing their final report which is due on 2/28/2023.

12:13 – 12:55 PM In-House Bond Portfolio Discussion/Analysis

Ms. Dominguez had raised a question at the end of 2022 regarding the RFP process completed at least every 5 years for the external portfolio managers and whether there was an opportunity or should be an opportunity to do the same for the Treasury portfolio. In response to this question Ms. Janet Becker-Wold (Callan) presented some background information on the Treasury portfolio and the due diligence completed shortly after the formation of The Board in 2016. Ms. Becker-Wold also presented information on the option of bringing on an additional Core Bond Portfolio manager external to the Treasury. Treasurer Young asked a question regarding some of the Peer Performance data presented and whether the comparison was apples to apples considering the constitutional restrictions on The Fund. Ms. Becker-Wold responded that they felt the comparison was pretty apples to apples because the constitutional restrictions deal mainly with equities and not the bond portfolio. The Bond Portfolio is measured against the Bloomberg U.S. Aggregate index. Ms. Dominguez asked how the fees are appropriated and how long they are appropriated for. Treasurer Young responded that it is a continuing appropriation, that it is built into the base, but that it is an annual appropriation so it could potentially change. Ms. Dominguez asked if the fees are paid out of the fund. Treasurer Young believed that

they were, but Ms. Zimbelman (Portfolio Administrator) took an action to follow up and confirm. Treasurer Young asked whether it was possible for Maruti More to do the Core-Plus that was described. Ms. Becker-Wold was not sure since Core-Plus includes below investment grade investments; Ms. Becker-Wold suggested that the Board consultant Grant Sullivan (Attorney General's Office) on this. Ms. Dominguez made a motion to begin an RFP process with Callan's assistance and direction to allocate up to \$200M to a new Core Fixed-Income Portfolio. Mr. Calamari seconded the motion.

- Dave Young – Yes
- Peter Calamari – Yes
- Jerome DeHerrera – Yes
- Wendy Dominguez – Yes
- Christine Scanlan – Yes

Treasurer Young commented that Maruti More and his team have done an excellent job with the Treasury Portfolio, as Ms. Becker-Wold's presentation indicated. This vote is part of The Board's fiduciary responsibility to do due diligence to ensure it is properly diversified. The motion passed at 12:55.

12:56 – 1:06 PM Market Update (Quarter 4 – Ending Dec. 31, 2022)

Presentation by Mr. Alex Browning (Callan)

1:06 – 1:30 PM Asset Allocation Update & Rebalancing Recommendation

Presentation by Ms. Janet Becker-Wold (Callan)

1:30 – 1:34 PM Review of Unrealized Gains/Losses

Presentation by Ms. Sarah Zimbelman (Portfolio Administrator)

1:35 – 12:58 PM Fund Manager Presentation: Parametric

Presentation by Mr. Dan Ryan, Senior Director Relationship Management and Mr. Jim Reber, Managing Director Portfolio Management

1:58 – 1:59 PM Public comments

- Written Comments
 - There were no written comments.
- Verbal Comments
 - There were no verbal comments.

1:59 – 2:02 PM Other Business

- Ms. Zimbelman asked The Board if there was any desire to move the quarterly board meetings back to in-person or if the preference was stick with the current zoom format. The consensus was to stick with the current zoom format.
- Ms. Zimbelman also informed The Board that there will be a formal RFP process for the Short Duration Portfolio this year as the Janus contract is reaching it's 5 year contract expiration this October. Ms. Zimbelman asked the Board members to consider volunteering to support the evaluation portion of the RFP process.

The meeting was adjourned at 2:03 pm.

Next Meeting

- May 15, 2023 at Noon

Short Duration RFP Timeline:

2.1 Schedule of Activities		
Activity	Date	Time (MST)
1. RFP published on VSS System	06/12/2023	N/A
2. Prospective Proposer’s Inquiry Deadline No inquiries accepted after this date	06/19/2023	4:00 PM
3. Response to written inquiries on Vendor Self Serve (VSS) (ESTIMATED*)	06/28/2023	N/A
4. Proposal Submission Deadline	07/14/2023	4:00 PM
5. Evaluation of Written Proposals (ESTIMATED*)	July 15 to August 18, 2023	
6. Reference calls and letters of clarification questions (ESTIMATED - If applicable per Investment Board’s evaluation)	July 15 to August 18, 2023	
7. Proposer Interviews (ESTIMATED – If applicable per Investment Board’s evaluation)	July 15 to August 18, 2023	
9. Finalist Presentations/Proposal Selection (ESTIMATED)	August 28, 2023	
11. Desired initial Performance Period	10/12/2023 - 10/11/2024	

New Core Bond Portfolio RFP Timeline:

2.1 Schedule of Activities		
Activity	Date	Time (MST)
1. RFP published on VSS System	08/21/2023	N/A
2. Prospective Proposer’s Inquiry Deadline No inquiries accepted after this date	08/28/2023	4:00 PM
3. Response to written inquiries on Vendor Self Serve (VSS) (ESTIMATED*)	09/08/2023	N/A
4. Proposal Submission Deadline	09/15/2023	4:00 PM
5. Evaluation of Written Proposals (ESTIMATED*)	September 16 to October 13, 2023	
6. Reference calls and letters of clarification questions (ESTIMATED - If applicable per Investment Board’s evaluation)	September 16 to October 13, 2023	
7. Proposer Interviews (ESTIMATED – If applicable per Investment Board’s evaluation)	September 16 to October 13, 2023	
9. Finalist Presentations/Proposal Selection (ESTIMATED)	October 23, 2023	
11. Desired initial Performance Period	12/1/2023 - 11/30/2024	

Returns and Peer Group Rankings - Trailing Periods

Returns for Periods Ended March 31, 2023

Group: Callan High Yield Fix Inc (Percentile Rankings in Parentheses)

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
Federated	3.70 (41)	(3.85) (73)	5.60 (66)	3.40 (61)	4.95 (63)
Mackay	3.97 (16)	(0.50) (4)	7.25 (21)	4.41 (10)	6.13 (9)
PineBridge	3.87 (23)	(2.84) (49)	6.34 (46)	3.89 (32)	6.21 (7)
Callan High Yield Fix Inc*	3.58	(2.85)	6.29	3.54	5.16
Bimbg:HY Corp	3.57 (51)	(3.34) (61)	5.91 (60)	3.21 (69)	5.08 (55)

*Results reflect group median.

Manager candidate performance shown is Gross-of-fees unless otherwise noted.

Returns and Peer Group Rankings - Trailing Periods

Excess Returns for Periods Ended March 31, 2023

Group: Callan High Yield Fix Inc (Percentile Rankings in Parentheses)

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years
Federated	0.13 (41)	(0.51) (73)	(0.31) (66)	0.19 (61)	(0.13) (63)
MacKay	0.40 (16)	2.85 (4)	1.34 (21)	1.20 (10)	1.05 (9)
PineBridge	0.30 (23)	0.50 (49)	0.44 (46)	0.68 (32)	1.13 (7)
Callan High Yield Fix Inc*	0.01	0.49	0.38	0.33	0.08

*Results reflect group median.

Manager candidate performance shown is Gross-of-fees unless otherwise noted.

Returns and Peer Group Rankings - Calendar Years

Returns for Periods Ended March 31, 2023

Group: Callan High Yield Fix Inc (Percentile Rankings in Parentheses)

	1 Qtr. 2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Federated	3.70 (41)	(11.04) (73)	5.36 (53)	6.58 (56)	15.49 (35)	(2.32) (59)	7.64 (51)	15.59 (30)	(1.71) (27)	3.55 (28)
Mackay	3.97 (16)	(7.51) (6)	5.86 (42)	7.21 (41)	14.21 (72)	(0.67) (8)	7.67 (49)	16.78 (17)	(0.52) (8)	2.73 (57)
PineBridge	3.87 (23)	(10.69) (66)	5.95 (37)	8.64 (14)	15.81 (24)	(3.26) (83)	10.29 (1)	18.96 (7)	(3.86) (70)	1.43 (84)
Callan High Yield Fix Inc*	3.58	(10.09)	5.50	6.72	15.09	(2.20)	7.65	14.79	(3.09)	2.83
BImbg:HY Corp	3.57 (51)	(11.19) (78)	5.28 (57)	7.11 (43)	14.32 (68)	(2.08) (45)	7.50 (55)	17.13 (15)	(4.47) (80)	2.45 (61)

*Results reflect group median.

Manager candidate performance shown is gross-of-fees unless otherwise noted.

Returns and Peer Group Rankings - Calendar Years

Excess Returns for Periods Ended March 31, 2023

Group: Callan High Yield Fix Inc (Percentile Rankings in Parentheses)

	1 Qtr. 2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Federated	0.13 (41)	0.15 (73)	0.09 (53)	(0.53) (56)	1.17 (35)	(0.24) (59)	0.13 (51)	(1.54) (30)	2.76 (27)	1.09 (28)
Mackay	0.40 (16)	3.67 (6)	0.58 (42)	0.09 (41)	(0.11) (72)	1.41 (8)	0.17 (49)	(0.35) (17)	3.95 (8)	0.27 (57)
PineBridge	0.30 (23)	0.50 (66)	0.67 (37)	1.53 (14)	1.49 (24)	(1.18) (83)	2.79 (1)	1.83 (7)	0.60 (70)	(1.02) (84)
Callan High Yield Fix Inc*	0.01	1.10	0.22	(0.40)	0.77	(0.12)	0.14	(2.34)	1.38	0.38

*Results reflect group median.

Manager candidate performance shown is gross-of-fees unless otherwise noted.

Callan

May 2023



**Colorado Public School Fund
Investment Board**

First Quarter 2023

Janet Becker-Wold, CFA
Senior Vice President

Alexander Browning
Senior Vice President

Callan

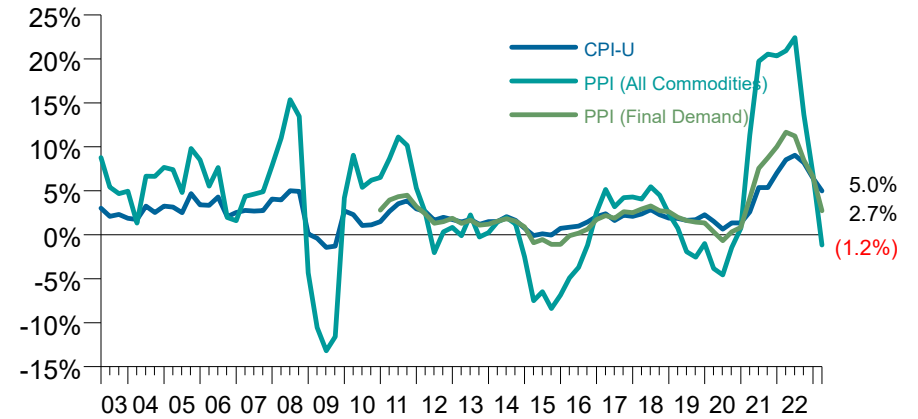
Economic and Market Update

U.S. Economy—Summary

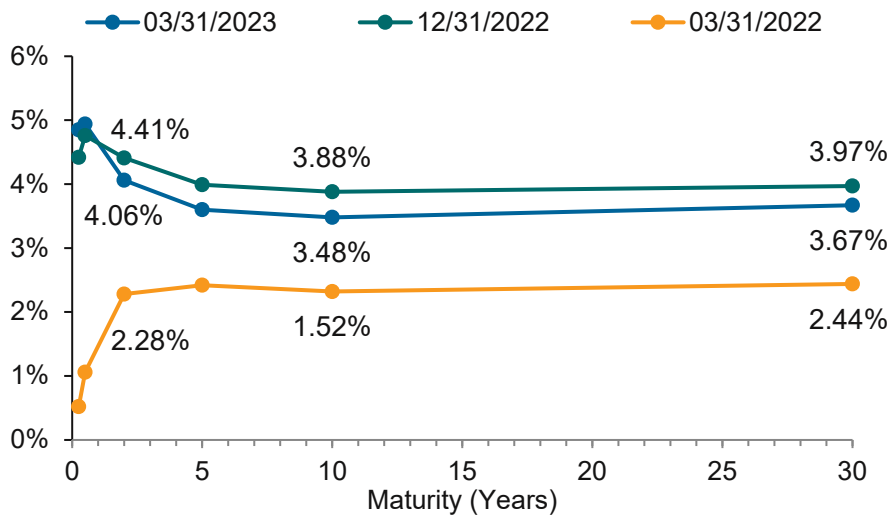
First Quarter 2023

- U.S. economic growth slowed but remained positive in Q1, increasing at a 1.1% annualized rate and below estimates of 2%.
- Headline inflation softened to 5.0% year-over-year in Q1, down from 6.5% in Q4.
- The Federal Reserve made consecutive 25 basis point rate hikes in February, March, and May (to a target range of 5.00-5.25%).
- The labor market continues to be a source of strength with unemployment remaining at 3.5% in March (April down to 3.4%)..

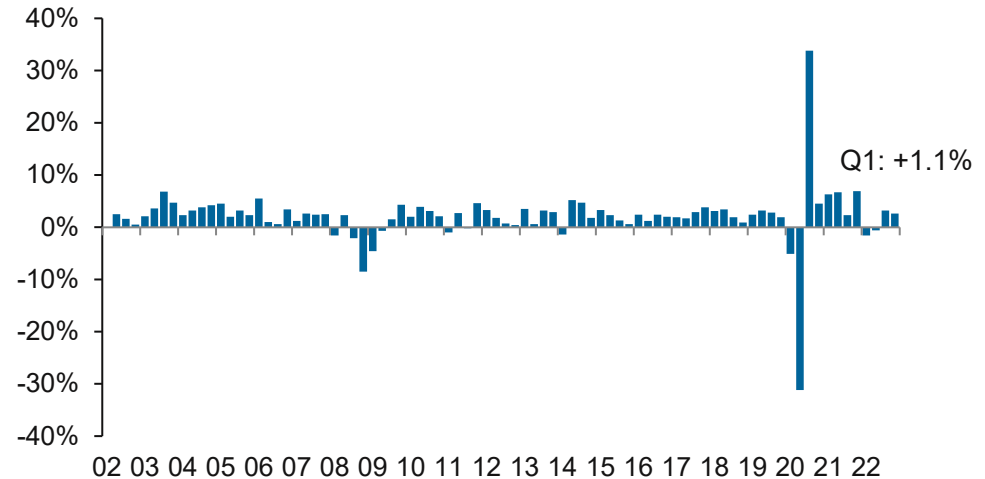
Inflation Year-Over-Year



U.S. Treasury Yield Curves



Quarterly Real GDP Growth

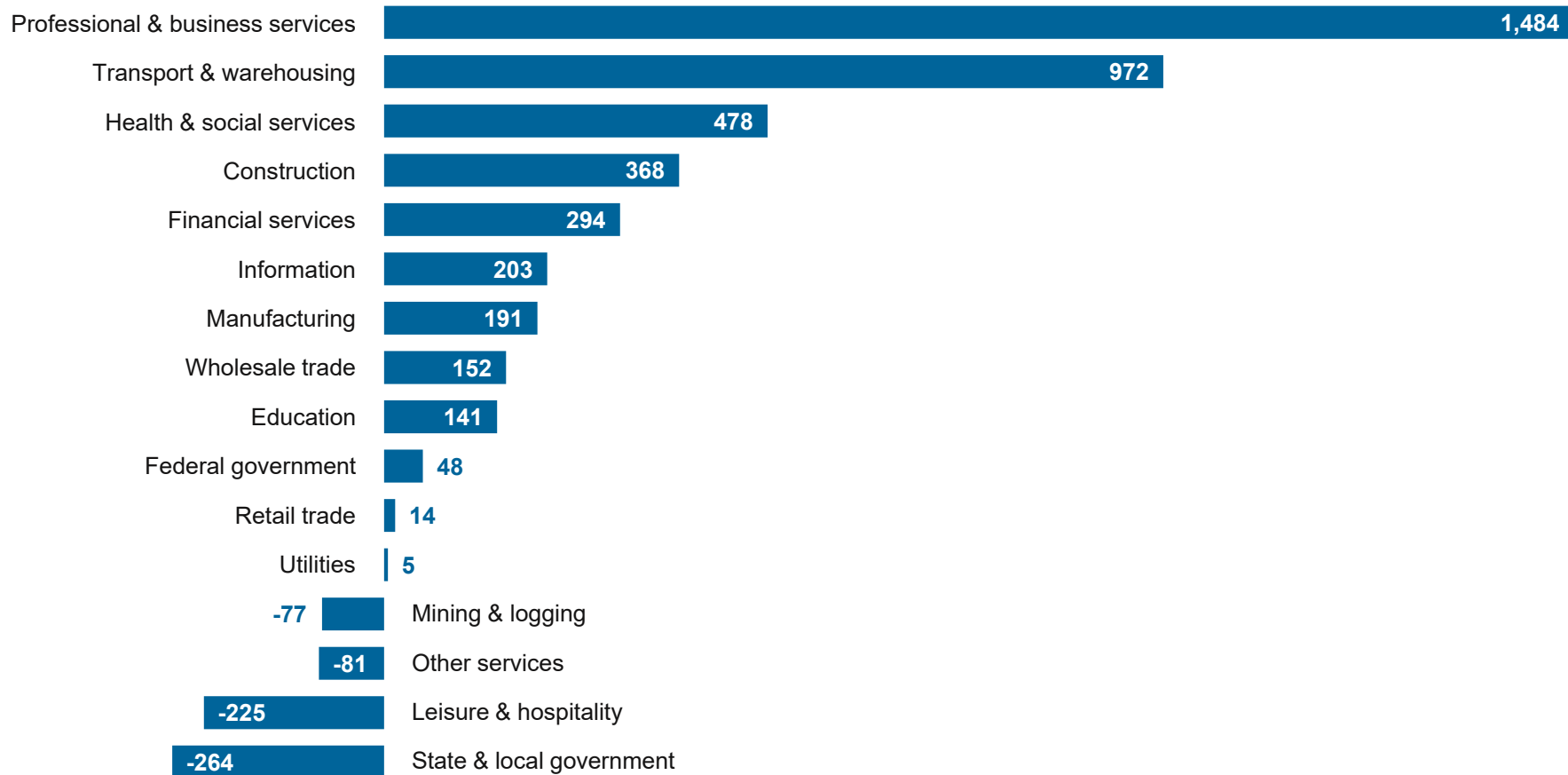


Sources: Bloomberg, Bureau of Labor Statistics, Callan. GDP reflective of 4Q22 Estimate.

While the Recovery Continues, Employment Landscape Remains Uneven

Leisure/hospitality and state and local government remain below pre-pandemic levels

Change in Payroll Employment Since 12/31/19, through 3/31/23 (thousands)

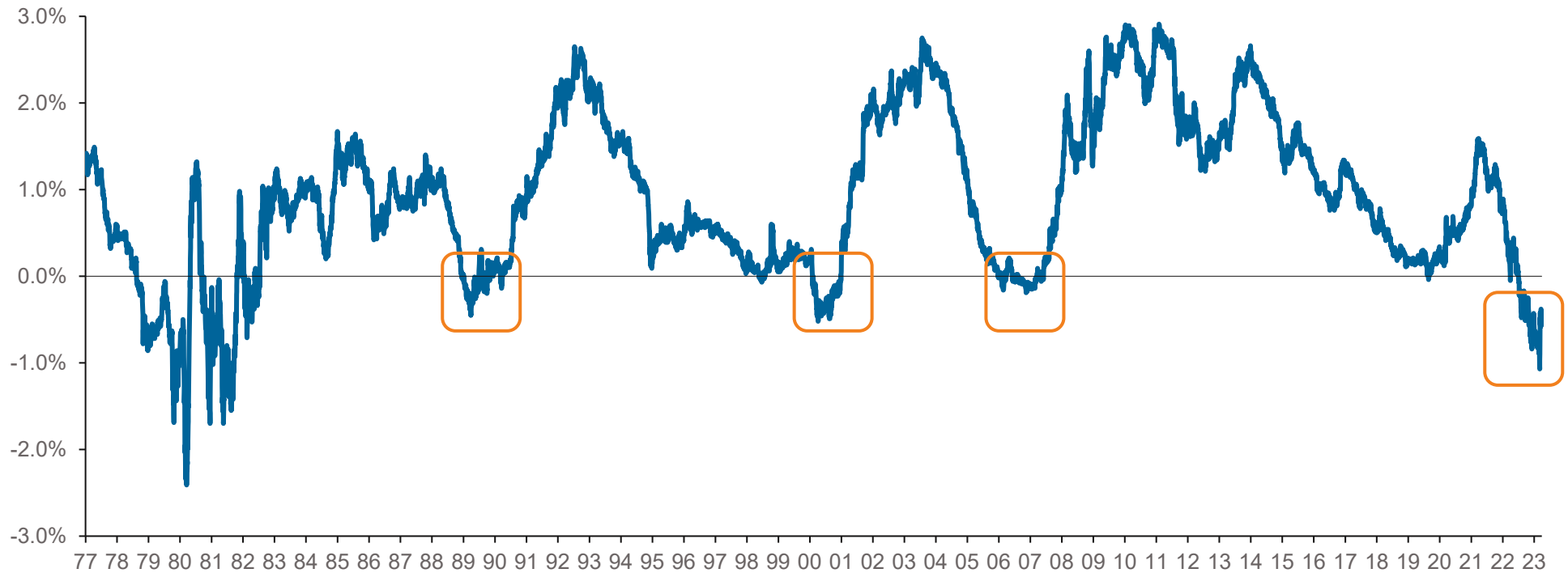


Payroll numbers in April surprised on the upside with 253,000 jobs created. The unemployment rate dropped to 3.4% and wage growth remained strong with average hourly earnings up 4.4% (yoy).

Sources: IHS Markit, Department of Labor

Is the Bond Market Expecting a Recession?

10-Year Treasury vs. 2-Year Treasury Spread

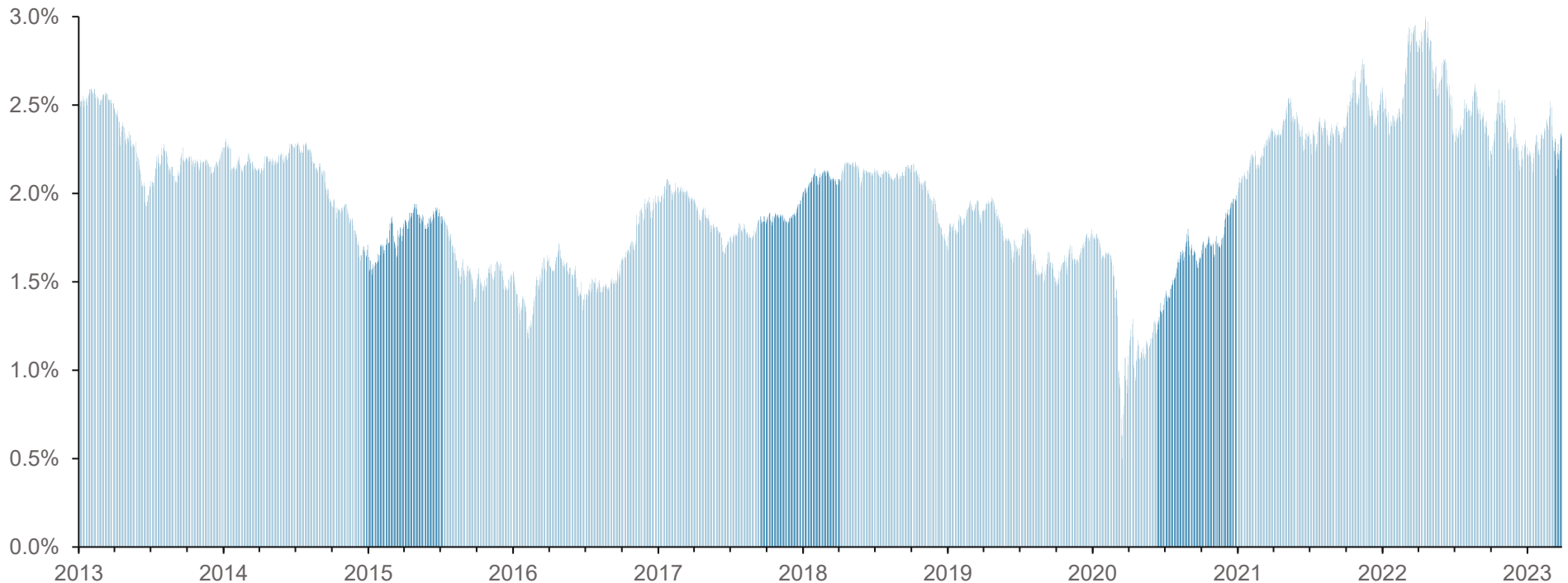


- ▶ The 10-year to 2-year Treasury spread has been negative since July 2022.
- ▶ Inversion in this spread does not always forecast a recession, but most recessions are preceded by a yield curve inversion.
 - Yield curve inversion means investors expect a recession will occur and that interest rates will be cut, and therefore increase their demand for securities with longer duration, and therefore a higher potential for capital gain when rates fall.
- ▶ The 10-year Treasury-to-cash spread turned negative, which may be a better indicator of whether recession has already struck.

Source: Federal Reserve Bank of St. Louis

10-Year Breakeven Rate: Bond Market Forecast of Inflation

10-Year Breakeven Inflation Rate

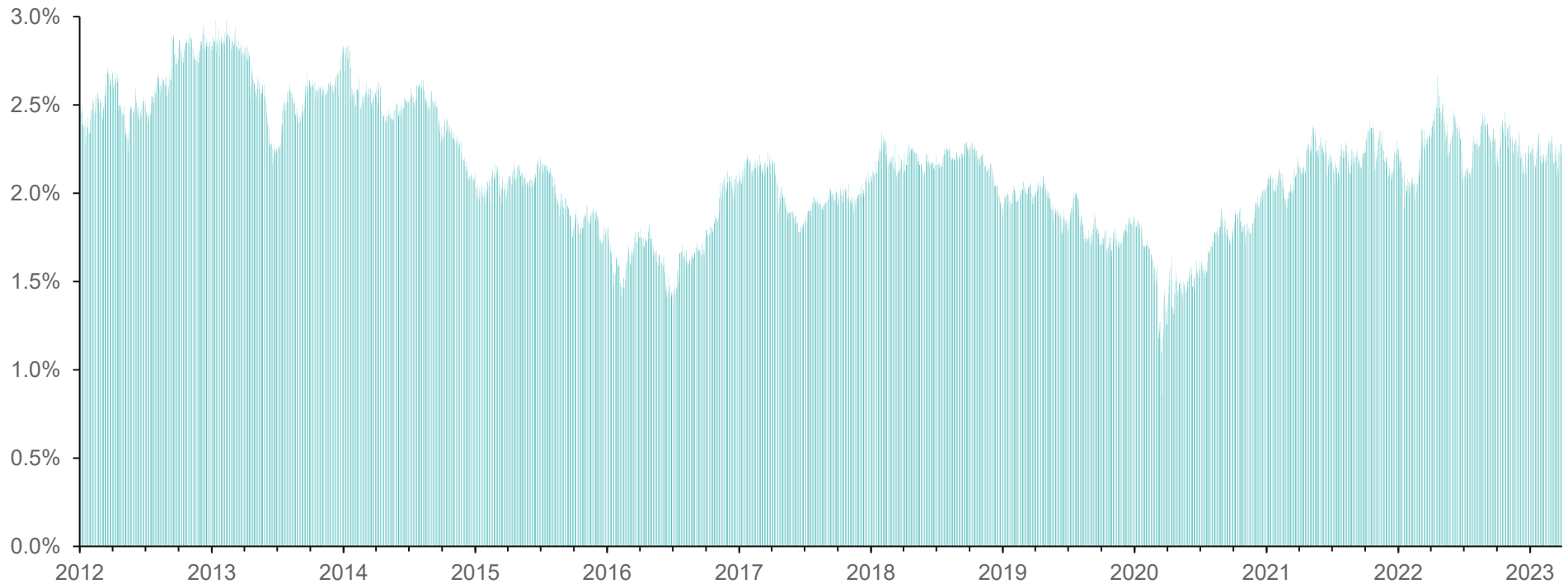


- ▶ 10-year breakeven inflation rate is the difference in yield between the nominal 10-year Treasury and the 10-year Treasury Inflation-Protected Security (TIPS).
 - Extra yield nominal Treasury would have to earn to maintain the same purchasing power as a TIPS investment.
- ▶ Values of implied inflation reached 3% in April but have since declined below 2.5%.
 - Includes current high levels of inflation

Source: Federal Reserve Bank of St. Louis

5-Year, 5-Year Forward Rate: Bond Market Forecast of Inflation

5-Year, 5-Year Forward Inflation Expectation Rate



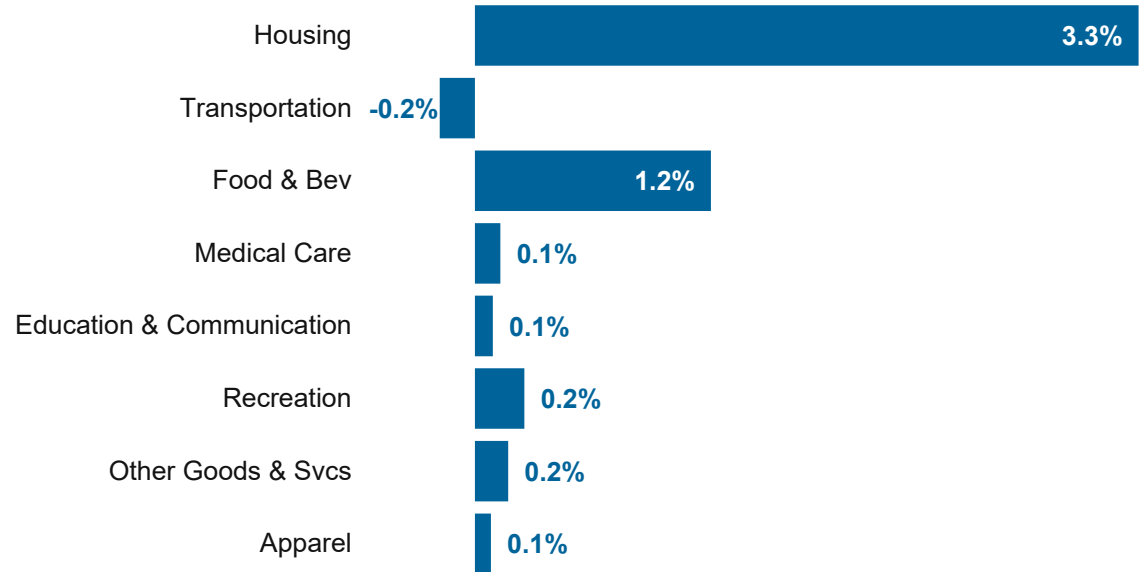
- ▶ The 5-year, 5-year forward rate is the bond market's estimate of the 5-year inflation rate 5 years from now.
 - Excludes current high levels of inflation
- ▶ The market inflation expectation for the years 2028 through 2032 is around 2.25% after peaking at 2.7% in April.

Source: Federal Reserve Bank of St. Louis

Contributors to Recent Inflation: Primary Categories

- ▶ Transportation inflation has swung all the way from biggest contributor to an overall detractor from headline inflation.
- ▶ Housing took over as the biggest weighted contributor to headline inflation due to the category's high weight in the index (42.4%).
- ▶ Transportation's downward trend in inflation has been somewhat offset by high Food & Beverage and Housing inflation.

Contribution to March 2023 Year-Over-Year Inflation



Primary Category	Primary Category Weight	Year-over-Year Change											
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
All Items	100.0%	8.3%	8.6%	9.1%	8.5%	8.3%	8.2%	7.7%	7.1%	6.5%	6.4%	6.0%	5.0%
Housing	42.4%	6.5%	6.9%	7.3%	7.4%	7.8%	8.0%	7.9%	7.8%	8.1%	8.2%	8.2%	7.8%
Transportation	18.2%	19.9%	19.4%	19.7%	16.4%	13.4%	12.6%	11.2%	7.8%	3.9%	3.8%	2.6%	-1.0%
Food & Bev	14.3%	9.0%	9.7%	10.0%	10.5%	10.9%	10.8%	10.6%	10.3%	10.1%	9.9%	9.2%	8.3%
Medical Care	8.5%	3.2%	3.7%	4.5%	4.8%	5.4%	6.0%	5.0%	4.2%	4.0%	3.1%	2.3%	1.5%
Education & Communication	6.4%	1.0%	0.8%	0.8%	0.5%	0.5%	0.2%	0.0%	0.7%	0.7%	1.0%	1.0%	1.4%
Recreation	5.1%	4.3%	4.5%	4.6%	4.4%	4.1%	4.1%	4.1%	4.7%	5.1%	4.8%	5.0%	4.8%
Other Goods & Svcs	2.7%	5.7%	6.3%	6.7%	6.3%	6.6%	6.9%	6.5%	7.0%	6.4%	6.2%	6.1%	6.1%
Apparel	2.5%	5.4%	5.0%	5.2%	5.1%	5.1%	5.5%	4.1%	3.6%	2.9%	3.1%	3.3%	3.3%

Source: U.S. Bureau of Labor Statistics

U.S. Equity Market: Price Relative to History

S&P 500 Index at inflection points

S&P 500 Price Index

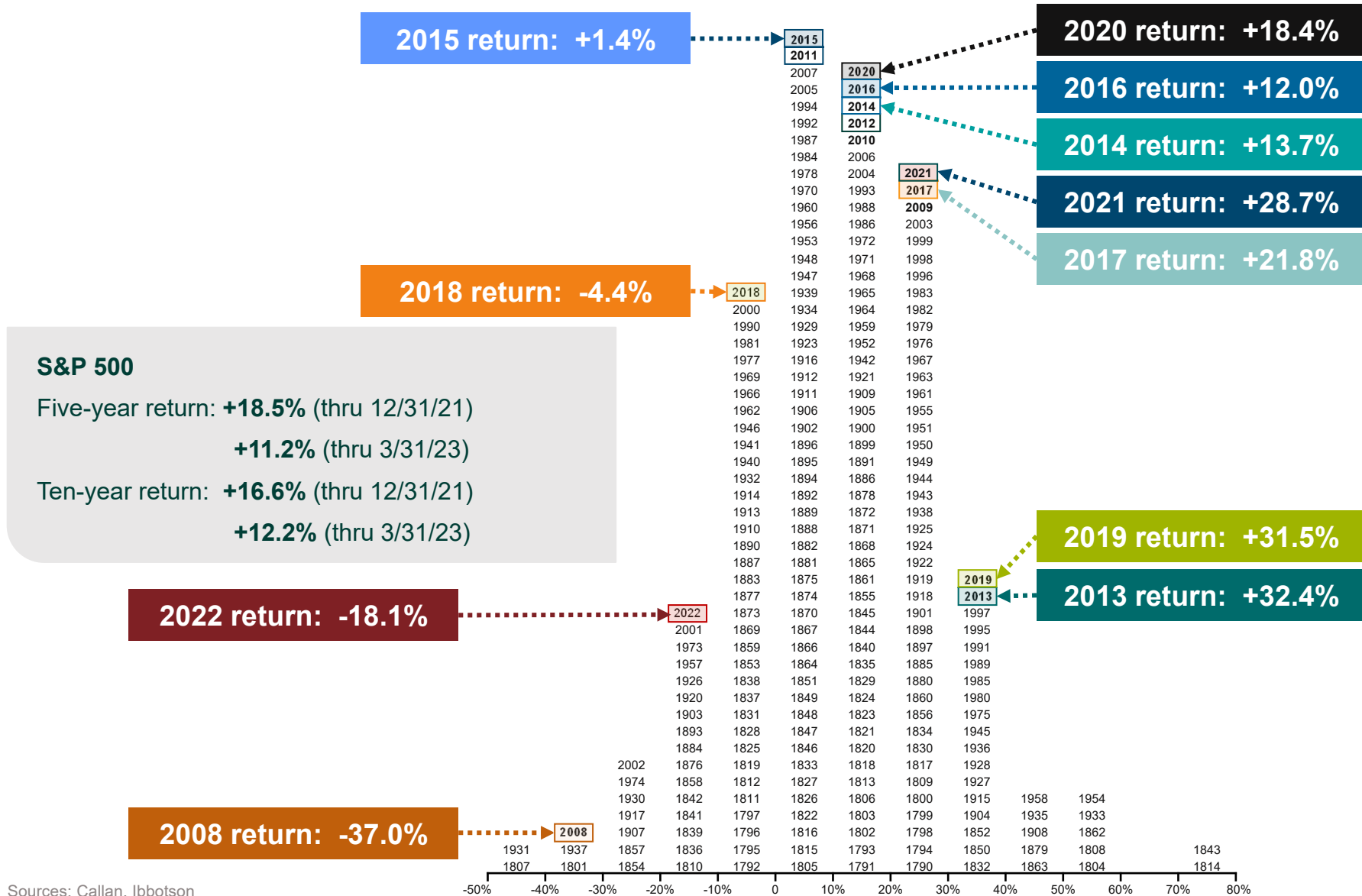


- ▶ The S&P is still up almost 80% from the pandemic low.
- ▶ Valuations have fallen dramatically throughout 2022.

Sources: Compustat, FactSet, Federal Reserve, Refinitiv Datastream, S&P Dow Jones Indices, J.P. Morgan Asset Management. Dividend yield is calculated as consensus estimates of dividends for the next 12 months, divided by most recent price, as provided by Compustat. Forward price-to-earnings ratio is a bottom-up calculation based on IBES estimates and FactSet estimates since January 2022. Returns are cumulative and based on S&P 500 Index price movement only, and do not include the reinvestment of dividends. Past performance is not indicative of future returns. *Guide to the Markets – U.S.* Data are as of December 31, 2022.

Stock Market Returns by Calendar Year

Performance in perspective: History of the U.S. stock market (233 years of returns)



Sources: Callan, Ibbotson

Callan

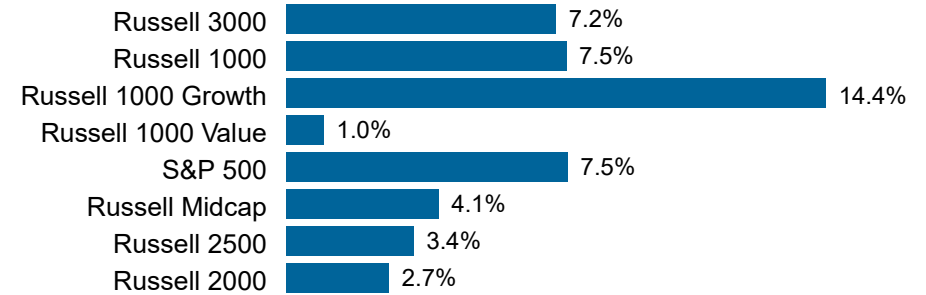
Public Markets

U.S. Equity Performance: 1Q23

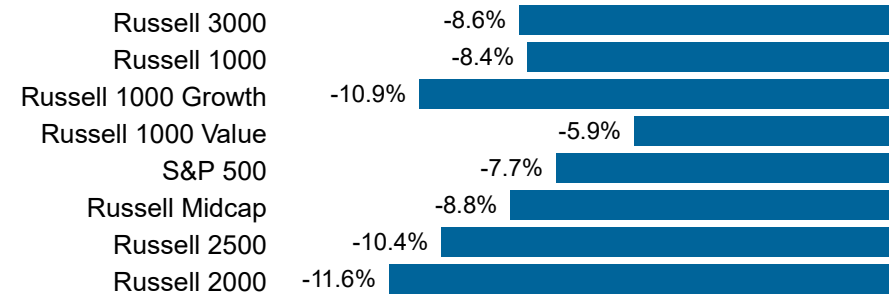
Large cap growth stocks lead broad indices higher; small cap indices hurt by regional bank sell-off

- The S&P 500 posted a second straight quarter of positive performance, gaining 7.5%; large cap growth led all styles, advancing 14.4%; Russell 2000 Value was an exception with a slight decline (0.7%) due to greater exposure to Financials, specifically small banks.
- Three sectors comprising 44% of S&P 500 (63% of Russell 1000 Growth) drove performance: Technology (+21.8%), Communication Services (+20.5%), and Consumer Discretionary (+16.1%). Financials, Energy, and Health Care were negative but had only a modest impact given smaller weights in these benchmarks.
- Small caps (Russell 2000) underperformed large caps (Russell 1000) and growth outperformed value during the quarter, a reversal of trend from 2022. Greater exposure to small banks in Russell 2000 (8.3%) versus Russell 1000 (3.3%) was one differentiator; strong returns for mega-cap Technology also increased divergence.

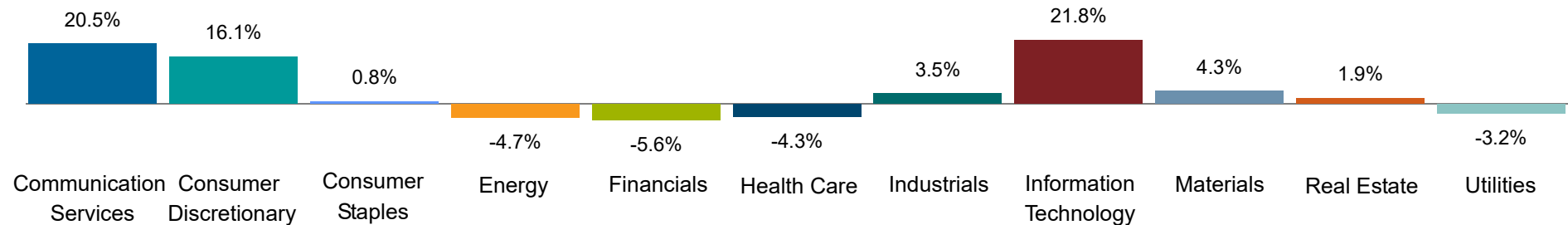
U.S. Equity: Quarter Ended 3/31/23



U.S. Equity: One-Year Returns Ended 3/31/23



Industry Sector Quarterly Performance (S&P 500) as of 3/31/23



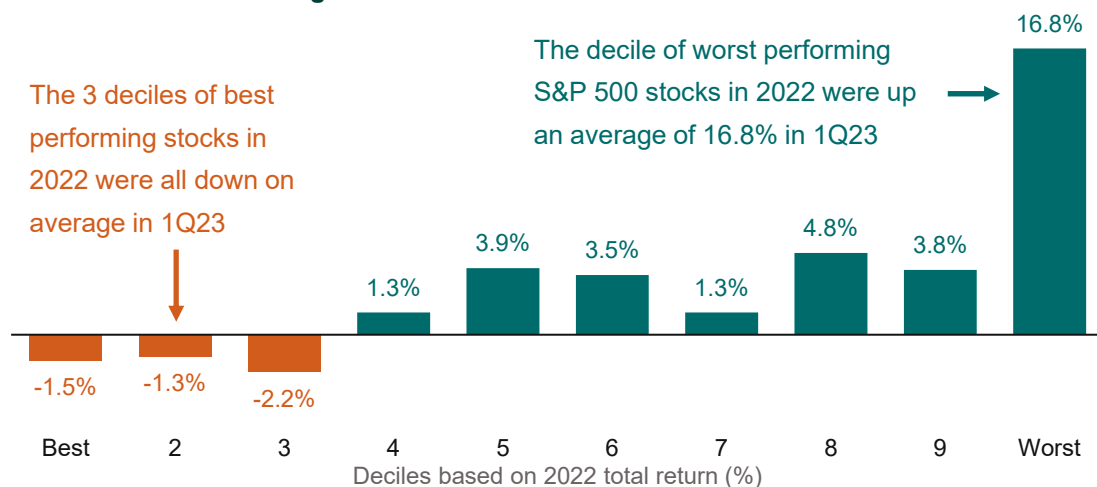
Sources: FTSE Russell, S&P Dow Jones Indices

U.S. Equity Overview

Worst to best: Large caps reverse 2022 trends during 1Q23

- Investors “bought the dip” as stock performance reversed from the prior year—the worst-performing stocks for 2022 became the best-performing stocks during 1Q23 in the S&P 500.
- The top chart illustrates the S&P 500 as deciles (10 groups of 50 stocks each) based on how stocks performed in 2022.
 - *Decile 1 contains the 50 stocks that performed the best in 2022, decile 2 contains the 50 next best, etc.*
 - *Decile 10 contains the 50 stocks that did the worst in 2022.*
- The three deciles containing the 150 best performing stocks in 2022 all averaged declines during 1Q23.
- On the flip side, the worst performers in 2022 averaged a gain of 16.8% during 1Q23, with strong absolute performance from mega-cap growth names such as NVIDIA, Meta, Tesla, and Salesforce.

S&P 500 Deciles: 1Q23 Avg Performance Based on 2022 Performance



Best-Performing S&P 500 Stocks in 1Q23

Name	Sector	Price	Market Cap (\$bn)	Total Return (%)	
				2022	QTD
NVIDIA	Technology	277.77	686.1	-50.27	90.10
Meta Platforms	Comm Svcs	211.94	549.5	-64.22	76.12
Tesla	Cons Discret	207.46	656.4	-65.03	68.42
Warner Bros Discovery	Comm Svcs	15.10	36.8	--	59.28
Align Technology	Health Care	334.14	25.6	-67.91	58.44
Advanced Micro Devices	Technology	98.01	157.9	-54.99	51.32
Salesforce	Technology	199.78	199.8	-47.83	50.68
West Pharmaceutical	Health Care	346.47	25.7	-49.70	47.32
General Electric	Industrials	95.60	104.2	-10.92	46.35
Catalent	Health Care	65.71	11.8	-64.84	45.99

Source: Bespoke Investment

Global/Global ex-U.S. Equity Performance: 1Q23

A reversal of 2022

1Q23 brought global and global ex-U.S. equity markets back to black.

Positive results despite hiccups

- ▶ The first quarter of the year was marked by the collapse of Silicon Valley Bank and Credit Suisse, which sent fears of a banking crisis across global markets.
- ▶ Despite a Fed hike during the period, investors began to price in lower rate expectations.
- ▶ Europe outperformed other regions, making up ground lost in 2022 as inflation eased and recession fears lessened.

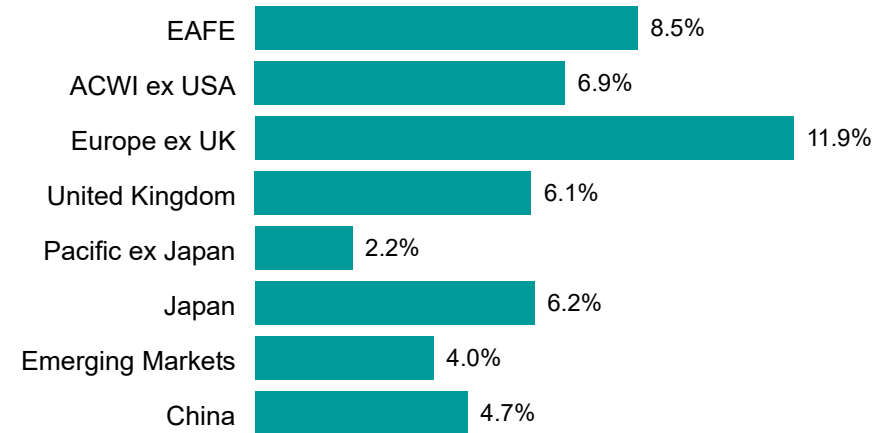
Growth vs. value

- ▶ Growth outpaced value across developed and emerging markets.
 - In a reversal from 2022, investors preferred growth alongside a drawdown in banks; Information Technology was the largest outperformer.

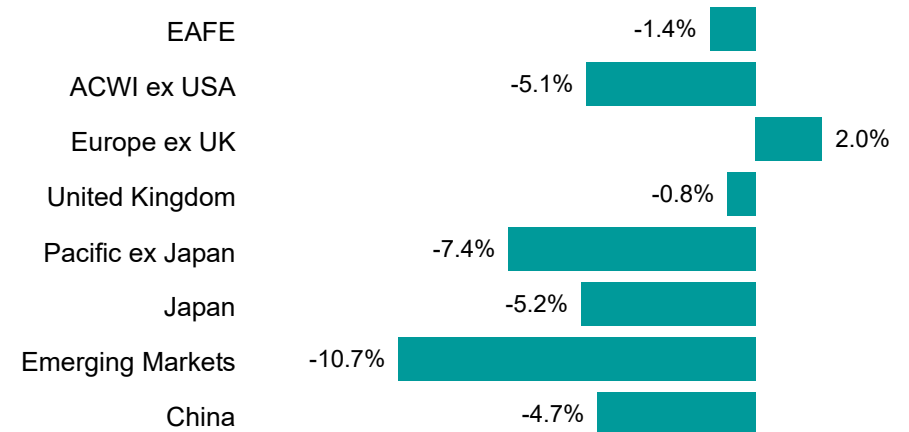
U.S. dollar vs. other currencies

- ▶ After some strength early in the quarter, the U.S. dollar declined 1% as interest rate differentials narrowed globally.

Global Equity Returns: Quarter Ended 3/31/23



Global Equity Returns: One Year Ended 3/31/23



Source: MSCI

U.S. Fixed Income Performance: 1Q23

Bloomberg Aggregate was positive in 1Q but mixed

- January: +3.1%
- February: -2.6%
- March: +2.5%

U.S. Treasury volatility was pronounced

- 2-year US Treasury yield high was 5.08% on 3/8 and low was 3.77% on 3/24
- MOVE Index highest since 2008

Yield curve remained inverted but was also volatile

- 2yr/10yr => 3/31: -58 bps; max 3/8: -109; min 3/23: -38
- 1yr/10yr => 3/31: -116 bps

Fed raised rates bringing target to 4.75%–5.00%

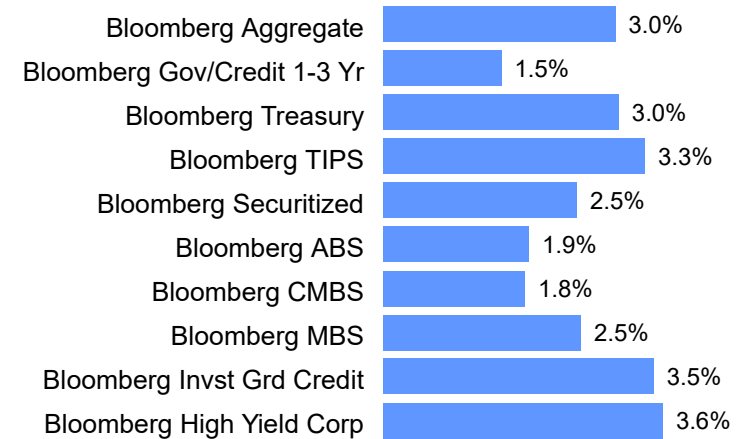
- Median expectation from Fed is 5.1% for year-end 2023; market pricing in Fed cuts by year-end
- Inflation moderated but still high and job market tight

Sector performance mixed

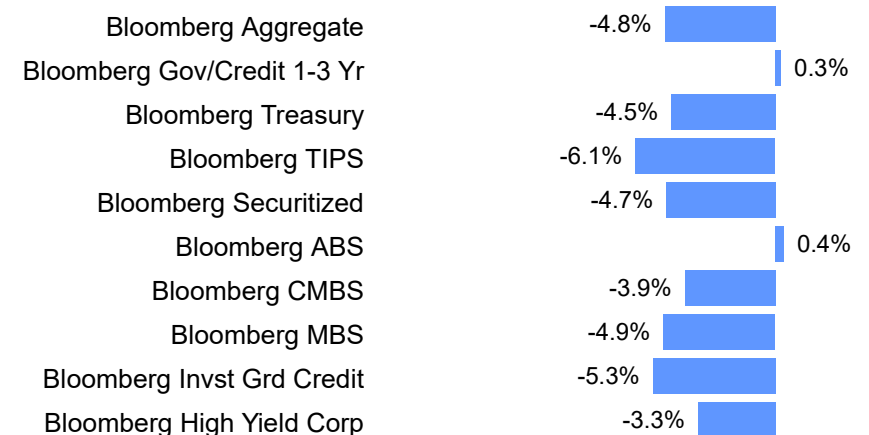
- Corporate Industrials excess return: +58 bps
- Corporate Financials excess return: -39 bps
- RMBS: -50 bps
- CMBS excess return: -74 bps
- High Yield excess return: +123 bps
- Valuations fair
- Credit spreads have not widened materially and are close to historical averages

Sources: Bloomberg, S&P Dow Jones Indices

U.S. Fixed Income Returns: Quarter Ended 3/31/23



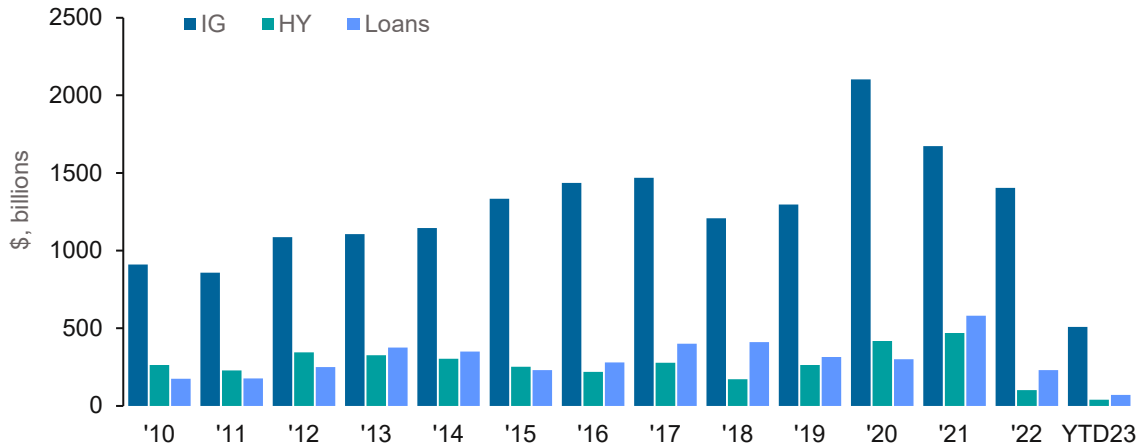
U.S. Fixed Income Returns: One Year Ended 3/31/23



Fixed Income Themes

Annual U.S. corporate debt issuance, fallen angel/rising star

Annual Issuance Supply

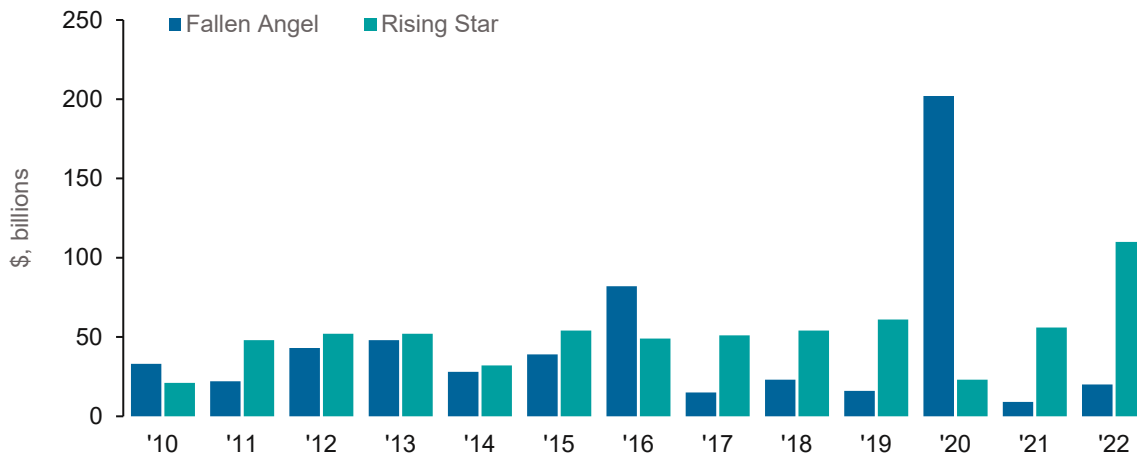


New corporate issuance trending lower after issuers termed out their debt during COVID's accommodative policies.

Not surprising to see less debt issuance as the Federal Reserve aggressively hikes overnight interest rates to fight inflationary pressures.

Financial health remains in check, albeit higher interest expense and inflationary pressures have eroded some of the fundamental strength.

U.S. Corporate Fallen Angels & Rising Stars



Source: Barclays

Recent Activity and Plan Performance

Quarterly Total Fund Highlights

As of March 31, 2023

CO PSPF ended the quarter with \$1.3 billion in assets, up \$77.5 million from Q4 2022 after income, distributions and net new investments.

- Investment gains were \$53.4 million while cash inflows were \$24.1 million during the quarter

The Total Fund gained 4.2% for the quarter and fell 4.6% for the trailing year. Ahead of the benchmark in both periods.

The Total Equity Composite gained 7.2% and fell 7.0% for the quarter and year, respectively.

- U.S. Equity outperformed International Equity for the quarter with returns of 7.2% and 7.1%, respectively. For the year, International Equity outperformed U.S. Equity by 3.8%.

The Fixed Income Composite beat its benchmark by 17 basis points with a return of 3.0%. For the year, the portfolio lost 4.0%, ahead of the benchmark by 16 basis points.

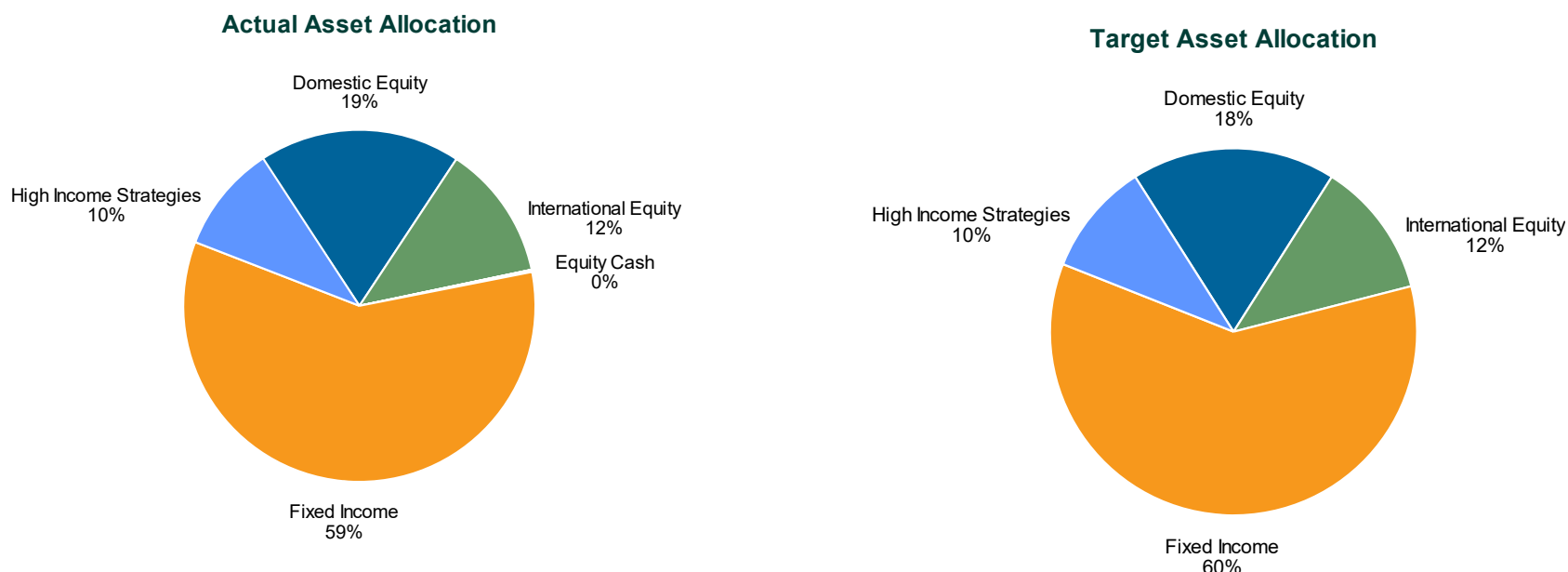
- The Market Duration bond portfolio led its benchmark by 23 basis points with a return of 3.2% in the quarter. For the year, the portfolio was down 4.7%.
- The JanusHenderson Short Duration bond portfolio lagged its benchmark by 7 basis points with a return of 1.4%. The portfolio gained 0.2% for the year.

The High Income Strategies Composite trailed its benchmark for the quarter by 24 basis points with a return of 3.0%. For the year, the Composite was down 1.3%, but 2.7% ahead of the benchmark.

- The MacKay Shields' high yield bond portfolio rose 3.9% and fell 0.3% for the quarter and year, respectively.
- The Principal Spectrum preferred securities portfolio returned -1.9% and -7.2% for the quarter and year, respectively.

Total Fund Asset Allocation

March 31, 2023



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	246,978	18.6%	18.0%	0.6%	7,542
International Equity	164,609	12.4%	12.0%	0.4%	4,985
Equity Cash	2,128	0.2%	0.0%	0.2%	2,128
Fixed Income	785,405	59.0%	60.0%	(1.0%)	(12,716)
High Income Strategies	131,082	9.9%	10.0%	(0.1%)	(1,939)
Total	1,330,203	100.0%	100.0%		

Asset Distribution

	March 31, 2023			December 31, 2022		
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
Total Equity (1)	\$413,118,580	31.06%	\$9,998,315	\$27,141,066	\$375,979,198	30.01%
Domestic Equity	\$246,978,385	18.57%	\$9,040,152	\$16,384,742	\$221,553,491	17.69%
iShares S&P 1500 ETF	246,978,385	18.57%	9,040,152	16,384,742	221,553,491	17.69%
International Equity	\$164,609,403	12.37%	\$(168,482)	\$10,752,139	\$154,025,745	12.30%
iShares MSCI Emerging ETF	44,393,972	3.34%	(13,409)	1,937,840	42,469,541	3.39%
iShares MSCI Canada ETF	16,358,206	1.23%	321,622	678,785	15,357,800	1.23%
iShares Core MSCI EAFE ETF	103,857,224	7.81%	(476,695)	8,135,514	96,198,404	7.68%
Equity Cash	1,530,792	0.12%	1,126,645	4,186	399,962	0.03%
Total Fixed Income	\$785,405,387	59.04%	\$12,751,631	\$22,403,737	\$750,250,020	59.89%
Market Duration	\$680,234,311	51.14%	\$11,251,683	\$20,927,572	\$648,055,056	51.73%
Colorado Treasurer's Portfolio	680,234,311	51.14%	11,251,683	20,927,572	648,055,056	51.73%
Short Duration	\$105,171,076	7.91%	\$1,499,948	\$1,476,164	\$102,194,964	8.16%
Janus Henderson (2)	105,171,076	7.91%	1,499,948	1,476,164	102,194,964	8.16%
High Income Strategies	\$131,081,501	9.85%	\$1,377,731	\$3,764,895	\$125,938,875	10.05%
High Yield Fixed Income	\$112,511,327	8.46%	\$1,115,315	\$4,176,106	\$107,219,906	8.56%
Mackay Shield US High Yield (3)	112,511,327	8.46%	1,115,315	4,176,106	107,219,906	8.56%
Preferred Securities	\$18,570,174	1.40%	\$262,416	\$(411,211)	\$18,718,969	1.49%
Principal Preferred Securities (3)	18,570,174	1.40%	262,416	(411,211)	18,718,969	1.49%
Cash Available For Investing	\$597,519	0.04%	\$(34,408)	\$121,174	\$510,753	0.04%
Total Fund	\$1,330,202,987	100.0%	\$24,093,269	\$53,430,872	\$1,252,678,846	100.0%

The Fund ended the quarter at \$1.3 billion, an increase of \$77 million from the fourth quarter.

There were net new investments of \$24.1 million and \$53.4 million in investment gains.

(1) Funded in December 2017.

(2) Funded in November 2018.

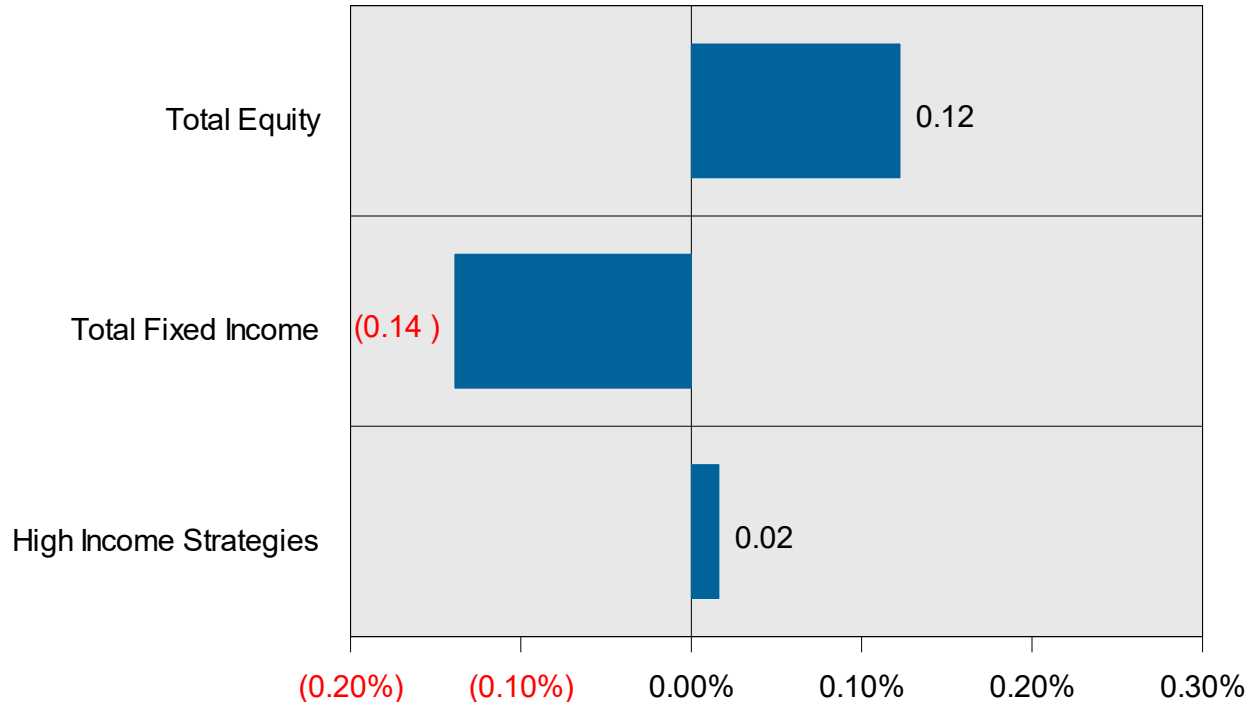
(3) Funded in July 2020.

(4) Funded in July 2020.

One-Quarter Performance Attribution

As of March 31, 2023

Asset Class Under or Overweighting



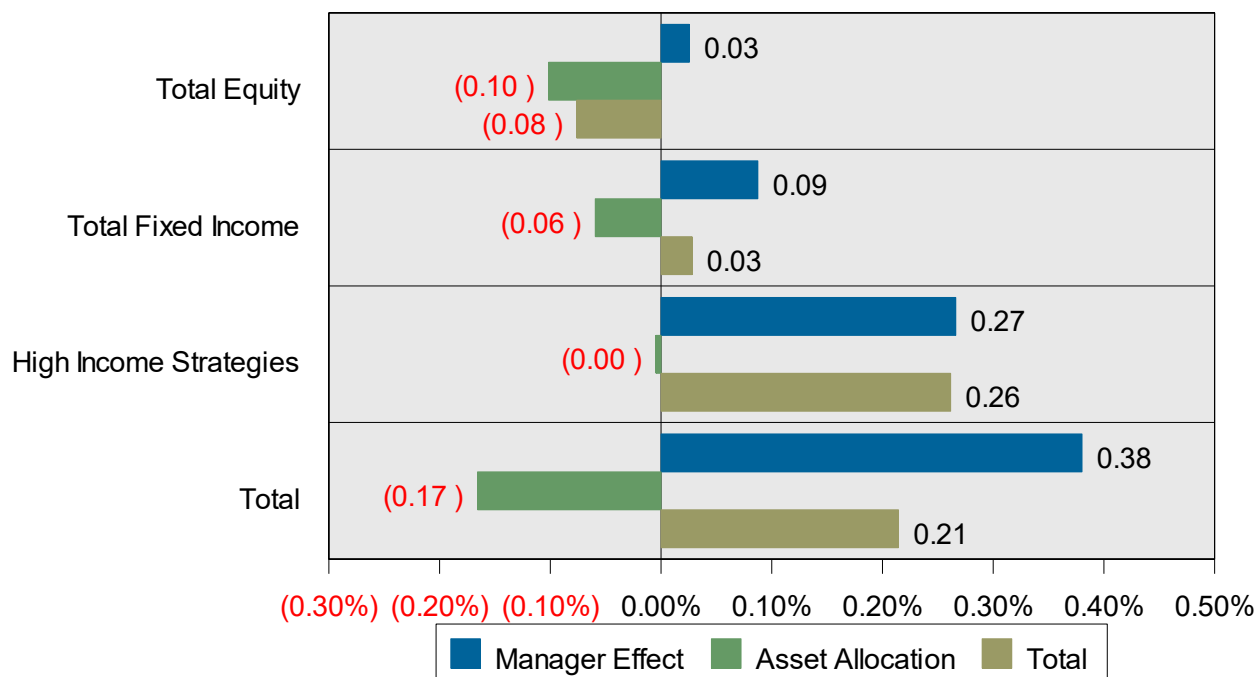
Relative Attribution Effects for Quarter ended March 31, 2023

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	30%	30%	7.18%	7.05%	0.04%	0.01%	0.04%
Total Fixed Income	60%	60%	2.95%	2.78%	0.10%	0.00%	0.11%
High Income Strategies	10%	10%	3.02%	3.26%	(0.02%)	(0.00%)	(0.02%)
Total			4.24%	4.11%	+ 0.12%	+ 0.01%	0.13%

One Year Performance Attribution

As of March 31, 2023

One Year Relative Attribution Effects



One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	30%	30%	(7.00%)	(7.09%)	0.03%	(0.10%)	(0.08%)
Total Fixed Income	60%	60%	(3.99%)	(4.15%)	0.09%	(0.06%)	0.03%
High Income Strategies	10%	10%	(1.34%)	(4.00%)	0.27%	(0.00%)	0.26%
Total			(4.57%)	(4.79%)	+ 0.38%	+ (0.17%)	0.21%

Manager & Composite Cumulative Returns

As of March 31, 2023

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Total Equity	7.18%	(7.00%)	16.10%	7.24%	-
60% Russell 3000/40% ACWI ex US	7.05%	(7.09%)	15.85%	7.27%	8.72%
Domestic Equity	7.22%	(8.69%)	18.42%	10.36%	-
Russell 3000 Index	7.18%	(8.58%)	18.48%	10.45%	11.73%
International Equity	7.06%	(4.85%)	12.61%	2.48%	-
MSCI ACWI ex US	6.87%	(5.07%)	11.80%	2.47%	4.17%
Total Fixed Income	2.95%	(3.99%)	(2.25%)	1.13%	1.51%
Total Fixed Income Benchmark (1)	2.78%	(4.15%)	(2.46%)	0.98%	1.21%
Market Duration	3.19%	(4.66%)	(2.74%)	1.00%	1.44%
Colorado Treasurer's Portfolio (2)	3.19%	(4.66%)	(2.74%)	1.00%	1.44%
PSPF Custom Benchmark (3)	2.96%	(4.78%)	(2.77%)	0.91%	1.17%
Short Duration	1.44%	0.20%	1.31%	-	-
Janus Henderson Short Duration	1.44%	0.20%	1.31%	-	-
Blmbg Gov/Cred 1-3 Yr	1.51%	0.26%	(0.38%)	1.26%	1.01%
85% 1-3YR G/C; 15% 1-3YR BB (4)	1.62%	0.51%	0.48%	1.63%	1.42%
High Income Strategies	3.02%	(1.34%)	-	-	-
High Income Strategies Benchmark (5)	3.26%	(4.00%)	5.45%	3.03%	-
High Yield Fixed Income	3.88%	(0.30%)	-	-	-
Mackay Shield US High Yield	3.88%	(0.30%)	-	-	-
Blmbg High Yield	3.57%	(3.34%)	5.91%	3.21%	4.10%
Preferred Securities	(1.91%)	(7.17%)	-	-	-
Principal Preferred Securities	(1.91%)	(7.17%)	-	-	-
ICE BofA US All Cap Secs	1.50%	(7.73%)	2.81%	1.95%	-
Total Fund w/o CAI (6)	4.24%	(4.57%)	1.83%	2.70%	2.30%
Total Fund Benchmark (6)	4.11%	(4.79%)	1.61%	2.80%	2.12%

Performance footnotes are detailed on page 21.

Manager & Composite Fiscal Year Returns

As of March 31, 2023

	6/2022- 3/2023	FY 2022	FY 2021	FY 2020	FY 2019
Total Equity	9.62%	(15.85%)	41.59%	1.82%	5.64%
60% Russell 3000/40% ACWI ex US	9.96%	(16.06%)	40.77%	1.90%	5.92%
Domestic Equity	9.64%	(13.95%)	44.30%	6.40%	8.85%
Russell 3000 Index	9.75%	(13.87%)	44.16%	6.53%	8.98%
International Equity	9.28%	(18.97%)	37.78%	(4.71%)	0.67%
MSCI ACWI ex US	10.03%	(19.42%)	35.72%	(4.80%)	1.29%
Total Fixed Income	0.56%	(9.76%)	(0.27%)	8.79%	7.38%
Total Fixed Income Benchmark (1)	0.04%	(9.46%)	(0.26%)	8.28%	7.52%
Market Duration	0.28%	(10.55%)	(0.55%)	9.26%	7.77%
Colorado Treasurer's Portfolio (2)	0.28%	(10.55%)	(0.55%)	9.26%	7.77%
PSPF Custom Benchmark (3)	(0.09%)	(10.29%)	(0.33%)	8.74%	7.87%
Short Duration	2.10%	(4.33%)	2.33%	4.41%	-
Janus Henderson Short Duration	2.10%	(4.33%)	2.33%	4.41%	-
Blmbg Gov/Cred 1-3 Yr	0.90%	(3.56%)	0.44%	4.20%	4.27%
85% 1-3YR G/C; 15% 1-3YR BB (4)	1.61%	(3.83%)	1.70%	3.94%	4.59%
High Income Strategies	6.73%	(9.38%)	-	-	-
High Income Strategies Benchmark (5)	6.14%	(12.89%)	15.13%	0.46%	7.58%
High Yield Fixed Income	7.92%	(9.09%)	-	-	-
Mackay Shield US High Yield	7.92%	(9.09%)	-	-	-
Blmbg High Yield	7.19%	(12.81%)	15.37%	0.03%	7.48%
Preferred Securities	0.09%	(11.11%)	-	-	-
Principal Preferred Securities	0.09%	(11.11%)	-	-	-
ICE BofA US All Cap Secs	0.32%	(13.33%)	13.67%	2.86%	8.12%
Total Fund w/o CAI (6)	3.91%	(11.58%)	8.30%	7.37%	6.94%
Total Fund Benchmark (6)	3.63%	(11.64%)	7.98%	7.87%	7.49%

Rebalancing Recommendation: \$28 million in Cash Available For Investing

Asset values as of April 25, 2023

	4/25 Balance	%	Target	Difference	New Allocation	New Total	New %	IPS Ranges
Treasury Bond Port	\$ 678,901,303	51.3%	52.5%	-1.2%	\$ 18,000,000	\$ 696,901,303	51.6%	45%-60%
Equity - Parametric	\$ 409,647,790	30.9%	30.0%	0.9%	\$ 10,000,000	\$ 419,647,790	31.0%	24%-36%
Short Duration - Janus	\$ 105,131,698	7.9%	7.5%	0.4%	\$ -	\$ 105,131,698	7.8%	5%-10%
Preferred Sec - Spectrum	\$ 18,723,794	1.4%	1.5%	-0.1%	\$ -	\$ 18,723,794	1.4%	0%-3%
High Yield - Mackay	\$ 111,276,116	8.4%	8.5%	-0.1%	\$ -	\$ 111,276,116	8.2%	4.5%-12.5%
Grand Total	\$ 1,323,680,702	100.0%	100.0%	0.0%	\$ 28,000,000	\$ 1,351,680,702	100.0%	

- All asset classes are within rebalancing ranges as of April 25, 2023.
- Callan and the Portfolio Administrator have reviewed the asset allocation and recommend that the Cash Available for Investing be deployed into the market duration and equity portfolios.
- Per Treasury's request, \$500,000 will remain in cash.

Performance Footnotes

- (1) Current quarter's Total Fixed Income Benchmark consists of 87.5% Bloomberg U.S. Aggregate and 12.5% Bloomberg Gov/Credit 1-3 Yrs.
 - (2) Includes cash returns starting July 2017.
 - (3) The PSPF Fixed Income Portfolio Custom Benchmark consisted of 37% U.S. Treasury 1-10 Year Index, 34% Mortgages 0-10 Year WAL Index, 19% AAA U.S. Agencies 1-10 Year Index and 10% U.S. Corporates AAA Rated 1-10 Years Index through March 31, 2017, 100% Bloomberg U.S. Aggregate, thereafter.
 - (4) Benchmark consists of 85% Bloomberg 1-3 Year Government/Credit Index and 15% BofAML 1-3 Year BB US Cash Pay High Yield Index.
 - (5) Benchmark consists of 85% Blmbg High Yield Index and 15% ICE BofA US All Cap Secs Index.
 - (6) Current quarter's Total Fund Benchmark consists of 18.0% Russell 3000, 12.0% MSCI ACWI ex US, 52.5% Bloomberg U.S. Aggregate, 7.5% Bloomberg Gov/Credit 1-3 Yrs, 8.5% Bloomberg US High Yield and 1.5% ICE BofA U.S. All Capital Securities Index.
- *All composites and manager returns are shown gross-of-fees.

Callan

Callan Updates

Published Research Highlights from 1Q23

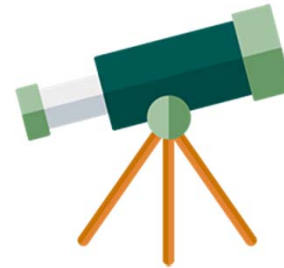
2023 DC Trends Survey and Webinar



Energy Transition Is Having a Moment, but Does It Have Staying Power?



2023-2032 Capital Markets Assumptions and Webinar



Research Café: ESG Interview Series Session



Recent Blog Posts

The PRT Decision: What Plan Sponsors Need to Know

Bill Emmett and Christopher Park

Can Institutional Investors Target 'Food Deserts' for Investment?

Aaron Quach

Risky Business Update: After a Year of Historic Losses, What Changed?

Julia Moriarty

Additional Reading

Alternatives Focus quarterly newsletter

Active vs. Passive quarterly charts

Capital Markets Review quarterly newsletter

Monthly Updates to the Periodic Table

Market Pulse Flipbook quarterly markets update

Real Estate Indicators market outlook

Callan Institute Events

Upcoming conferences, workshops, and webinars

Callan College

Intro to Alternatives

This course is for institutional investors, including trustees and staff members of public plans, corporate plans, and nonprofits. This session familiarizes trustees and staff with alternative investments like private equity, hedge funds, and real estate and how they can play a key role in any portfolio. You will learn about the importance of allocations to alternatives and how to consider integrating, evaluating, and monitoring them.

– August 23-24, 2023 – Virtual Session via Zoom

Intro to Investments—Learn the Fundamentals

This course is for institutional investors, including trustees and staff members of public plans, corporate plans, and nonprofits. This session familiarizes trustees and staff with basic investment theory, terminology, and practices.

- May 23–25, 2023 – Virtual Session via Zoom
- September 26–28, 2023 – Virtual Session via Zoom

Please visit our website at callan.com/events-education as we add dates to our 2023 calendar!

Mark Your Calendar

2023 Regional Workshops

June 27, 2023 – Denver

June 29, 2023 – San Francisco

October 24, 2023 – New York

October 26, 2023 – Chicago

2024 National Conference

April 8 –10, 2024 – San Francisco

Watch your email for further details and an invitation.

Webinars & Research Café Sessions

Webinar: DC – Managed Accounts

May 11, 2023 – 9:30am (PT)

Callan Updates

Firm updates by the numbers, as of 3/31/23

Total Associates: ~200

Ownership

- 100% employees
- 71% of employees are equity owners
- 55% of shareholders identify as women or minority

Total General and Investment Consultants: more than 55

Total Specialty and Research Consultants: more than 50

Total CFA/CAIA/FRMs: more than 55

Total Institutional Investor Clients: more than 475

Assets Under Advisement: more than \$4 trillion

Leadership Updates

- Greg DeForrest promoted to head Callan's Fund Sponsor Consulting Group
- Millie Viqueira retired after 32 years with the firm

Milestones

- Celebrating our 50th anniversary

“I would like to congratulate Millie on her successful career at Callan. I look forward to continuing Callan’s 50-year history of partnering with clients to achieve their goals.”

— Greg DeForrest, EVP, on his promotion to head of Fund Sponsor Consulting



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Past performance is no guarantee of future results.

March 31, 2023

CO Public School Permanent Fund



**Investment Measurement Service
Quarterly Review**

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March 31, 2023

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U.S. EQUITY

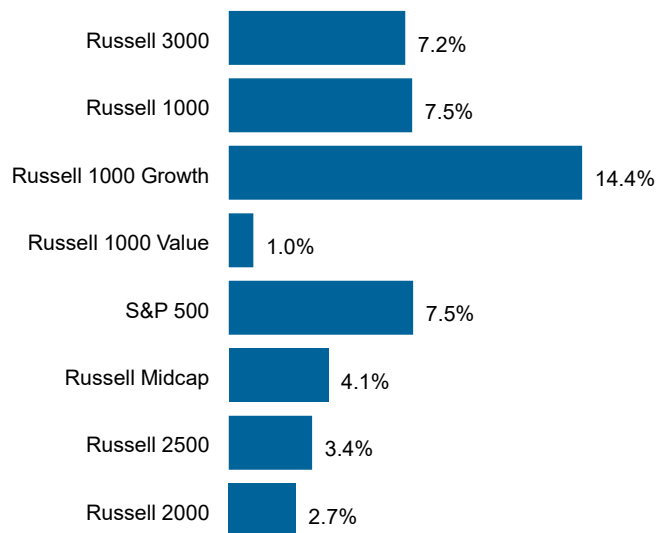
Markets gain, with exception of small cap value

- The S&P 500 posted a second straight quarter of positive performance, gaining 7.5% in 1Q23; large cap growth led all style and cap indices higher, advancing 14.4%.
- Russell 2000 Value was a notable exception and experienced a slight decline of 0.7% due to greater exposure to Financials, specifically banks.
- During the quarter, three sectors comprising 44% of the S&P 500 (and 63% of the Russell 1000 Growth Index) drove performance: Technology (+21.8%), Communication Services (+20.5%), and Consumer Discretionary (+16.1%).
- Financials, Energy, and Health Care posted negative returns for the quarter but had only a modest impact on total returns given smaller weights in respective benchmarks.
- Small caps (Russell 2000) underperformed large caps (Russell 1000) and growth outperformed value during the quarter, a reversal from 2022. Greater exposure to banks in Russell 2000 (8.3%) versus Russell 1000 (3.3%) was one differentiator for returns; strong returns for mega-cap Technology also increased divergence.

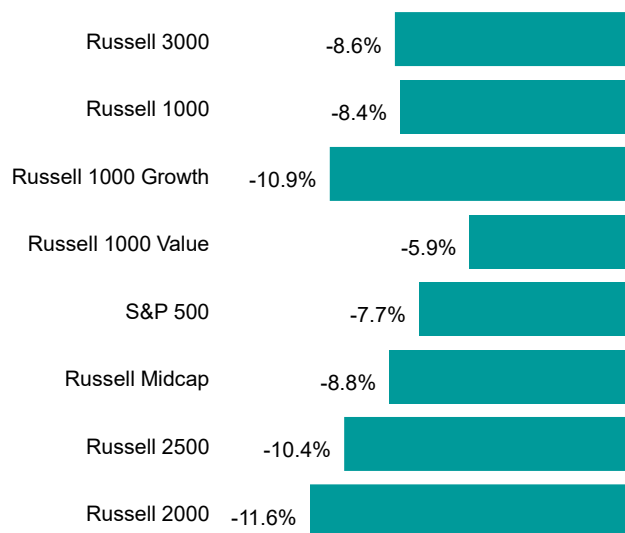
Large cap growth outperformance drivers

- The large cap growth outperformance was driven by increased valuations as interest rates declined and expectations of a more dovish Fed emerged.
- Asset managers may take a more cautious approach in equity markets into coming quarters as earnings estimates decline; expect a focus on quality, cash flow, defensive value names, and profitable growth stocks.
- Price multiples continue to be important as elevated valuations may compress if markets anticipate that monetary easing is not on the near-term horizon.
- Analyst estimates for future earnings are diverging, typically a sign of elevated economic turbulence.
- Investors “bought the dip” as stock performance reversed from the prior year; the worst-performing stocks for 2022 became best-performing stocks during 1Q23.

U.S. Equity: Quarterly Returns

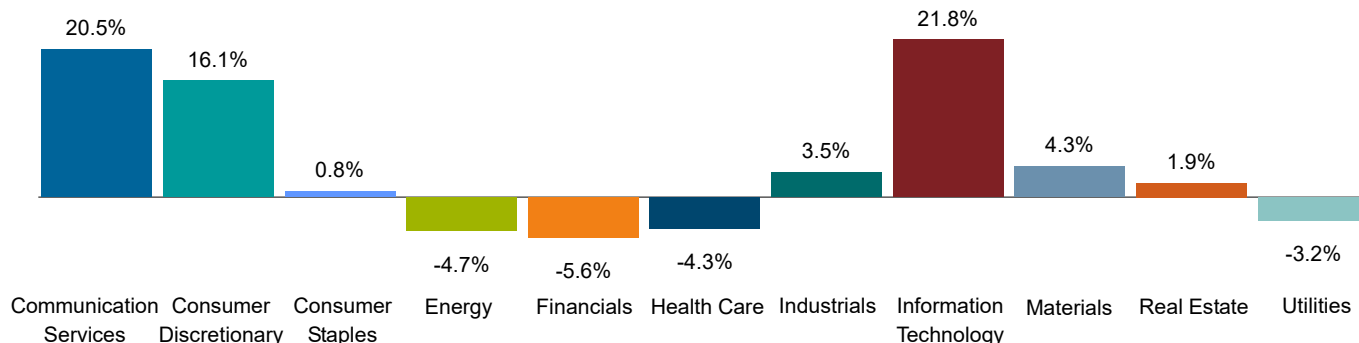


U.S. Equity: One-Year Returns



Sources: FTSE Russell, S&P Dow Jones Indices

S&P Sector Returns, Quarter Ended 3/31/23



Source: S&P Dow Jones Indices

GLOBAL EQUITY

1Q23 brought global equity markets back to black

- Positive results despite hiccups
- 1Q23 was marked by the collapse of Silicon Valley Bank and Credit Suisse, which sent fears of a banking crisis across global markets.
- Despite a Fed hike during the period, investors began to price in lower rate expectations.
- Europe outperformed other regions, making up ground lost in 2022 as inflation eased and recession fears lessened.

Growth vs. value

- Growth outpaced value across developed and emerging markets.
- In a reversal from 2022, investors preferred growth alongside a drawdown in banks; Information Technology was the largest outperformer.

U.S. dollar vs. other currencies

- After some strength early in the quarter, the U.S. dollar declined 1% as interest rate differentials narrowed globally.

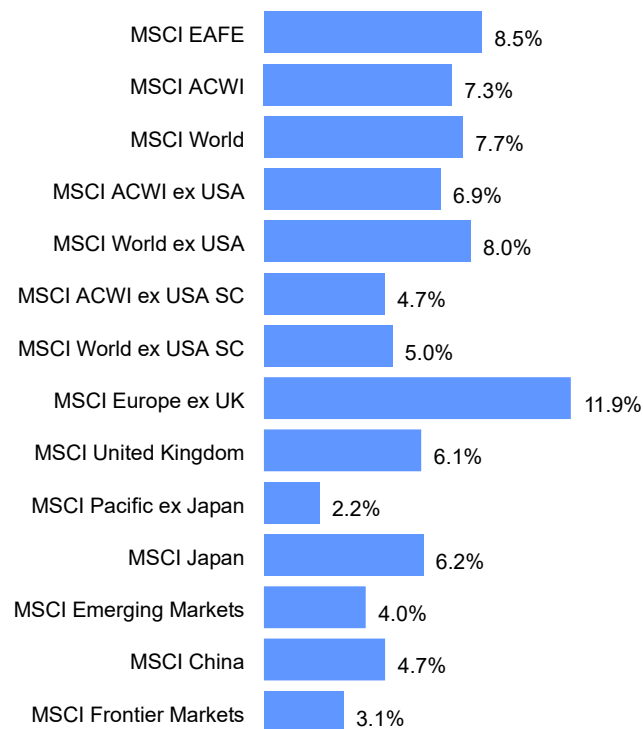
Developed markets outpace U.S.

- Outperformance of developed markets over the past year has been driven by Europe.
- Europe beat U.S. as the worst fears in the wake of the Russia-Ukraine War were not realized.
- Europe benefited from falling gas prices and China reopening.
- Value-growth dispersion was impacted less in developed markets relative to U.S. given the composition of the markets.
- EAFE Value outperformed Growth by 2.5 percentage points.
- S&P 500 Value outperformed Growth by 15.2 percentage points.
- Weak dollar in recent quarters helped global ex-U.S. equities.
- Since DXY Index reached a 20-year high in September 2022, it has fallen by 10%.

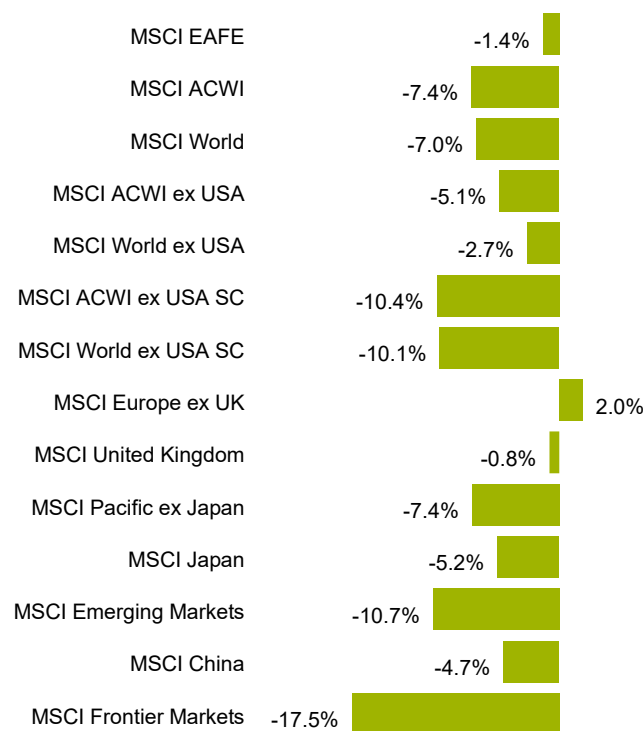
Will Europe continue to be a source of return?

- EPS growth expectations have fallen for both S&P 500 (-7%) and Europe (-9%).
- However, euro zone provides valuation support relative to the U.S.
- Euro zone trades at a 30% discount vs. the U.S.

Global Equity: Quarterly Returns



Global Equity: One-Year Returns



Source: MSCI

U.S. FIXED INCOME

Bloomberg Aggregate was positive in 1Q but mixed

- January: +3.1%
- February: -2.6%
- March: +2.5%

U.S. Treasury volatility was pronounced

- 2-year U.S. Treasury yield high was 5.08% on 3/8 and low was 3.77% on 3/24
- MOVE Index highest since 2008

Yield curve remained inverted but also volatile

- 2yr/10yr | 3/31: -58 bps; max 3/8: -109; min 3/23: -38
- 1yr/10yr | 3/31: -116 bps

Fed raised rates, bringing target to 4.75%–5.00%

- Median expectation from Fed is 5.1% for year-end 2023; market pricing in Fed cuts by year-end
- Inflation moderated but still high and job market tight

Sector performance mixed

- Corporate Industrials excess return: +58 bps
- Corporate Financials excess return: -39 bps
- RMBS excess return: -50 bps
- CMBS excess return: -74 bps
- High yield excess return: +123 bps

Valuations fair

- Credit spreads have not widened materially and are close to historical averages

MUNICIPAL BONDS

Indices gained in 1Q23

- Lower quality outperformed (AAA: +2.5%; AA: +2.7%; A: +3.0%; BBB: +3.7%)

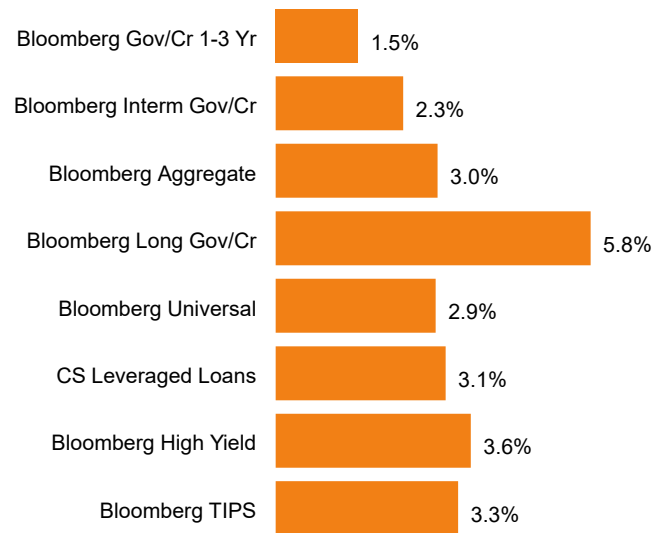
Muni curve inverted but less so than U.S. Treasuries

- 2-year AAA yield: 2.41%; 10-year AAA yield: 2.28%

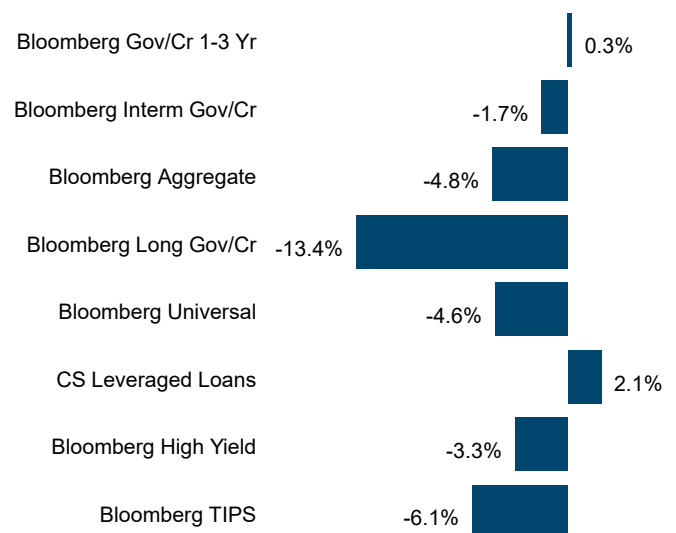
Valuations relative to U.S. Treasuries are rich

- 10-year AAA Muni/10-year U.S. Treasury yield ratio 65%; below 10-year average of 88%
- Over the last 10 years, 10-year ratio was richer 4% of the time
- After-tax yield of Muni Bond Index = 5.5%; Bloomberg IG Corporate = 5.2% (Source: Eaton Vance)

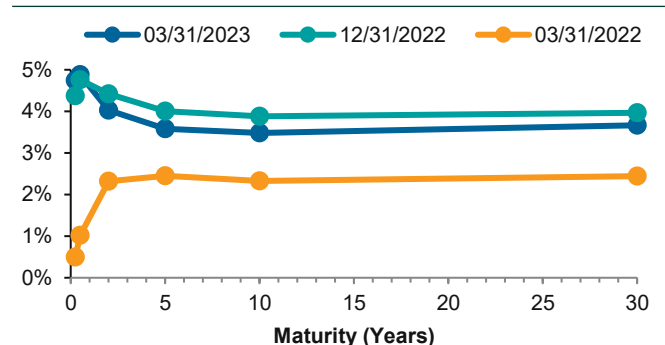
U.S. Fixed Income: Quarterly Returns



U.S. Fixed Income: One-Year Returns



U.S. Treasury Yield Curves



Sources: Bloomberg, Credit Suisse

MUNICIPAL BONDS (continued)

Supply/demand

- Outflows nearly \$2 billion but lower than the \$22 billion in 1Q22
- Supply about 25% lower year-over-year
- Munis not immune to turmoil in banking, but fundamentals remain sound
- Banks are third largest holder of munis (about 15%) but thus far have not been sellers
- Municipals could be affected by tighter lending standards but likely result would be more public issuance
- “Rainy Day” fund balances and state tax revenues robust

GLOBAL FIXED INCOME

Global Aggregate was positive in 1Q but mixed

- January: +3.3%
- February: -3.3%
- March: +3.2%
- ECB and UK hiked rates; Japan held steady

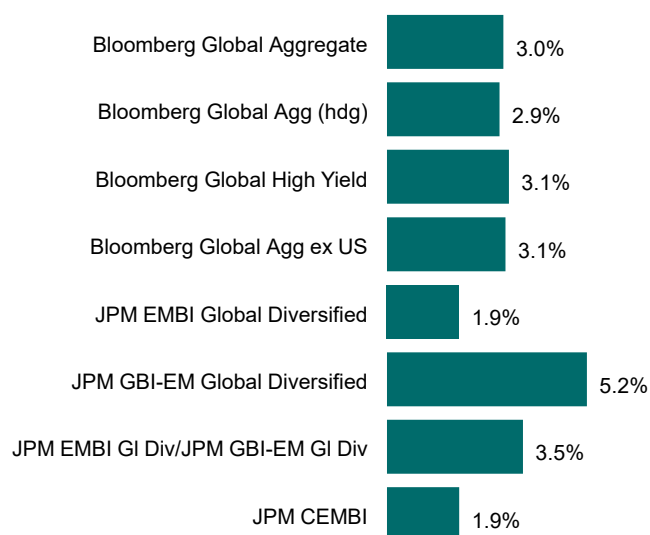
U.S. dollar was mixed but mostly lower

- Euro: +2% vs dollar
- British pound: +3% vs dollar
- Japanese yen: -1% vs dollar
- Australian dollar: -1% vs dollar
- Mexican peso: +8% vs dollar
- Brazilian real: +4% vs dollar

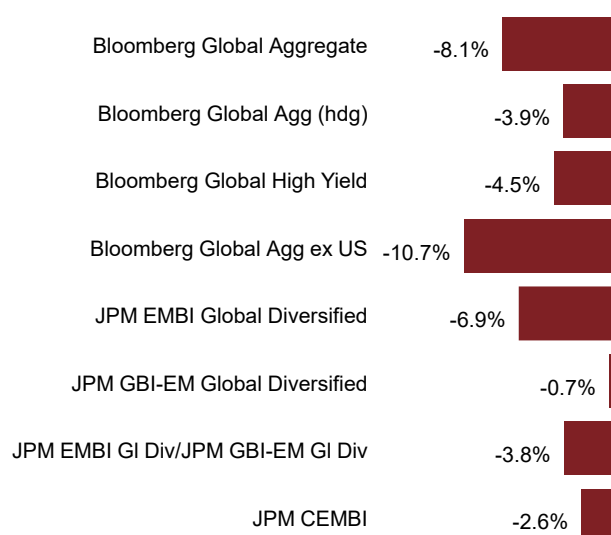
Emerging market debt delivered solid results

- EM currencies did well versus U.S. dollar, especially in Latin America; Latin America local currency return: +4.1%; unhedged in \$US: +9.8%

Global Fixed Income: Quarterly Returns

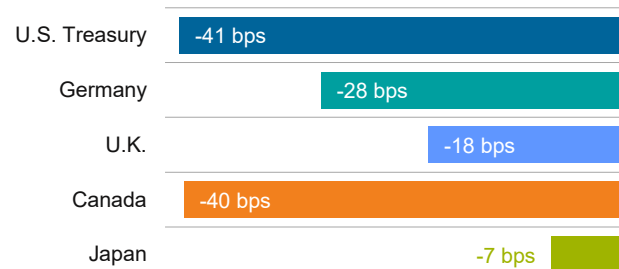


Global Fixed Income: One-Year Returns



Change in 10-Year Global Government Bond Yields

4Q22 to 1Q23

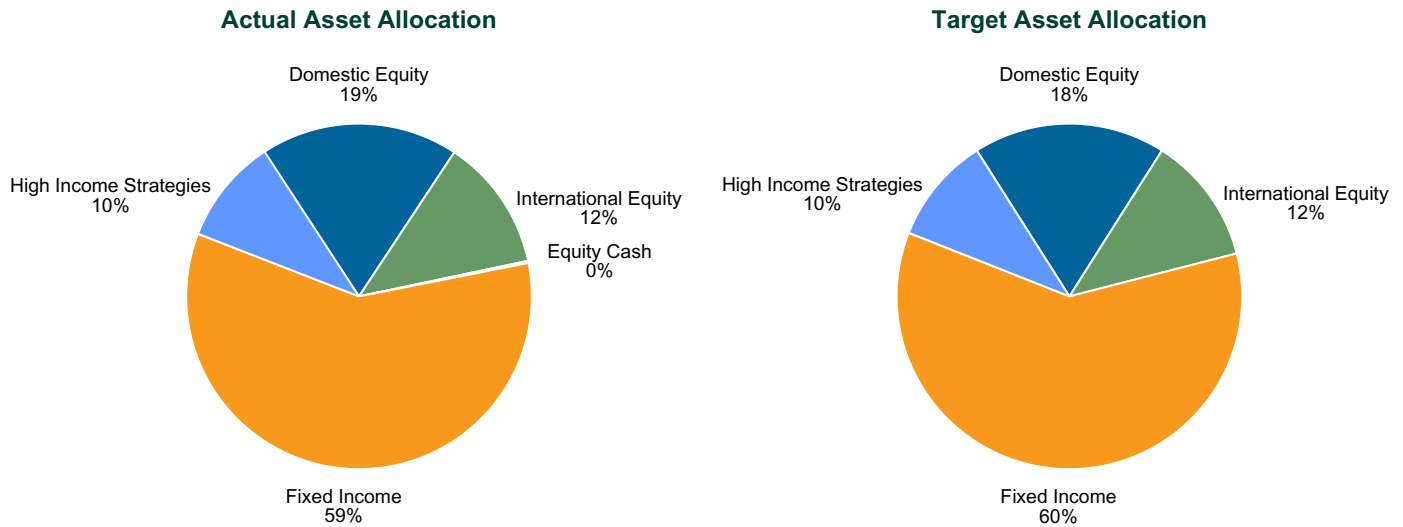


Sources: Bloomberg, JP Morgan

Actual vs. Target
Asset Allocation

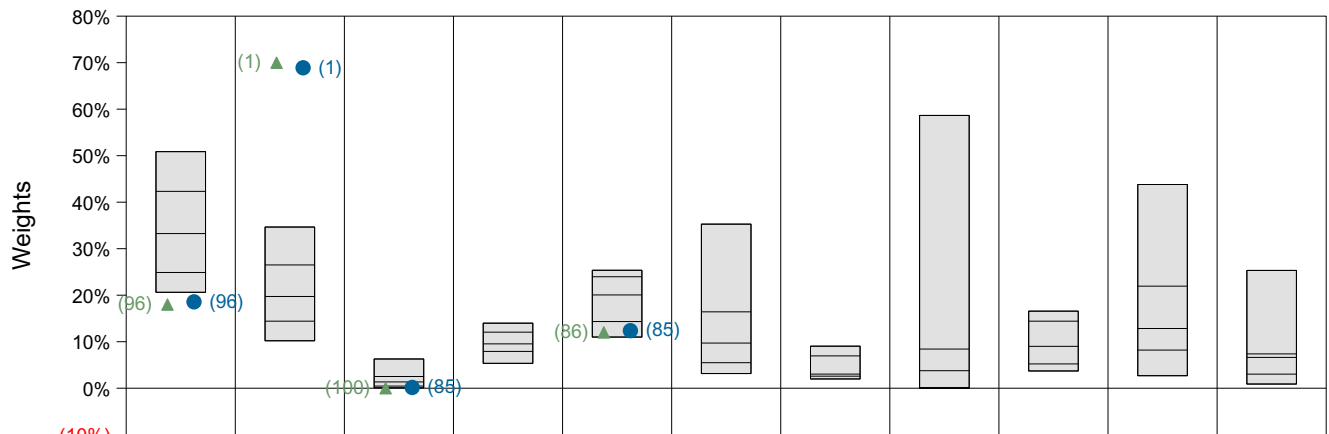
Actual vs Target Asset Allocation As of March 31, 2023

The top left chart shows the Fund's asset allocation as of March 31, 2023. The top right chart shows the Fund's target asset allocation as outlined in the investment policy statement. The bottom chart ranks the fund's asset allocation and the target allocation versus the Callan Endow/Foundation - Mid (100M-1B).



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	246,978	18.6%	18.0%	0.6%	7,542
International Equity	164,609	12.4%	12.0%	0.4%	4,985
Equity Cash	2,128	0.2%	0.0%	0.2%	2,128
Fixed Income	785,405	59.0%	60.0%	(1.0%)	(12,716)
High Income Strategies	131,082	9.9%	10.0%	(0.1%)	(1,939)
Total	1,330,203	100.0%	100.0%		

Asset Class Weights vs Callan Endow/Foundation - Mid (100M-1B)



	Domestic Equity	Domestic Fixed	Equity Cash	Real Estate	International Equity	Alternative	Global Balanced	Global Equity Broad	Hedge Funds	Private Equity	Real Assets
10th Percentile	50.87	34.65	6.29	13.99	25.36	35.28	9.04	58.65	16.57	43.80	25.33
25th Percentile	42.33	26.51	2.52	12.05	23.97	16.42	6.95	8.42	14.42	21.94	7.38
Median	33.25	19.73	1.36	9.53	20.06	9.71	3.03	3.77	9.00	12.84	6.62
75th Percentile	24.88	14.41	0.46	7.91	14.34	5.49	2.59	0.14	5.22	8.20	3.03
90th Percentile	20.62	10.20	0.08	5.34	11.00	3.15	1.99	0.00	3.70	2.69	0.89
Fund ●	18.57	68.90	0.16	-	12.37	-	-	-	-	-	-
Target ▲	18.00	70.00	0.00	-	12.00	-	-	-	-	-	-
% Group Invested	97.87%	93.62%	76.60%	48.94%	95.74%	65.96%	12.77%	14.89%	36.17%	44.68%	27.66%

* Current Quarter Target = 52.5% Blmbg Aggregate, 18.0% Russell 3000 Index, 12.0% MSCI ACWI xUS, 8.5% Blmbg HY Corp, 7.5% Blmbg Gov/Cred 1-3 Yr and 1.5% ICE All US Cap Secs.

Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of March 31, 2023, with the distribution as of December 31, 2022. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

Asset Distribution Across Investment Managers

	March 31, 2023		Net New Inv.	Inv. Return	December 31, 2022	
	Market Value	Weight			Market Value	Weight
Total Equity (1)	\$413,118,580	31.06%	\$9,998,315	\$27,141,066	\$375,979,198	30.01%
Domestic Equity	\$246,978,385	18.57%	\$9,040,152	\$16,384,742	\$221,553,491	17.69%
iShares S&P 1500 ETF	246,978,385	18.57%	9,040,152	16,384,742	221,553,491	17.69%
International Equity	\$164,609,403	12.37%	\$(168,482)	\$10,752,139	\$154,025,745	12.30%
iShares MSCI Emerging ETF	44,393,972	3.34%	(13,409)	1,937,840	42,469,541	3.39%
iShares MSCI Canada ETF	16,358,206	1.23%	321,622	678,785	15,357,800	1.23%
iShares Core MSCI EAFE ETF	103,857,224	7.81%	(476,695)	8,135,514	96,198,404	7.68%
Equity Cash	1,530,792	0.12%	1,126,645	4,186	399,962	0.03%
Total Fixed Income	\$785,405,387	59.04%	\$12,751,631	\$22,403,737	\$750,250,020	59.89%
Market Duration	\$680,234,311	51.14%	\$11,251,683	\$20,927,572	\$648,055,056	51.73%
Colorado Treasurer's Portfolio	680,234,311	51.14%	11,251,683	20,927,572	648,055,056	51.73%
Short Duration	\$105,171,076	7.91%	\$1,499,948	\$1,476,164	\$102,194,964	8.16%
Janus Henderson (2)	105,171,076	7.91%	1,499,948	1,476,164	102,194,964	8.16%
High Income Strategies	\$131,081,501	9.85%	\$1,377,731	\$3,764,895	\$125,938,875	10.05%
High Yield Fixed Income	\$112,511,327	8.46%	\$1,115,315	\$4,176,106	\$107,219,906	8.56%
Mackay Shield US High Yield (3)	112,511,327	8.46%	1,115,315	4,176,106	107,219,906	8.56%
Preferred Securities	\$18,570,174	1.40%	\$262,416	\$(411,211)	\$18,718,969	1.49%
Principal Preferred Securities (3)	18,570,174	1.40%	262,416	(411,211)	18,718,969	1.49%
Cash Available For Investing	\$597,519	0.04%	\$(34,408)	\$121,174	\$510,753	0.04%
Total Fund	\$1,330,202,987	100.0%	\$24,093,269	\$53,430,872	\$1,252,678,846	100.0%

(1) Funded in December 2017.

(2) Funded in November 2018.

(3) Funded in July 2020.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2023. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended March 31, 2023

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Total Equity	7.18%	(7.00%)	16.10%	7.24%	-
60% Russell 3000/40% ACWI ex US	7.05%	(7.09%)	15.85%	7.27%	8.72%
Domestic Equity	7.22%	(8.69%)	18.42%	10.36%	-
Russell 3000 Index	7.18%	(8.58%)	18.48%	10.45%	11.73%
International Equity	7.06%	(4.85%)	12.61%	2.48%	-
MSCI ACWI ex US	6.87%	(5.07%)	11.80%	2.47%	4.17%
Total Fixed Income	2.95%	(3.99%)	(2.25%)	1.13%	1.51%
Total Fixed Income Benchmark (1)	2.78%	(4.15%)	(2.46%)	0.98%	1.21%
Market Duration	3.19%	(4.66%)	(2.74%)	1.00%	1.44%
Colorado Treasurer's Portfolio (2)	3.19%	(4.66%)	(2.74%)	1.00%	1.44%
PSPF Custom Benchmark (3)	2.96%	(4.78%)	(2.77%)	0.91%	1.17%
Short Duration	1.44%	0.20%	1.31%	-	-
Janus Henderson Short Duration	1.44%	0.20%	1.31%	-	-
Blmbg Gov/Cred 1-3 Yr	1.51%	0.26%	(0.38%)	1.26%	1.01%
85% 1-3YR G/C; 15% 1-3YR BB (4)	1.62%	0.51%	0.48%	1.63%	1.42%
High Income Strategies	3.02%	(1.34%)	-	-	-
High Income Strategies Benchmark (5)	3.26%	(4.00%)	5.45%	3.03%	-
High Yield Fixed Income	3.88%	(0.30%)	-	-	-
Mackay Shield US High Yield	3.88%	(0.30%)	-	-	-
Blmbg High Yield	3.57%	(3.34%)	5.91%	3.21%	4.10%
Preferred Securities	(1.91%)	(7.17%)	-	-	-
Principal Preferred Securities	(1.91%)	(7.17%)	-	-	-
ICE BofA US All Cap Secs	1.50%	(7.73%)	2.81%	1.95%	-
Total Fund w/o CAI (6)	4.24%	(4.57%)	1.83%	2.70%	2.30%
Total Fund Benchmark (6)	4.11%	(4.79%)	1.61%	2.80%	2.12%

(1) Current quarter's Total Fixed Income Benchmark consists of 88.4% Bloomberg U.S. Aggregate and 11.6% Bloomberg Gov/Credit 1-3 Yrs.

(2) Includes cash returns starting July 2017.

(3) The PSPF Fixed Income Portfolio Custom Benchmark consisted of 37% U.S. Treasury 1-10 Year Index, 34% Mortgages 0-10 Year WAL Index, 19% AAA U.S. Agencies 1-10 Year Index and 10% U.S. Corporates AAA Rated 1-10 Years Index through March 31, 2017, 100% Bloomberg U.S. Aggregate, thereafter.

(4) Benchmark consists of 85% Bloomberg 1-3 Year Government/Credit Index and 15% BofAML 1-3 Year BB US Cash Pay High Yield Index.

(5) Benchmark consists of 85% Blmbg High Yield Index and 15% ICE BofA US All Cap Secs Index.

(6) Current quarter's Total Fund Benchmark consists of 18% Russell 3000, 12% MSCI ACWI ex US, 52.5% Bloomberg U.S. Aggregate, 7.5% Bloomberg Gov/Credit 1-3 Yrs, 8.5% Bloomberg US High Yield and 1.5% ICE BofA U.S. All Capital Securities Index. See pg. 22 for full benchmark history.

The Total Fund return calculations do not include Cash Available for Investing.

*All composites and manager returns are shown gross-of-fees.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	6/2022- 3/2023	FY 2022	FY 2021	FY 2020	FY 2019
Total Equity	9.62%	(15.85%)	41.59%	1.82%	5.64%
60% Russell 3000/40% ACWI ex US	9.96%	(16.06%)	40.77%	1.90%	5.92%
Domestic Equity	9.64%	(13.95%)	44.30%	6.40%	8.85%
Russell 3000 Index	9.75%	(13.87%)	44.16%	6.53%	8.98%
International Equity	9.28%	(18.97%)	37.78%	(4.71%)	0.67%
MSCI ACWI ex US	10.03%	(19.42%)	35.72%	(4.80%)	1.29%
Total Fixed Income	0.56%	(9.76%)	(0.27%)	8.79%	7.38%
Total Fixed Income Benchmark (1)	0.04%	(9.46%)	(0.26%)	8.28%	7.52%
Market Duration	0.28%	(10.55%)	(0.55%)	9.26%	7.77%
Colorado Treasurer's Portfolio (2)	0.28%	(10.55%)	(0.55%)	9.26%	7.77%
PSPF Custom Benchmark (3)	(0.09%)	(10.29%)	(0.33%)	8.74%	7.87%
Short Duration	2.10%	(4.33%)	2.33%	4.41%	-
Janus Henderson Short Duration	2.10%	(4.33%)	2.33%	4.41%	-
Blmbg Gov/Cred 1-3 Yr	0.90%	(3.56%)	0.44%	4.20%	4.27%
85% 1-3YR G/C; 15% 1-3YR BB (4)	1.61%	(3.83%)	1.70%	3.94%	4.59%
High Income Strategies	6.73%	(9.38%)	-	-	-
High Income Strategies Benchmark (5)	6.14%	(12.89%)	15.13%	0.46%	7.58%
High Yield Fixed Income	7.92%	(9.09%)	-	-	-
Mackay Shield US High Yield	7.92%	(9.09%)	-	-	-
Blmbg High Yield	7.19%	(12.81%)	15.37%	0.03%	7.48%
Preferred Securities	0.09%	(11.11%)	-	-	-
Principal Preferred Securities	0.09%	(11.11%)	-	-	-
ICE BofA US All Cap Secs	0.32%	(13.33%)	13.67%	2.86%	8.12%
Total Fund w/o CAI (6)	3.91%	(11.58%)	8.30%	7.37%	6.94%
Total Fund Benchmark (6)	3.63%	(11.64%)	7.98%	7.87%	7.49%

(1) Current quarter's Total Fixed Income Benchmark consists of 88.4% Bloomberg U.S. Aggregate and 11.6% Bloomberg Gov/Credit 1-3 Yrs.

(2) Includes cash returns starting July 2017.

(3) The PSPF Fixed Income Portfolio Custom Benchmark consisted of 37% U.S. Treasury 1-10 Year Index, 34% Mortgages 0-10 Year WAL Index, 19% AAA U.S. Agencies 1-10 Year Index and 10% U.S. Corporates AAA Rated 1-10 Years Index through March 31, 2017, 100% Bloomberg U.S. Aggregate, thereafter.

(4) Benchmark consists of 85% Bloomberg 1-3 Year Government/Credit Index and 15% BofAML 1-3 Year BB US Cash Pay High Yield Index.

(5) Benchmark consists of 85% Blmbg High Yield Index and 15% ICE BofA US All Cap Secs Index.

(6) Current quarter's Total Fund Benchmark consists of 18% Russell 3000, 12% MSCI ACWI ex US, 52.5% Bloomberg U.S. Aggregate, 7.5% Bloomberg Gov/Credit 1-3 Yrs, 8.5% Bloomberg US High Yield and 1.5% ICE BofA U.S. All Capital Securities Index. See pg. 22 for full benchmark history.

The Total Fund return calculations do not include Cash Available for Investing.

*All composites and manager returns are shown gross-of-fees.

Total Fund Benchmark Definition

Inception to Dec 31, 2017		
Market Duration	PFSF Fixed Income Benchmark	100%

January 1st, 2018 - December 31th, 2018		
US Equity	Russell 3000 Index	12.00%
International Equity	MSCI ACWI ex US	8.00%
Market Duration	Bloomberg Barclays Aggregate	72.00%
Short Duration	Bloomberg Barclays Gov/Cred 1-3 Yr	8.00%

January 1st, 2019 - September 30th, 2020		
US Equity	Russell 3000 Index	12.00%
International Equity	MSCI ACWI ex US	8.00%
Market Duration	Bloomberg Barclays Aggregate	72.00%
Short Duration	Bloomberg Barclays Gov/Cred 1-3 Yr	8.00%

October 1st, 2020 - March 31st, 2021		
US Equity	Russell 3000 Index	12.00%
International Equity	MSCI ACWI ex US	8.00%
Market Duration	Bloomberg Barclays Aggregate	67.50%
Short Duration	Bloomberg Barclays Gov/Cred 1-3 Yr	7.50%
High Yield	Bloomberg Barclays US High Yield	4.25%
Preferred Securities	ICE BofA U.S. All Capital Securities Index	0.75%

April 1st, 2021 - June 30th, 2021		
US Equity	Russell 3000 Index	14.70%
International Equity	MSCI ACWI ex US	9.80%
Market Duration	Bloomberg Barclays Aggregate	61.50%
Short Duration	Bloomberg Barclays Gov/Cred 1-3 Yr	7.50%
High Yield	Bloomberg Barclays US High Yield	5.50%
Preferred Securities	ICE BofA U.S. All Capital Securities Index	1.00%

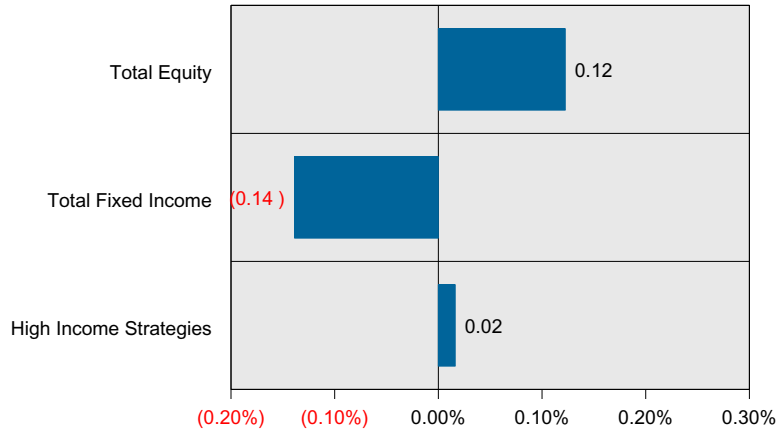
July 1st, 2021 - September 30, 2021		
US Equity	Russell 3000 Index	16.35%
International Equity	MSCI ACWI ex US	10.90%
Market Duration	Bloomberg Barclays Aggregate	57.00%
Short Duration	Bloomberg Barclays Gov/Cred 1-3 Yr	7.50%
High Yield	Bloomberg Barclays US High Yield	7.00%
Preferred Securities	ICE BofA U.S. All Capital Securities Index	1.25%

October 1st, 2021 - Current		
US Equity	Russell 3000 Index	18.00%
International Equity	MSCI ACWI ex US	12.00%
Market Duration	Bloomberg Barclays Aggregate	52.50%
Short Duration	Bloomberg Barclays Gov/Cred 1-3 Yr	7.50%
High Yield	Bloomberg Barclays US High Yield	8.50%
Preferred Securities	ICE BofA U.S. All Capital Securities Index	1.50%

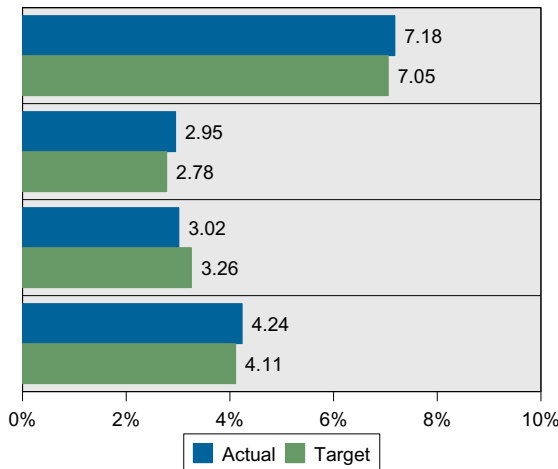
Quarterly Total Fund Relative Attribution - March 31, 2023

The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Asset Allocation Effect and Manager Selection Effect. The Asset Allocation Effect represents the excess return due to the actual total fund asset allocation differing from the target asset allocation. Manager Selection Effect represents the total fund impact of the individual managers excess returns relative to their benchmarks.

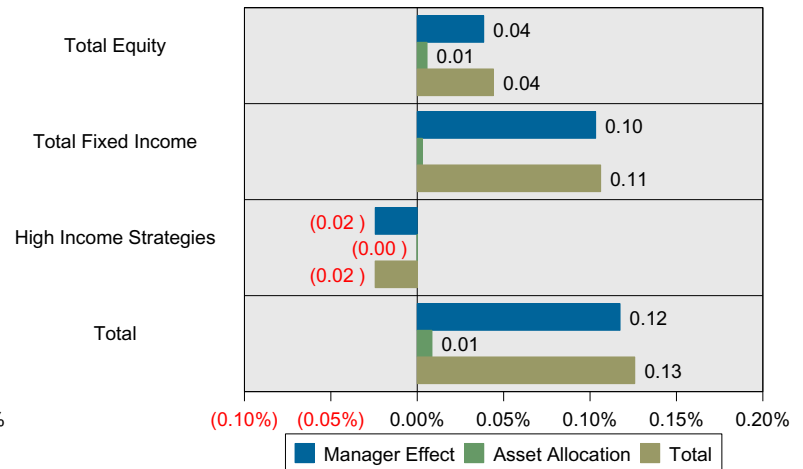
Asset Class Under or Overweighting



Actual vs Target Returns



Relative Attribution by Asset Class



Relative Attribution Effects for Quarter ended March 31, 2023

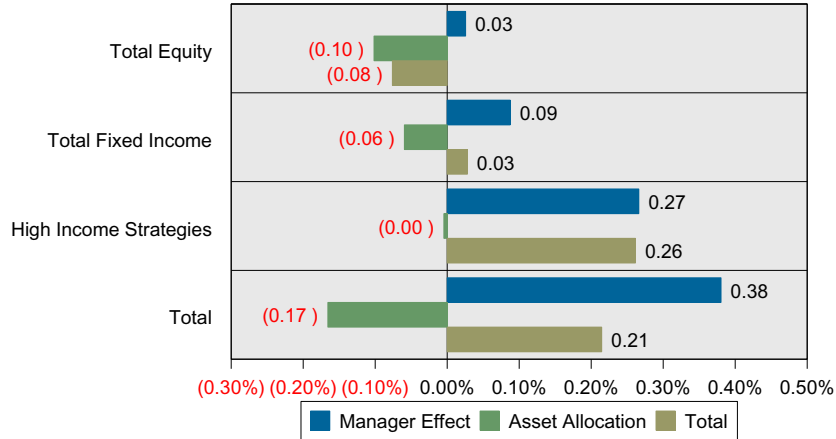
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	30%	30%	7.18%	7.05%	0.04%	0.01%	0.04%
Total Fixed Income	60%	60%	2.95%	2.78%	0.10%	0.00%	0.11%
High Income Strategies	10%	10%	3.02%	3.26%	(0.02%)	(0.00%)	(0.02%)
Total			4.24%	4.11%	+ 0.12%	+ 0.01%	0.13%

* Current Quarter Target = 52.5% Blmbg Aggregate, 18.0% Russell 3000 Index, 12.0% MSCI ACWI xUS, 8.5% Blmbg HY Corp, 7.5% Blmbg Gov/Cred 1-3 Yr and 1.5% ICE All US Cap Secs.

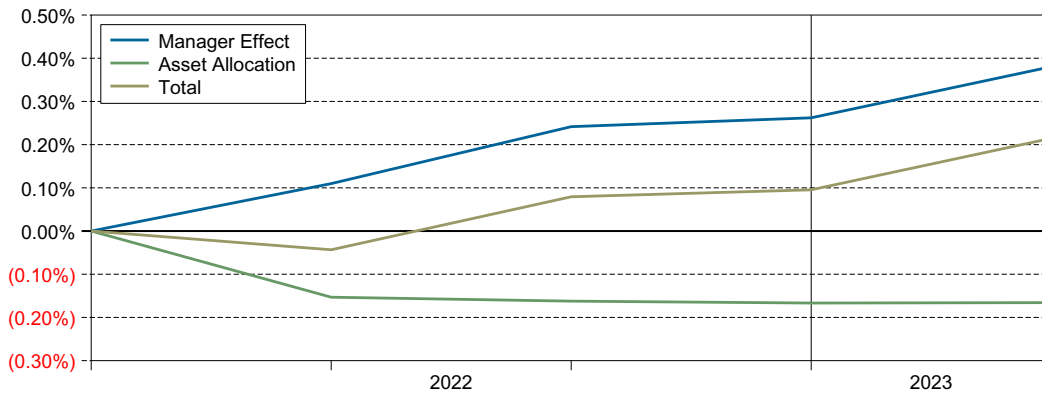
Cumulative Total Fund Relative Attribution - March 31, 2023

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

One Year Relative Attribution Effects



Cumulative Relative Attribution Effects



One Year Relative Attribution Effects

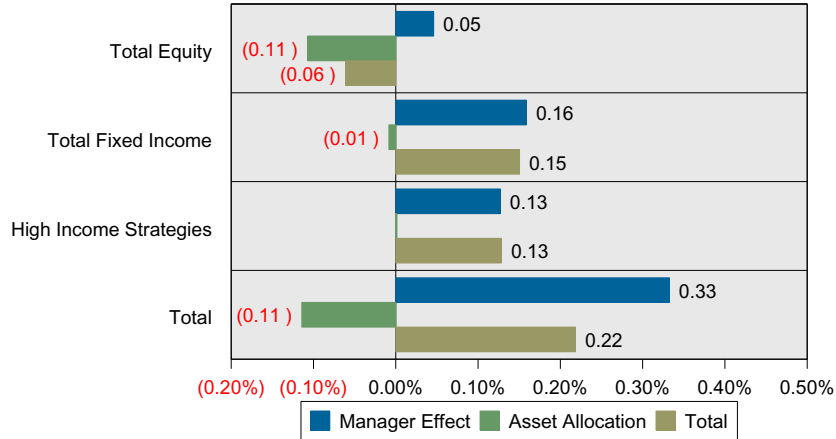
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	30%	30%	(7.00%)	(7.09%)	0.03%	(0.10%)	(0.08%)
Total Fixed Income	60%	60%	(3.99%)	(4.15%)	0.09%	(0.06%)	0.03%
High Income Strategies	10%	10%	(1.34%)	(4.00%)	0.27%	(0.00%)	0.26%
Total			(4.57%)	(4.79%)	+ 0.38%	+ (0.17%)	0.21%

* Current Quarter Target = 52.5% Blmbg Aggregate, 18.0% Russell 3000 Index, 12.0% MSCI ACWI xUS, 8.5% Blmbg HY Corp, 7.5% Blmbg Gov/Cred 1-3 Yr and 1.5% ICE All US Cap Secs.

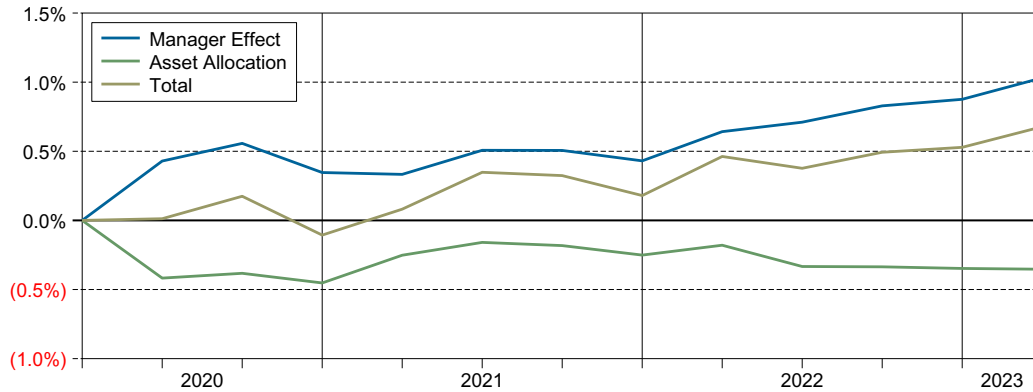
Cumulative Total Fund Relative Attribution - March 31, 2023

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

Three Year Annualized Relative Attribution Effects



Cumulative Relative Attribution Effects



Three Year Annualized Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	26%	26%	16.10%	15.85%	0.05%	(0.11%)	(0.06%)
Total Fixed Income	66%	67%	(2.25%)	(2.46%)	0.16%	(0.01%)	0.15%
High Income Strategies	7%	7%	-	-	0.13%	0.00%	0.13%
Total			1.83%	= 1.61%	+ 0.33%	+ (0.11%)	0.22%

* Current Quarter Target = 52.5% Blmbg Aggregate, 18.0% Russell 3000 Index, 12.0% MSCI ACWI xUS, 8.5% Blmbg HY Corp, 7.5% Blmbg Gov/Cred 1-3 Yr and 1.5% ICE All US Cap Secs.

Total Equity

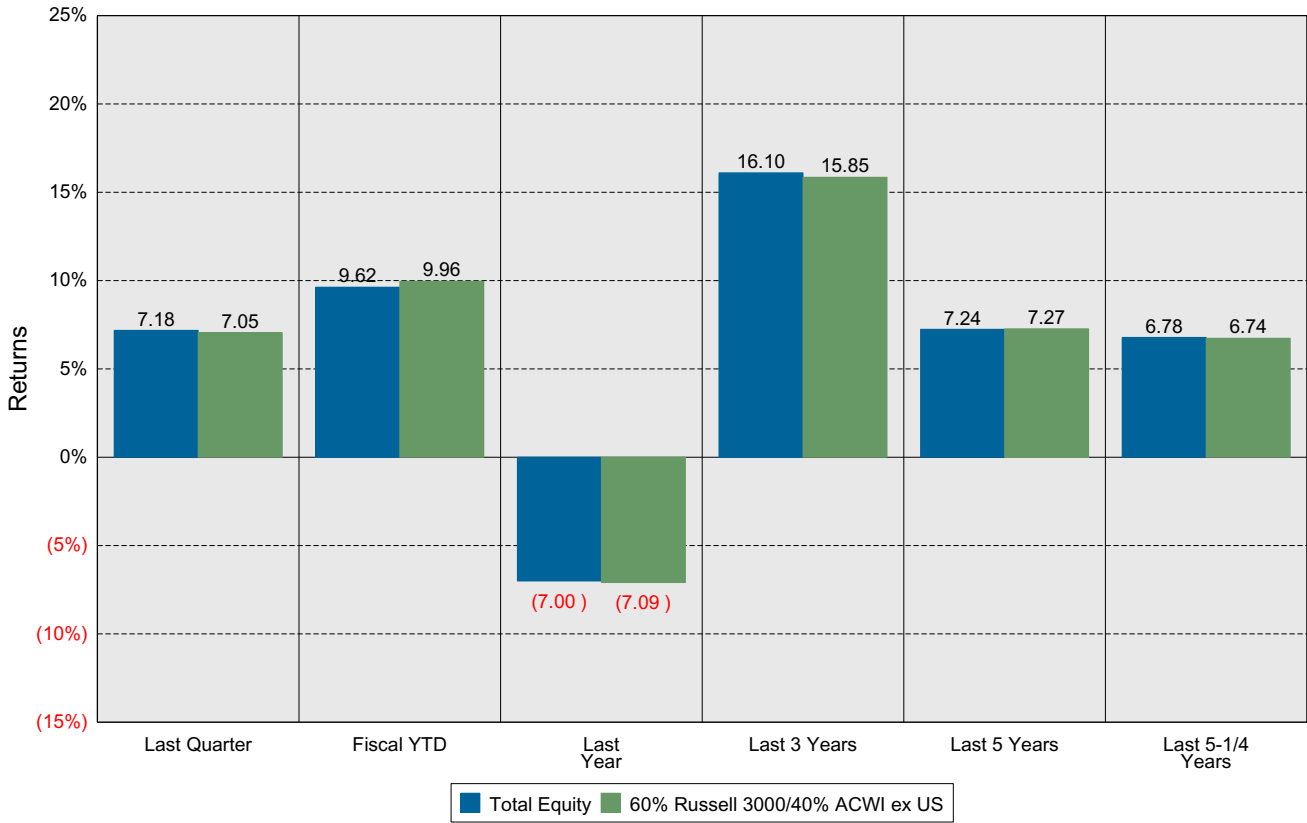
Period Ended March 31, 2023

Inception Date

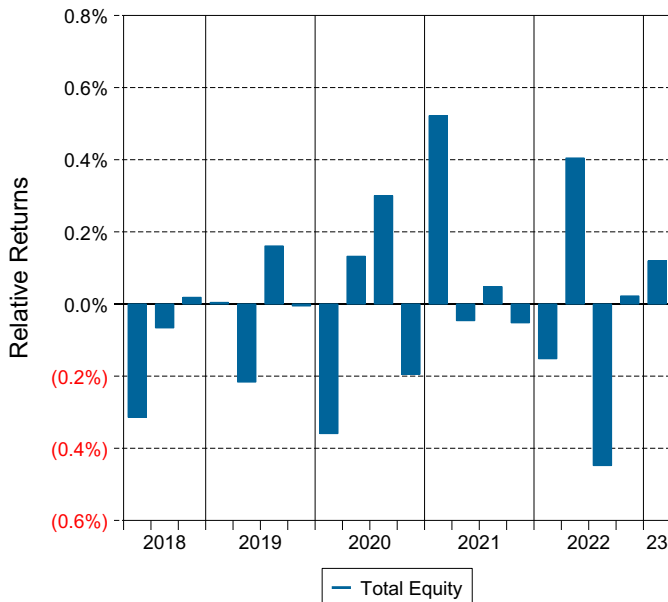
Parametric was funded December 12th, 2017.

Quarterly Summary and Highlights

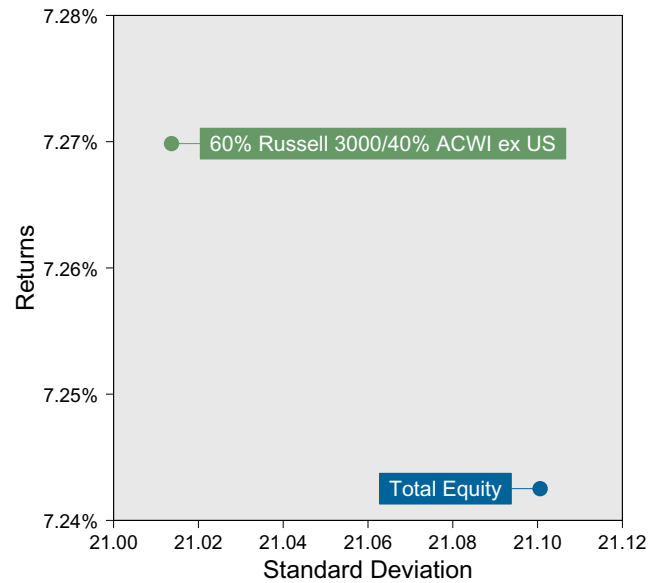
- Total Equity's portfolio outperformed the 60% Russell 3000/40% ACWI ex US by 0.13% for the quarter and outperformed the 60% Russell 3000/40% ACWI ex US for the year by 0.09%.



Relative Returns vs 60% Russell 3000/40% ACWI ex US



Annualized Five Year Risk vs Return

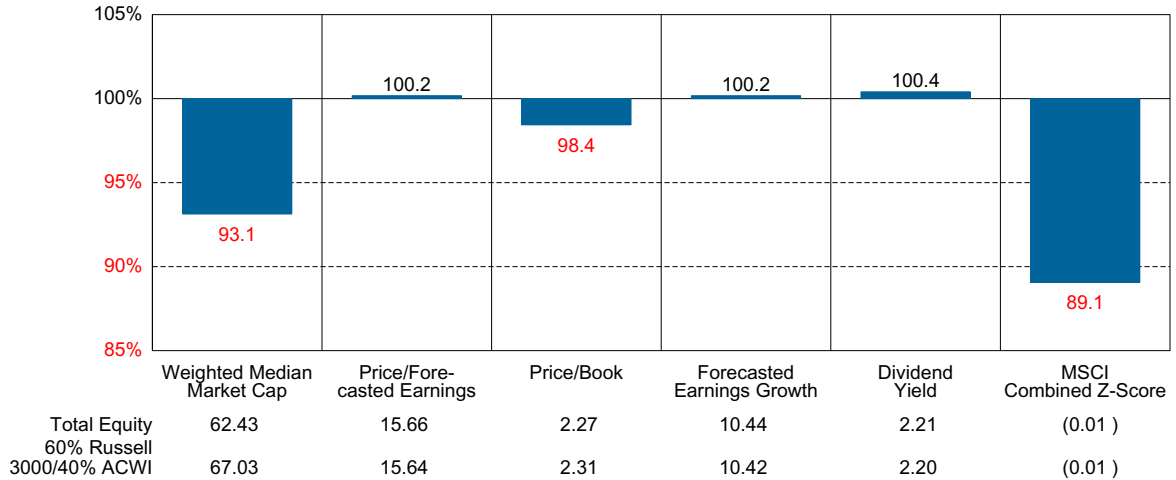


Total Equity Equity Characteristics Analysis Summary

Portfolio Characteristics

This graph compares the manager's portfolio characteristics relative to the benchmark's portfolio characteristics.

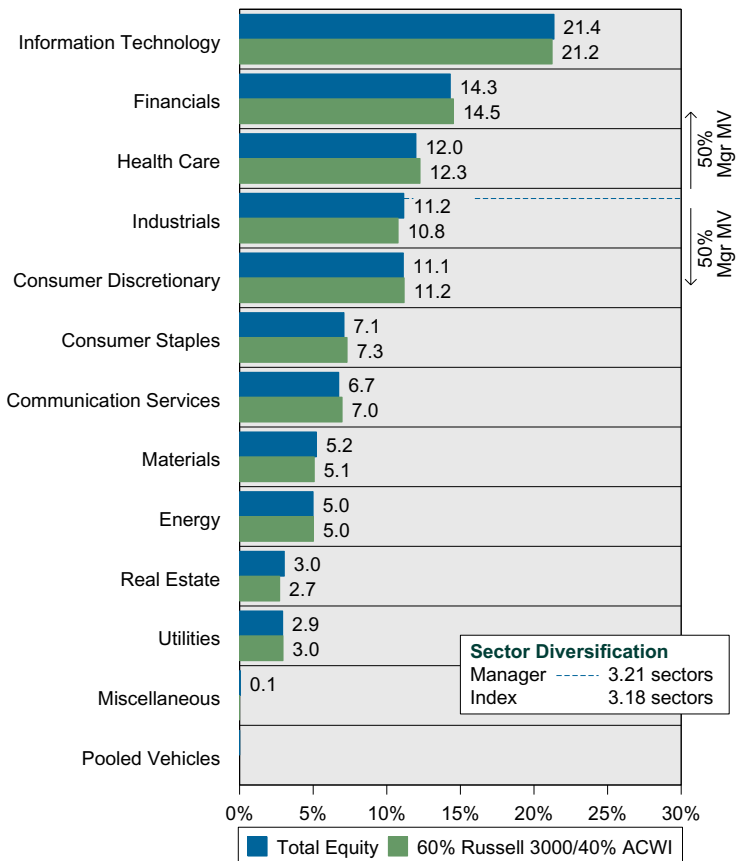
Portfolio Characteristics Relative to 60% Russell 3000/40% ACWI as of March 31, 2023



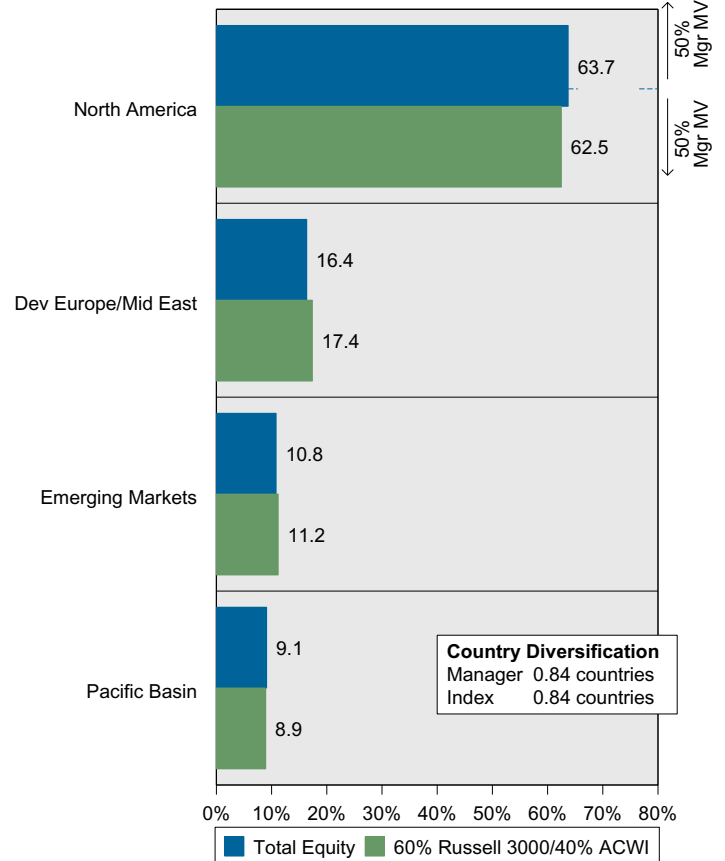
Sector Weights

The graph below contrasts the manager's sector weights for the most recent quarter with those of the benchmark. The regional allocation chart also compares the manager's geographical region weights with those of the benchmark.

Sector Allocation March 31, 2023



Regional Allocation March 31, 2023



Domestic Equity

Period Ended March 31, 2023

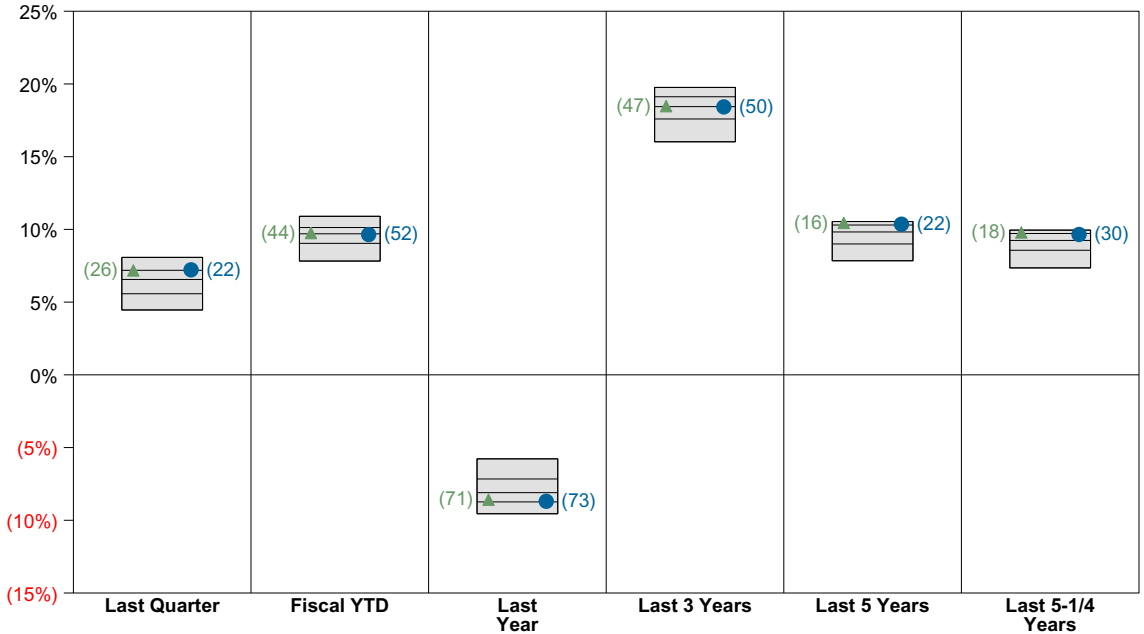
Inception Date

Parametric was funded December 12th, 2017.

Quarterly Summary and Highlights

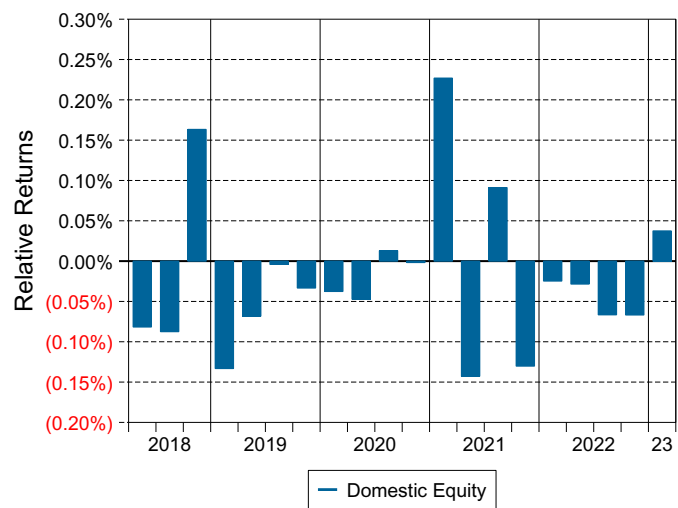
- Domestic Equity's portfolio posted a 7.22% return for the quarter placing it in the 22 percentile of the EF- Domestic Equity group for the quarter and in the 73 percentile for the last year.
- Domestic Equity's portfolio outperformed the Russell 3000 Index by 0.04% for the quarter and underperformed the Russell 3000 Index for the year by 0.11%.

Performance vs EF- Domestic Equity (Gross)

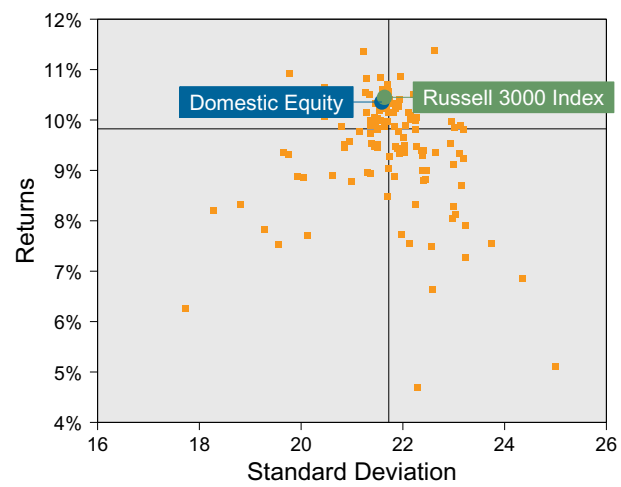


	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 5-1/4 Years
10th Percentile	8.08	10.90	(5.77)	19.76	10.54	9.95
25th Percentile	7.19	10.13	(7.16)	19.12	10.30	9.72
Median	6.56	9.70	(8.10)	18.44	9.82	9.24
75th Percentile	5.58	9.04	(8.74)	17.59	9.00	8.56
90th Percentile	4.46	7.82	(9.55)	16.02	7.84	7.35
Domestic Equity ●	7.22	9.64	(8.69)	18.42	10.36	9.65
Russell 3000 Index ▲	7.18	9.75	(8.58)	18.48	10.45	9.79

Relative Return vs Russell 3000 Index



EF- Domestic Equity (Gross) Annualized Five Year Risk vs Return

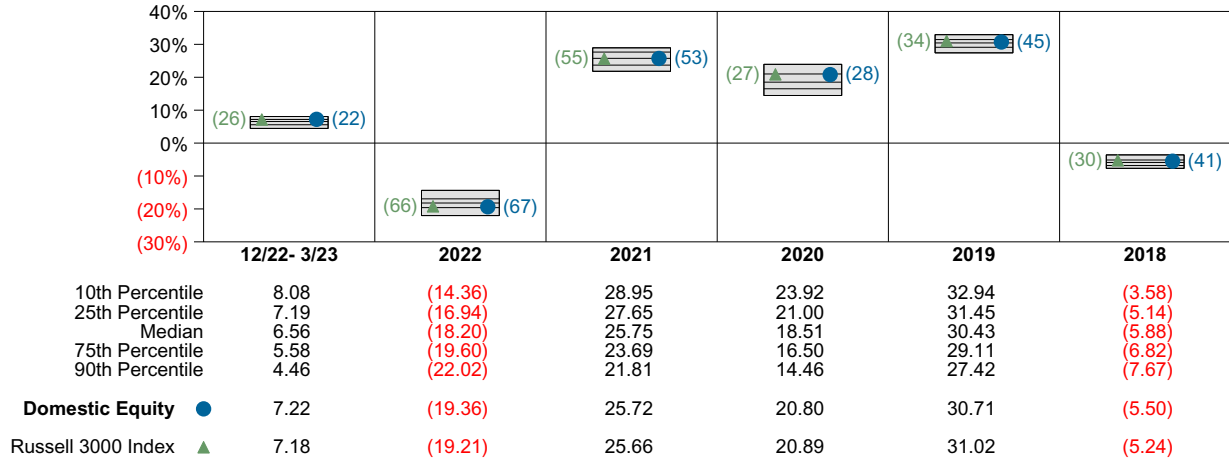


Domestic Equity Return Analysis Summary

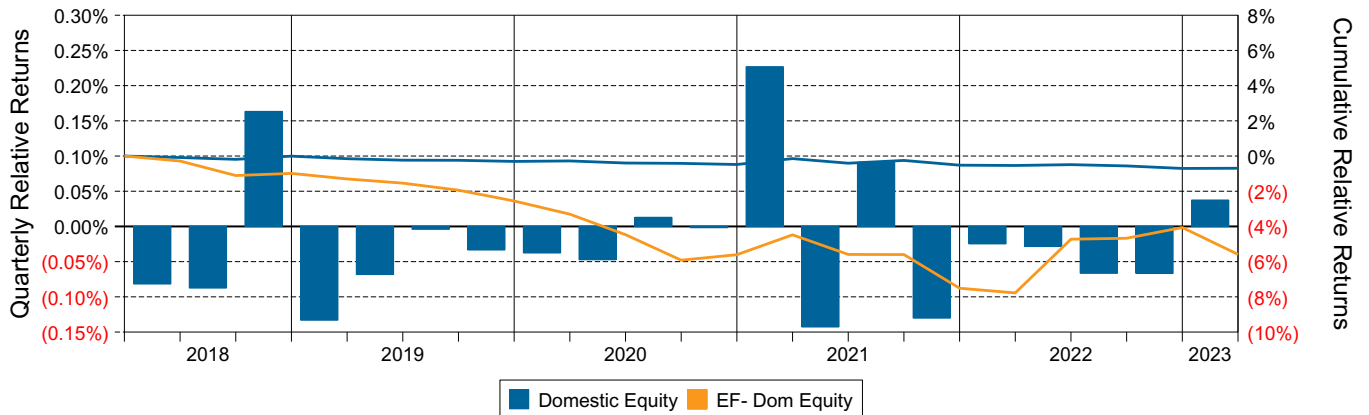
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

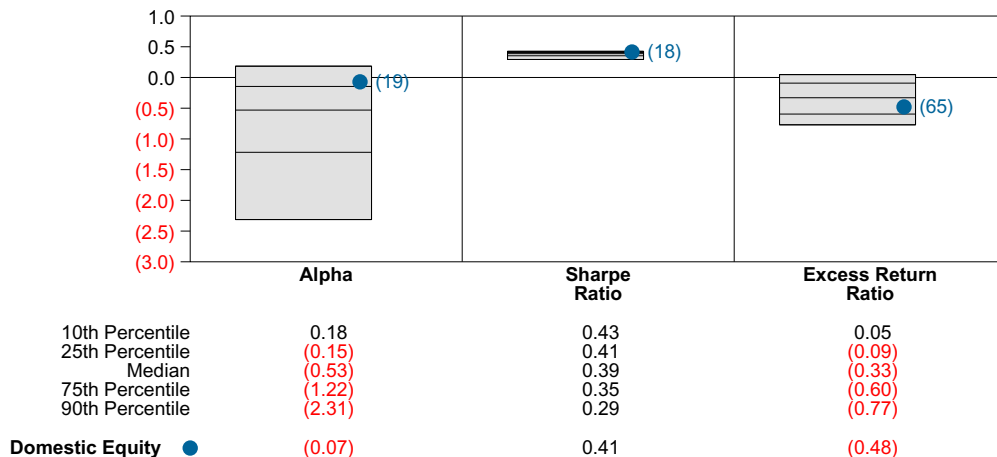
Performance vs EF- Domestic Equity (Gross)



Cumulative and Quarterly Relative Returns vs Russell 3000 Index



Risk Adjusted Return Measures vs Russell 3000 Index Rankings Against EF- Domestic Equity (Gross) Five Years Ended March 31, 2023

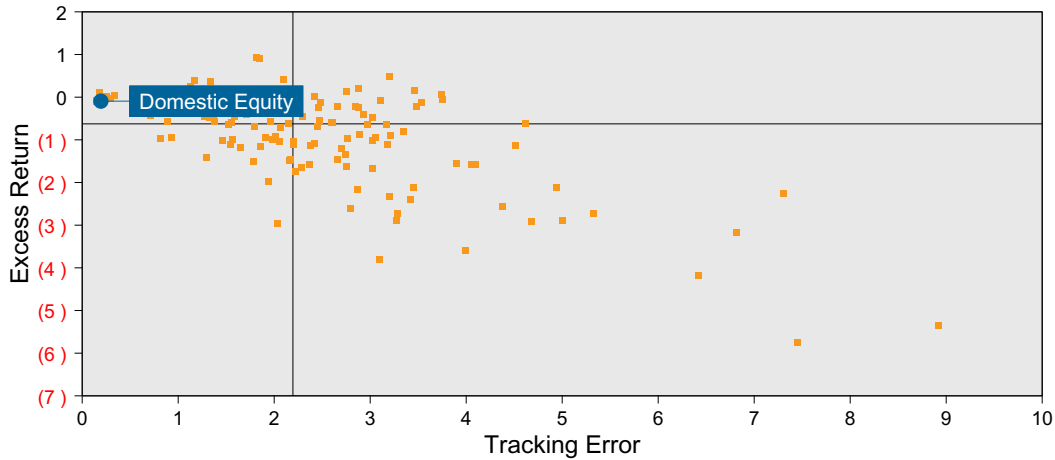


Domestic Equity Risk Analysis Summary

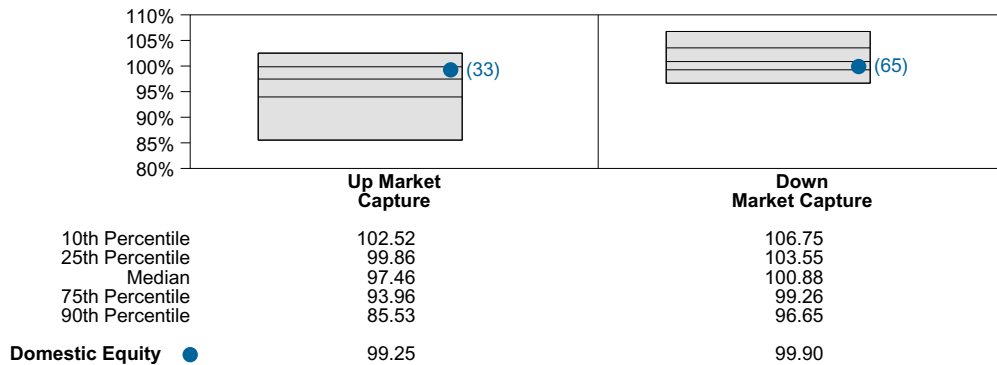
Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows Up and Down Market Capture. The last two charts show the ranking of the manager's risk statistics versus the peer group.

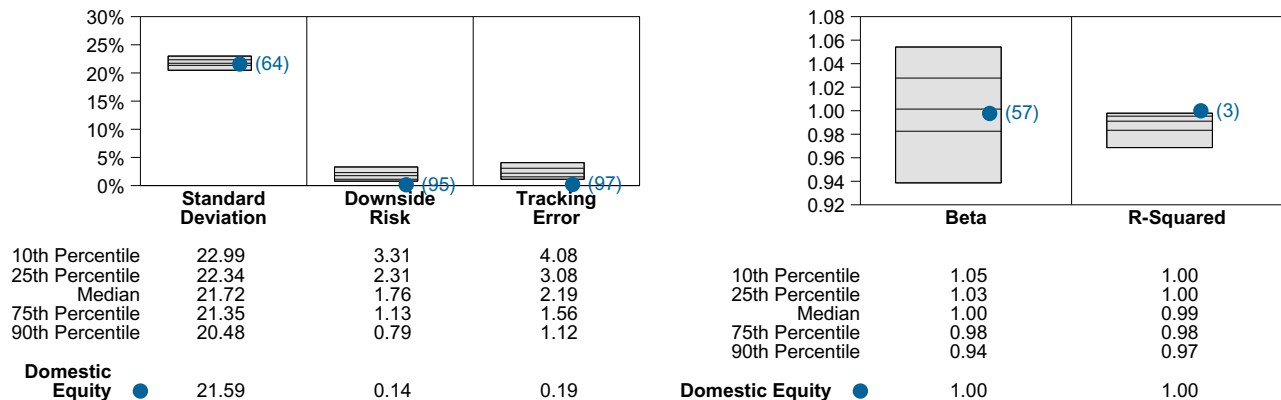
Risk Analysis vs EF- Domestic Equity (Gross) Five Years Ended March 31, 2023



Market Capture vs Russell 3000 Index Rankings Against EF- Domestic Equity (Gross) Five Years Ended March 31, 2023



Risk Statistics Rankings vs Russell 3000 Index Rankings Against EF- Domestic Equity (Gross) Five Years Ended March 31, 2023

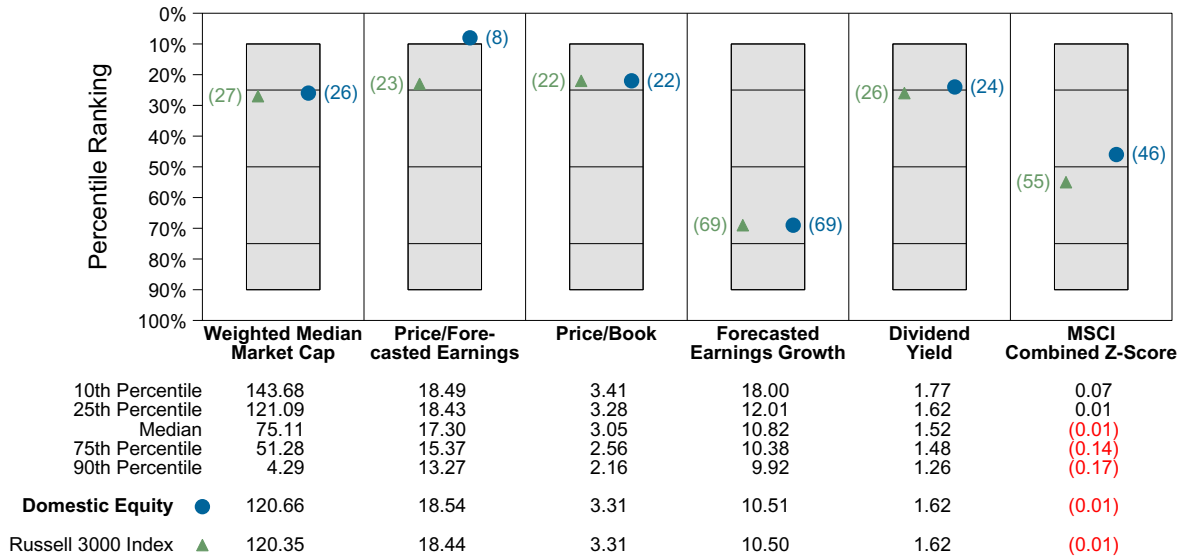


Domestic Equity Equity Characteristics Analysis Summary

Portfolio Characteristics

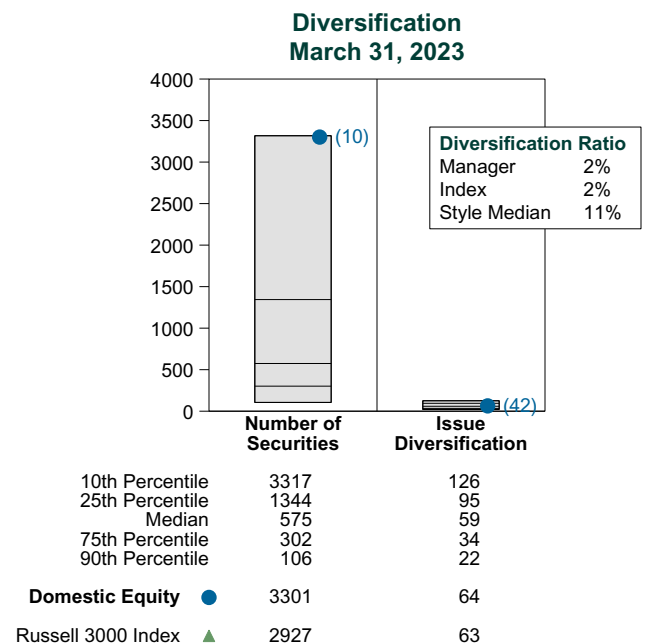
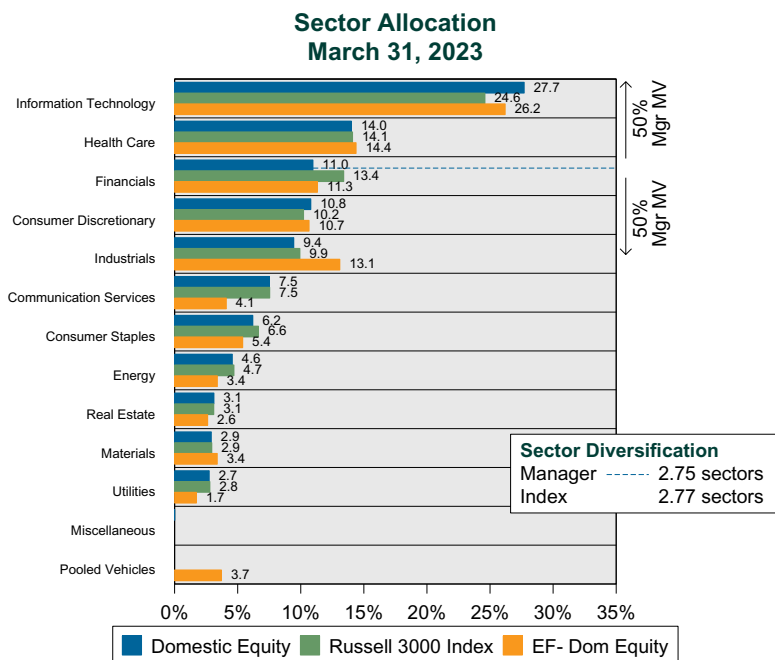
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against EF- Domestic Equity as of March 31, 2023



Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. Diversification by number and concentration of holdings are also compared to the benchmark and peer group. Issue Diversification represents by count, and Diversification Ratio by percent, the number of holdings that account for half of the portfolio's market value.



International Equity Period Ended March 31, 2023

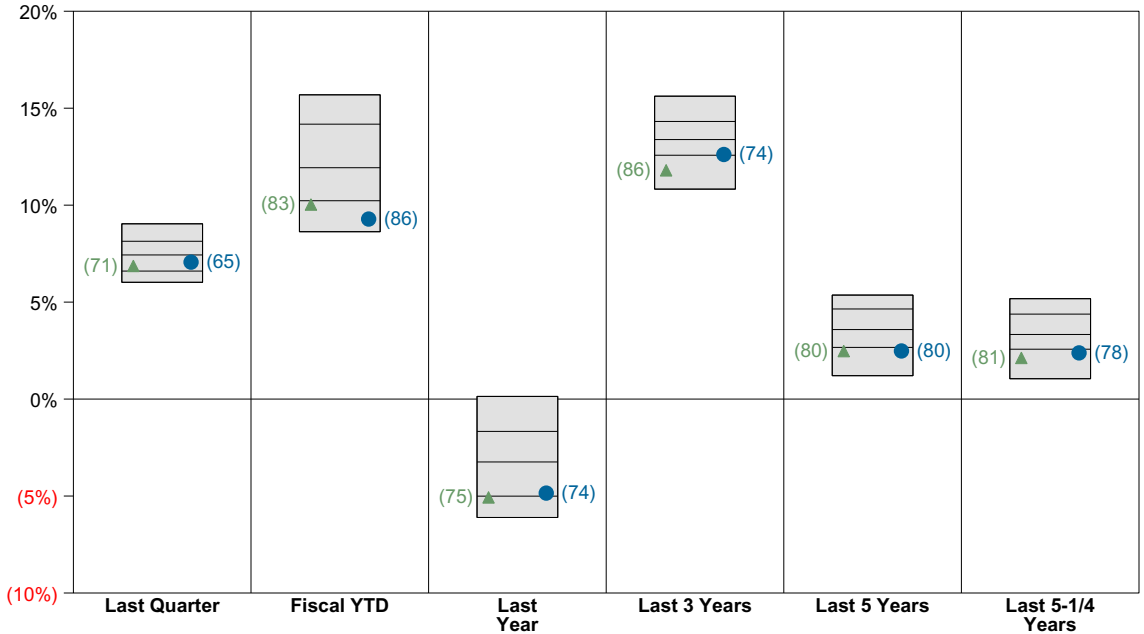
Inception Date

Parametric was funded December 12th, 2017.

Quarterly Summary and Highlights

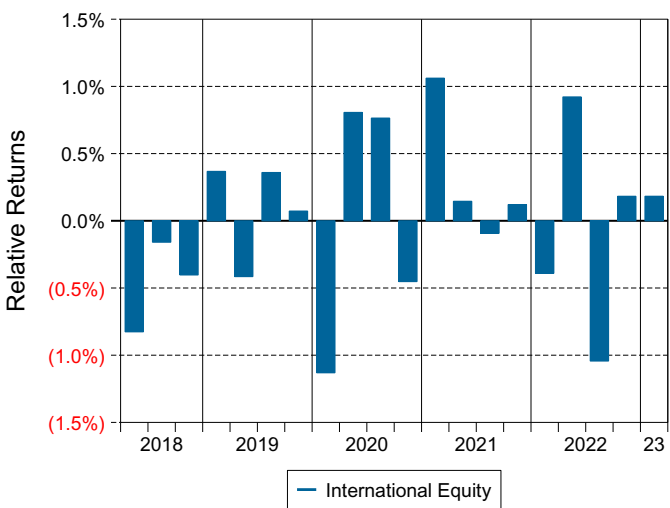
- International Equity's portfolio posted a 7.06% return for the quarter placing it in the 65 percentile of the EF-International Equity group for the quarter and in the 74 percentile for the last year.
- International Equity's portfolio outperformed the MSCI ACWI ex US by 0.19% for the quarter and outperformed the MSCI ACWI ex US for the year by 0.22%.

Performance vs EF- International Equity (Gross)

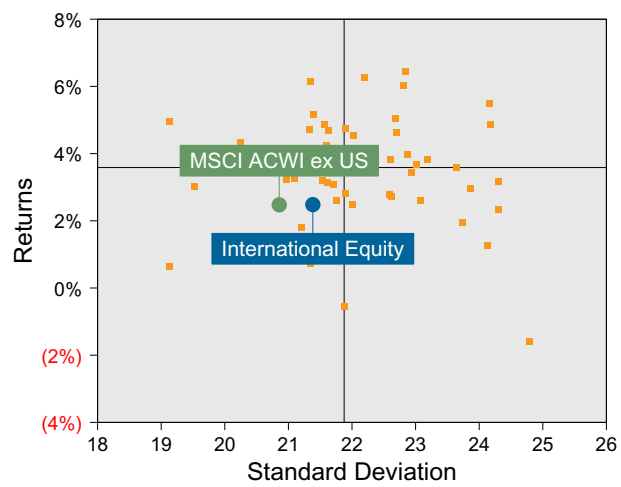


10th Percentile	9.04	15.69	0.14	15.62	5.36	5.18
25th Percentile	8.14	14.18	(1.67)	14.32	4.65	4.38
Median	7.43	11.93	(3.24)	13.38	3.58	3.33
75th Percentile	6.60	10.23	(5.01)	12.57	2.66	2.57
90th Percentile	6.02	8.63	(6.11)	10.83	1.21	1.05

Relative Return vs MSCI ACWI ex US



EF- International Equity (Gross) Annualized Five Year Risk vs Return

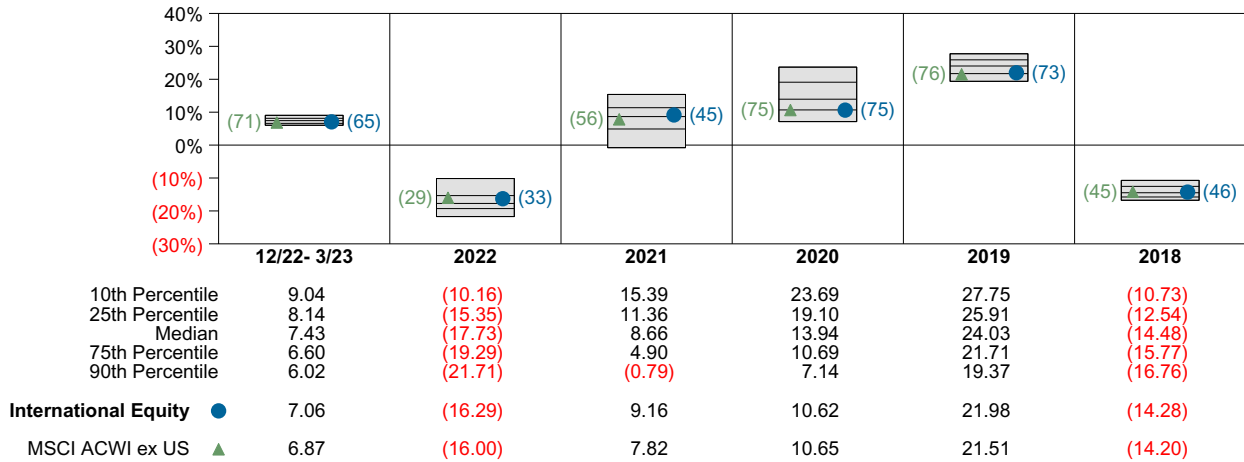


International Equity Return Analysis Summary

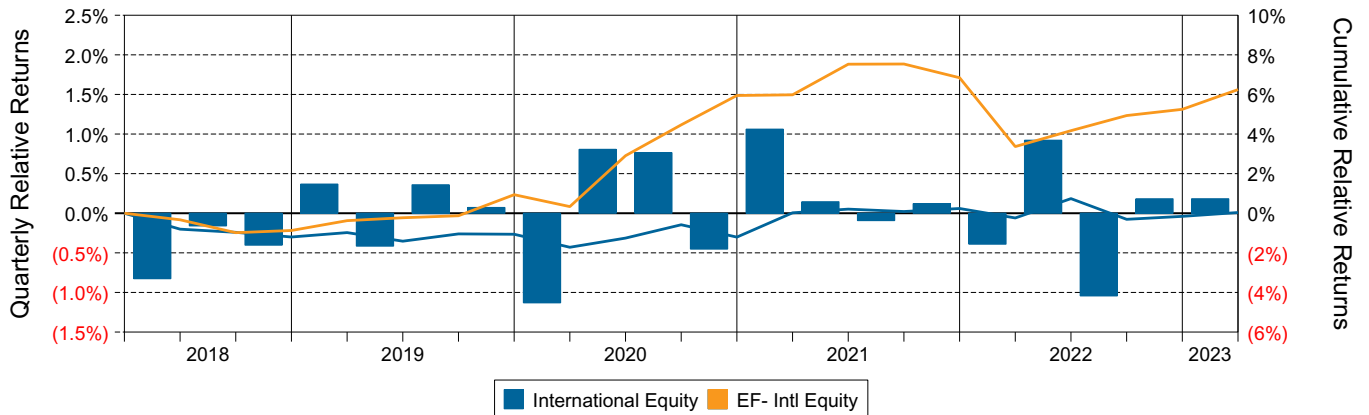
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

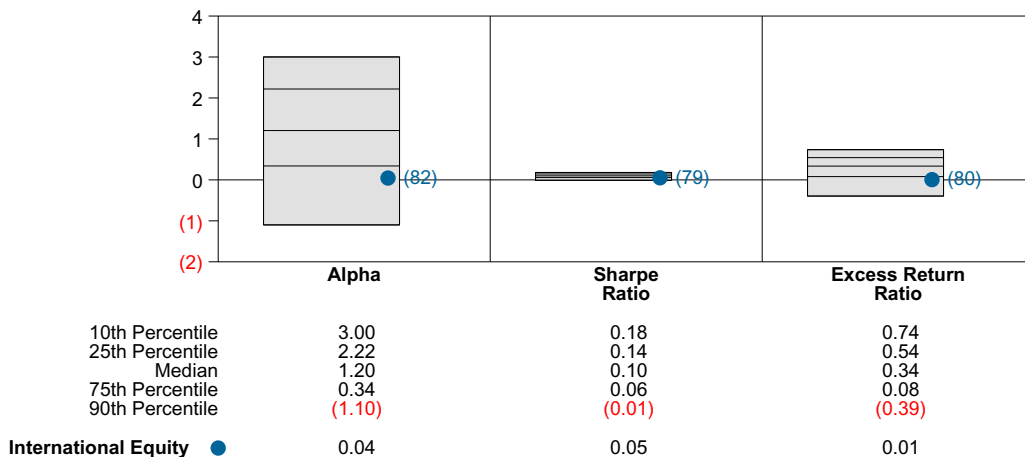
Performance vs EF- International Equity (Gross)



Cumulative and Quarterly Relative Returns vs MSCI ACWI ex US



Risk Adjusted Return Measures vs MSCI ACWI ex US Rankings Against EF- International Equity (Gross) Five Years Ended March 31, 2023

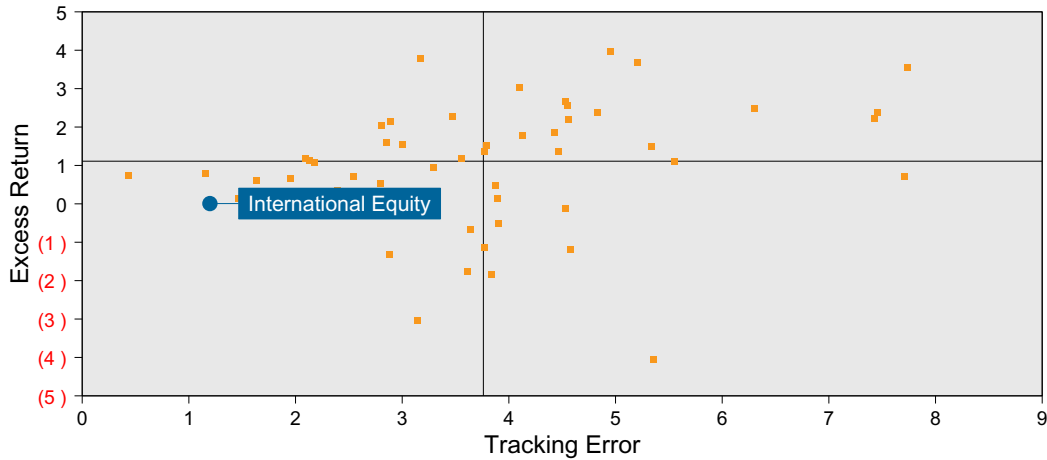


International Equity Risk Analysis Summary

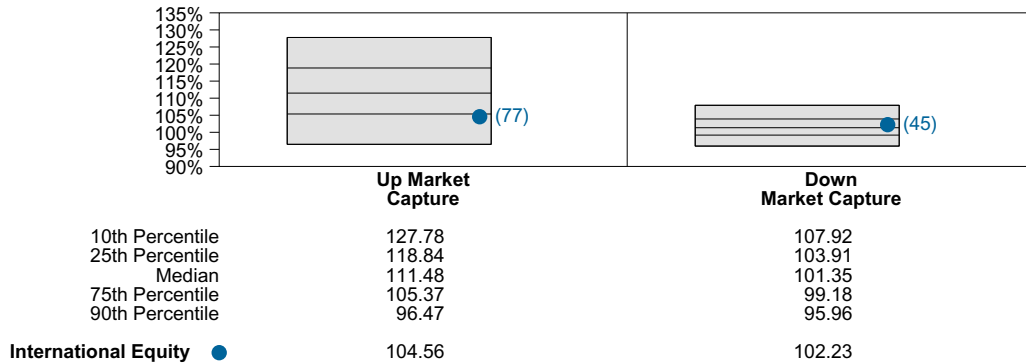
Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows Up and Down Market Capture. The last two charts show the ranking of the manager's risk statistics versus the peer group.

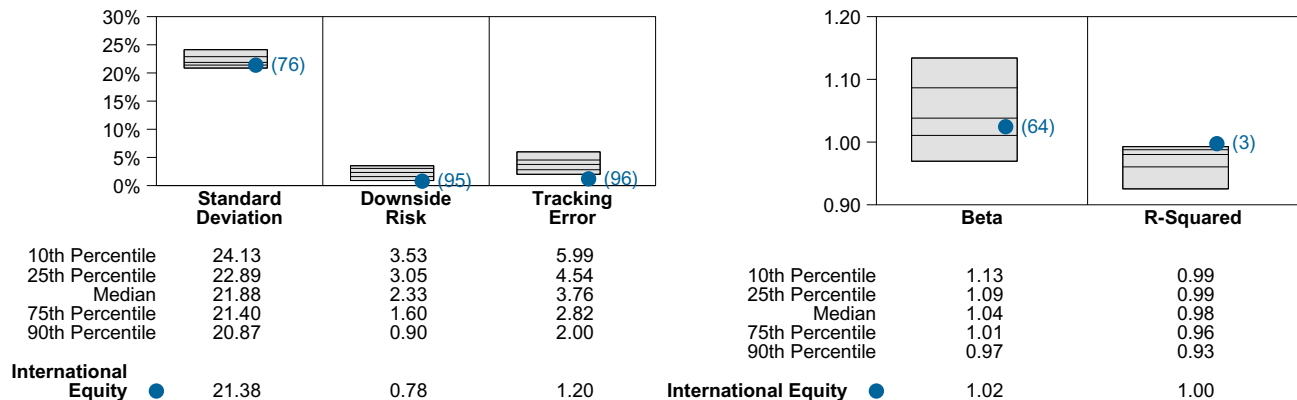
Risk Analysis vs EF- International Equity (Gross) Five Years Ended March 31, 2023



Market Capture vs MSCI ACWI ex US Rankings Against EF- International Equity (Gross) Five Years Ended March 31, 2023



Risk Statistics Rankings vs MSCI ACWI ex US Rankings Against EF- International Equity (Gross) Five Years Ended March 31, 2023

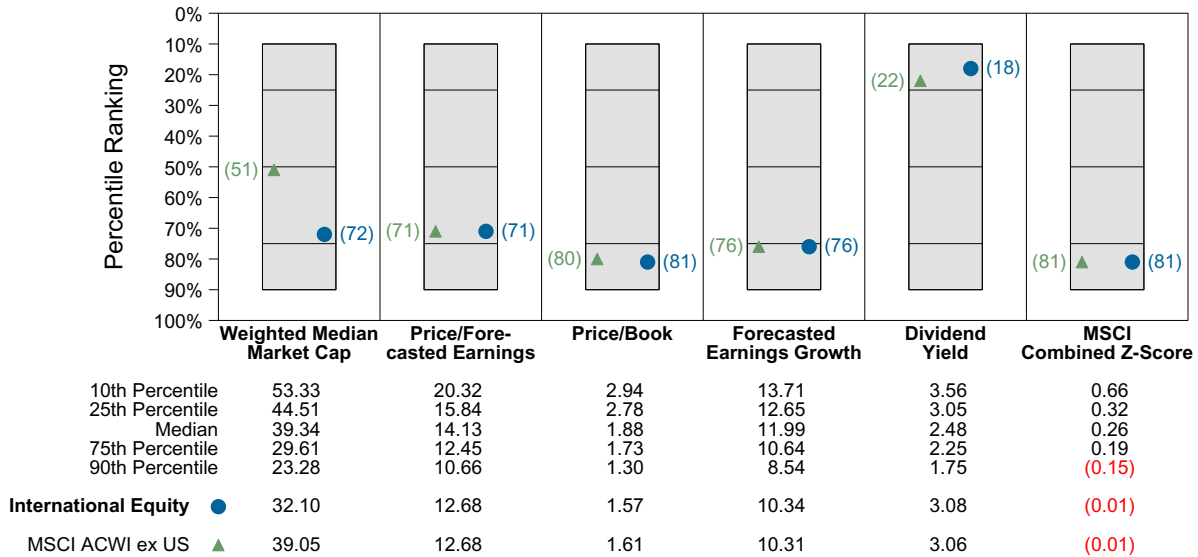


International Equity Equity Characteristics Analysis Summary

Portfolio Characteristics

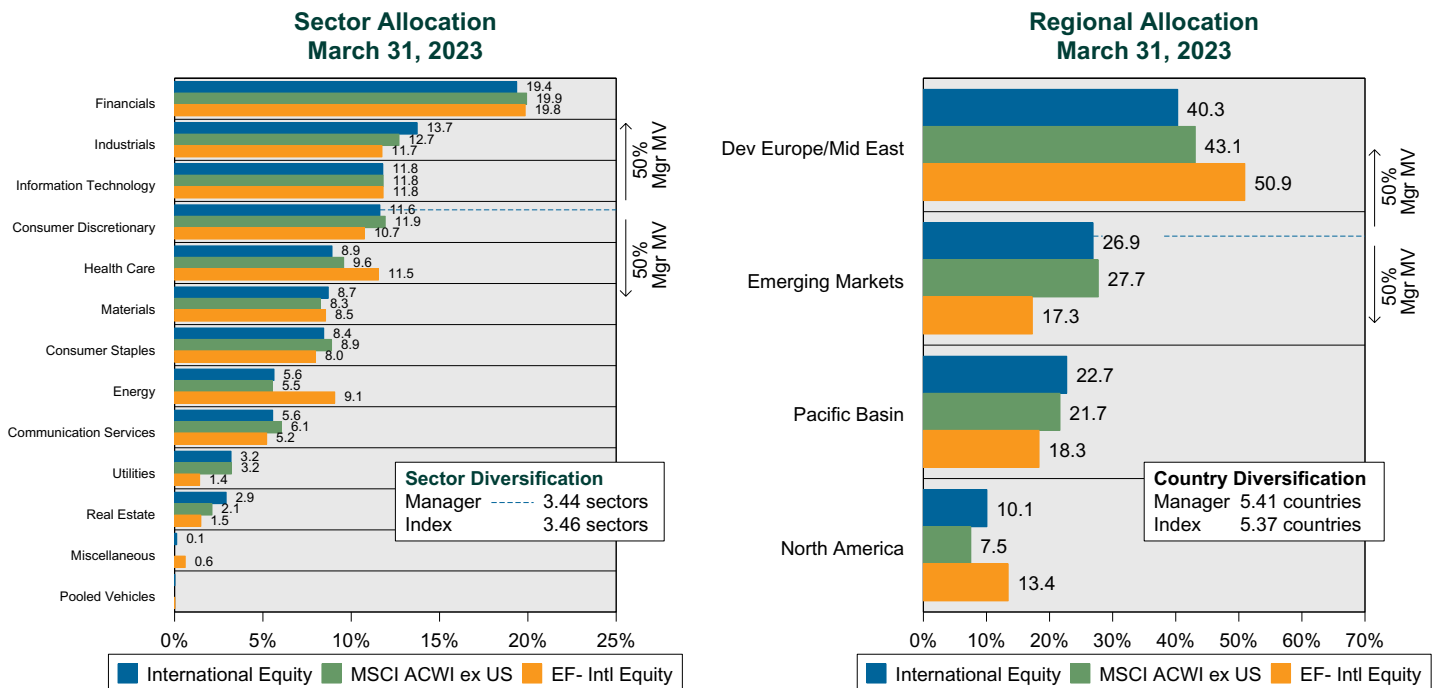
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Portfolio Characteristics Percentile Rankings Rankings Against EF- International Equity as of March 31, 2023



Sector Weights

The graph below contrasts the manager's sector weights with those of the benchmark and median sector weights across the members of the peer group. The magnitude of sector weight differences from the index and the manager's sector diversification are also shown. The regional allocation chart compares the manager's geographical region weights with those of the benchmark as well as the median region weights of the peer group.



Total Fixed Income Period Ended March 31, 2023

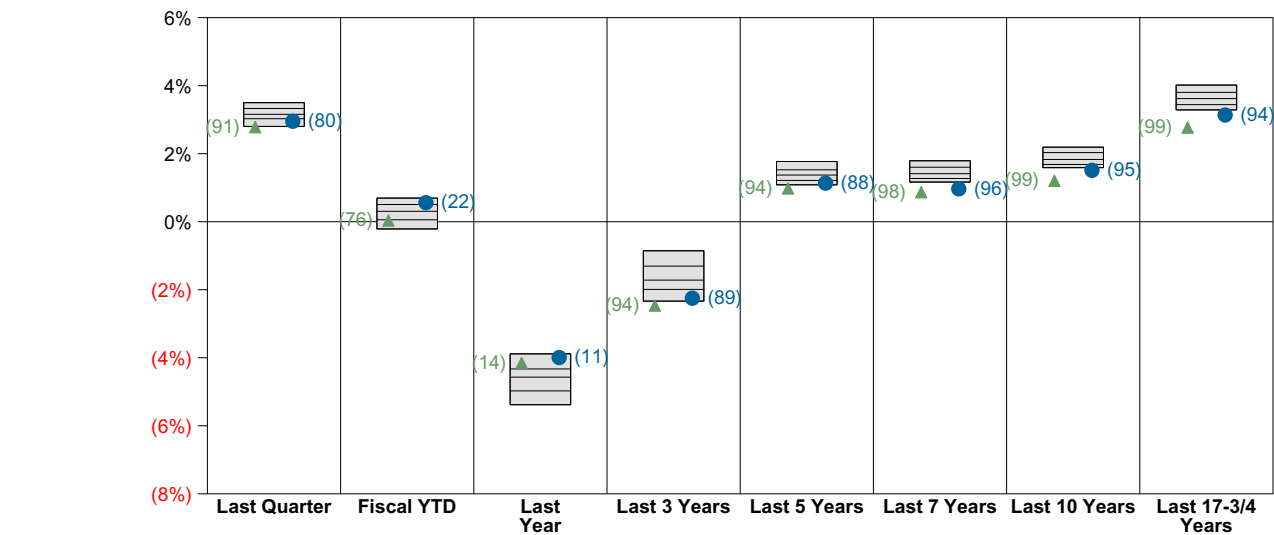
Benchmark Definition

Total Fixed Income Benchmark consists of 100% PFSF Fixed Income Benchmark through December 31, 2018, 90% Bloomberg U.S. Aggregate and 10% Bloomberg Gov/Credit 1-3 Yrs through March 31, 2021, 89% Bloomberg U.S. Aggregate and 11% Bloomberg Gov/Credit 1-3 Yrs through June 30, 2021 and 88% Bloomberg U.S. Aggregate and 12% Bloomberg Gov/Credit 1-3 Yrs, thereafter.

Quarterly Summary and Highlights

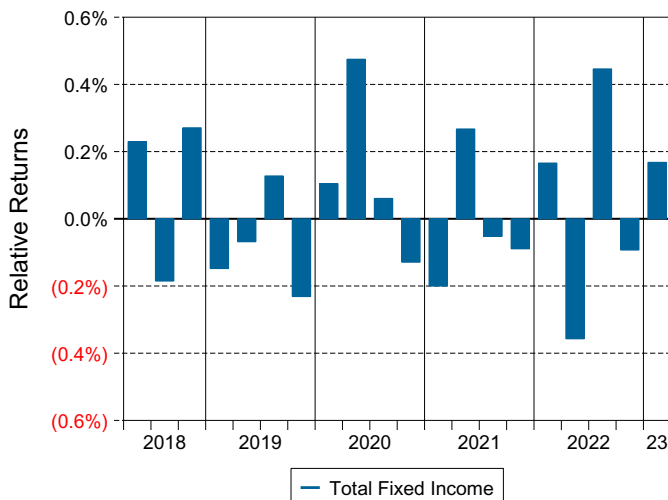
- Total Fixed Income's portfolio posted a 2.95% return for the quarter placing it in the 80 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 11 percentile for the last year.
- Total Fixed Income's portfolio outperformed the Total Fixed Income Benchmark by 0.17% for the quarter and outperformed the Total Fixed Income Benchmark for the year by 0.16%.

Performance vs Callan Core Bond Fixed Income (Gross)

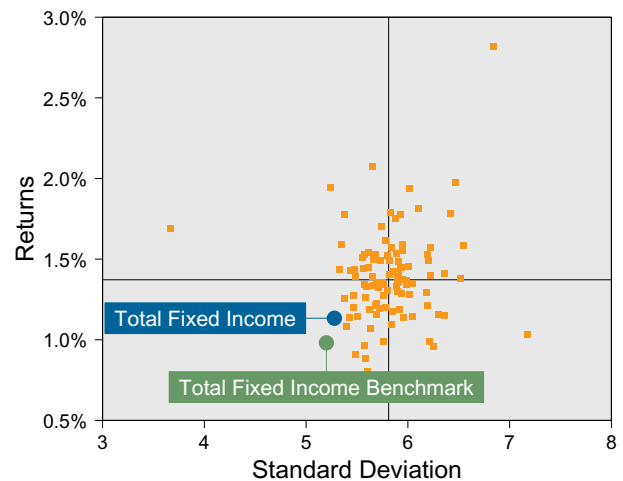


	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years	Last 17-3/4 Years
10th Percentile	3.50	0.69	(3.88)	(0.86)	1.77	1.79	2.19	4.02
25th Percentile	3.33	0.51	(4.33)	(1.31)	1.53	1.60	2.03	3.80
Median	3.16	0.31	(4.57)	(1.72)	1.37	1.41	1.83	3.62
75th Percentile	3.03	0.06	(4.97)	(1.99)	1.21	1.27	1.68	3.44
90th Percentile	2.80	(0.21)	(5.38)	(2.34)	1.08	1.17	1.59	3.29
Total Fixed Income ●	2.95	0.56	(3.99)	(2.25)	1.13	0.97	1.51	3.14
Total Fixed Income Benchmark ▲	2.78	0.04	(4.15)	(2.46)	0.98	0.87	1.21	2.77

Relative Returns vs Total Fixed Income Benchmark



Callan Core Bond Fixed Income (Gross) Annualized Five Year Risk vs Return

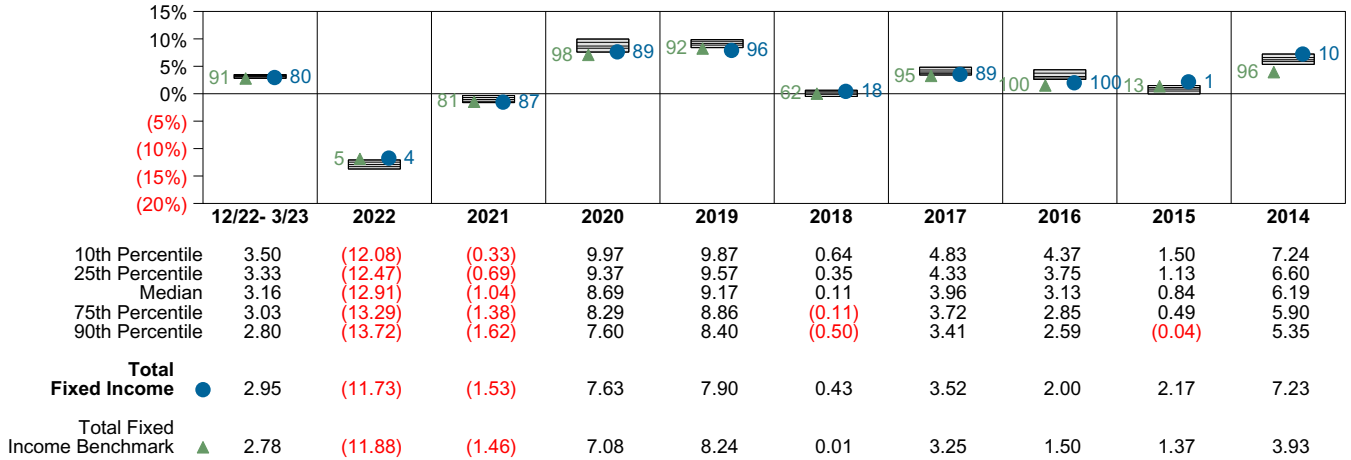


Total Fixed Income Return Analysis Summary

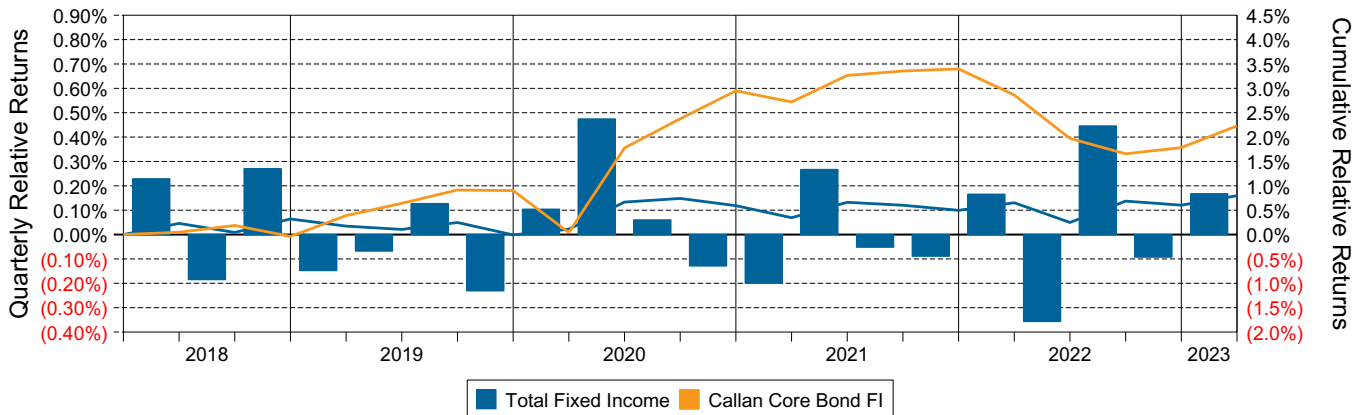
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

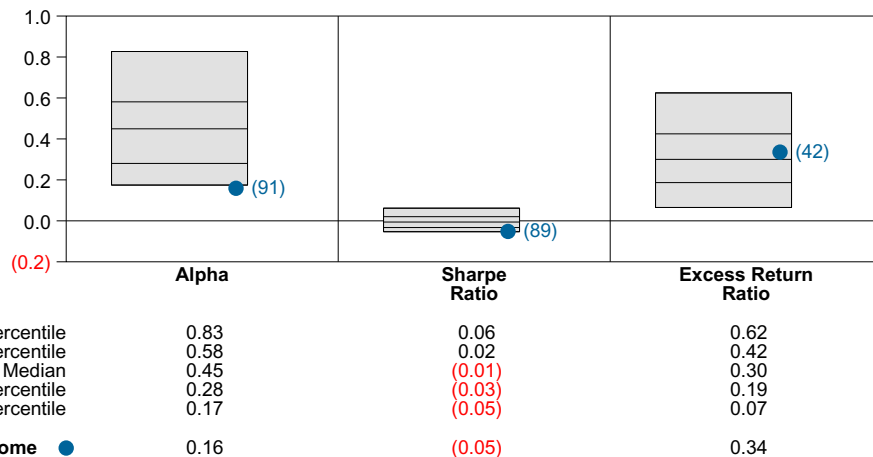
Performance vs Callan Core Bond Fixed Income (Gross)



Cumulative and Quarterly Relative Returns vs Total Fixed Income Benchmark



Risk Adjusted Return Measures vs Total Fixed Income Benchmark Rankings Against Callan Core Bond Fixed Income (Gross) Five Years Ended March 31, 2023

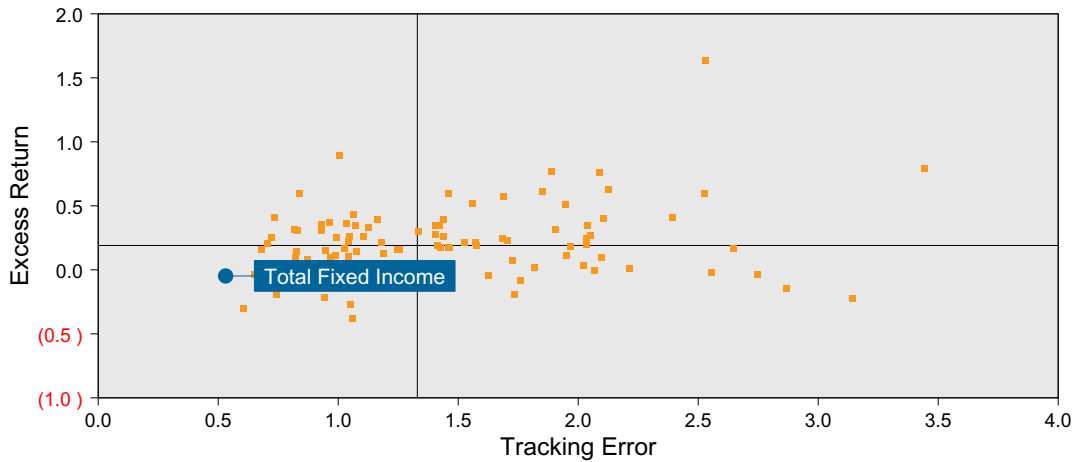


Total Fixed Income Risk Analysis Summary

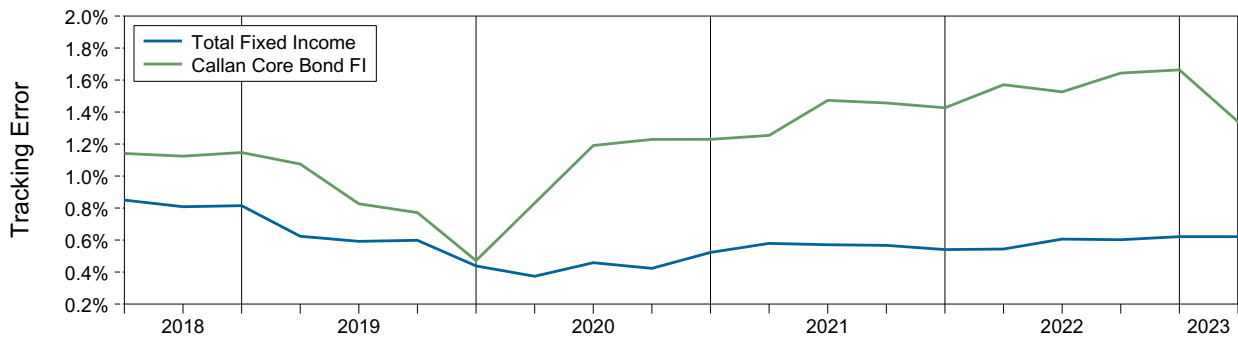
Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

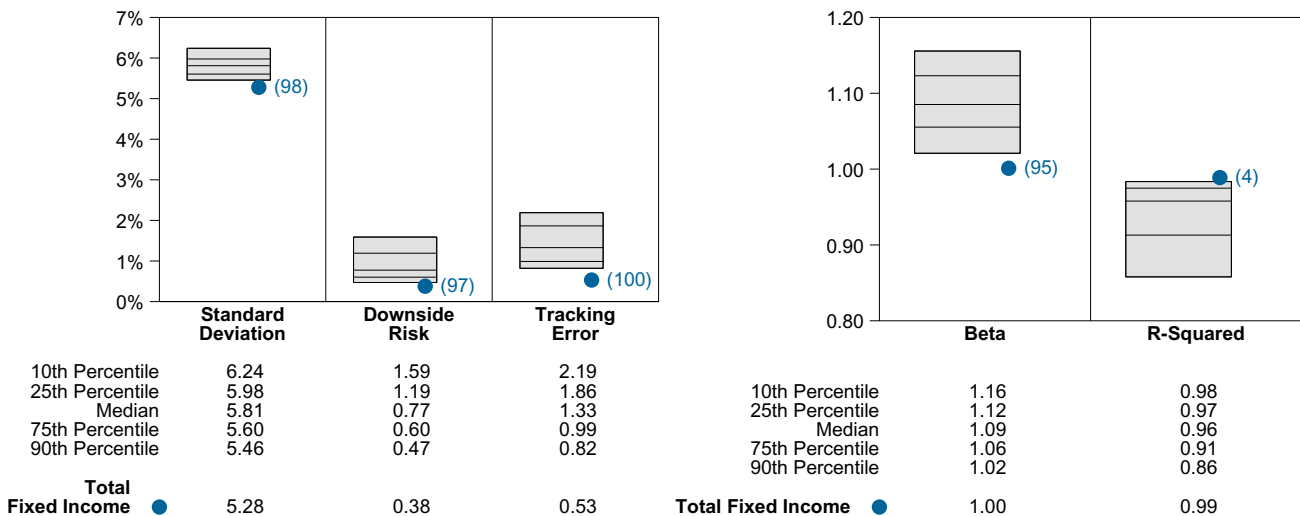
Risk Analysis vs Callan Core Bond Fixed Income (Gross) Five Years Ended March 31, 2023



Rolling 12 Quarter Tracking Error vs Total Fixed Income Benchmark



Risk Statistics Rankings vs Total Fixed Income Benchmark Rankings Against Callan Core Bond Fixed Income (Gross) Five Years Ended March 31, 2023

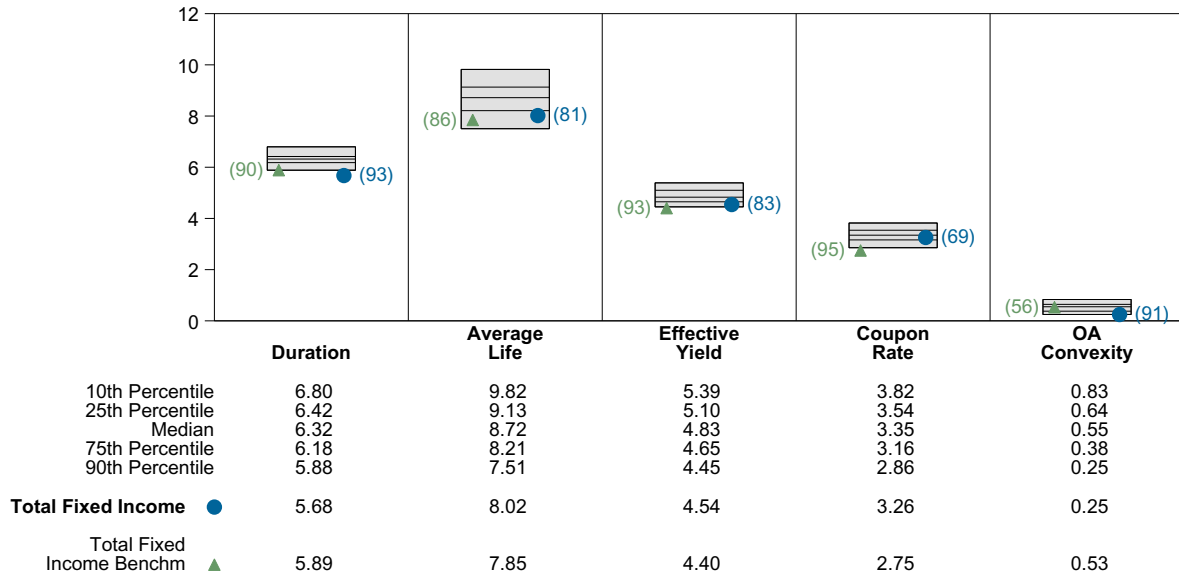


Total Fixed Income Bond Characteristics Analysis Summary

Portfolio Characteristics

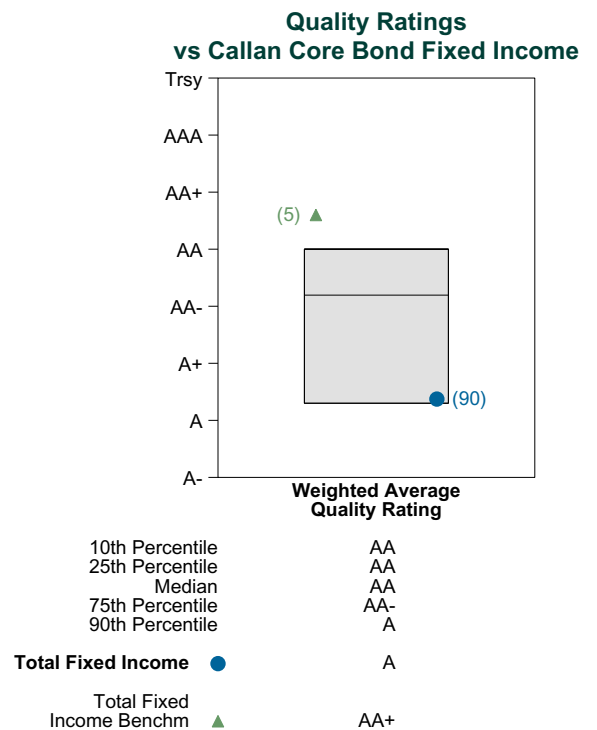
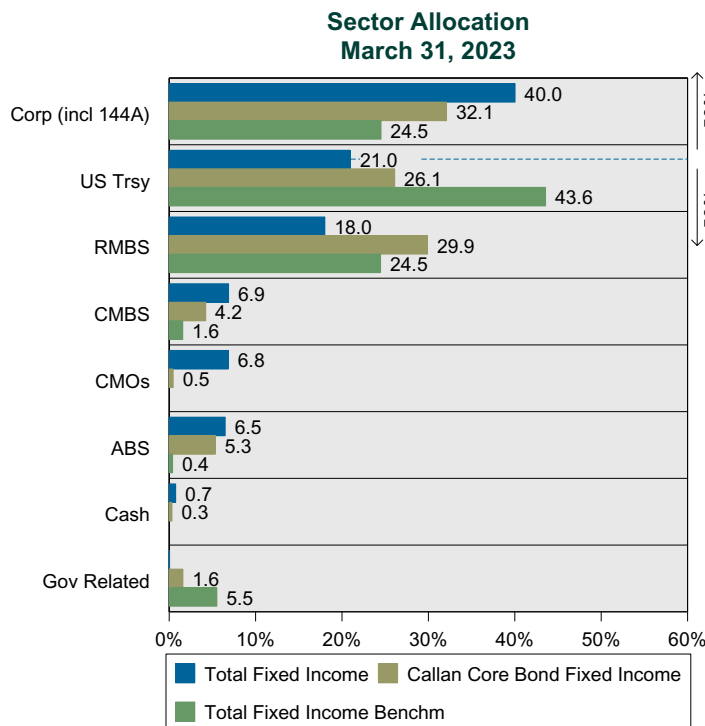
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style.

Fixed Income Portfolio Characteristics Rankings Against Callan Core Bond Fixed Income as of March 31, 2023



Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

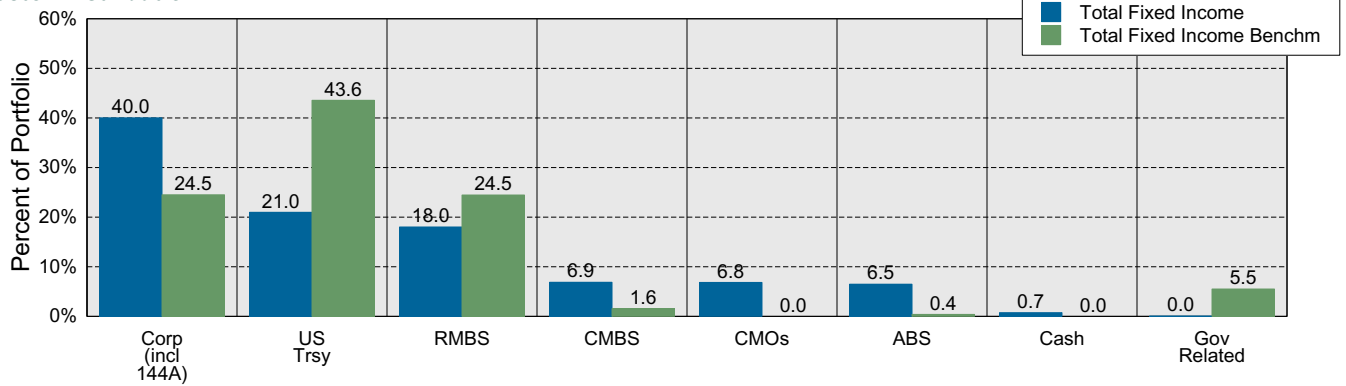


Total Fixed Income Portfolio Characteristics Summary As of March 31, 2023

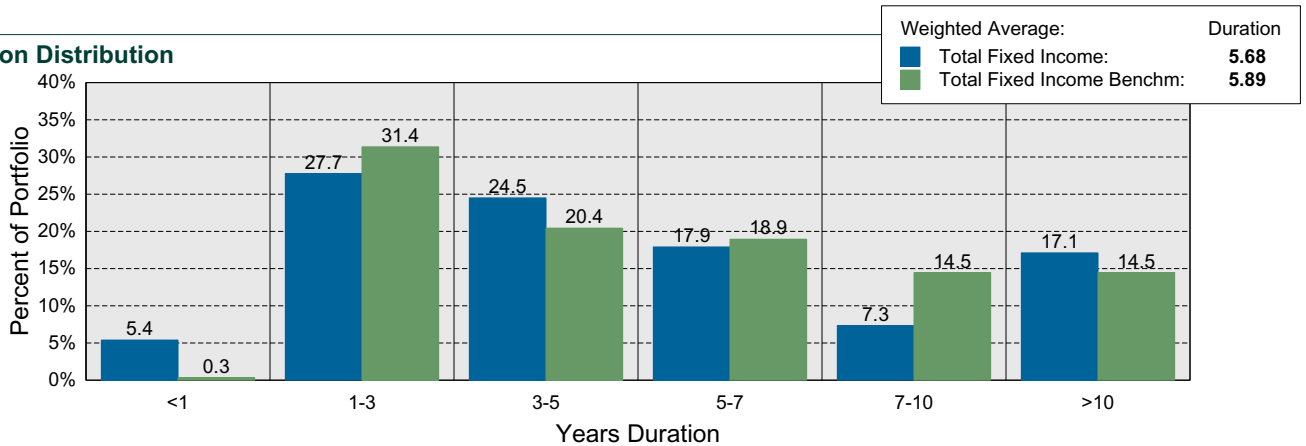
Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

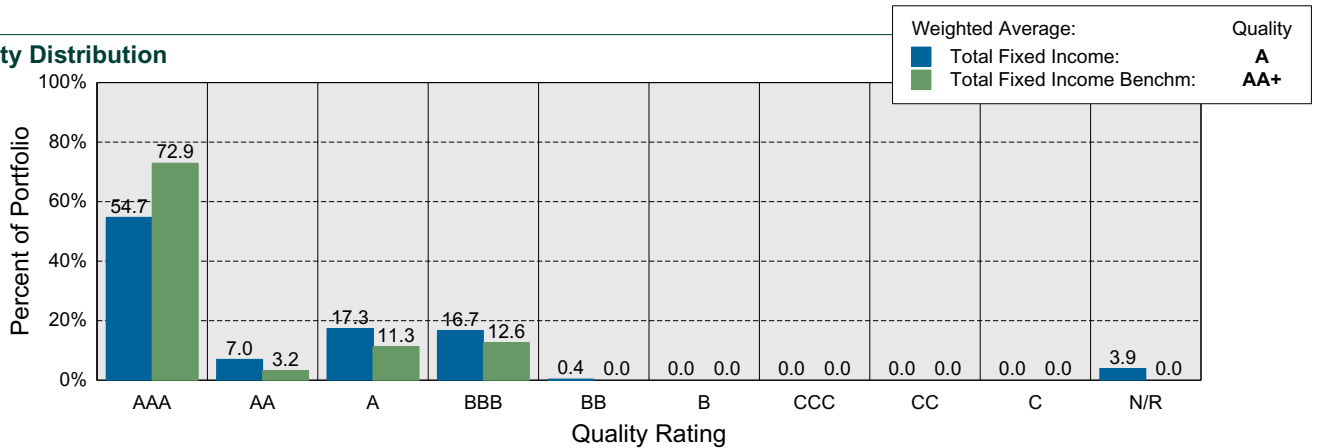
Sector Distribution



Duration Distribution



Quality Distribution



Colorado Treasurer's Portfolio

Period Ended March 31, 2023

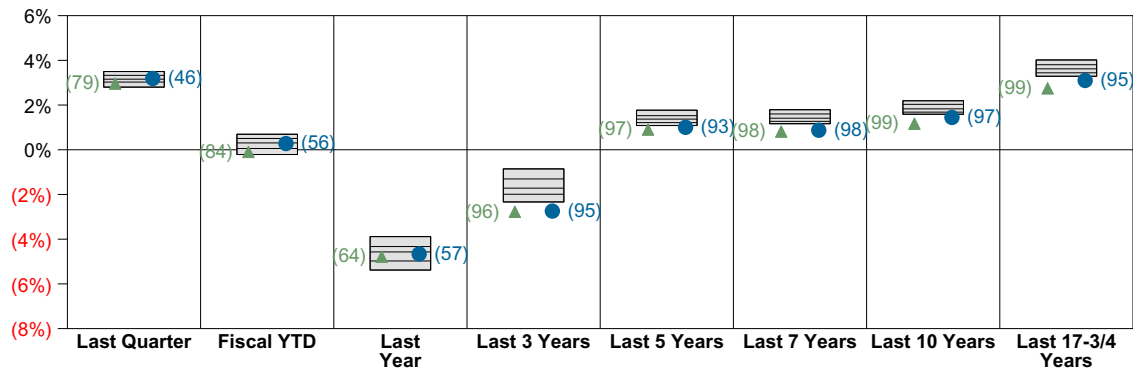
Investment Philosophy

The Fixed Income Portfolio is managed by the Colorado State Treasury and was initially funded in 3Q 2005. The PSPF Custom Benchmark consisted of 37% U.S. Treasury 1-10 Year Index, 34% Mortgages 0-10 Year WAL Index, 19% AAA U.S. Agencies 1-10 Year Index and 10% U.S. Corporates AAA Rated 1-10 Years Index through March 31, 2017 and the Bloomberg U.S. Aggregate thereafter. It is important to note that the Fixed Income Portfolio has historically been managed under a buy and hold mandate for investment yield. The Callan Core Bond Fixed Income Manager Universe used to construct the floating bar chart exhibit below, representing 77 core fixed income managers and products, is largely composed of products following a total return mandate. The School Fund bond portfolio is subject to statutorily imposed net loss restrictions. As such, relative performance comparison of the Fixed Income Portfolio to this universe may not be entirely representative of relative performance.

Quarterly Summary and Highlights

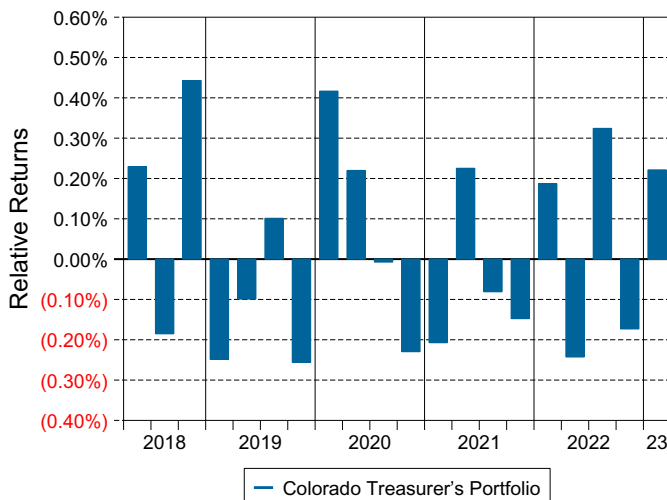
- Colorado Treasurer's Portfolio's portfolio posted a 3.19% return for the quarter placing it in the 46 percentile of the Callan Core Bond Fixed Income group for the quarter and in the 57 percentile for the last year.
- Colorado Treasurer's Portfolio's portfolio outperformed the PSPF Bond Custom Benchmark by 0.23% for the quarter and outperformed the PSPF Bond Custom Benchmark for the year by 0.12%.

Performance vs Callan Core Bond Fixed Income (Gross)

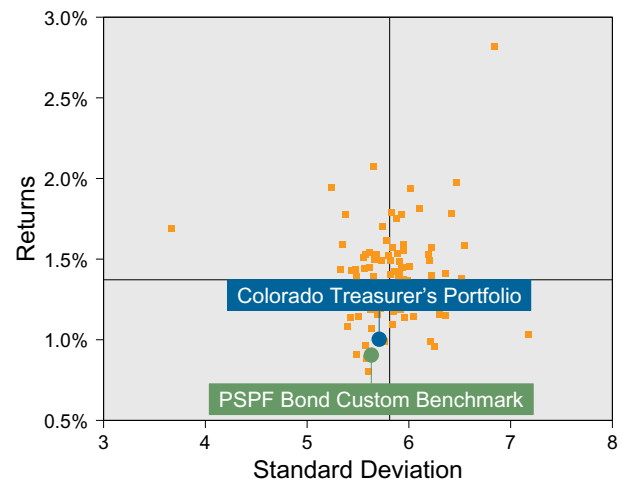


10th Percentile	3.50	0.69	(3.88)	(0.86)	1.77	1.79	2.19	4.02	
25th Percentile	3.33	0.51	(4.33)	(1.31)	1.53	1.60	2.03	3.80	
Median	3.16	0.31	(4.57)	(1.72)	1.37	1.41	1.83	3.62	
75th Percentile	3.03	0.06	(4.97)	(1.99)	1.21	1.27	1.68	3.44	
90th Percentile	2.80	(0.21)	(5.38)	(2.34)	1.08	1.17	1.59	3.29	
Colorado Treasurer's Portfolio	●	3.19	0.28	(4.66)	(2.74)	1.00	0.87	1.44	3.10
PSPF Bond Custom Benchmark	▲	2.96	(0.09)	(4.78)	(2.77)	0.91	0.81	1.17	2.75

Relative Returns vs PSPF Bond Custom Benchmark



Callan Core Bond Fixed Income (Gross) Annualized Five Year Risk vs Return

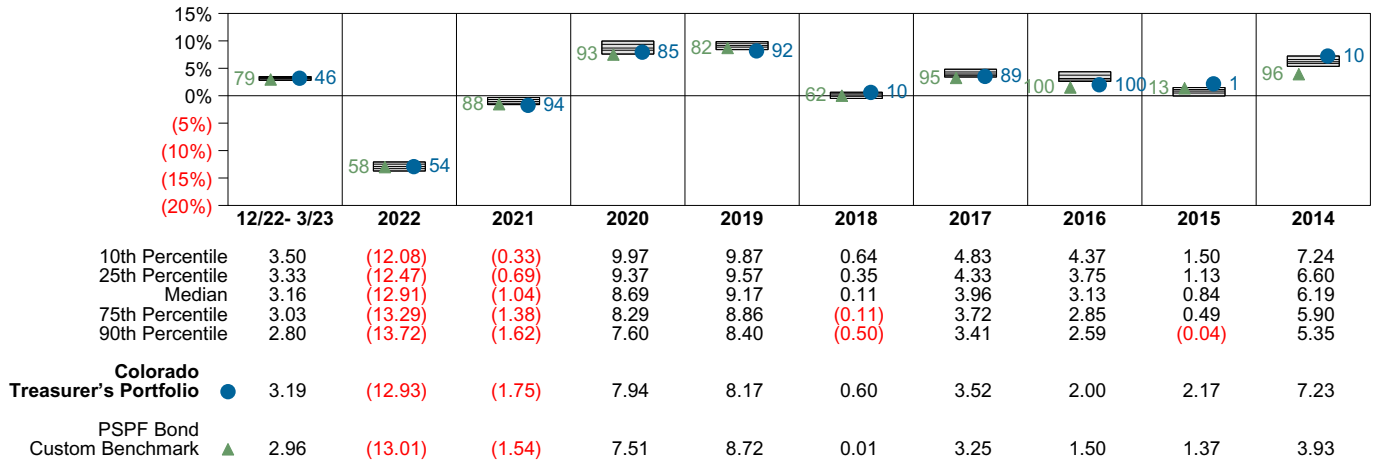


Colorado Treasurer's Portfolio Return Analysis Summary

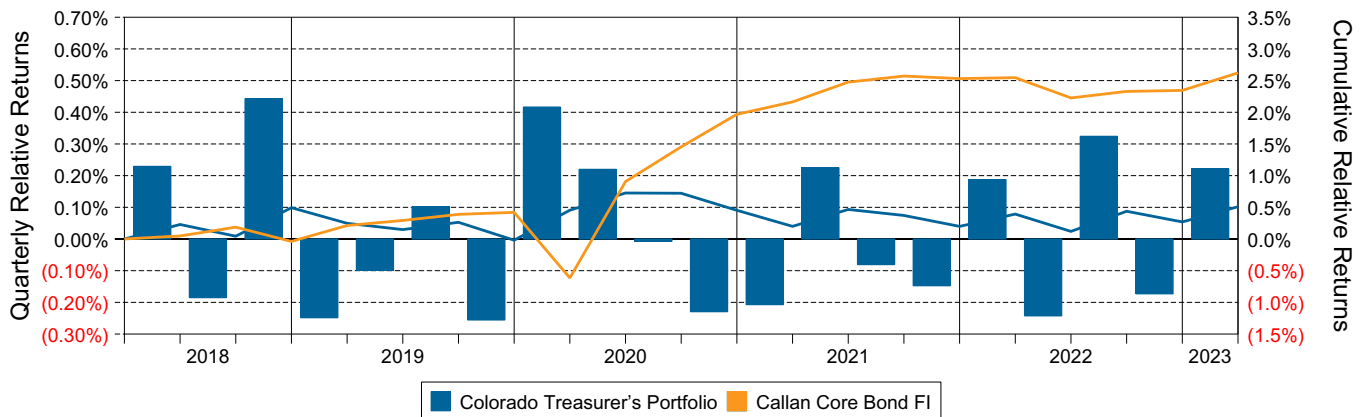
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

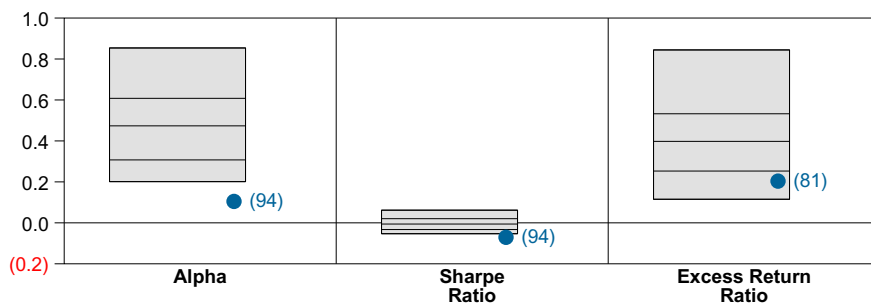
Performance vs Callan Core Bond Fixed Income (Gross)



Cumulative and Quarterly Relative Returns vs PSPF Bond Custom Benchmark



Risk Adjusted Return Measures vs PSPF Bond Custom Benchmark Rankings Against Callan Core Bond Fixed Income (Gross) Five Years Ended March 31, 2023



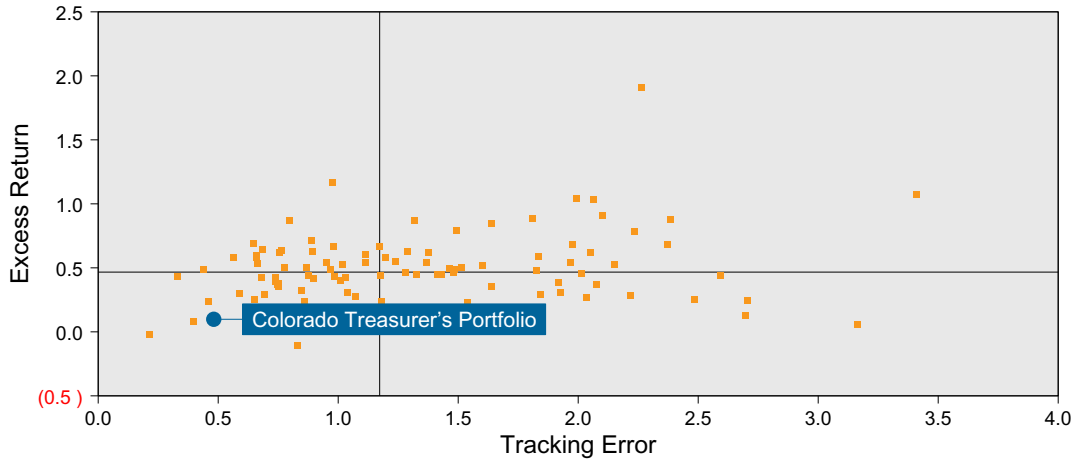
	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.85	0.06	0.84
25th Percentile	0.61	0.02	0.53
Median	0.47	(0.01)	0.40
75th Percentile	0.31	(0.03)	0.25
90th Percentile	0.20	(0.05)	0.12
Colorado Treasurer's Portfolio	● 0.10	(0.07)	0.20

Colorado Treasurer's Portfolio Risk Analysis Summary

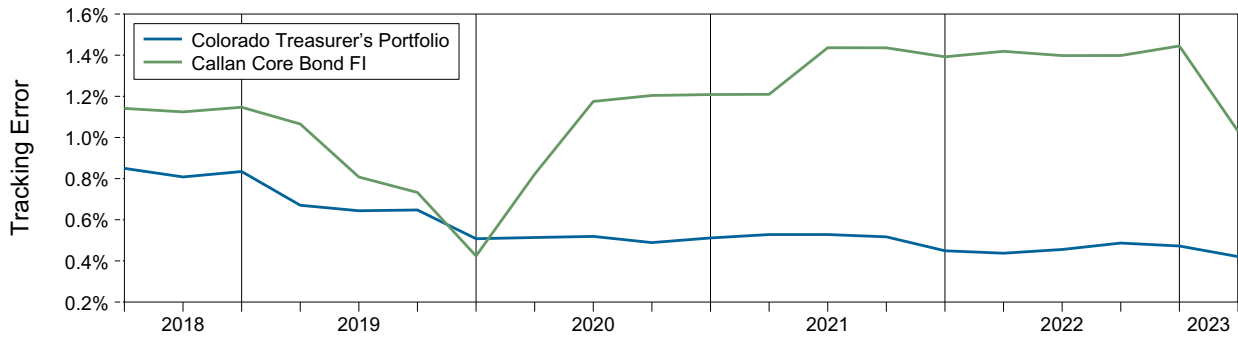
Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

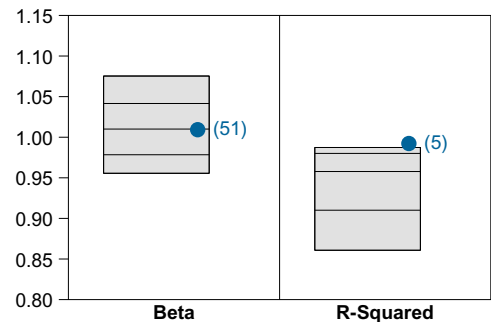
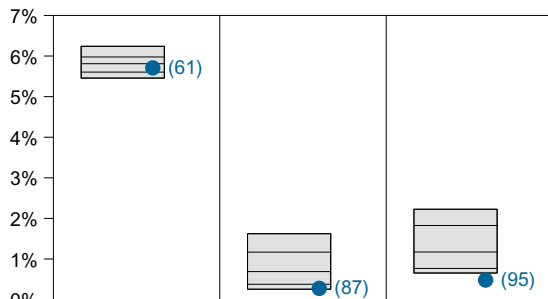
Risk Analysis vs Callan Core Bond Fixed Income (Gross) Five Years Ended March 31, 2023



Rolling 12 Quarter Tracking Error vs PSPF Bond Custom Benchmark



Risk Statistics Rankings vs PSPF Bond Custom Benchmark Rankings Against Callan Core Bond Fixed Income (Gross) Five Years Ended March 31, 2023



10th Percentile
25th Percentile
Median
75th Percentile
90th Percentile

Standard Deviation

Downside Risk

Tracking Error

10th Percentile
25th Percentile
Median
75th Percentile
90th Percentile

Beta

R-Squared

Colorado Treasurer's Portfolio

● 5.71

0.28

0.48

Colorado Treasurer's Portfolio

● 1.01

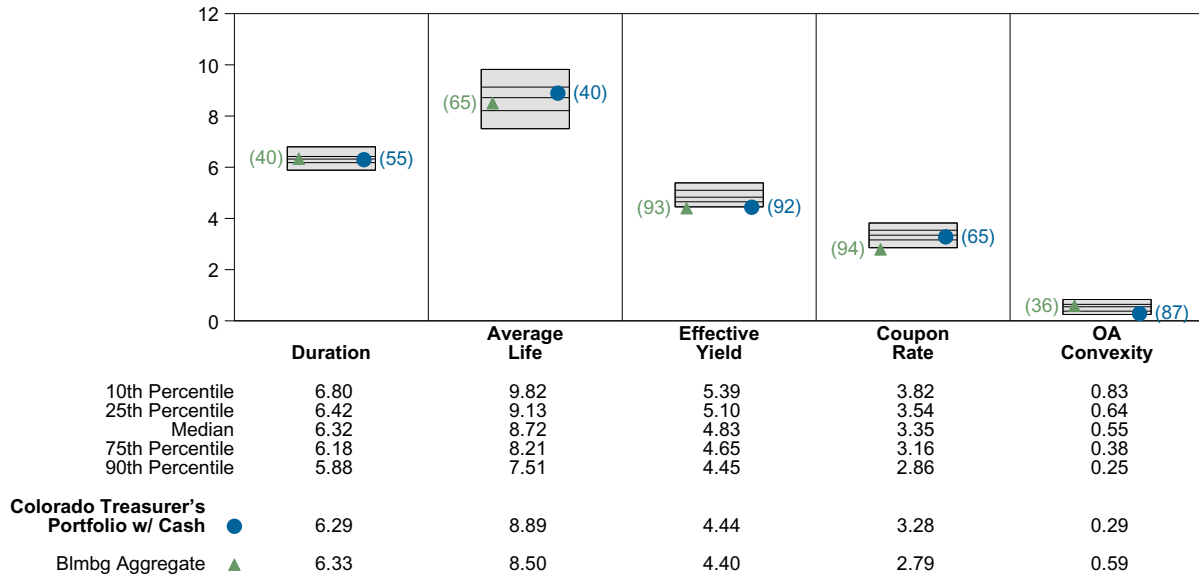
0.99

Colorado Treasurer's Portfolio w/ Cash Bond Characteristics Analysis Summary

Portfolio Characteristics

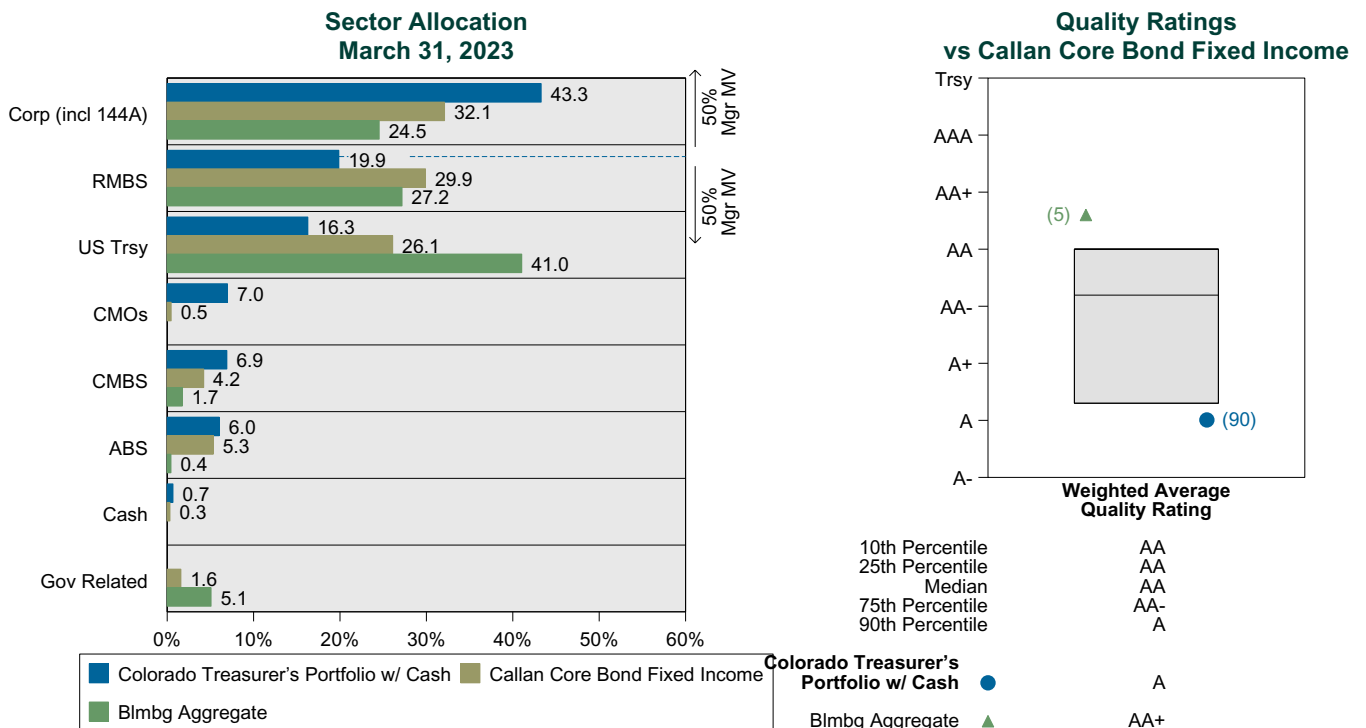
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style. Fixed Income Portfolio characteristics includes Cash Pool allocation.

Fixed Income Portfolio Characteristics Rankings Against Callan Core Bond Fixed Income as of March 31, 2023



Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

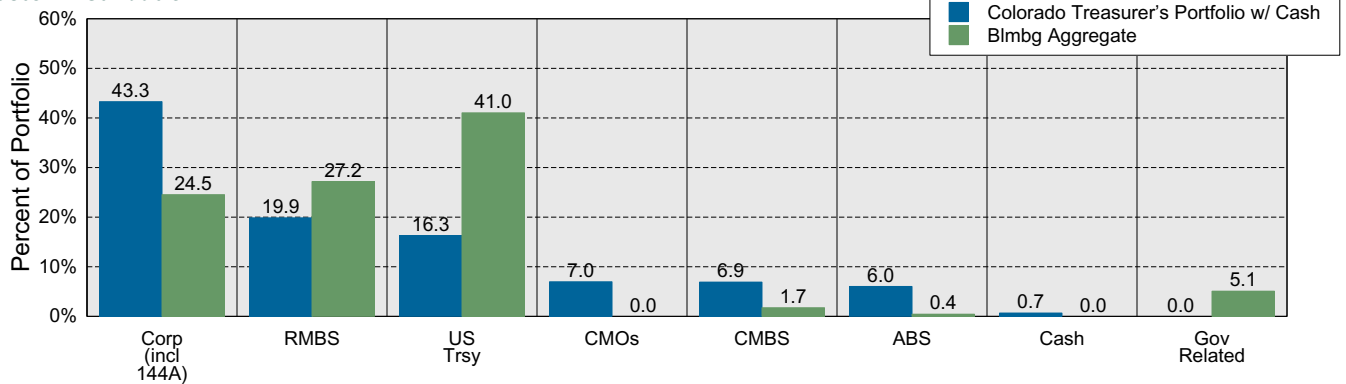


Colorado Treasurer's Portfolio w/ Cash Portfolio Characteristics Summary As of March 31, 2023

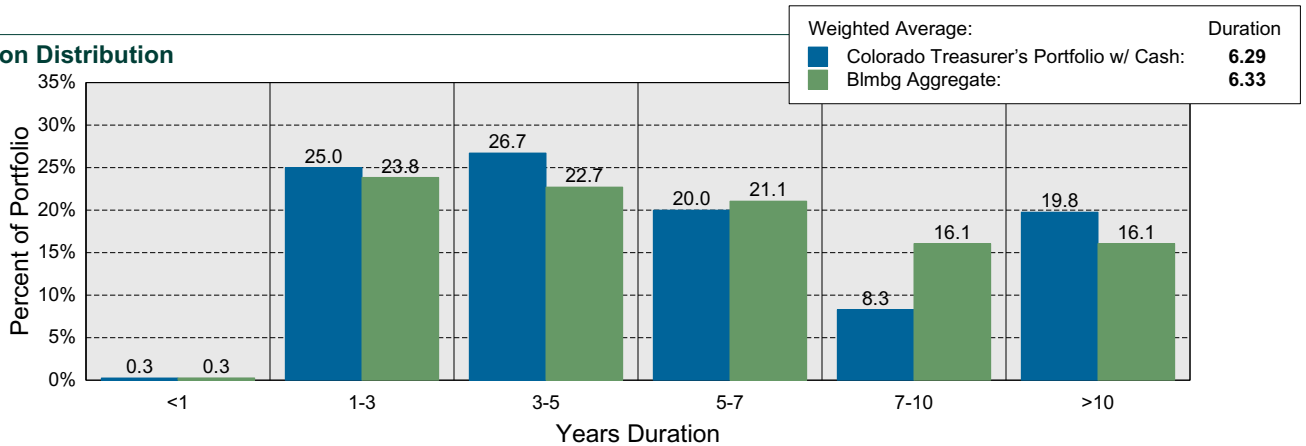
Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

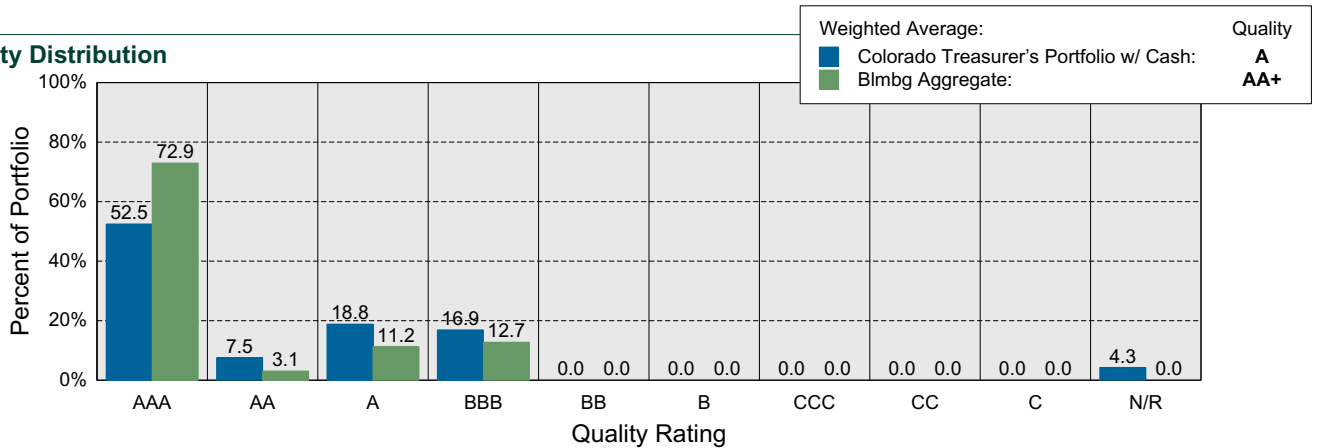
Sector Distribution



Duration Distribution



Quality Distribution



Janus Henderson Short Duration Period Ended March 31, 2023

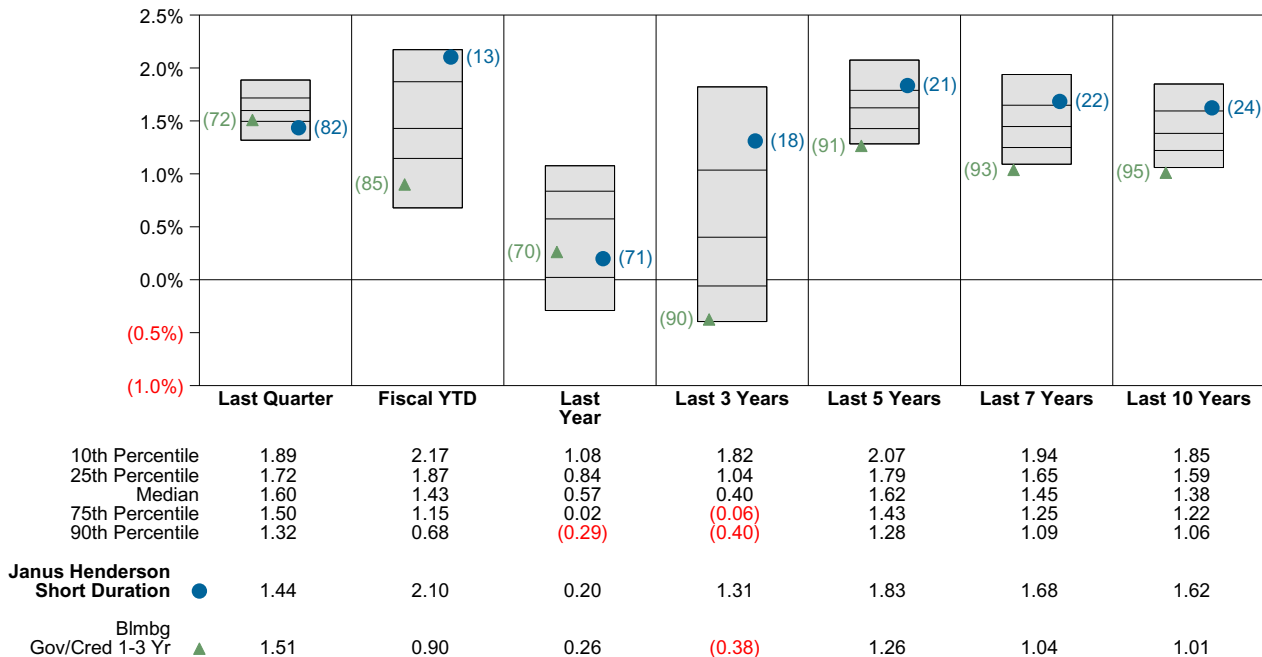
Investment Philosophy

Janus Henderson believes a bottom-up, fundamentally driven investment process that focuses on credit-oriented investments can generate risk-adjusted outperformance over time. A comprehensive bottom-up view drives decision-making at a macro level, enabling them to make informed decisions about allocations to all sectors of the fixed income universe. The Short Duration Fixed Income strategy emphasizes risk-adjusted performance and capital preservation with value generated principally from prudent credit selection and credit sector positioning. The Janus Henderson short duration portfolio was funded November 9th, 2018. Prior returns represent the manager's composite returns.

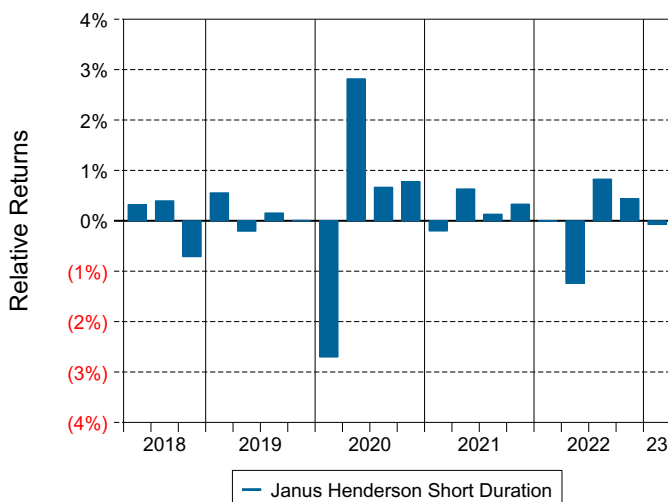
Quarterly Summary and Highlights

- Janus Henderson Short Duration's portfolio posted a 1.44% return for the quarter placing it in the 82 percentile of the Callan Short Term Fixed Income group for the quarter and in the 71 percentile for the last year.
- Janus Henderson Short Duration's portfolio underperformed the Blmbg Gov/Cred 1-3 Yr by 0.07% for the quarter and underperformed the Blmbg Gov/Cred 1-3 Yr for the year by 0.06%.

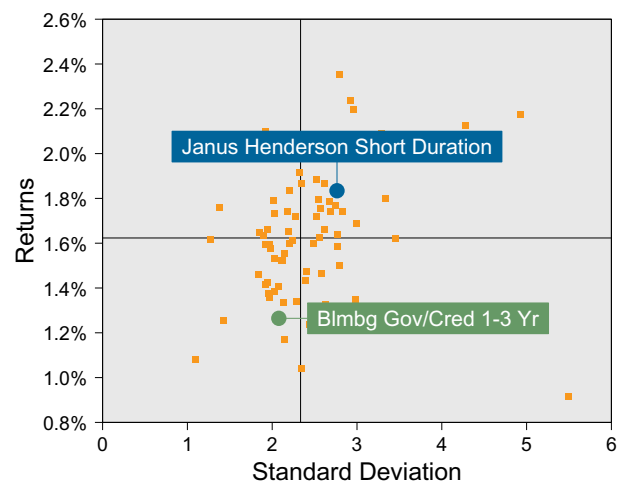
Performance vs Callan Short Term Fixed Income (Gross)



Relative Return vs Blmbg Gov/Cred 1-3 Yr



Callan Short Term Fixed Income (Gross) Annualized Five Year Risk vs Return

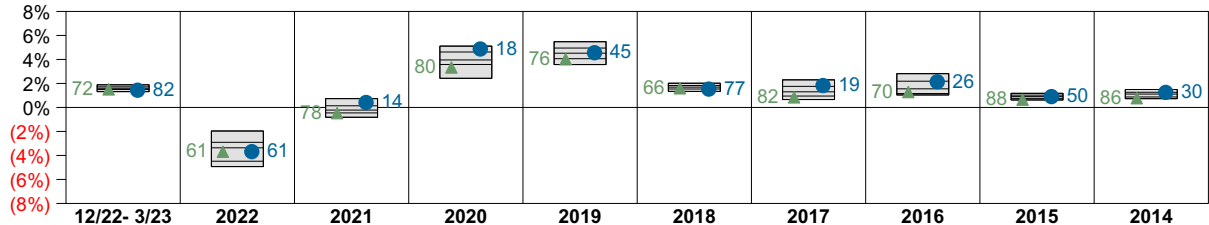


Janus Henderson Short Duration Return Analysis Summary

Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

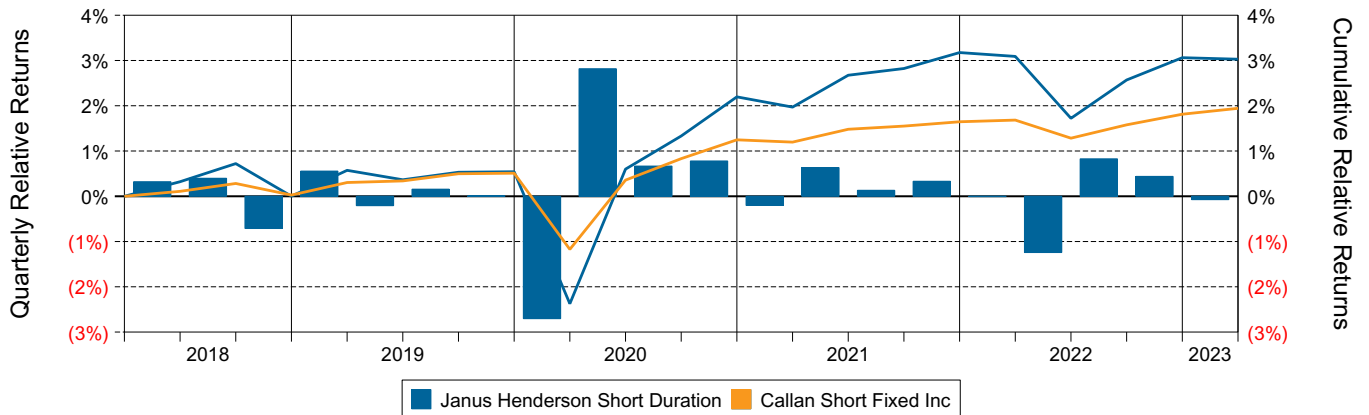
Performance vs Callan Short Term Fixed Income (Gross)



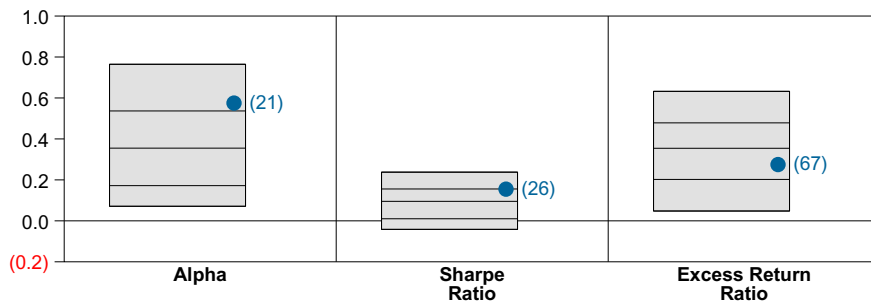
	12/22- 3/23	2022	2021	2020	2019	2018	2017	2016	2015	2014
10th Percentile	1.89	(1.96)	0.74	5.11	5.48	2.02	2.30	2.81	1.18	1.50
25th Percentile	1.72	(2.91)	0.14	4.62	4.95	1.83	1.76	2.19	1.02	1.27
Median	1.60	(3.36)	(0.22)	3.96	4.52	1.69	1.30	1.55	0.90	1.11
75th Percentile	1.50	(4.48)	(0.46)	3.58	4.06	1.54	0.95	1.16	0.76	0.87
90th Percentile	1.32	(4.93)	(0.82)	2.43	3.57	1.33	0.66	1.04	0.62	0.73

Janus Henderson Short Duration	●	1.44	(3.68)	0.41	4.87	4.56	1.53	1.82	2.13	0.90	1.25
Blmbg Gov/Cred 1-3 Yr	▲	1.51	(3.69)	(0.47)	3.33	4.03	1.60	0.84	1.28	0.65	0.77

Cumulative and Quarterly Relative Returns vs Blmbg Gov/Cred 1-3 Yr



Risk Adjusted Return Measures vs Blmbg Gov/Cred 1-3 Yr Rankings Against Callan Short Term Fixed Income (Gross) Five Years Ended March 31, 2023



10th Percentile	0.76	0.24	0.63
25th Percentile	0.54	0.16	0.48
Median	0.35	0.10	0.35
75th Percentile	0.17	0.01	0.20
90th Percentile	0.07	(0.04)	0.05

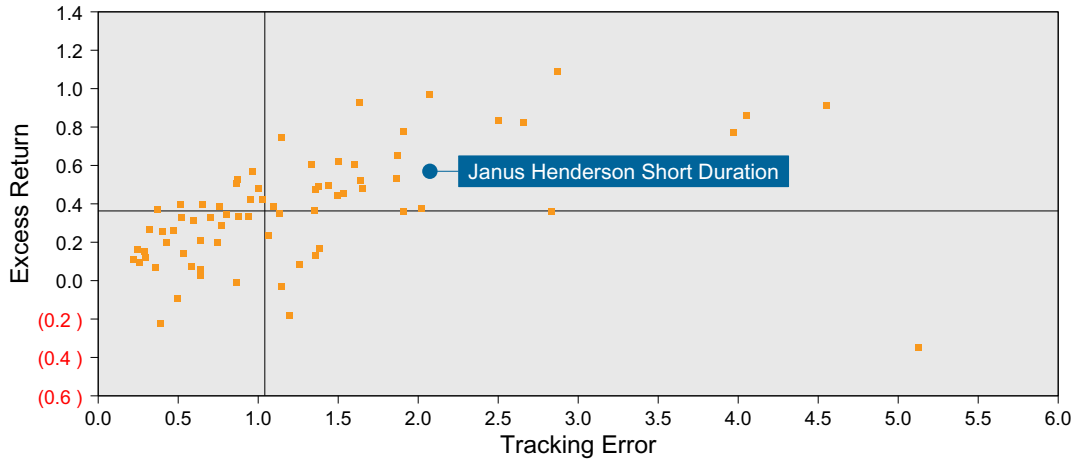
Janus Henderson Short Duration	●	0.57	0.15	0.27
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Janus Henderson Short Duration Risk Analysis Summary

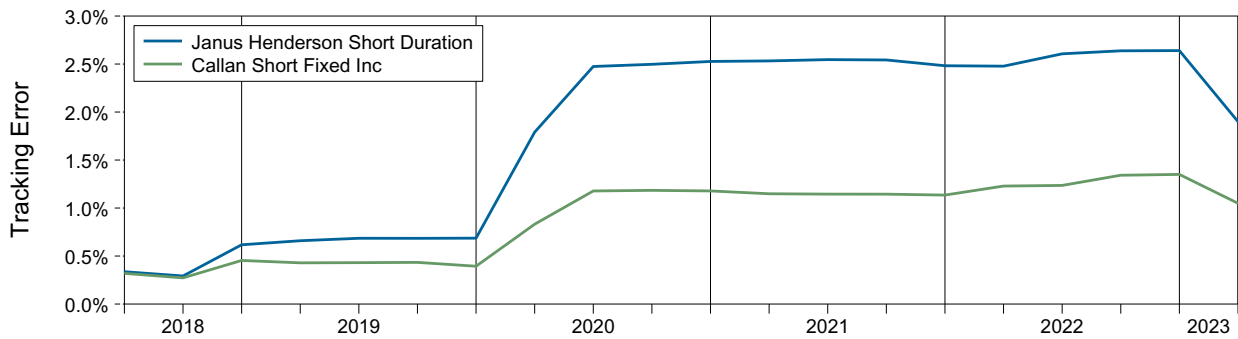
Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

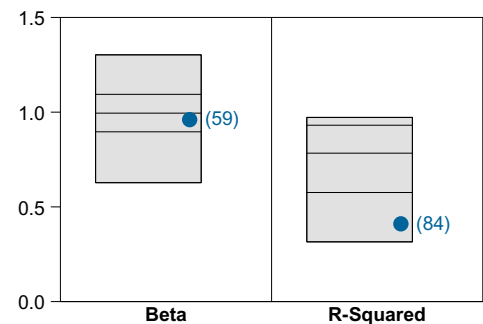
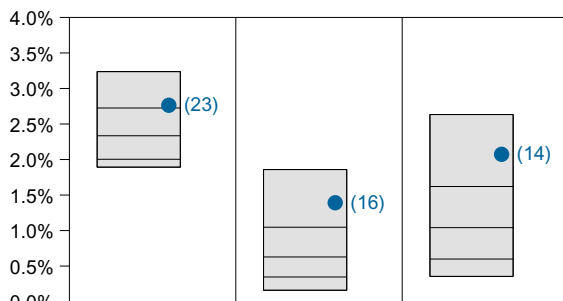
Risk Analysis vs Callan Short Term Fixed Income (Gross) Five Years Ended March 31, 2023



Rolling 12 Quarter Tracking Error vs Blmbg Gov/Cred 1-3 Yr



Risk Statistics Rankings vs Blmbg Gov/Cred 1-3 Yr Rankings Against Callan Short Term Fixed Income (Gross) Five Years Ended March 31, 2023



	Standard Deviation	Downside Risk	Tracking Error	Beta	R-Squared
10th Percentile	3.24	1.86	2.63	1.30	0.97
25th Percentile	2.73	1.05	1.62	1.09	0.93
Median	2.33	0.63	1.04	0.99	0.78
75th Percentile	2.00	0.35	0.60	0.90	0.58
90th Percentile	1.89	0.16	0.35	0.63	0.32

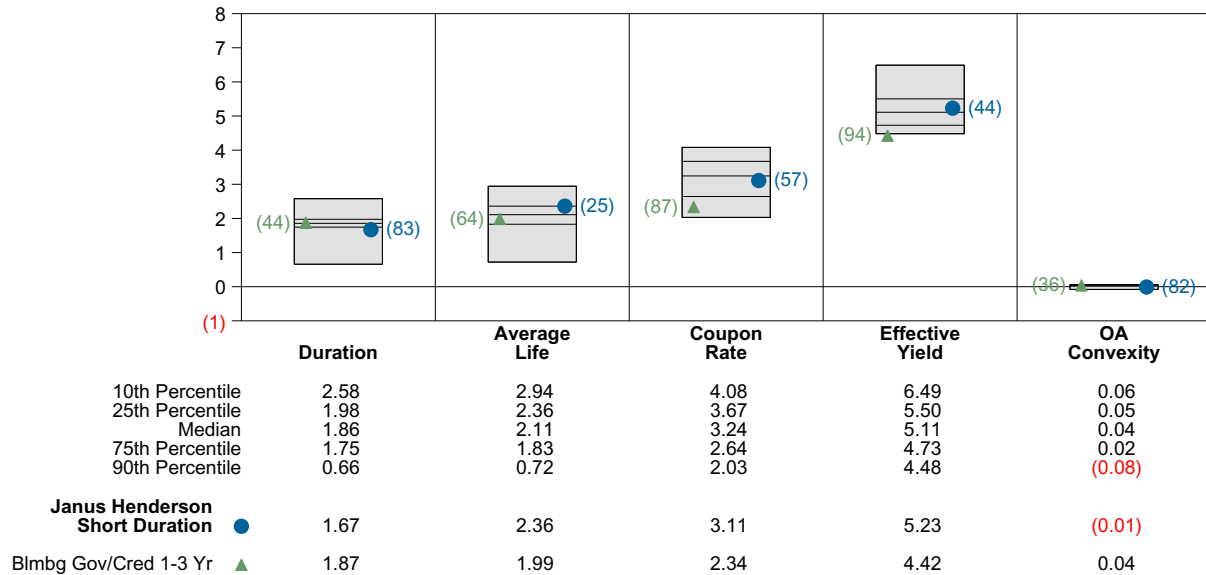
Janus Henderson Short Duration	● 2.76	1.39	2.07	● 0.96	0.41
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Janus Henderson Short Duration Bond Characteristics Analysis Summary

Portfolio Characteristics

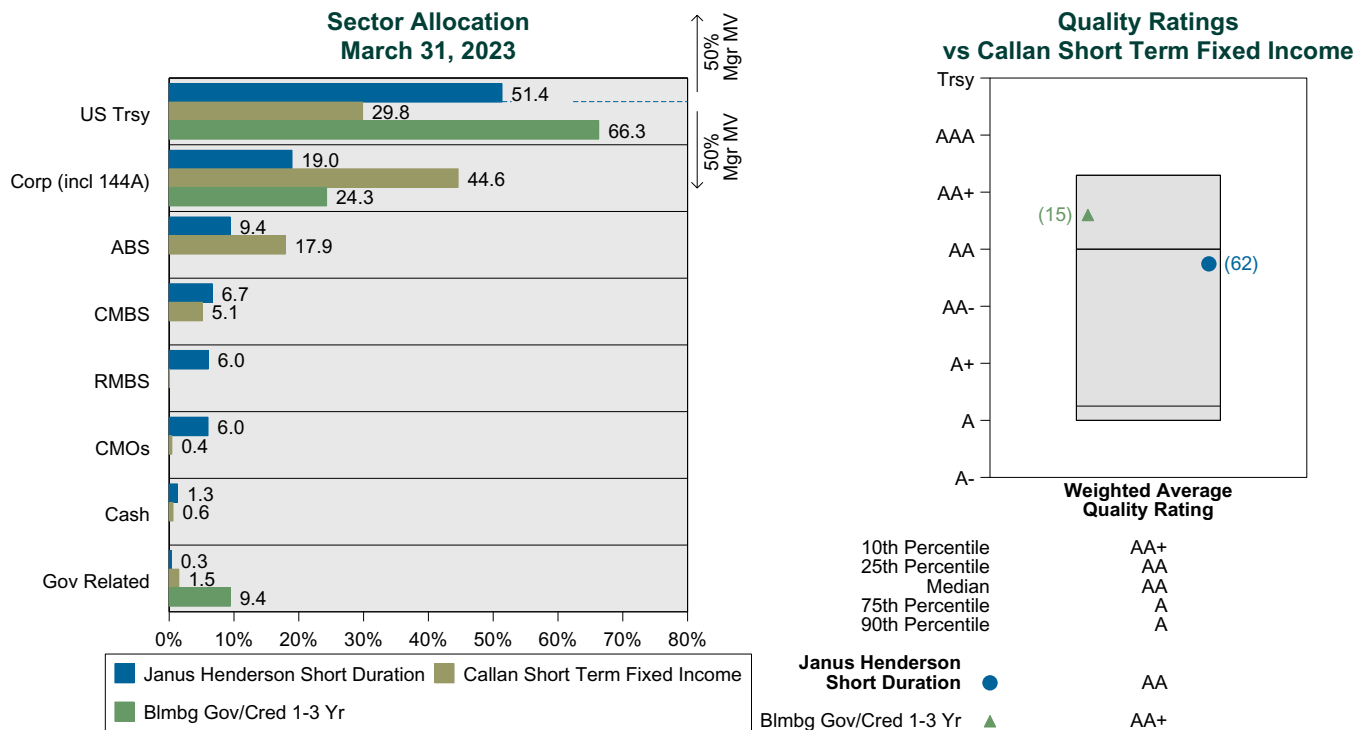
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style. Fixed Income Portfolio characteristics includes Cash Pool allocation.

Fixed Income Portfolio Characteristics Rankings Against Callan Short Term Fixed Income as of March 31, 2023



Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

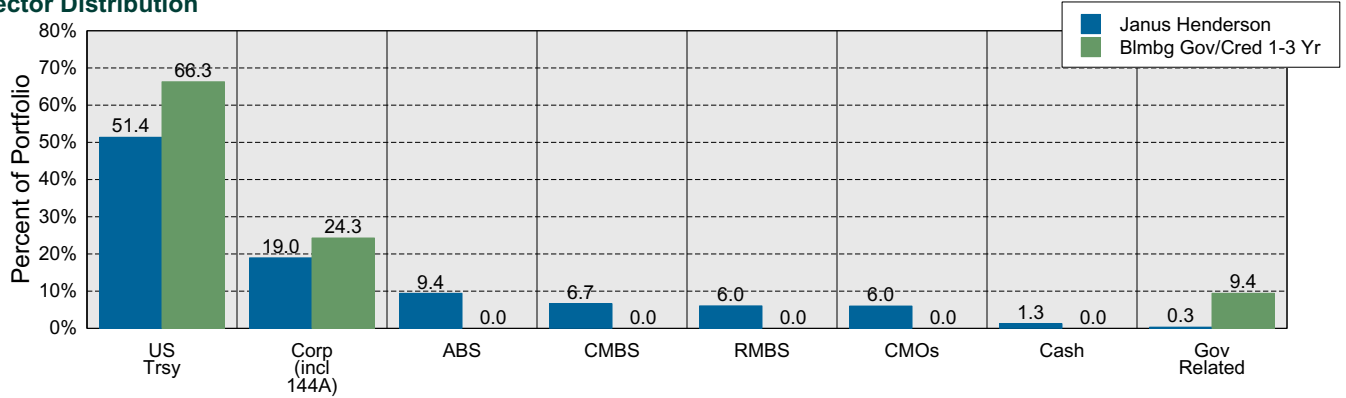


Janus Henderson Portfolio Characteristics Summary As of March 31, 2023

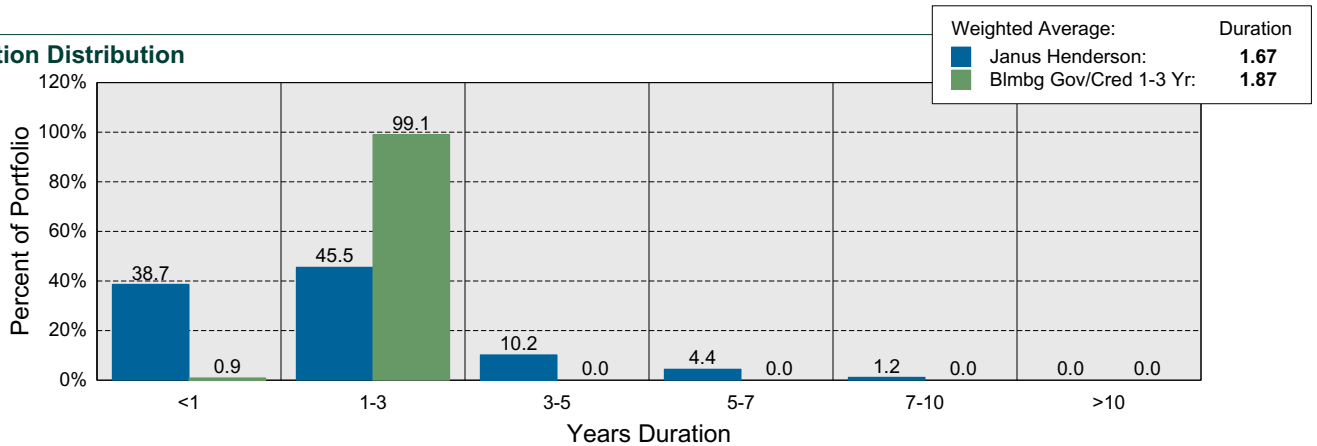
Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

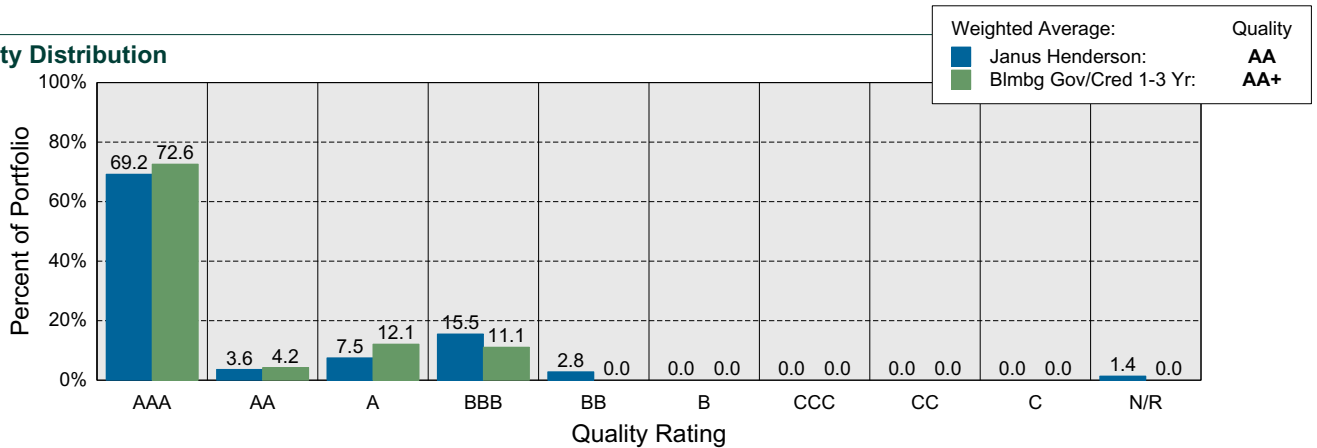
Sector Distribution



Duration Distribution



Quality Distribution



High Income Strategies

Period Ended March 31, 2023

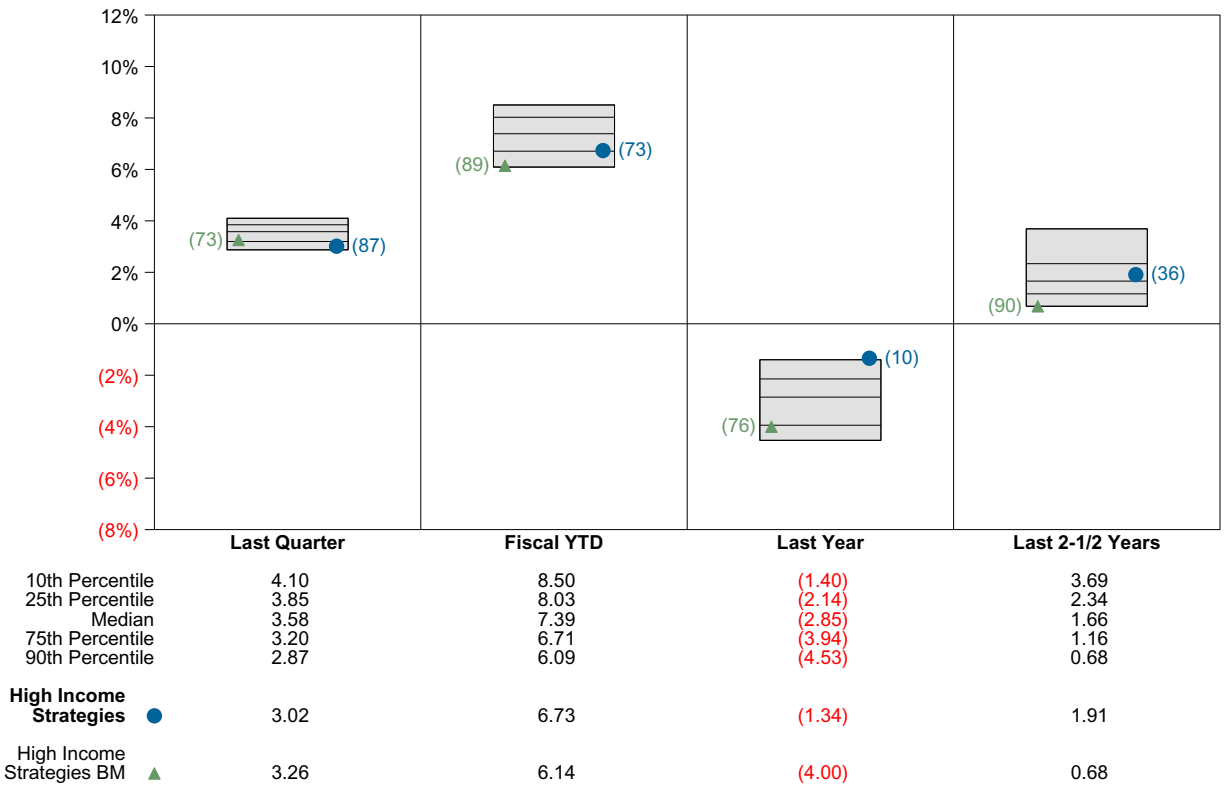
Benchmark Definition

The High Income Strategies Benchmark consists of 85% Blmbg High Yield Index and 15% ICE BofA US All Cap Secs Index.

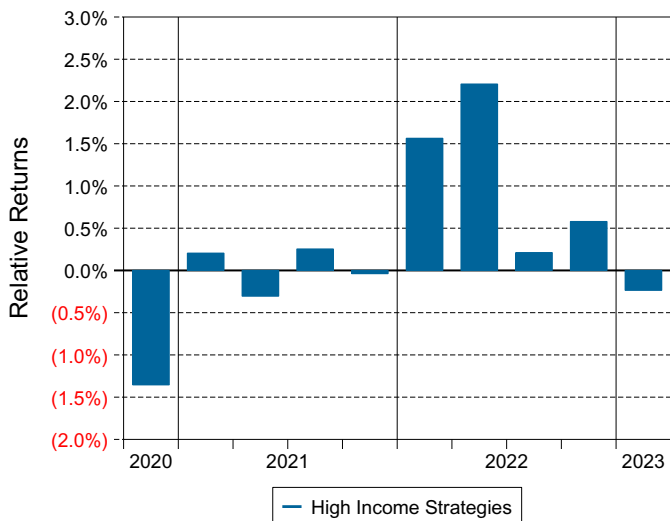
Quarterly Summary and Highlights

- High Income Strategies's portfolio posted a 3.02% return for the quarter placing it in the 87 percentile of the Callan High Yield Fixed Income group for the quarter and in the 10 percentile for the last year.
- High Income Strategies's portfolio underperformed the High Income Strategies BM by 0.24% for the quarter and outperformed the High Income Strategies BM for the year by 2.66%.

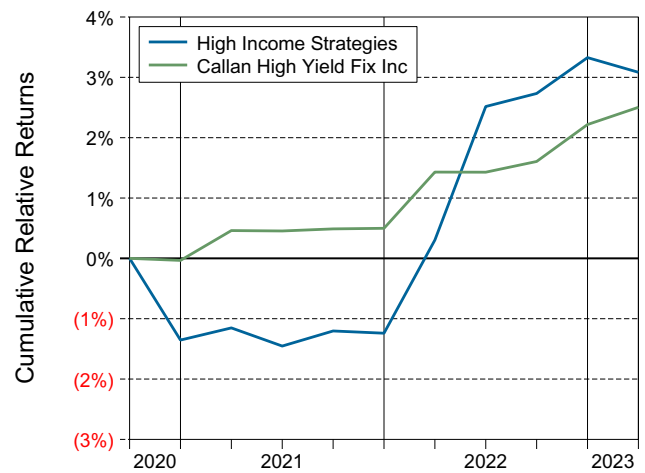
Performance vs Callan High Yield Fixed Income (Gross)



Relative Return vs High Income Strategies BM



Cumulative Returns vs High Income Strategies BM

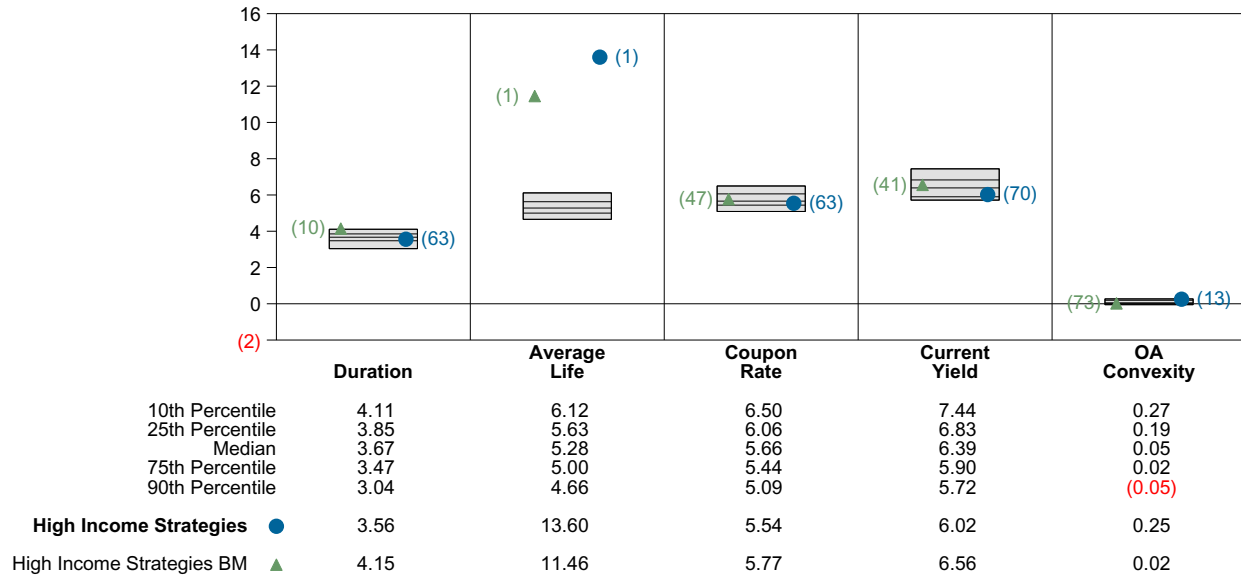


High Income Strategies Bond Characteristics Analysis Summary

Portfolio Characteristics

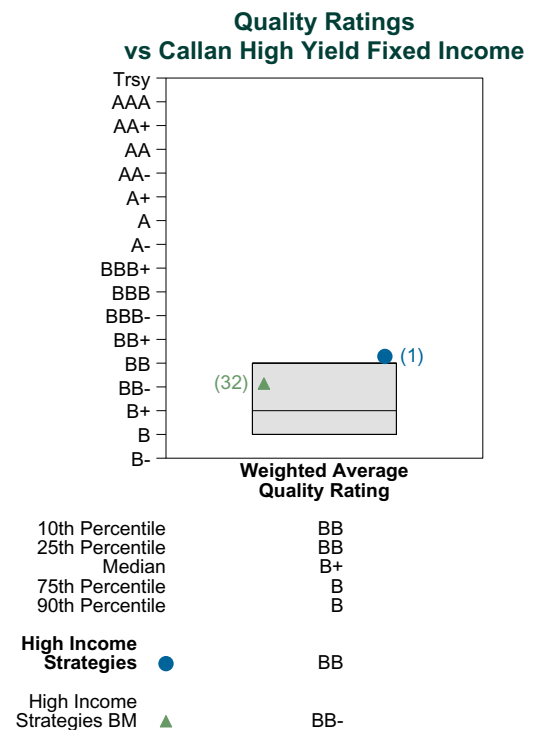
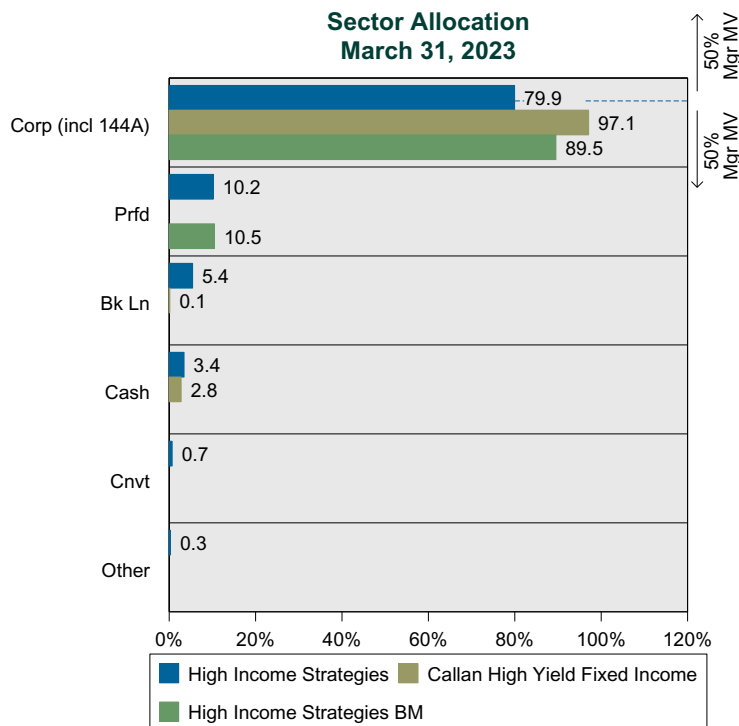
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style. Fixed Income Portfolio characteristics includes Cash Pool allocation.

Fixed Income Portfolio Characteristics Rankings Against Callan High Yield Fixed Income as of March 31, 2023



Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

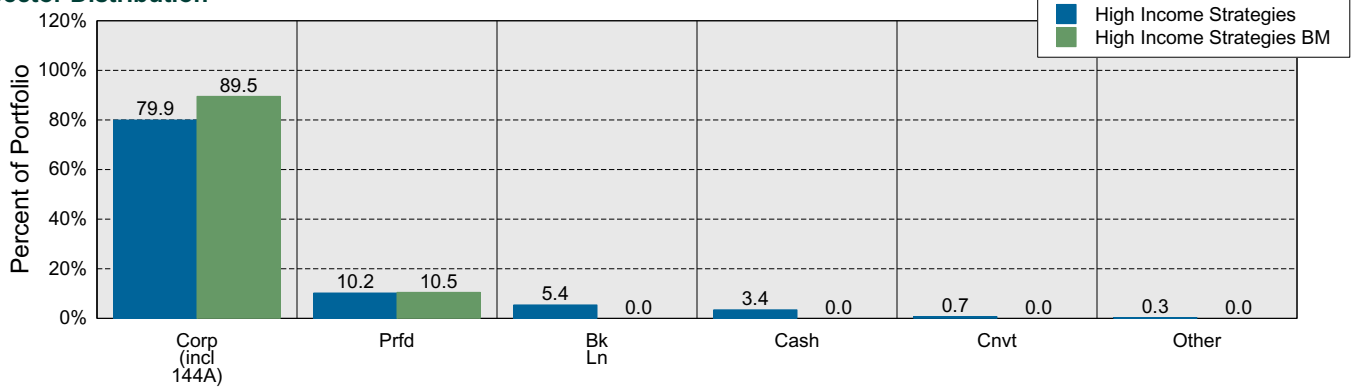


High Income Strategies Portfolio Characteristics Summary As of March 31, 2023

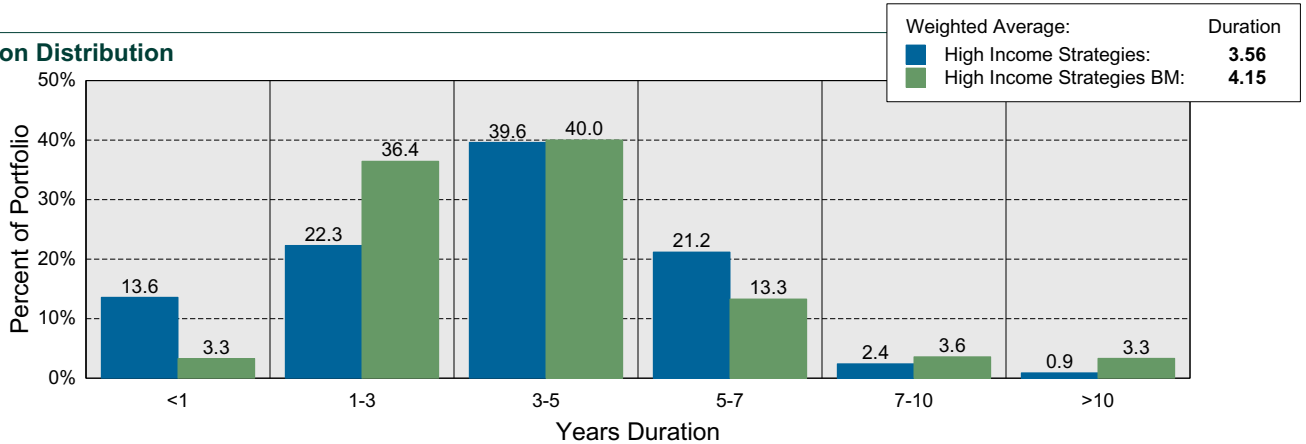
Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

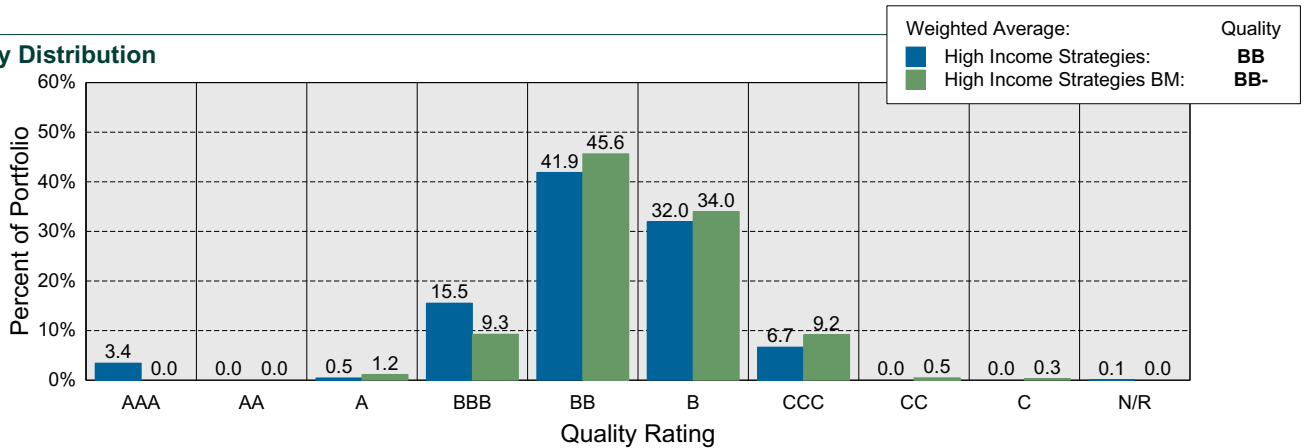
Sector Distribution



Duration Distribution



Quality Distribution



Mackay Shield US High Yield Period Ended March 31, 2023

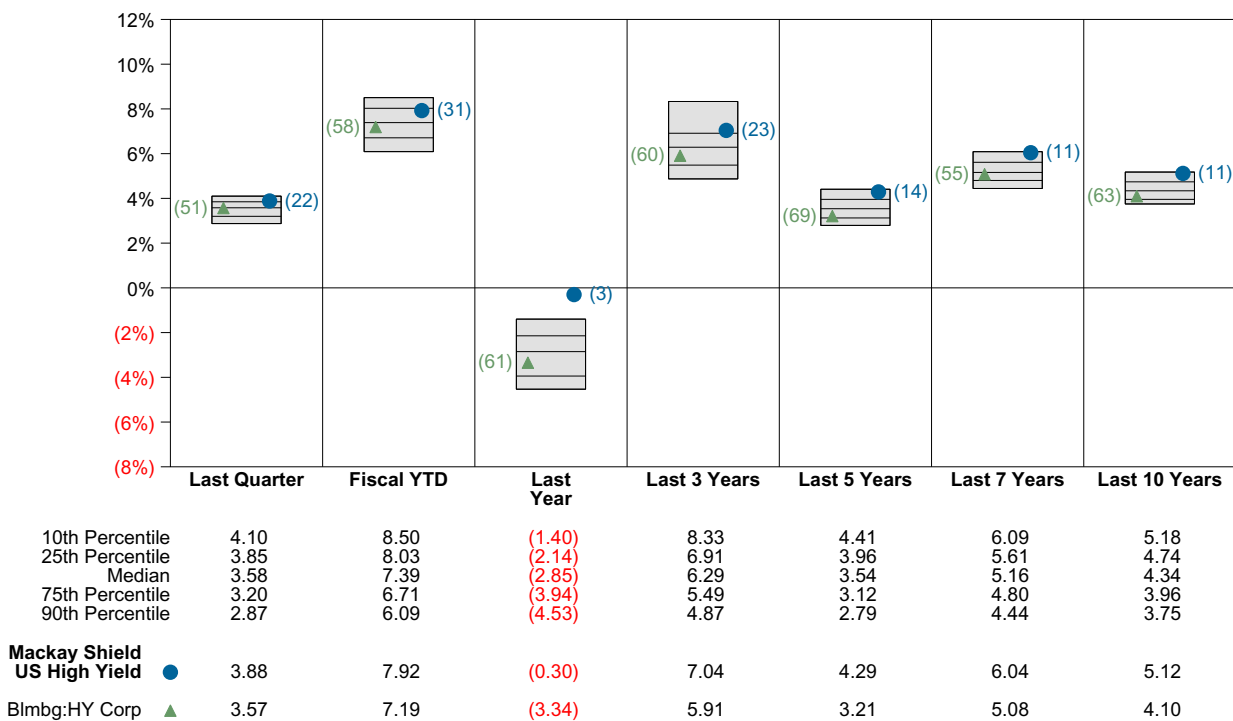
Investment Philosophy

Mackay relies on rigorous fundamental analysis to select companies with strong free cash flow and asset coverage in its quest to maximize yield, adjusted for default risk. The strategy is well diversified with sector and quality weights a residual of the security selection process. Mackay believes that long-term value is best created by avoiding downside risk (i.e. defaults) while selecting companies with attractive valuations and a catalyst for spread compression. Mackay Shield US High Yield was funded July 24, 2020. Returns prior to inception reflect the manager's high yield composite returns.

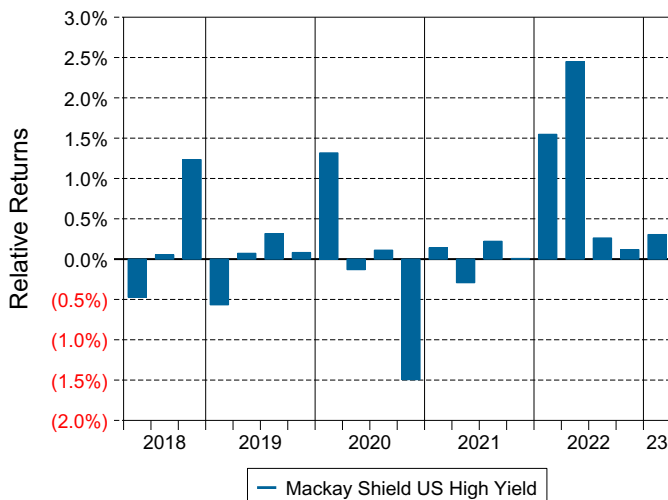
Quarterly Summary and Highlights

- Mackay Shield US High Yield's portfolio posted a 3.88% return for the quarter placing it in the 22 percentile of the Callan High Yield Fixed Income group for the quarter and in the 3 percentile for the last year.
- Mackay Shield US High Yield's portfolio outperformed the Blmbg:HY Corp by 0.32% for the quarter and outperformed the Blmbg:HY Corp for the year by 3.04%.

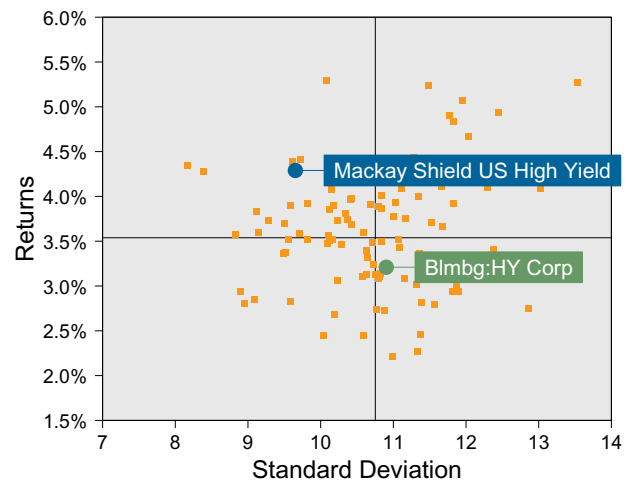
Performance vs Callan High Yield Fixed Income (Gross)



Relative Return vs Blmbg:HY Corp



Callan High Yield Fixed Income (Gross) Annualized Five Year Risk vs Return

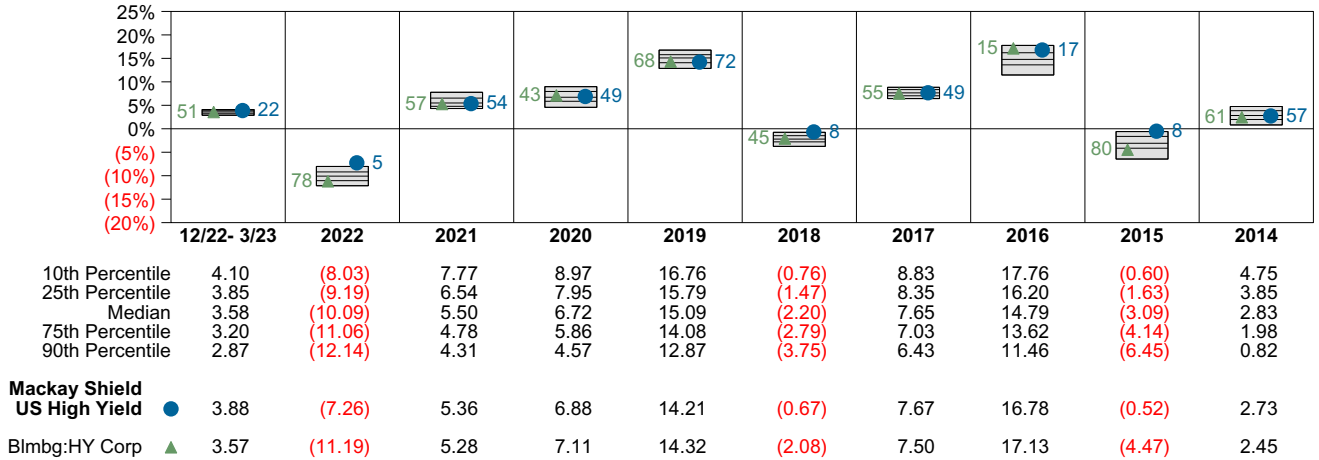


Mackay Shield US High Yield Return Analysis Summary

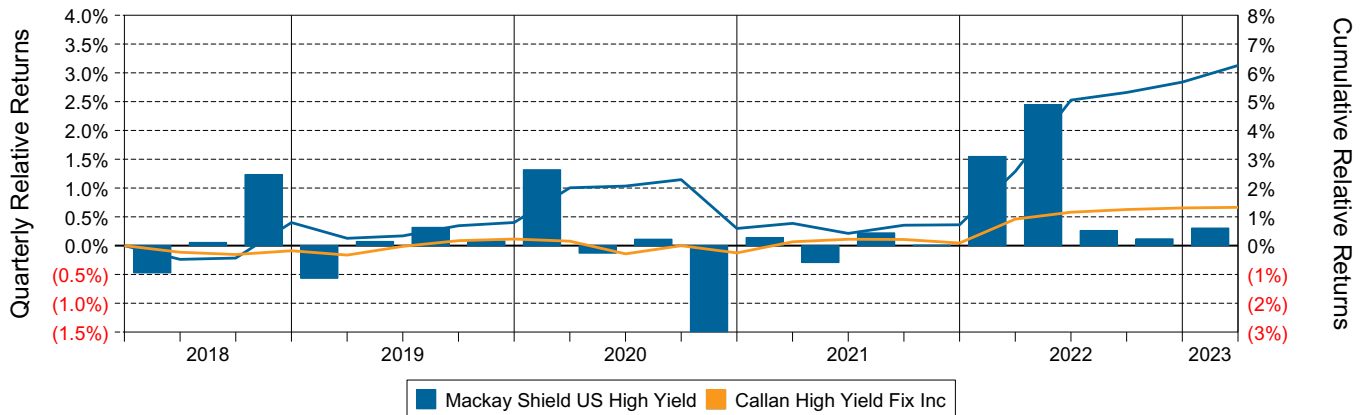
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

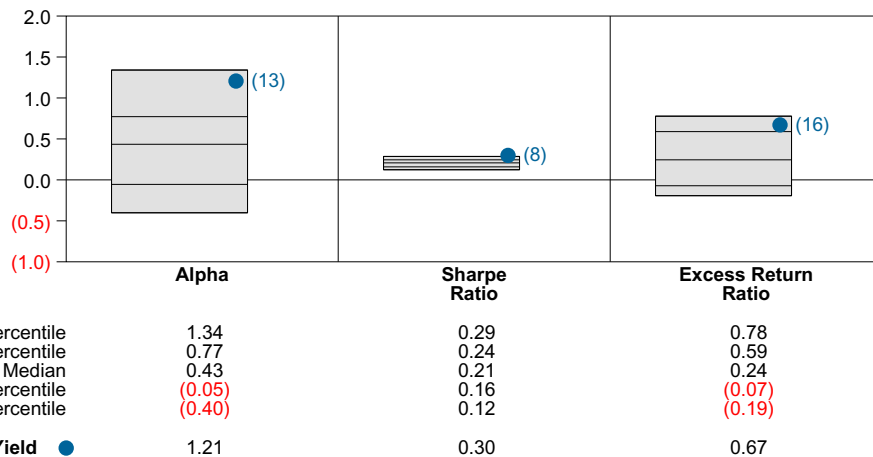
Performance vs Callan High Yield Fixed Income (Gross)



Cumulative and Quarterly Relative Returns vs Blmbg:HY Corp



Risk Adjusted Return Measures vs Blmbg:HY Corp Rankings Against Callan High Yield Fixed Income (Gross) Five Years Ended March 31, 2023

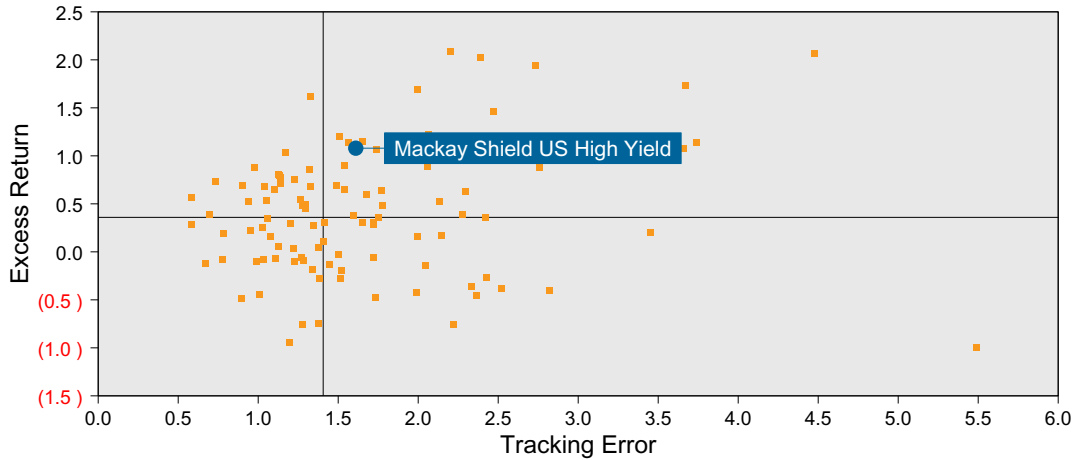


Mackay Shield US High Yield Risk Analysis Summary

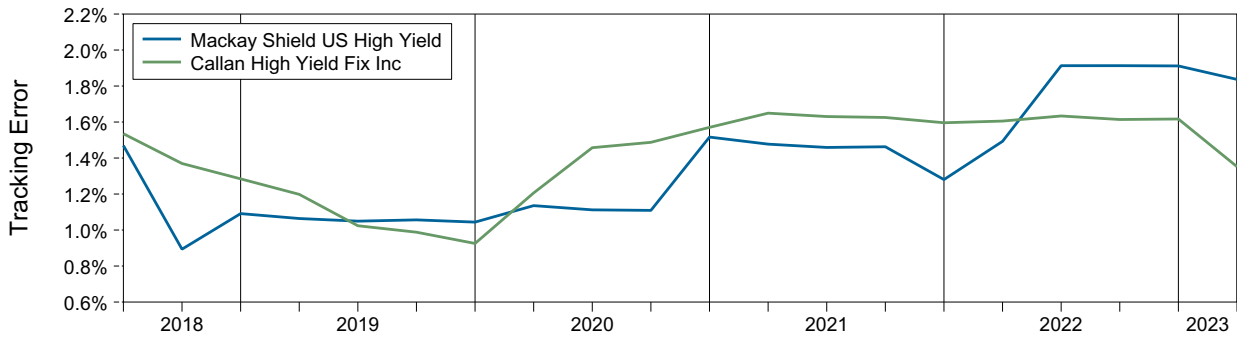
Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

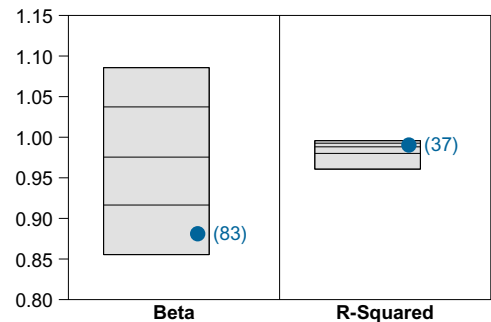
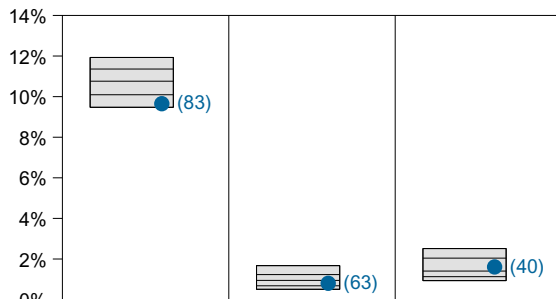
Risk Analysis vs Callan High Yield Fixed Income (Gross) Five Years Ended March 31, 2023



Rolling 12 Quarter Tracking Error vs Blmbg:HY Corp



Risk Statistics Rankings vs Blmbg:HY Corp Rankings Against Callan High Yield Fixed Income (Gross) Five Years Ended March 31, 2023



10th Percentile 11.93
25th Percentile 11.36
Median 10.76
75th Percentile 10.09
90th Percentile 9.47

Standard Deviation

Downside Risk

Tracking Error

10th Percentile 1.09
25th Percentile 1.04
Median 0.98
75th Percentile 0.92
90th Percentile 0.86

Beta

R-Squared

Mackay Shield US High Yield ●

9.65

0.80

1.61

Mackay Shield US High Yield ●

0.88

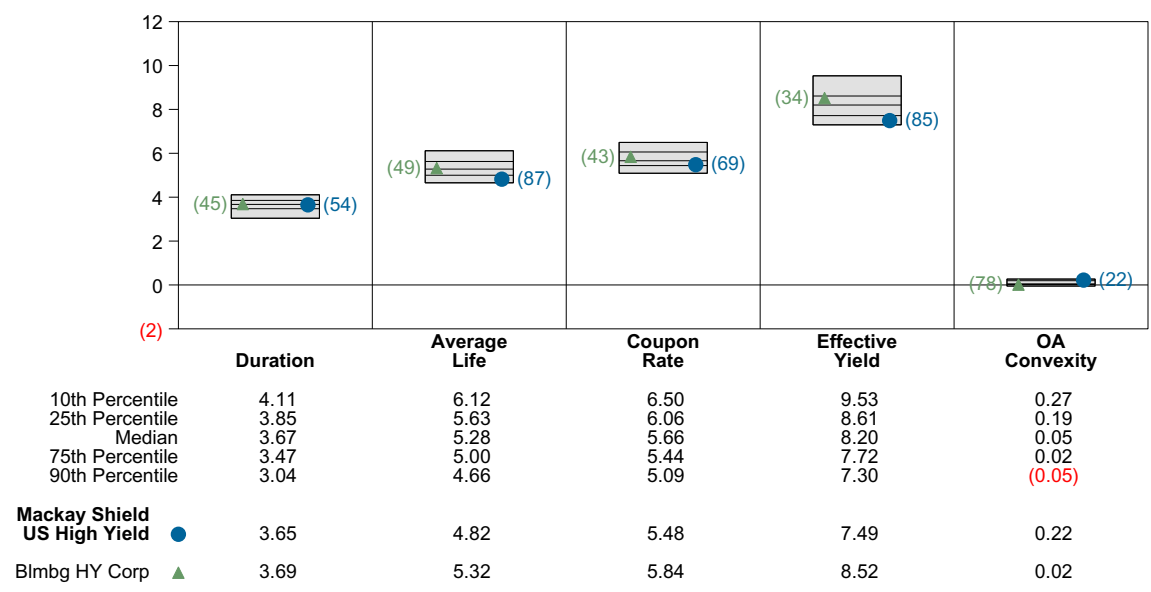
0.99

Mackay Shield US High Yield Bond Characteristics Analysis Summary

Portfolio Characteristics

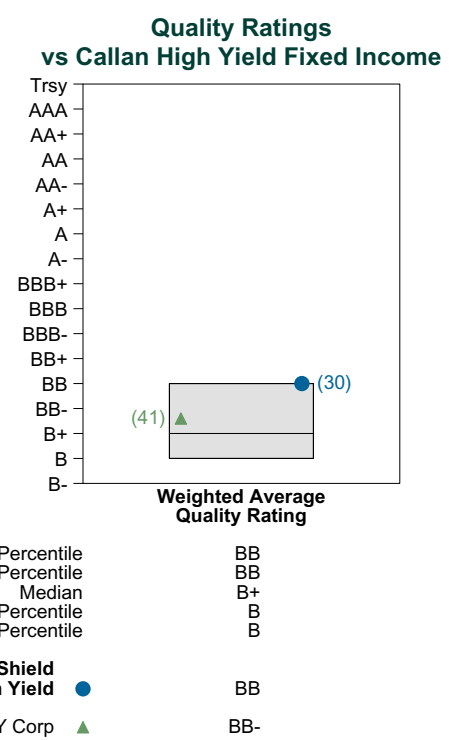
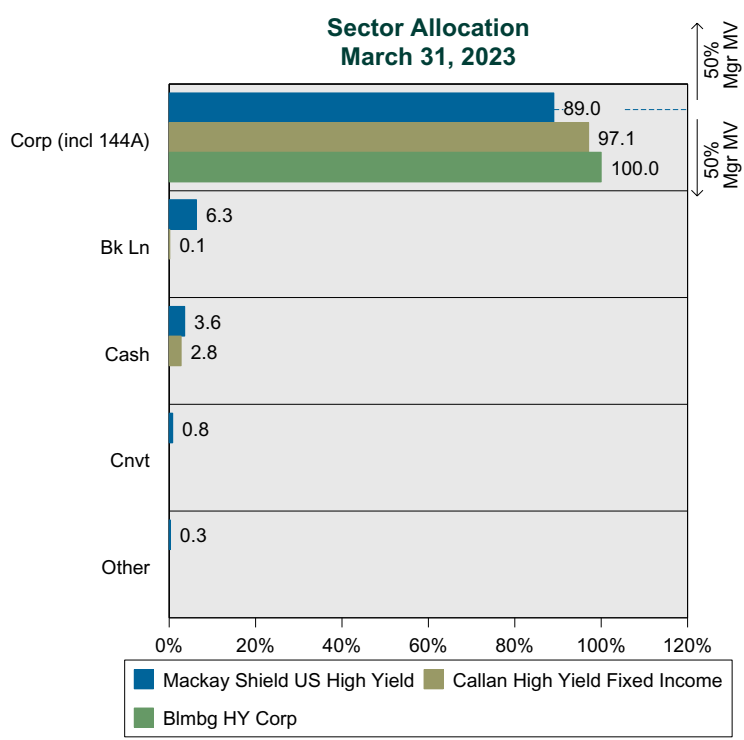
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style. Fixed Income Portfolio characteristics includes Cash Pool allocation.

Fixed Income Portfolio Characteristics Rankings Against Callan High Yield Fixed Income as of March 31, 2023



Sector Allocation and Quality Ratings

The first graph compares the manager's sector allocation with the average allocation across all the members of the manager's style. The second graph compares the manager's weighted average quality rating with the range of quality ratings for the style.

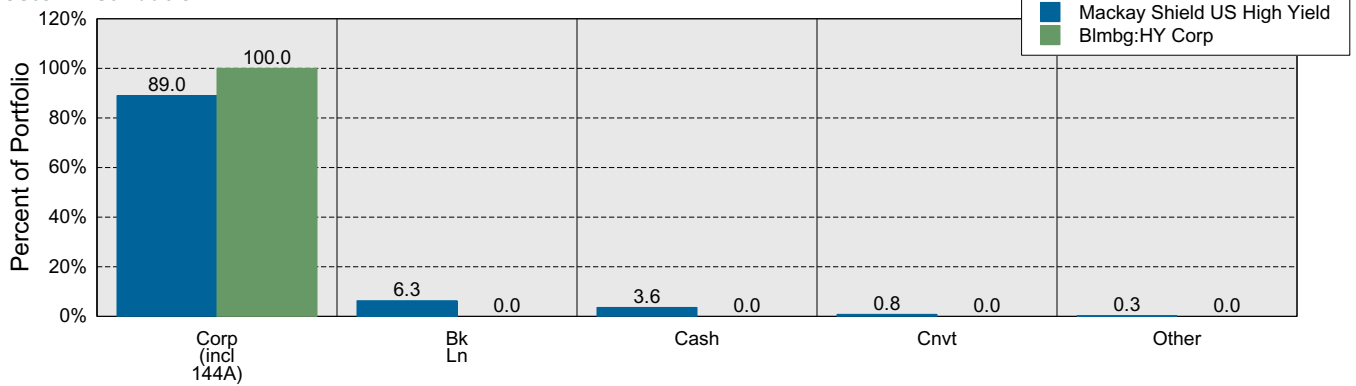


Mackay Shield US High Yield Portfolio Characteristics Summary As of March 31, 2023

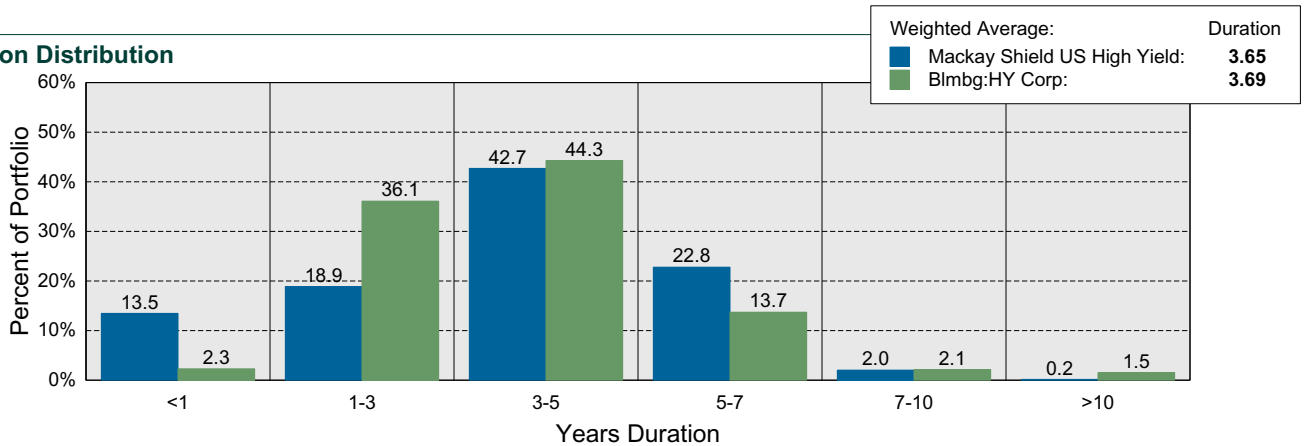
Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

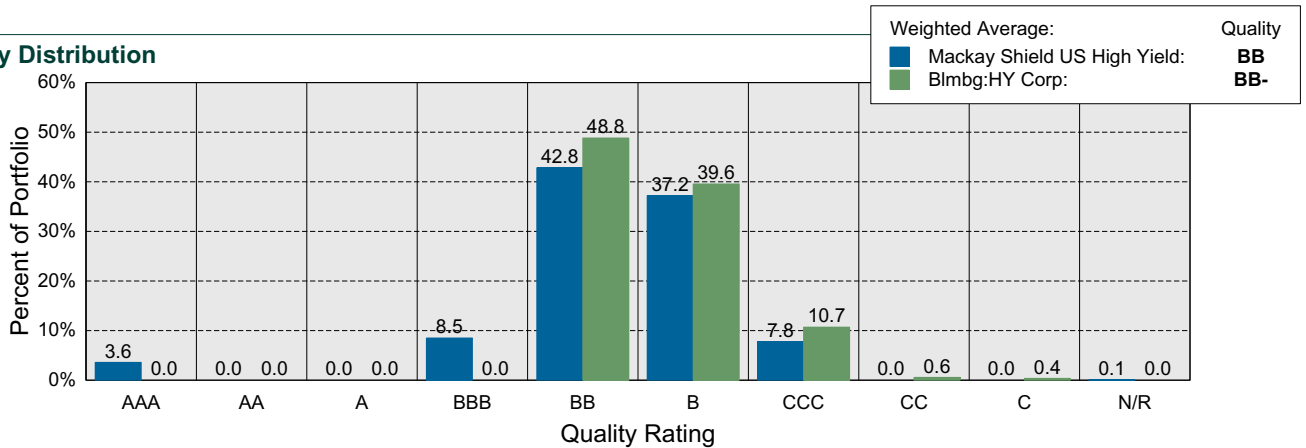
Sector Distribution



Duration Distribution



Quality Distribution



Principal Preferred Securities Period Ended March 31, 2023

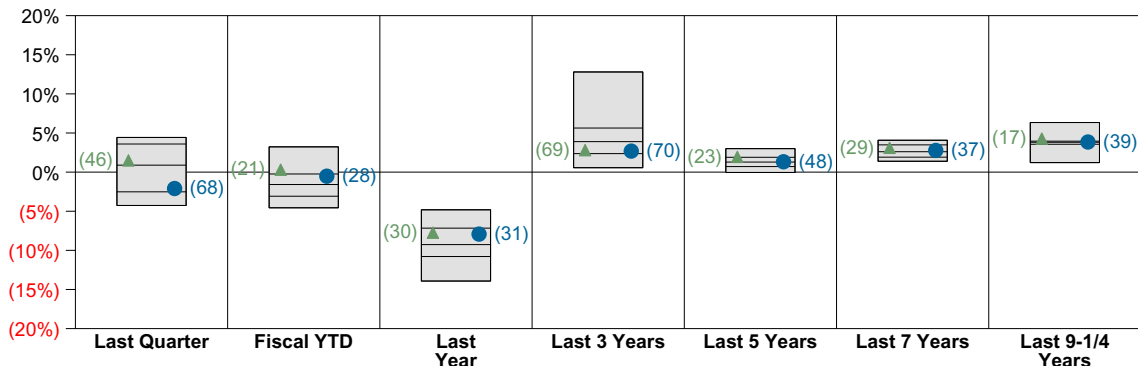
Investment Philosophy

Spectrum is a wholly owned subsidiary of Principal Global Investors. The firm has an exclusive focus on preferred securities globally. The firm employs an active approach to managing this sector with an emphasis on income as well as total return. Preferred securities are structurally subordinated fixed income investments that come in many flavors, each with unique structures and with many different labels. Common characteristics, however, are that they are subordinate to senior investment grade debt, pay a specified coupon, and are callable by the issuer. Credit quality typically ranges from BBB+ to BB. Coupon payments can be deferrable, non-deferrable and cumulative or non-cumulative. These attributes make the instruments complex and active management requires skill and experience in this sector. Principal Preferred Securities was funded July 30, 2020. Returns prior to inception reflect the Principal Preferred Securities mutual fund historical returns.

Quarterly Summary and Highlights

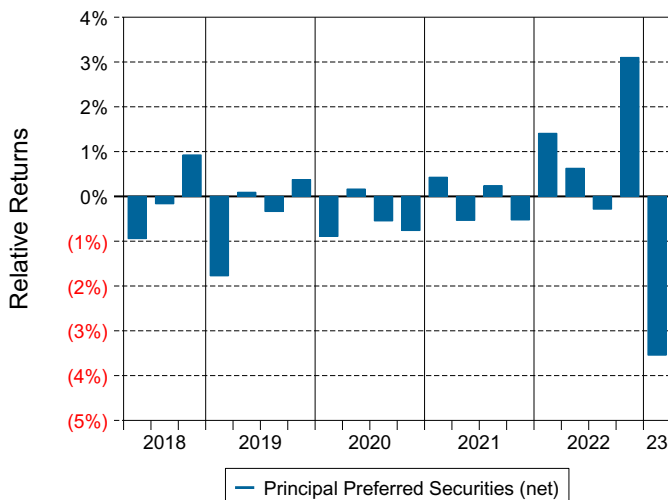
- Principal Preferred Securities (net)'s portfolio posted a (2.10)% return for the quarter placing it in the 68 percentile of the Morningstar Preferred Stock Funds group for the quarter and in the 31 percentile for the last year.
- Principal Preferred Securities (net)'s portfolio underperformed the ICE BofA US All Cap Secs by 3.60% for the quarter and underperformed the ICE BofA US All Cap Secs for the year by 0.20%.

Performance vs Morningstar Preferred Stock Funds (Net)

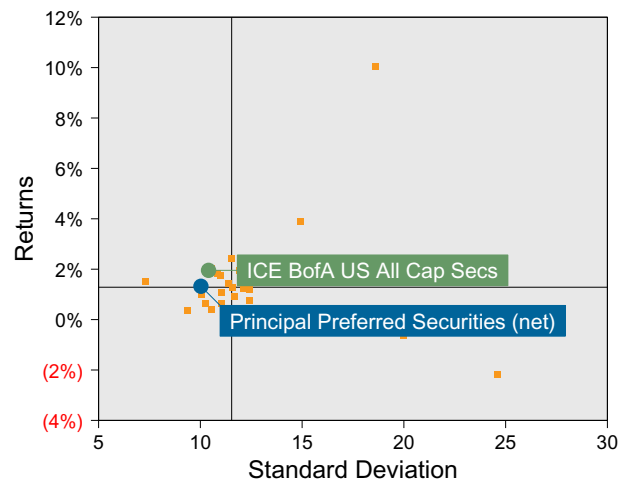


10th Percentile	4.43	3.23	(4.82)	12.80	3.00	4.07	6.34
25th Percentile	3.59	(0.24)	(7.16)	5.63	1.89	3.48	3.96
Median	0.89	(1.59)	(9.26)	3.90	1.28	2.61	3.81
75th Percentile	(2.52)	(3.08)	(10.79)	2.37	0.71	1.91	3.56
90th Percentile	(4.27)	(4.56)	(13.92)	0.56	(0.05)	1.39	1.22

Relative Return vs ICE BofA US All Cap Secs



Morningstar Preferred Stock Funds (Net) Annualized Five Year Risk vs Return

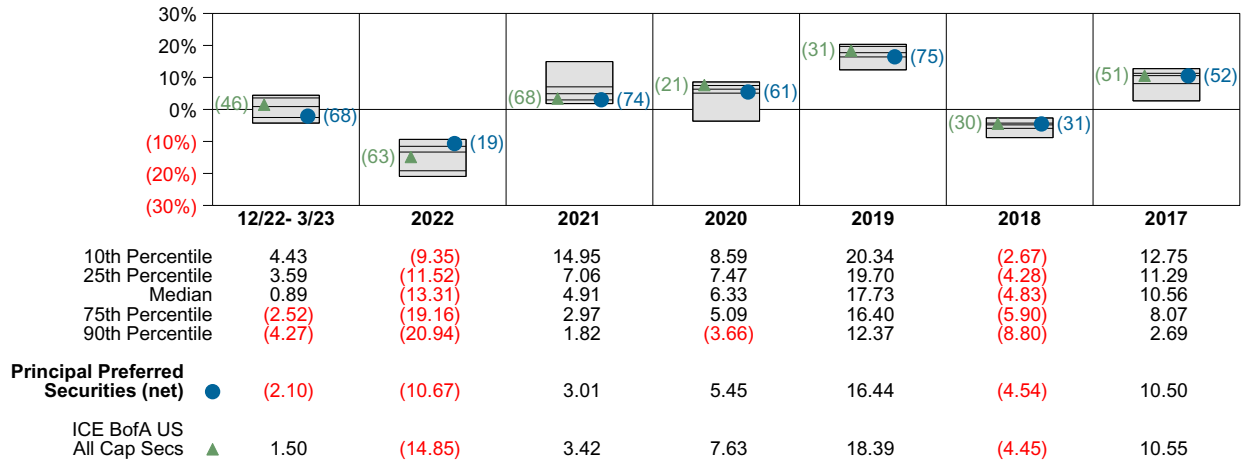


Principal Preferred Securities Return Analysis Summary

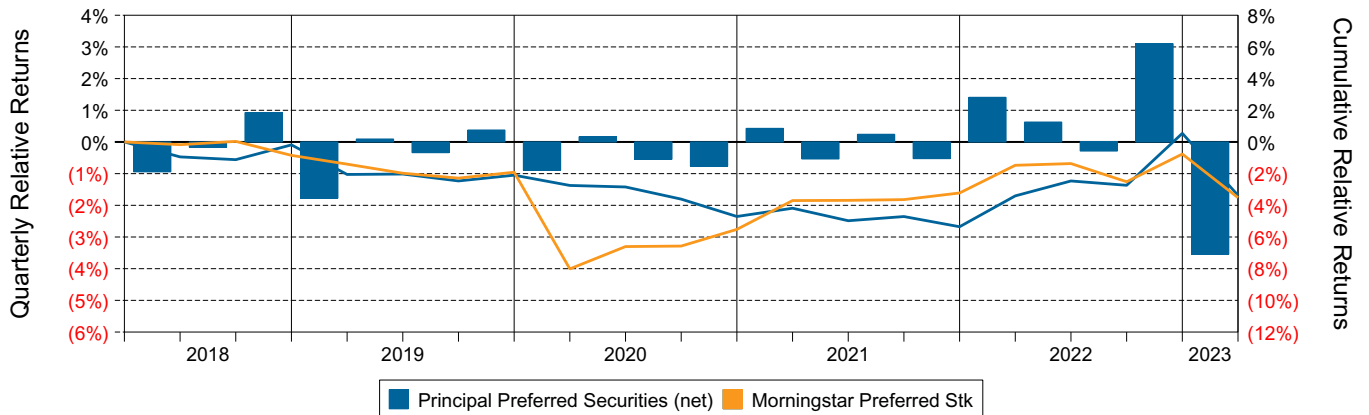
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

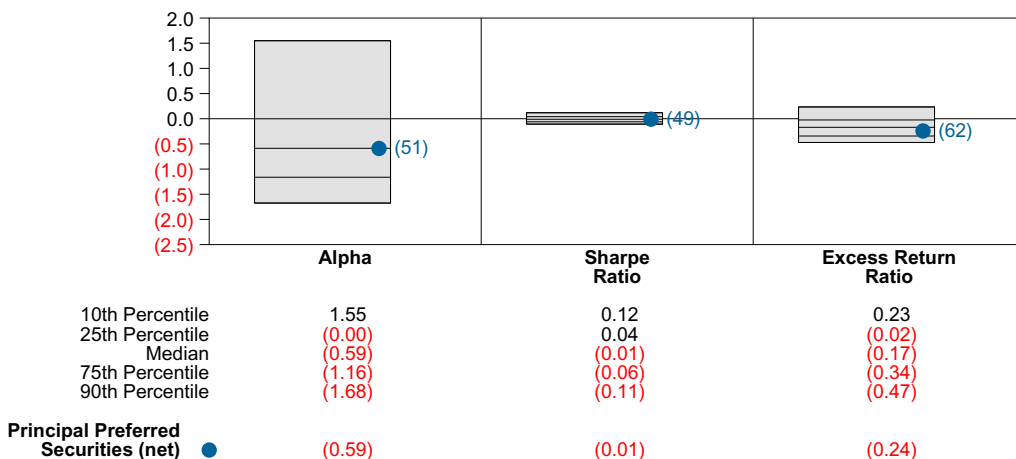
Performance vs Morningstar Preferred Stock Funds (Net)



Cumulative and Quarterly Relative Returns vs ICE BofA US All Cap Secs



Risk Adjusted Return Measures vs ICE BofA US All Cap Secs Rankings Against Morningstar Preferred Stock Funds (Net) Five Years Ended March 31, 2023

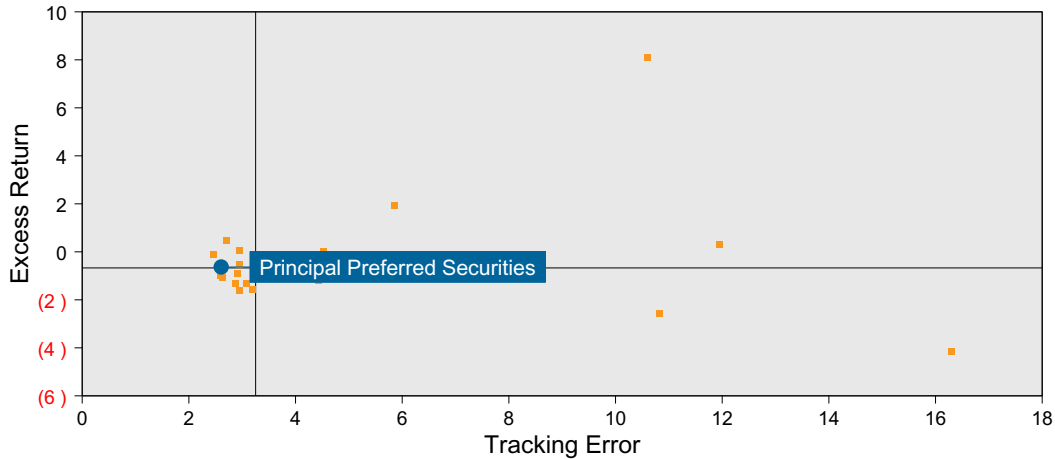


Principal Preferred Securities Risk Analysis Summary

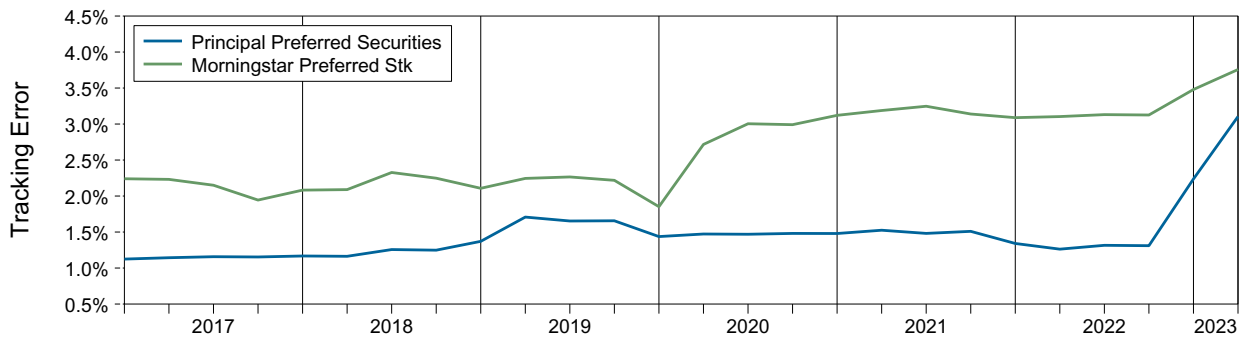
Risk Analysis

The graphs below analyze the risk or variation of a manager's return pattern. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the benchmark. The second chart shows tracking error patterns versus the benchmark over time. The last two charts show the ranking of the manager's risk statistics versus the peer group.

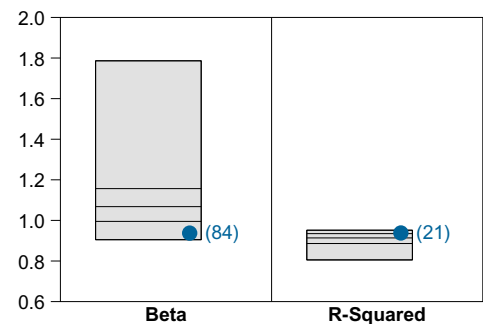
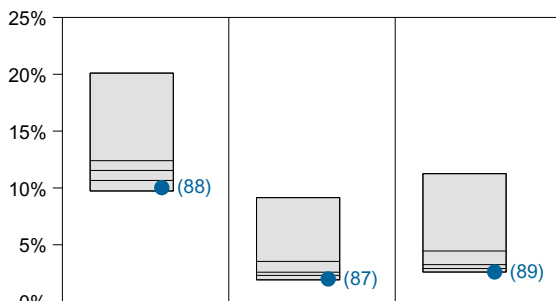
Risk Analysis vs Morningstar Preferred Stock Funds (Net) Five Years Ended March 31, 2023



Rolling 12 Quarter Tracking Error vs ICE BofA US All Cap Secs



Risk Statistics Rankings vs ICE BofA US All Cap Secs Rankings Against Morningstar Preferred Stock Funds (Net) Five Years Ended March 31, 2023



	Standard Deviation	Downside Risk	Tracking Error
10th Percentile	20.10	9.15	11.26
25th Percentile	12.40	3.54	4.45
Median	11.54	2.59	3.25
75th Percentile	10.66	2.30	2.91
90th Percentile	9.73	1.91	2.60

	Beta	R-Squared
10th Percentile	1.79	0.95
25th Percentile	1.16	0.93
Median	1.07	0.91
75th Percentile	1.00	0.89
90th Percentile	0.90	0.81

Principal Preferred Securities ● 10.03 2.00 2.61

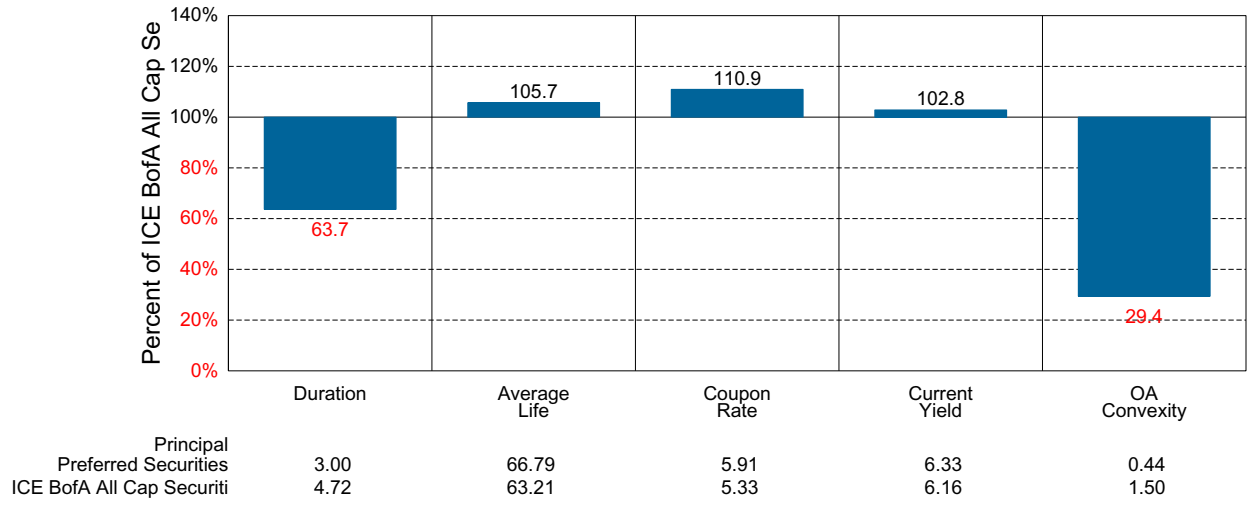
Principal Preferred Securities ● 0.94 0.94

Principal Preferred Securities Bond Characteristics Analysis Summary

Portfolio Characteristics

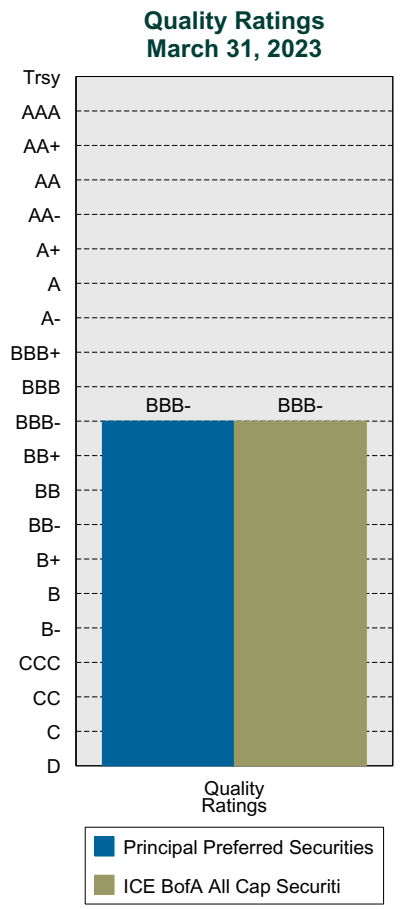
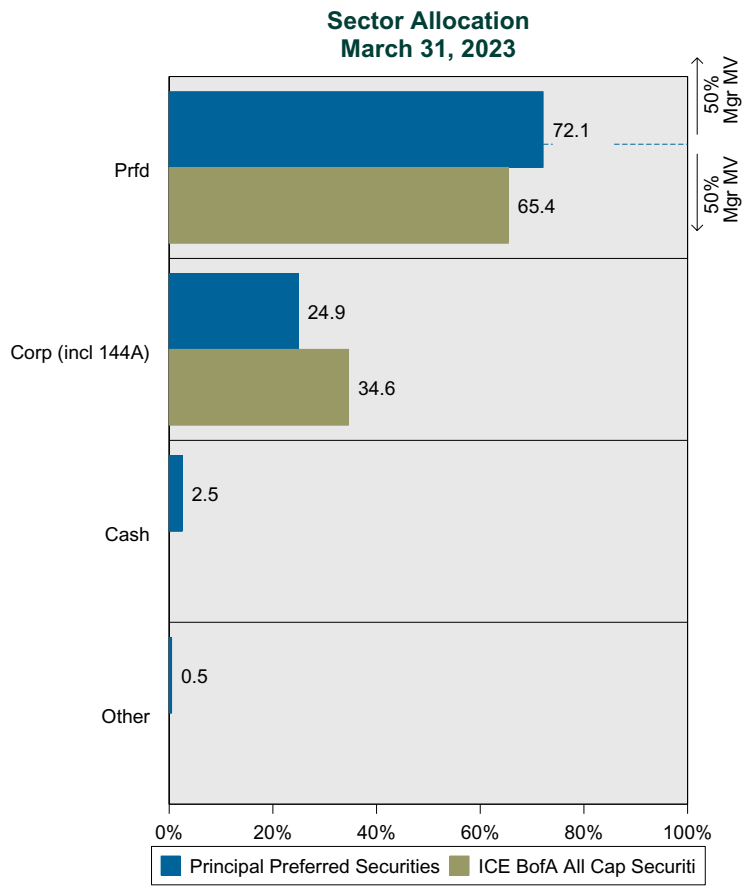
This graph compares the manager's portfolio characteristics with the range of characteristics for the portfolios which make up the manager's style group. This analysis illustrates whether the manager's current holdings are consistent with other managers employing the same style. Fixed Income Portfolio characteristics includes Cash Pool allocation.

Portfolio Characteristics Relative to ICE BofA All Cap Securiti as of March 31, 2023



Sector Allocation and Quality Ratings

The first graph compares the manager's sector weights for the most recent quarter with those of the benchmark. The second graph compares the manager's weighted average quality rating with those of the benchmark.

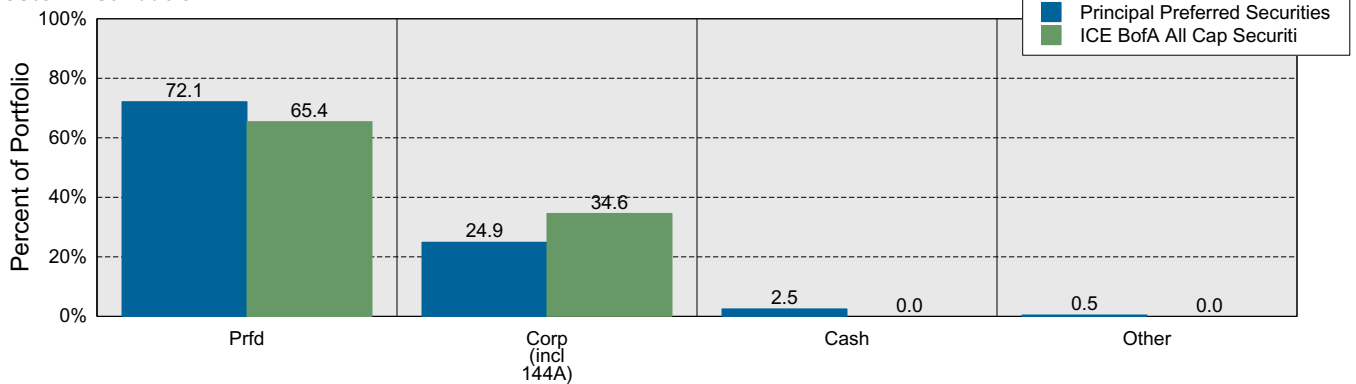


Principal Preferred Securities Portfolio Characteristics Summary As of March 31, 2023

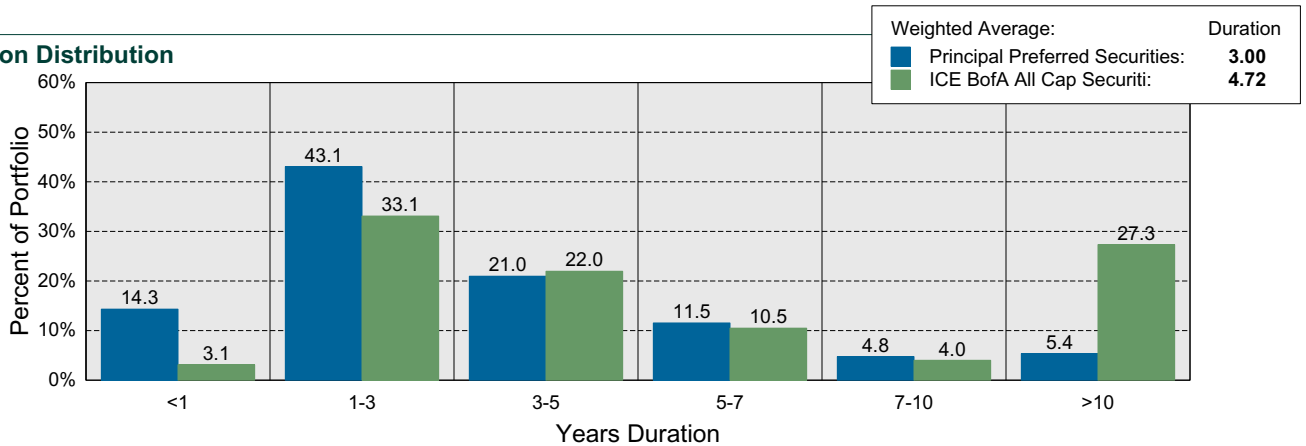
Portfolio Structure Comparison

The charts below compare the structure of the portfolio to that of the index from the three perspectives that have the greatest influence on return. The first chart compares the two portfolios across sectors. The second chart compares the duration distribution. The last chart compares the distribution across quality ratings.

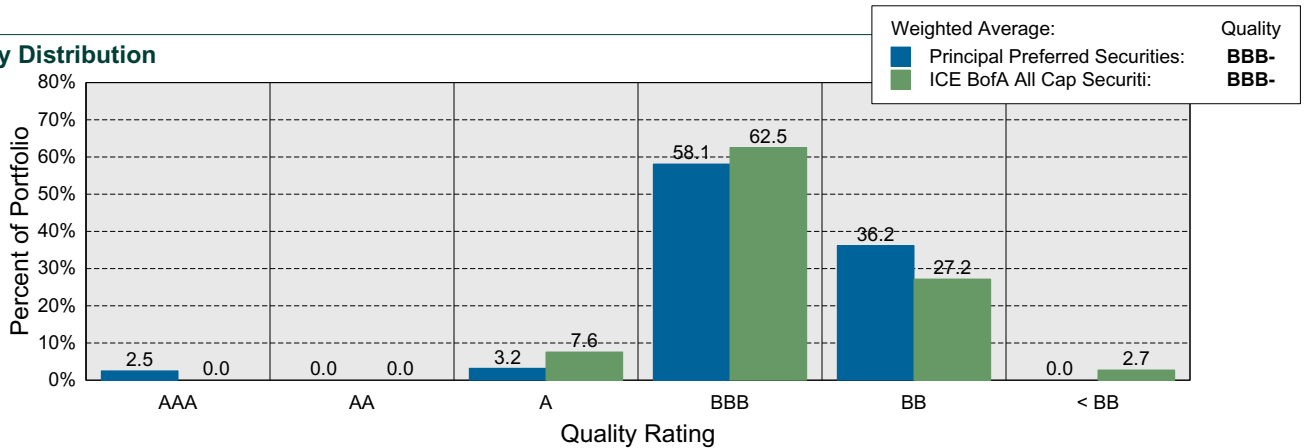
Sector Distribution



Duration Distribution



Quality Distribution



Quarterly Highlights

The Callan Institute provides research to update clients on the latest industry trends and carefully structured educational programs to enhance the knowledge of industry professionals. Visit www.callan.com/research-library to see all of our publications, and www.callan.com/blog to view our blog. For more information contact Barb Gerraty at 415-274-3093 / institute@callan.com.

New Research from Callan's Experts

[2023 DC Trends Survey](#) | Callan's 16th annual DC Trends Survey now covers SECURE 2.0 (pre-passage) and diversity topics, along with the key tenets of DC plan management, governance, and financial wellness.

[2023-2032 Capital Markets Assumptions](#) | A white paper detailing the process involved in creating our 2023-2032 capital markets assumptions and the reasoning behind them.

[1Q23 Real Assets Reporter: Energy Transition](#) | Jan Mende describes energy-transition investments and the role they can play in institutional portfolios.

[The Periodic Table of Investment Returns](#) | A visual representation of annual returns for key asset classes, ranked from best to worst performance for each calendar year.

Blog Highlights

[The PRT Decision: What Plan Sponsors Need to Know](#) | Despite the turbulence of 2022, many corporate defined benefit (DB) plan sponsors are considering pension risk transfers (PRTs).

[Can Institutional Investors Target 'Food Deserts' for Investment?](#) | While food desert investments have not been prevalent in institutional real estate portfolios, increasing government incentives and additional sources of financing may help support these opportunities in the future.

[Putting 2022 Public DB Plan Performance into Perspective](#) | While 2022 was indeed challenging, viewing plan returns over the long-term shows results that are favorable when stacked up against actuarial discount rates.

Webinar Replays

[Callan's 2023 DC Survey Results Webinar](#) | This webinar focuses on the results of Callan's 2023 DC Trends Survey, including fiduciary positioning, investments, retirement solutions, fees, and more.

[Research Cafe: ESG Interview Series](#) | During this interview, Tom Shingler of Callan discusses with Richard Ashley, partner and co-chair of US Employee Benefits and Executive Compensation practice at DLA Piper, key features of the new ESG and proxy voting rule.

Quarterly Periodicals

[Private Equity Update, 4Q22](#) | A high-level summary of private equity activity in the quarter through all the investment stages

[Active vs. Passive Charts, 4Q22](#) | A comparison of active managers alongside relevant benchmarks over the long term

[Market Pulse, 4Q22](#) | A quarterly market reference guide covering trends in the U.S. economy, developments for institutional investors, and the latest data on the capital markets

[Capital Markets Review, 4Q22](#) | Analysis and a broad overview of the economy and public and private markets activity each quarter across a wide range of asset classes

[Hedge Fund Update, 4Q22](#) | Commentary on developments for hedge funds and multi-asset class (MAC) strategies

[Real Assets Update, 4Q22](#) | A summary of market activity for real assets and private real estate during the quarter

[Private Credit Update, 4Q22](#) | A review of performance and fundraising activity for private credit during the quarter

Events

A complete list of all upcoming events can be found on our website: callan.com/events-education.

Please mark your calendar and look forward to upcoming invitations:

2023 June Workshops

June 27, 2023 – New York

June 29, 2023 – Chicago

For more information about events, please contact Barb Gerraty: 415-274-3093 / gerraty@callan.com

Education: By the Numbers

50+

Unique pieces of research the Institute generates each year

525

Attendees (on average) of the Institute's annual National Conference

3,700

Total attendees of the "Callan College" since 1994

Education

Founded in 1994, the "Callan College" offers educational sessions for industry professionals involved in the investment decision-making process.

Introduction to Investments

May 23-25 – Virtual

This program familiarizes institutional investor trustees and staff and asset management advisers with basic investment theory, terminology, and practices. Our virtual session is held over three days with virtual modules of 2.5-3 hours, while the in-person session lasts one-and-a-half days. This course is designed for individuals with less than two years of experience with asset-management oversight and/or support responsibilities. Virtual tuition is \$950 per person and includes instruction and digital materials. In-person tuition is \$2,350 per person and includes instruction, all materials, breakfast and lunch on each day, and dinner on the first evening with the instructors.

Additional information including registration can be found at: callan.com/events-education



"Research is the foundation of all we do at Callan, and sharing our best thinking with the investment community is our way of helping to foster dialogue to raise the bar across the industry."

Greg Allen, CEO and Chief Research Officer

List of Callan's Investment Manager Clients

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Callan takes its fiduciary and disclosure responsibilities to clients very seriously. We recognize that there are numerous potential conflicts of interest encountered in the investment consulting industry, and that it is our responsibility to manage those conflicts effectively and in the best interest of our clients. At Callan, we employ a robust process to identify, manage, monitor, and disclose potential conflicts on an ongoing basis.

The list below is an important component of our conflicts management and disclosure process. It identifies those investment managers that pay Callan fees for educational, consulting, software, database, or reporting products and services. We update the list quarterly because we believe that our fund sponsor clients should know the investment managers that do business with Callan, particularly those investment manager clients that the fund sponsor clients may be using or considering using. Please note that if an investment manager receives a product or service on a complimentary basis (e.g., attending an educational event), they are not included in the list below. Callan is committed to ensuring that we do not consider an investment manager's business relationship with Callan, or lack thereof, in performing evaluations for or making suggestions or recommendations to its other clients. Please refer to Callan's ADV Part 2A for a more detailed description of the services and products that Callan makes available to investment manager clients through our Institutional Consulting Group, Independent Adviser Group, and Fund Sponsor Consulting Group. Due to the complex corporate and organizational ownership structures of many investment management firms, parent and affiliate firm relationships are not indicated on our list.

Fund sponsor clients may request a copy of the most currently available list at any time. Fund sponsor clients may also request specific information regarding the fees paid to Callan by particular fund manager clients. Per company policy, information requests regarding fees are handled exclusively by Callan's Compliance department.

Manager Name

abrdrn (Aberdeen Standard Investments)

ABS Global Investments

Acadian Asset Management LLC

Adams Street Partners, LLC

AEGON USA Investment Management Inc.

AllianceBernstein

Allspring Global Investments, LLC

Altrinsic Global Advisors, LC

American Century Investments

Amundi US, Inc.

Antares Capital LP

Apollo Global Management, Inc.

AQR Capital Management

Ares Management LLC

Ariel Investments, LLC

Aristotle Capital Management, LLC

Atlanta Capital Management Co., LLC

AXA Investment Managers

Manager Name

Axiom Investors LLC

Baillie Gifford International, LLC

Baird Advisors

Barings LLC

Baron Capital Management, Inc.

Barrow, Hanley, Mewhinney & Strauss, LLC

Belle Haven Investments

BentallGreenOak

Beutel, Goodman & Company Ltd.

BlackRock

Blackstone Group (The)

Blue Owl Capital, Inc.

BNY Mellon Asset Management

Boston Partners

Brandes Investment Partners, L.P.

Brandywine Global Investment Management, LLC

Brookfield Asset Management Inc.

Brookfield Public Securities Group

Manager Name

Brown Brothers Harriman & Company
Burgundy Asset Management Ltd.
Capital Group
CastleArk Management, LLC
CIBC Asset Management Inc.
ClearBridge Investments, LLC
Cohen & Steers Capital Management, Inc.
Columbia Threadneedle Investments North America
Comvest Partners
CQS
Credit Suisse Asset Management, LLC
D.E. Shaw Investment Management, LLC
DePrince, Race & Zollo, Inc.
Dimensional Fund Advisors L.P.
Doubleline
DWS
EARNEST Partners, LLC
Epoch Investment Partners, Inc.
Fayez Sarofim & Company
Federated Hermes, Inc.
Fidelity Institutional Asset Management
Fiera Capital Corporation
First Hawaiian Bank Wealth Management Division
First Eagle Investment Management, LLC
First Sentier Investors
Fisher Investments
Franklin Templeton
Fred Alger Management, LLC
GAM (USA) Inc.
GlobeFlex Capital, L.P.
GoldenTree Asset Management, LP
Goldman Sachs
Golub Capital
Guggenheim Investments
GW&K Investment Management
Harbor Capital Advisors
Harding Loevner LP
Hardman Johnston Global Advisors LLC
Heitman LLC
Hotchkis & Wiley Capital Management, LLC

Manager Name

Impax Asset Management LLC
Income Research + Management
Insight Investment
Intech Investment Management LLC
Intercontinental Real Estate Corporation
Invesco
J.P. Morgan
Janus
Jennison Associates LLC
Jobs Peak Advisors
Kayne Anderson Rudnick Investment Management, LLC
KeyCorp
Kohlberg Kravis Roberts & Co. (KKR)
Lazard Asset Management
LGIM America
Lincoln National Corporation
Longview Partners
Loomis, Sayles & Company, L.P.
Lord Abbett & Company
LSV Asset Management
MacKay Shields LLC
Macquarie Asset Management (MAM)
Manulife Investment Management
Marathon Asset Management, L.P.
MetLife Investment Management
MFS Investment Management
MidFirst Bank
Mondrian Investment Partners Limited
Montag & Caldwell, LLC
Morgan Stanley Investment Management
MUFG Union Bank, N.A.
Natixis Investment Managers
Neuberger Berman
Newton Investment Management
Northern Trust Asset Management
Nuveen
Oaktree Capital Management, L.P.
P/E Investments
Pacific Investment Management Company
Pantheon Ventures

Manager Name

Parametric Portfolio Associates LLC

Partners Group (USA) Inc.

Pathway Capital Management, LP

PFM Asset Management LLC

PGIM DC Solutions

PGIM Fixed Income

PGIM Quantitative Solutions LLC

Pictet Asset Management

PineBridge Investments

Polen Capital Management, LLC

Pretium Partners, LLC

Principal Asset Management

Putnam Investments, LLC

Raymond James Investment Management

RBC Global Asset Management

Regions Financial Corporation

Riverbridge Partners LLC

Robeco Institutional Asset Management, US Inc.

S&P Dow Jones Indices

Sands Capital Management

Schroder Investment Management North America Inc.

Segall Bryant & Hamill

Manager Name

SLC Management

Smith Graham & Co. Investment Advisors, L.P.

State Street Global Advisors

Strategic Global Advisors, LLC

T. Rowe Price Associates, Inc.

The TCW Group, Inc.

Thompson, Siegel & Walmsley LLC

Tri-Star Trust Bank

UBS Asset Management

VanEck

Versus Capital Group

Victory Capital Management Inc.

Virtus Investment Partners, Inc.

Vontobel Asset Management

Voya

Walter Scott & Partners Limited

WCM Investment Management

Wellington Management Company, LLP

Western Asset Management Company LLC

Westfield Capital Management Company, LP

William Blair & Company LLC

Xponance, Inc.

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Past performance is no guarantee of future results.

CO PUBLIC SCHOOL PERMANENT FUND
FINANCIAL REPORT FOR THE 9 MONTHS ENDED MARCH 31, 2023

Fund Activity	9 Months Ended March 31, 2023	FY End June 30, 2022	FY End June 30, 2021	FY End June 30, 2020
Beginning Fund Value (Cash + Investments)	1,242,693,044	1,333,667,415	1,260,932,051	1,148,213,997
Transfers to PSPF:				
State Land Board Rents, Royalties, & NSE Funds	92,408,426	96,430,154	515,169	61,534,527
Marijuana Excise Tax Allocation*	-	-	-	-
Escheats Fund	148,517	84,983	109,211	158,354
Realized Gains / (Losses)	537,967	1,116,400	7,300,693	8,891,469
Change in Unrealized Market Gain / (Loss)	21,357,648	(188,605,908)	64,810,291	42,133,704
Ending Fund Value	1,357,145,601	1,242,693,044	1,333,667,415	1,260,932,051

*Net Unrealized Loss as of 3/31/2023 - (38,829,023.72)

**Net Unrealised Loss as of 4/30/2023 - (30,205,476.39)

Income / Expense Summary	6 Months Ended December 31, 2022	FY End June 30, 2022	FY End June 30, 2021	FY End June 30, 2020
Total Portfolio Earned Income	27,693,029	33,891,255	31,757,543	31,463,648
Total Expenses	(445,727)	(1,121,294)	(861,651)	(561,082)
Change in Income Receivable	-	(49,701)	(585,940)	(507,951)
CRS 22-41-105 Recoveries	-	(1,418,227)	-	-
Net Income Available for Distribution	27,247,302	31,302,033	30,309,952	30,394,615

*Distributions to PSF as of 3/31/2023 - \$21,000,000

** Distribution to BEST as of 3/31/2023 - \$6,247,302

Asset Allocation at March 31, 2023	Market Value	Cost	Unrealized Gain / (Loss)
Total Fixed Income	897,720,814	983,803,642	(86,082,828)
Short Duration - Janus	103,734,152	106,069,471	(2,335,319)
High Yield - MacKay Shields	104,434,985	113,444,926	(9,009,942)
Preferred Securities - Spectrum	18,570,141	22,275,000	(3,704,859)
Treasury Portfolio	670,981,536	742,014,244	(71,032,708)
Total Equity	411,587,787	364,333,983	47,253,804
Cash & Cash Equivalents	15,276,311	15,276,311	-
Total Fund Value	1,324,584,912	1,363,413,936	(38,829,024)

Public School Fund Investment Board

2023 Board Training

Assistant Attorney General II Kerry Colburn

TOPICS

1. Mandatory Training
2. Open Meetings Law (OML)
3. Colorado Open Records Act (CORA)

Mandatory Training

Colorado Revised Statutes Title 22, Article 41

The Board is created by statute, § 22-41-102.5.

- Direct the Treasurer on how to invest money in the public school fund, 102.5(3).
- Establish necessary policies for the fund, 102.5(4).
- Contract with professional fund managers for advice and support, 102.5(5).

Training Required by Law

All statutorily created boards in Colorado *must* receive annual training on:

- Understanding the requirements of the Colorado Open Meetings Law.
- Understanding the requirements of the Colorado Open Records Act.

§ 24-3.7-102(d) and (e), C.R.S.

Open Meetings Law

Purpose

“It is declared to be a matter of statewide concern and the policy of this state that the formation of public policy is public business and may not be conducted in secret.” § 24-6-401.

The overriding concern is government transparency.

All board “meetings” must be open to the public.

What is a meeting?

Statutory definition: “any kind of gathering, convened to discuss public business, in person, by telephone, electronically or by other means of communication.” § 24-6-402(1)(b).

The open meetings law applies to any meeting of “**two or more members** of any state public body at which any public business is discussed or at which any formal action may be taken.” § 24-6-402(2)(a).

This does not include chance meetings of Board members or social gatherings at which the discussion of public business is not the central purpose. § 24-6-402(2)(e).

Electronic Mail

Any email that concerns “pending legislation or other public business” is subject to the OML.

Excepted Email:

- Email “that does not relate to the merits or substance of pending legislation or other public business.” The term “merits or substance” means “any discussion, debate, or exchanges of ideas, either generally or specifically, related to the essence of any public policy proposition, specific proposal, or any other matter being concerned by the governing entity.”
- Email “regarding scheduling and availability.”
- Email that is sent “for the purpose of forwarding information, responding to an inquiry from [a non-member], or posing a question for later discussion.”

§ 24-6-402(2)(d)(III).

Notice Requirements

Full and timely (24-hour) public notice of a board meeting is required for:

1. Any meeting where a majority or quorum of the board is expected to be in attendance.

or

2. Any meeting at which the adoption of any proposed policy, position, resolution, rule, regulation, or formal action occurs.

§ 24-6-402(2)(c).

Full Notice

Notice should be posted on the Treasurer's website and include:

1. Who will attend—full board or only a subset.
2. Where or how the meeting will take place—physical address, dial in information if it will be telephonic, or access information if it will be on the web.
3. The date and time of the meeting.
4. An agenda or list of topics to be covered.

Records of Meetings

Minutes of the meeting must be taken and promptly recorded.
§ 24-6-402(2)(d).

Audio of the meeting must be recorded if the Board did so
prior to August 8, 2001. § 24-6-402(2)(d.5).

Executive Session

The only time you may exclude the public from a Board meeting is during an executive session.

Because we want to be as transparent as possible when acting as government officials, the circumstances when executive session may be entered into are very limited.

Topics for Executive Session

The following topics are the *only* topics that may be addressed in executive session:

- Legal advice.
- Personnel matters and employee negotiations.
- Purchase or sale of property.
- Matters required to be kept confidential by law.

§ 24-6-402(3)(a) and (b).

Executive Session—Legal Advice

Legal advice is generally limited to you asking a specific question of your attorney, and the attorney providing an answer.

It is *never* acceptable for Board members to substantively discuss an issue or deliberate while in executive session.

Executive Session-Procedural Requirements § 24-6-402(3)

- (3)(a) The members of a state public body subject to this part 4, upon the announcement by the state public body to the public of the topic for discussion in the executive session, including specific citation to the provision of this subsection (3) authorizing the body to meet in an executive session and identification of the particular matter to be discussed in as much detail as possible without compromising the purpose for which the executive session is authorized, and the affirmative vote of two-thirds of the entire membership of the body after such announcement, may hold an executive session only at a regular or special meeting and for the sole purpose of considering any of the matters enumerated in subsection (3)(b) of this section or the following matters; except that no adoption of any proposed policy, position, resolution, rule, regulation, or formal action, except the review, approval, and amendment of the minutes of an executive session recorded pursuant to subsection (2)(d.5)(I) of this section, shall occur at any executive session that is not open to the public:
- (I) The purchase of property for public purposes, or the sale of property at competitive bidding, if premature disclosure of information would give an unfair competitive or bargaining advantage to a person whose personal, private interest is adverse to the general public interest. No member of the state public body shall use this paragraph (a) as a subterfuge for providing covert information to prospective buyers or sellers. Governing boards of state institutions of higher education including the regents of the university of Colorado may also consider the acquisition of property as a gift in an executive session, only if such executive session is requested by the donor.
 - (II) Conferences with an attorney representing the state public body concerning disputes involving the public body that are the subject of pending or imminent court action, concerning specific claims or grievances, or for purposes of receiving legal advice on specific legal questions. Mere presence or participation of an attorney at an executive session of a state public body is not sufficient to satisfy the requirements of this subsection (3).
 - (III) Matters required to be kept confidential by federal law or rules, state statutes, or in accordance with the requirements of any joint rule of the senate and house of representatives pertaining to lobbying practices or workplace harassment or workplace expectations policies;
 - (IV) Specialized details of security arrangements or investigations, including defenses against terrorism, both domestic and foreign, and including where disclosure of the matters discussed might reveal information that could be used for the purpose of committing, or avoiding prosecution for, a violation of the law;
 - (V) Determining positions relative to matters that may be subject to negotiations with employees or employee organizations; developing strategy for and receiving reports on the progress of such negotiations; and instructing negotiators;
 - (VI) With respect to the board of regents of the university of Colorado and the board of directors of the university of Colorado hospital authority created pursuant to article 21 of title 23, C.R.S., matters concerning the modification, initiation, or cessation of patient care programs at the university hospital operated by the university of Colorado hospital authority pursuant to part 5 of article 21 of title 23, C.R.S., (including the university of Colorado psychiatric hospital), and receiving reports with regard to any of the above, if premature disclosure of information would give an unfair competitive or bargaining advantage to any person or entity;
 - (VII) With respect to nonprofit corporations incorporated pursuant to section 23-5-121(2), C.R.S., matters concerning trade secrets, privileged information, and confidential commercial, financial, geological, or geophysical data furnished by or obtained from any person;
 - (VIII) With respect to the governing board of a state institution of higher education and any committee thereof, consideration of nominations for the awarding of honorary degrees, medals, and other honorary awards by the institution and consideration of proposals for the naming of a building or a portion of a building for a person or persons.
- (b)(I) All meetings held by members of a state public body subject to this part 4 to consider the appointment or employment of a public official or employee or the dismissal, discipline, promotion, demotion, or compensation of, or the investigation of charges or complaints against, a public official or employee shall be open to the public unless said applicant, official, or employee requests an executive session. Governing boards of institutions of higher education including the regents of the university of Colorado may, upon their own affirmative vote, hold executive sessions to consider the matters listed in this paragraph (b). Executive sessions may be held to review administrative actions regarding investigation of charges or complaints and attendant investigative reports against students where public disclosure could adversely affect the person or persons involved, unless the students have specifically consented to or requested the disclosure of such matters. An executive session may be held only at a regular or special meeting of the state public body and only upon the announcement by the public body to the public of the topic for discussion in the executive session and the affirmative vote of two-thirds of the entire membership of the body after such announcement.
- (II) The provisions of subparagraph (I) of this paragraph (b) shall not apply to discussions concerning any member of the state public body, any elected official, or the appointment of a person to fill the office of a member of the state public body or an elected official or to discussions of personnel policies that do not require the discussion of matters personal to particular employees.
- (c) Notwithstanding the provisions of paragraphs (a) and (b) of this subsection (3), the state board of parole created in part 2 of article 2 of title 17, C.R.S., may proceed in executive session to consider matters connected with any parole proceedings under the jurisdiction of said board; except that no final parole decisions shall be made by said board while in executive session. Such executive session may be held only at a regular or special meeting of the state board of parole and only upon the affirmative vote of two-thirds of the membership of the board present at such meeting.
- (d) Notwithstanding any provision of paragraph (a) or (b) of this subsection (3) to the contrary, upon the affirmative vote of two-thirds of the members of the governing board of an institution of higher education who are authorized to vote, the governing board may hold an executive session in accordance with the provisions of this subsection (3).

Colorado Open Records Act

Purpose

It is the public policy of Colorado that all public records shall be open for inspection by any person at reasonable times.

§ 24-72-201.

Like the OML, the overriding concern underlying CORA is government transparency.

Certain records that the board and board members create are subject to public inspection.

Applies to Writings

A writing includes “books, papers, maps, photographs, cards, tapes, recordings, or other documentary materials, regardless of physical form or characteristics” as well as “digitally stored data, including without limitation electronic mail messages” and text messages. § 24-72-202(7).

Everything that has some physical or electronic form will be considered a writing and potentially a public record.

When a Writing is a Public Record

All writings are public records if they are:

1. Made, maintained or kept by the board or its members.
2. Used in the performance of a public function or involving the receipt of public funds.

§ 24-72-202(6).

Public Inspection

In general, a person has the right to obtain copies of public records within three days of requesting copies.

A public member who is denied copies of public records may initiate a lawsuit to obtain those records and, if successful, is entitled to an award of their attorney fees.

§ 24-72-204(5).

Questions?

Short Duration Fixed Income

Q1 2023 Portfolio Review

Presented to:



State of Colorado
Public School Fund
Investment Board

Callan

Why Multi-Sector Short Duration?

Strategy is well positioned both strategically and tactically

High quality investment strategy with limited drawdown characteristics

- Lowest exposure to interest rate and credit spread volatility
- Attractive risk adjusted returns
- Liquid portfolio holdings, available for client funding needs or tactical asset allocations
- Portfolio currently has ~70% AAA rated holdings

Attractive income

- Front end yields very attractive due to aggressive Fed rate hiking cycle
 - Inverted yield curve = highest yields are in shortest duration bonds
 - Income available high-quality assets, no need to stretch for yield

What fixed income is best in the current environment – short duration or “market duration” ?

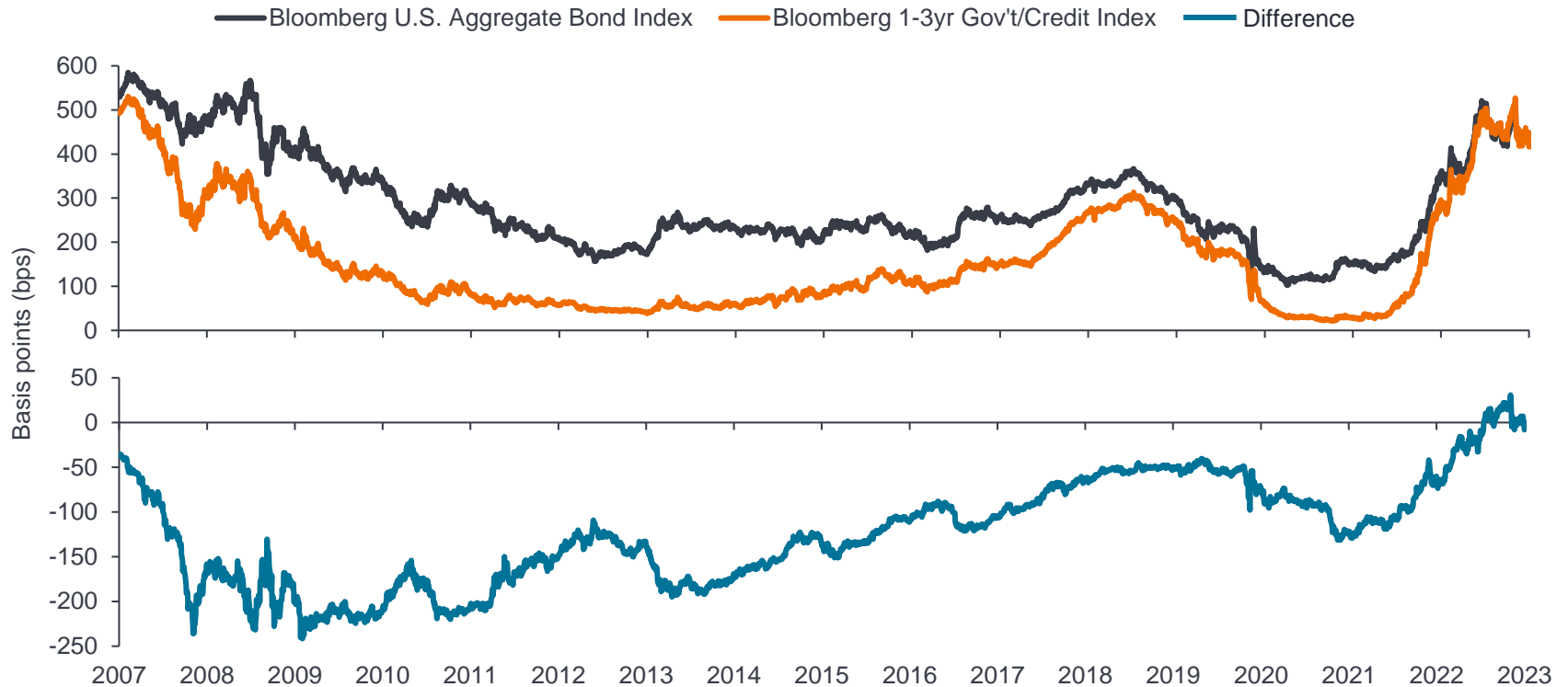
- Both are important – answer driven by client needs, desired outcomes, and overall asset allocation.
- Short Duration – provides **Income**, gift of this Fed cycle – best yields since 2007 (90th percentile), liquidity
 - Yield can reprice lower quickly with Fed rate cuts
- Market Duration or Bloomberg U.S. Aggregate Bond Index – provides moderate **Income AND Diversification** against equity drawdowns with upside of double digit returns in recession
 - End of Fed hiking cycles often a good time for longer duration – lower yields and positive returns

Source: Janus Henderson Investors, as of March 31, 2023.

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Short Duration yield now equal to “Market Duration” (U.S. Aggregate Bond Index)

Difference between Bloomberg 1-3 Year Gov't/Credit and Bloomberg U.S. Aggregate Bond Index



Source: Bloomberg, Janus Henderson Investors analysis as of March 31, 2023.

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Year in review

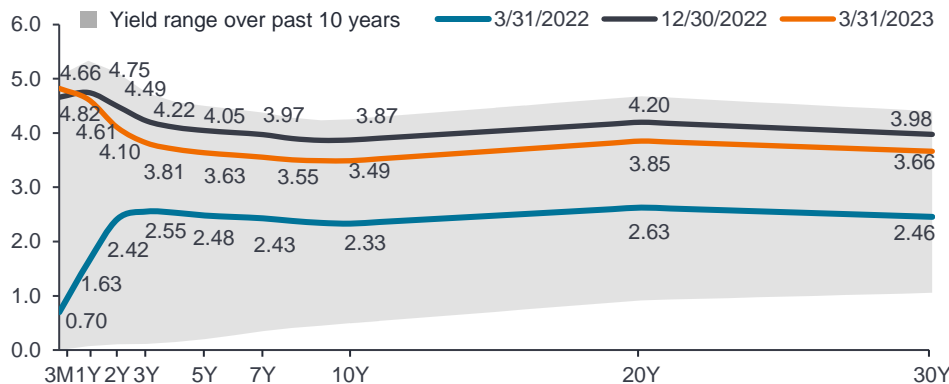
Key Takeaways

- Markets have been extremely volatile in the trailing 12-month period as the Fed dramatically increased its target rate in order to tame inflation. During the period, inflation peaked above 9%, but has since rolled over and continues to show positive signs of moderating as we ended the first quarter.
- Rates were up significantly during the period and the yield curve inverted due to Fed tightening with the yields on 2-year and 10-year US Treasuries at 4.02% and 3.47%, respectively.
- Spreads across fixed income also widened over the trailing 12-month period, though spreads on high yield and investment grade corporate bonds were resilient and remained near longer term averages. Securitized credit widened to recessionary levels and continue to be more attractive on a risk adjusted basis.

Valuations (Option Adjusted Spread)

Index	3/31/2022	3/31/2023	Change (bps)	Change (%)
Investment Grade Corporate Bond Index	116	138	22	19%
High Yield Corporate Bond Index	325	455	130	40%
CMBS Index	85	142	57	67%
ABS Index	57	85	28	49%

U.S. Yield Curve (%)

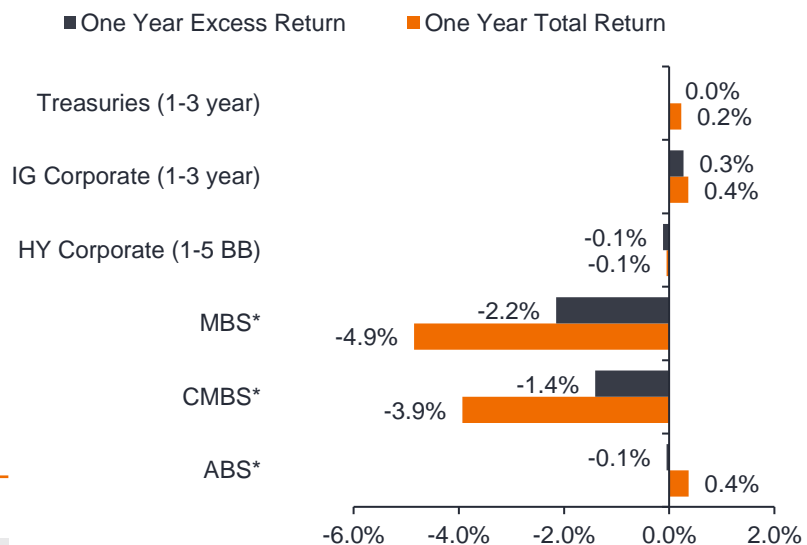


Curve	3 Month	1 Year	2 Year	3 Year	5 Year	7 Year	10 Year	20 Year	30 Year
Change (Q4/Q1)	+0.16	-0.14	-0.39	-0.41	-0.42	-0.42	-0.38	-0.35	-0.32
Change (1-year)	+4.12	+2.98	+1.68	+1.26	+1.15	+1.12	+1.16	+1.22	+1.20

Source: Bloomberg, as of March 31, 2023.

Note: *Uses full index.

Total Return and Excess Return (%)



Performance review

State of Colorado Public School Fund Investment Board

Performance (%) – as of 3/31/23	YTD	1 Year	3 Year	Since Inception (11/9/18)
Account – Gross of Fees	1.46	0.31	1.27	1.72
Account – Net of Fees	1.41	0.11	1.07	1.52
Bloomberg 1-3 Year U.S. Gov't/Credit Index	1.51	0.26	-0.38	1.30
Bloomberg 1-3 Year U.S. Gov't/Credit (85%)/ICE BofA Cash Pay HY BB 1-3Y (15%)	1.62	0.51	0.48	1.64
Difference (Gross vs. Primary Benchmark)	-0.05	+0.05	+1.65	+0.42
Difference (Net vs. Primary Benchmark)	-0.10	-0.15	+1.45	+0.22

Performance (%) – as of 4/30/23	YTD	1 Year	3 Year	Since Inception
Account – Gross of Fees	1.95	1.73	0.83	1.80
Account – Net of Fees	1.89	1.53	0.63	1.59
Bloomberg 1-3 Year U.S. Gov't/Credit Index	1.86	1.15	-0.47	1.35
Bloomberg 1-3 Year U.S. Gov't/Credit (85%)/ICE BofA Cash Pay HY BB 1-3Y (15%)	2.02	1.59	0.26	1.70
Difference (Gross vs. Primary Benchmark)	+0.09	+0.58	+1.30	+0.45
Difference (Net vs. Primary Benchmark)	+0.03	+0.38	+1.10	+0.24

Source: Janus Henderson Investors

Note: Primary benchmark: Bloomberg 1-3 Year U.S. Gov't/Credit Index.

Past performance cannot guarantee future results. Investing involves risk, including the possible loss of principal and fluctuation of value. Returns greater than one year are annualized. All returns reflect the reinvestment of dividends and other earnings.

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Performance review

State of Colorado Public School Fund Investment Board

Calendar Year Performance (%)	2022	2021	2020	2019
Account – Gross of Fees	-3.76	0.39	4.84	4.55
Account – Net of Fees	-3.95	0.19	4.63	4.34
Bloomberg 1-3 Year U.S. Gov't/Credit Index	-3.69	-0.47	3.33	4.03
Bloomberg 1-3 Year U.S. Gov't/Credit (85%)/ICE BofA Cash Pay HY BB 1-3Y (15%)	-3.58	0.08	3.70	4.72
Difference (Gross vs. Primary Benchmark)	-0.07	+0.86	+1.51	+0.52
Difference (Net vs. Primary Benchmark)	-0.26	+0.66	+1.30	+0.31

Source: Janus Henderson Investors, as of December 31, 2022.

Note: Primary benchmark: Bloomberg 1-3 Year U.S. Gov't/Credit Index.

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Performance attribution – Overview

State of Colorado Public School Fund Investment Board

One year attribution (3/31/22 – 3/31/23)

One year performance

State of Colorado Public School Fund (gross) 0.31% vs. Bloomberg 1-3 Year U.S. Gov't/Credit Index 0.26%

	Attribution (%)
Yield Curve Effect	0.15
Total Excess Performance	-0.06
Asset Allocation	0.06
Security Selection	-0.11
Portfolio vs Benchmark Price	-0.02
Total Outperformance	0.07

One year attribution (4/30/22 – 4/30/23)

One year performance

State of Colorado Public School Fund (gross) 1.73% vs. Bloomberg 1-3 Year U.S. Gov't/Credit Index 1.15%

	Attribution (%)
Yield Curve Effect	0.43
Total Excess Performance	0.19
Asset Allocation	0.23
Security Selection	-0.04
Portfolio vs Benchmark Price	-0.03
Total Outperformance	0.60

Source: Janus Henderson Investors

Note: Performance attribution reflect returns gross of advisory fees and may differ from actual returns as they are based on end of day holdings. Attribution is calculated by geometrically linking daily returns for the portfolio and index.

Yield Curve Effect reflects performance driven by changes in the yield curve and the effect of yield that comes from the yield curve, as opposed to yield derived from credit risk. Portfolio vs. Bench Price is an adjustment to remove the effect of pricing differences of some securities in the portfolio and index due to different pricing sources.

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Performance attribution – Sector Level

State of Colorado Public School Fund Investment Board

One year attribution (3/31/22 – 3/31/23)

Group	State of CO Public School Fund Investment Board			Bloomberg 1-3 Year U.S. Gov't/Credit Index			Attribution		
	Average Weight (%)	Total Return (%)	Excess Return (%)	Average Weight (%)	Total Return (%)	Excess Return (%)	Asset Allocation	Security Selection	Total Excess Performance
Gov't. – Treasuries	44.77	0.76	0.00	67.24	0.23	-0.01	0.07	0.00	0.08
Government Related	0.32	1.78	2.44	9.70	0.28	0.83	-0.05	0.00	-0.05
Corporates – IG	20.42	-0.21	0.43	23.05	0.36	0.93	-0.01	-0.12	-0.13
Corporates – HY	3.87	1.30	2.34	0.01	10.73	10.40	-0.01	—	-0.01
Bank Loans	0.26	4.32	3.76	—	—	—	0.01	—	0.01
U.S. MBS	4.43	-1.58	1.67	—	—	—	0.06	—	0.06
ABS	7.80	1.11	0.59	—	—	—	0.03	—	0.03
CMBS	6.88	1.97	-0.38	—	—	—	-0.04	—	-0.04
CMO	6.23	-1.02	0.93	—	—	—	0.03	—	0.03
CLO	1.64	1.81	-0.77	—	—	—	0.00	—	0.00
Cash and Equivalents	3.44	0.15	0.00	—	—	—	-0.02	—	-0.02
Total			0.23			0.29	0.06	-0.11	-0.06

Source: Janus Henderson Investors, as of March 31, 2023. Sector allocation – Bloomberg.

Note: Performance attribution reflect returns gross of advisory fees and may differ from actual returns as they are based on end of day holdings. Attribution is calculated by geometrically linking daily returns for the portfolio and index.

Total excess performance compares the excess return of a grouping in the portfolio to the excess return of that grouping in the benchmark and the excess return of that grouping in the benchmark to the benchmark overall, factoring in any difference in weight. Excess return is calculated by comparing the performance of a security to a hypothetical duration-matched security with no credit risk and rolling up securities by grouping.

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Performance attribution – Sector Level

State of Colorado Public School Fund Investment Board

One year attribution (4/30/22 – 4/30/23)

Group	State of CO Public School Fund Investment Board			Bloomberg 1-3 Year U.S. Gov't/Credit Index			Attribution		
	Average Weight (%)	Total Return (%)	Excess Return (%)	Average Weight (%)	Total Return (%)	Excess Return (%)	Asset Allocation	Security Selection	Total Excess Performance
Gov't. – Treasuries	45.73	1.48	0.00	67.07	0.98	-0.01	0.10	0.00	0.10
Government Related	0.32	3.86	3.68	9.70	1.11	0.83	-0.04	0.01	-0.03
Corporates – IG	19.85	1.84	1.18	23.22	1.67	1.40	-0.02	-0.05	-0.07
Corporates – HY	3.42	3.68	3.35	0.01	10.39	9.92	0.06	—	0.06
Bank Loans	0.26	3.81	3.22	—	—	—	0.01	—	0.01
U.S. MBS	4.60	1.95	2.18	—	—	—	0.07	—	0.07
ABS	7.79	2.14	0.85	—	—	—	0.04	—	0.04
CMBS	6.84	3.03	0.31	—	—	—	-0.01	—	-0.01
CMO	6.17	1.54	1.25	—	—	—	0.04	—	0.04
CLO	1.70	2.79	-0.10	—	—	—	0.01	—	0.01
Cash and Equivalents	3.41	0.15	0.00	—	—	—	-0.02	—	-0.02
Total			0.59			0.40	0.23	-0.04	0.19

Source: Janus Henderson Investors, as of April 30, 2023. Sector allocation – Bloomberg.

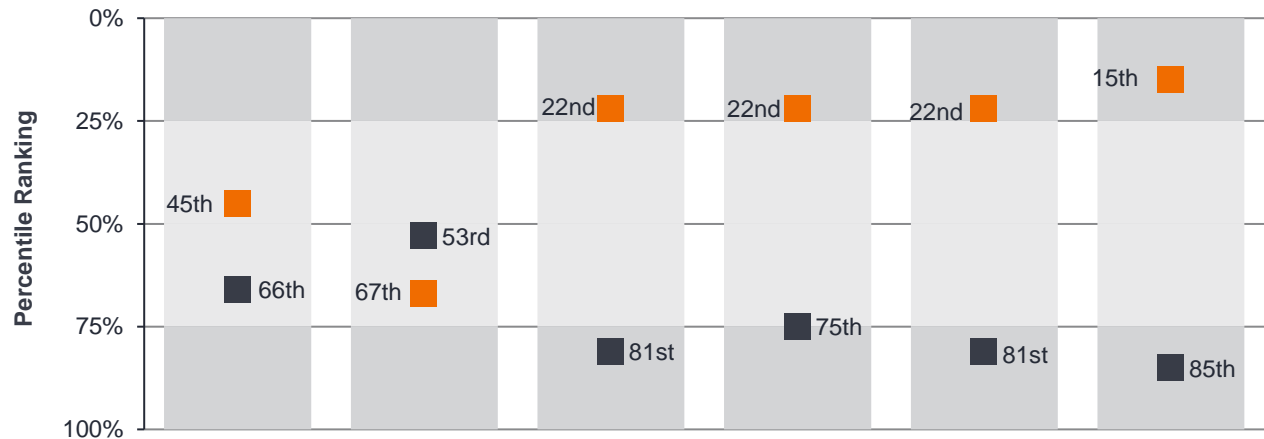
Note: Performance attribution reflect returns gross of advisory fees and may differ from actual returns as they are based on end of day holdings. Attribution is calculated by geometrically linking daily returns for the portfolio and index.

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JHI Short Duration Composite – History of outperformance

Short Duration Composite as of March 31, 2023



Performance – USD (%)

	Q1 2023	1 Year	3 Year	5 Year	10 Year	Since Inception
■ Composite (Gross)	1.61	-0.01	1.44	1.80	1.61	4.05
Composite (Net)	1.47	-0.55	0.88	1.25	1.12	3.51
■ Bloomberg 1-3 Year U.S. Gov't/Credit Index	1.51	0.26	-0.38	1.26	1.01	3.40
Difference (Gross vs Index)	+0.10	-0.27	+1.82	+0.54	+0.60	+0.65

Source: Janus Henderson Investors, as of March 31, 2023. eVestment® is a registered trademark of eVestment Alliance.

Note: Composite: Janus Henderson Short Duration, gross of fees, in USD. Returns greater than one year are annualized.

Benchmark: Bloomberg 1-3 Year U.S. Government/Credit Index. Composite Inception: January 1, 1993.

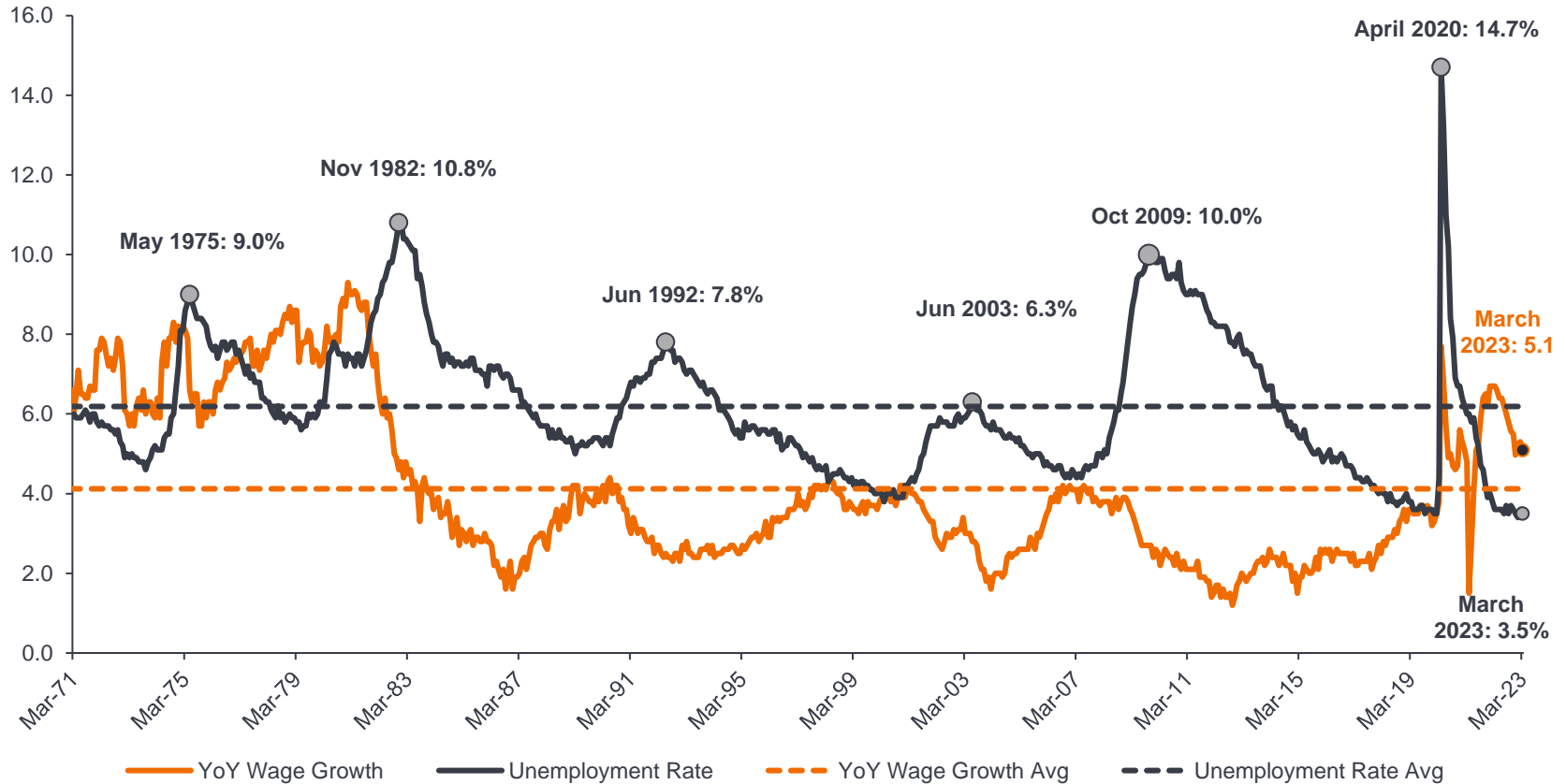
Past performance cannot guarantee future results. Investing involves risk, including the possible loss of principal and fluctuation of value. Returns greater than one year are annualized. Please see the appendix for the GIPS® compliant presentation and important disclosures.

eVestment software has been used to create the rankings exhibits. A fee was paid for the use of the software. The results are gross of fees and are annualized for periods greater than one year. The percentile rank was among 439, 436, 429, 416, 357 and 89 managers for the 1Q23, 1-, 3-, 5-, 10-year and Since Inception periods, respectively, as of March 31, 2023.

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Labor market remains surprisingly strong

Yet wage growth has started to moderate, providing relief to businesses and inflation



Source: Bureau of Labor Statistics, as of March 31, 2023.

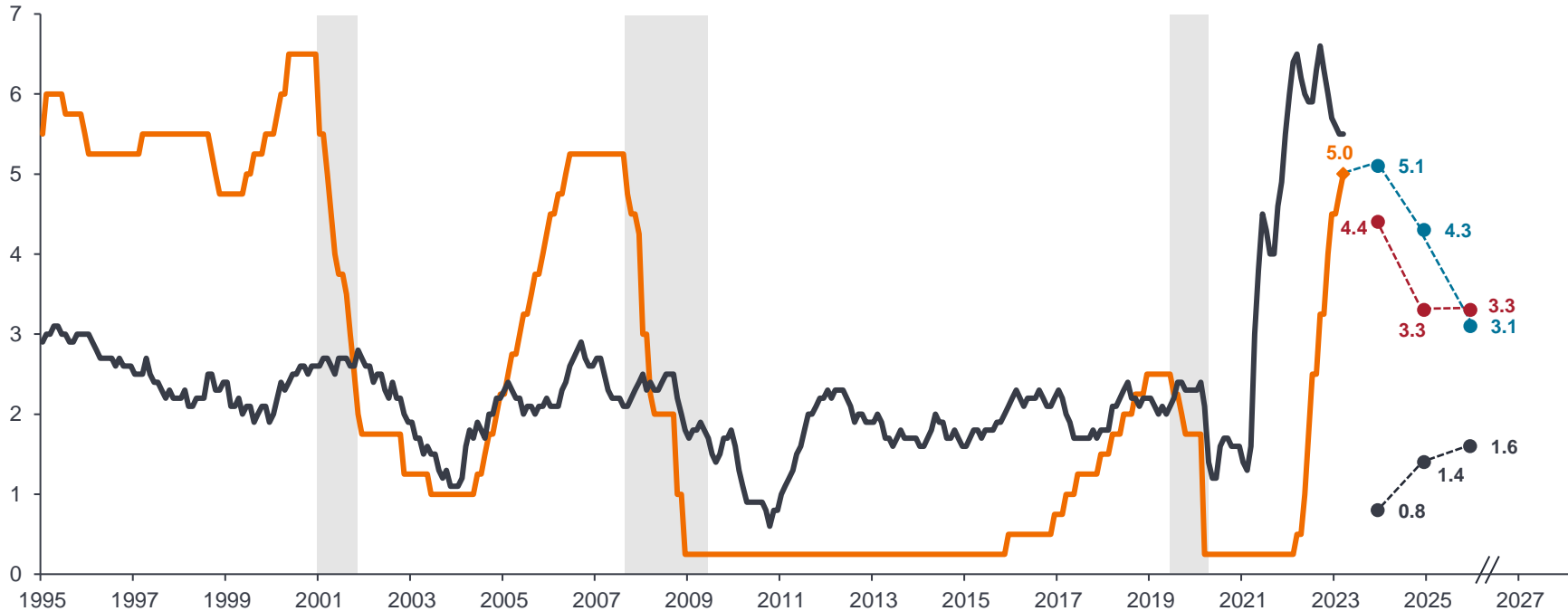
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How does banking turmoil impact Fed's path to 2% inflation target

Federal Funds Rate Expectations (%) and Core CPI (YoY) FOMC and market expectations for the Federal Funds Rate

- Fed Funds Rate
- FOMC Year-End Estimates (3/31/23)
- Recession
- Core CPI
- Market Year-End Estimates (3/31/23)
- Market Year-End Estimates (12/31/21)

FOMC March 2023 Forecasts (%)	2023	2024	2025	Long Run
Change in Real GDP, Q4 to Q4	0.4	1.2	1.9	1.8
Unemployment Rate, Q4	4.5	4.6	4.6	4.0
Headline PCE Inflation, Q4 to Q4	3.3	2.5	2.1	2.0



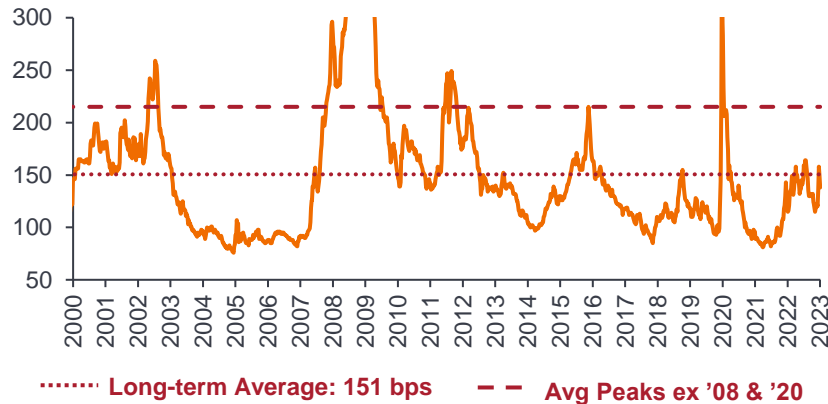
Source: Bloomberg, as of March 31, 2023.

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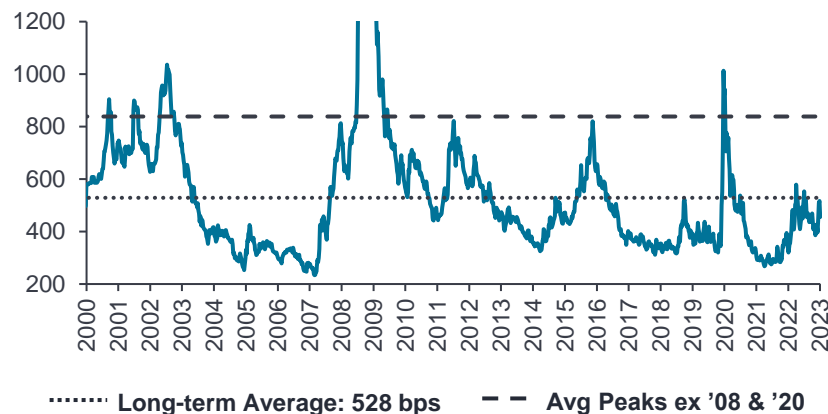
Corporate valuations trading near their long-term averages

Credit spreads are not adequately pricing in the probability of a recession

Investment grade credit spreads (bps)



High yield credit spreads (bps)



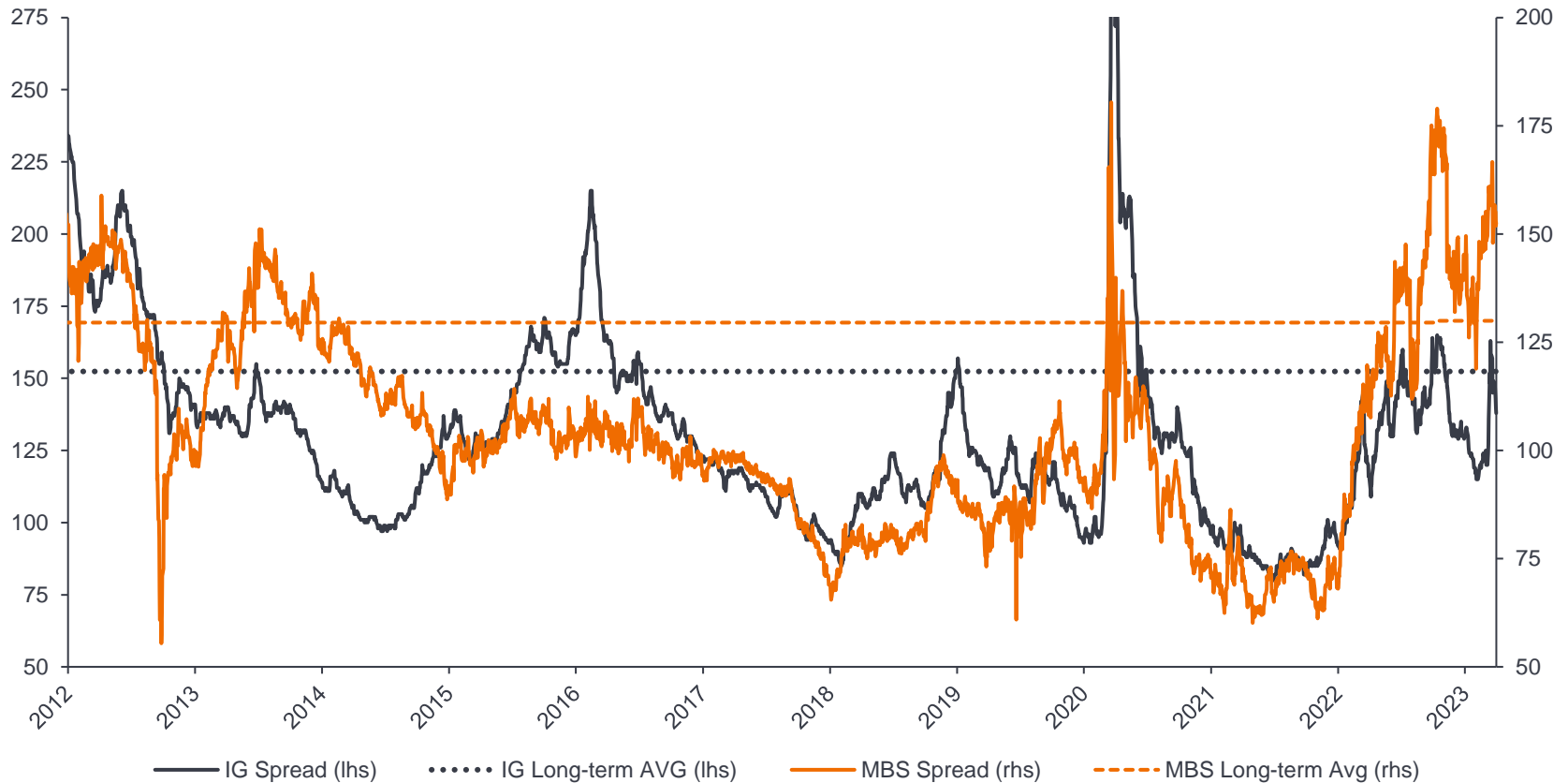
Previous Spread Peaks (bps)	A Spread	IG Spread	BBB Spread	BB Spread	HY Spread
10/1/2001	179	194	259	567	900
10/11/2002	204	259	349	700	1036
12/16/2008	576	608	770	1374	1971
10/4/2011	238	252	297	677	876
2/11/2016	159	214	283	566	839
1/3/2019	124	157	197	365	537
3/23/2020	309	373	457	865	1100
Avg Previous Peaks	256	294	373	731	1037
Avg Peaks ex '08 & '20	181	215	277	575	838
3/31/2023	118	138	168	283	455

Source: Bloomberg, as of March 31, 2023.

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Securitized valuations attractive relative to corporate credit

Spreads in securitized sectors better reflect the risk of recession



Source: Bloomberg, as of March 31, 2023.

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Portfolio composition

Characteristics	State of CO Public School Fund Investment Board	Bloomberg 1-3 Year Gov't/Credit Index
Number of Issues	268	1,942
Yield to Worst (%)	5.23	4.46
Effective Duration	1.67	1.80
DTS*	2.12	0.53

Sector Allocation (%)	(as of 3/31/22)		(as of 3/31/23)	
	Portfolio	Benchmark	Portfolio	Benchmark
Treasuries	39.0	68.6	51.3	66.3
Inflation Linked	—	—	—	—
Corporate – Inv Grade	24.8	21.8	17.8	24.0
Corporate – High Yield	7.6	—	1.1	—
Bank Loans	0.3	—	—	—
MBS	4.0	—	6.1	—
CMO	6.7	—	6.0	—
ABS	7.8	—	7.5	—
CMBS	6.8	—	6.7	—
CLO	1.2	—	1.9	—
Gov't. Related	0.3	9.6	0.3	9.7
Cash & Equivalent	1.5	—	1.3	—

Source: Janus Henderson Investors, as of March 31, 2023.

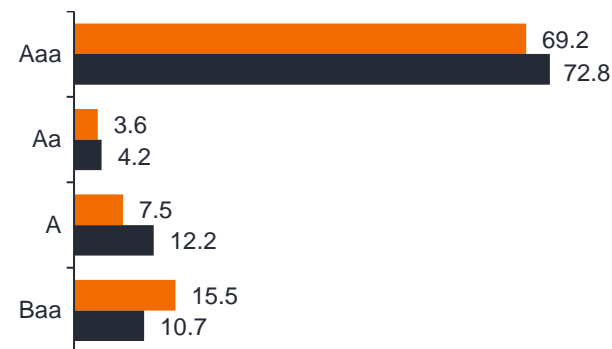
Note: Bond credit quality ratings provided by Barclays and reflect the middle rating received from Moody's, Standard & Poor's and Fitch, where all three agencies have provided a rating. If only two agencies rate a security, the lowest rating is used. If only one agency rates a security, that rating is used. Ratings are measured on a scale that ranges from Aaa (highest) to D (lowest). Equity equivalents may include common and preferred stock.

*Duration Times Spread (DTS) is the market standard method for measuring the credit volatility of a corporate bond. It is calculated by simply multiplying two readily available bond characteristics: the spread-durations and the credit spread.

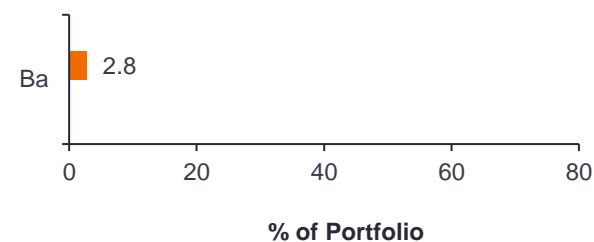
Credit Quality – Blended Credit Rating

■ State of Colorado Public School Fund Investment Board
■ Bloomberg 1-3 Year Gov't/Credit Index

Investment Grade



Below Investment Grade



Fixed Income security selection themes

Ideas spanning corporates and securitized assets

UP IN QUALITY



- Positioned portfolio with up in quality credit rating profile
- Continued to reduce below investment grade exposure

SECURITIZED



- Focused on senior tranches with shortest average life - attractive carry with very limited downside risk
- Discount priced CMBS in strong sectors like industrial and logistics with cash out incentive for sponsors

RESIDENTIAL MBS



- Residential Mortgage Credit is attractive
- Long Agency MBS risk as spreads still wide, favor up in coupon & specified pools
- Agency eligible investor pools issued in Private Label Securitizations

INDUSTRY SELECTION



- Focused on industries that with defensive characteristics that can navigate a low growth environment – Healthcare, Food/Beverage, Utilities
- Banking allocation refocused on large systemically important banks
- Taking advantage of securitized issuances by corporate issuers

Source: Janus Henderson Investors, as of March 31, 2023.

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Appendix

GIPS® composite report

Janus Henderson Investors Short Duration Bond

January 1, 2012 through December 31, 2021

	Total Gross Return AWR	Total Net Return AWR	Primary Benchmark	3 Yr Ex Post Std Dev Composite Gross	3 Yr Ex Post Std Dev Primary Custom Benchmark	Internal Asset Weighted Dispersion	Number Of Portfolios	Composite Assets (MM)	Total Firm Assets (MM)
2021	0.48%	-0.07%	-0.47%	2.48%	1.00%	n.m.	≤ 5	1,732	381,188
2020	5.35%	4.77%	3.33%	2.42%	0.99%	n.m.	≤ 5	1,707	343,171
2019	4.75%	4.18%	4.03%	0.80%	0.93%	n.m.	≤ 5	1,590	320,252
2018	1.52%	0.96%	1.60%	0.78%	0.83%	n.m.	≤ 5	1,610	284,548
2017	1.82%	1.27%	0.85%	0.82%	0.74%	n.m.	≤ 5	3,072	158,297
2016	2.15%	1.59%	1.28%	0.94%	0.76%	n.m.	≤ 5	3,385	138,176
2015	0.89%	0.48%	0.65%	1.00%	0.59%	n.m.	≤ 5	3,710	132,397
2014	1.26%	1.03%	0.77%	1.12%	0.50%	n.m.	≤ 5	4,339	130,145
2013	1.98%	1.76%	0.64%	1.24%	0.55%	n.m.	≤ 5	4,239	124,568
2012	4.03%	3.82%	1.26%	1.26%	0.73%	n.m.	≤ 5	4,615	114,827

n.m. = Not Meaningful

Primary Benchmark: Bloomberg US 1-3 Govt/Credit

Inception Date: January 1, 1993

Janus Henderson Investors claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. JHI has been independently verified for the periods January 1, 2018 through December 31, 2021.

A firm that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the firm's policies and procedures related to composite and pooled fund maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on a firm-wide basis. The Short Duration Bond Composite has had a performance examination for the periods January 1, 2009 through December 31, 2021. The verification and performance examination reports are available upon request.

(continued on next page)

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GIPS® composite report

Janus Henderson Investors Short Duration Bond

January 1, 2012 through December 31, 2021

For the purpose of claiming GIPS compliance, Janus Henderson Investors defines its GIPS Firm as the following entities within Janus Henderson Group plc that directly manage assets: Janus Henderson Investors UK Limited, Janus Henderson Investors (Singapore) Limited (excluding private equity assets), Janus Henderson Fund Management UK Limited, Janus Henderson Investors US LLC and Janus Henderson Investors (Australia) Institutional Funds Management Limited. The GIPS firm was formed on January 1, 2018 as a result of the merger of the predecessor GIPS firms Janus Capital Management LLC and Henderson Global Investors, which previously claimed compliance since January 1, 1994 and January 1, 2009, respectively. Firm AUM presented for years prior to 2018 are those of the applicable predecessor GIPS firm. A list of composite descriptions, a list of limited distribution pooled fund descriptions, and a list of broad distribution pooled funds are available upon request. Policies for valuing investments, calculating performance and preparing GIPS Reports are available upon request.

The Short Duration Bond Composite includes all fully discretionary accounts (excluding wrap accounts) invested in this strategy. Short Duration Bond portfolios seek as high a level of current income as is consistent with preservation of capital. The portfolios will maintain an average-weighted effective maturity of three years or less under normal circumstances and may invest in high yield/high risk bonds up to 35%. The composite was created in January 2003.

Account returns are presented both gross and net of management fees. All account returns are net of transaction costs and gross of non-reclaimable withholding taxes, if any, and reflect the reinvestment of dividends and other earnings. Monthly composite returns are calculated by weighting each account's monthly return by its relative beginning market value. All returns are expressed in U.S. dollars.

Benchmark returns are provided to represent the investment environment existing during the time periods shown. The index is fully invested, which includes the reinvestment of dividends and capital gains. The returns for the index do not include any transaction costs, management fees or other costs.

The dispersion of annual returns is measured by the asset weighted standard deviation of gross account returns represented within the composite for the full year. For those periods with five or fewer accounts included for the entire year, "n.m." is noted as the dispersion is not considered meaningful.

The three-year annualized ex-post standard deviation measures the variability of the monthly gross returns of the composite and the benchmark over the preceding 36 months.

The net returns shown are net of model investment advisory fees. Net returns are calculated monthly using the maximum fee rate in effect, adjusted for performance-based fees where applicable. Actual advisory fees can vary among clients invested in this strategy.

The current standard fee schedule for separately managed accounts is as follows: 0.60% on the first \$100 million; 0.50% on the next \$100 million; 0.47% on the next \$100 million; 0.45% above \$300 million.

Performance figures are based upon historical information and do not guarantee future results. Prospective clients should recognize the limitations inherent in composites, and should consider all information presented by JHI regarding the firm's investment management capabilities. Composite performance figures include changes in principal value, reinvested income and capital gains distribution.

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There is no assurance that the investment process will consistently lead to successful investing.

Investing involves risk, including the possible loss of principal and fluctuation of value.

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